The Investment Analysts Journal

Number 16 October 1980

Die Beleggings-Navorsers Tydskrif

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Inhoud

This issue in brief

The South African forward exchange market

This is a reproduction of an address given to the Investment Analysts Society on 24 June 1980. In it Mr A. A. Ross describes the functioning of the newly established foreign exchange market in South Africa dealing specifically with the mechanism through which forward exchange rates are determined. His account is not only useful for its focus on technical detail but also for its explanation of recent developments related to changes in the exchange value of the rand and the insights it provides to the kind of problems the South African monetary authorities have had to confront.

Intervention policies of the Reserve Bank in the foreign exchange market

Prof. R. M. Gidlow's article, in contrast to that of Mr A. A. Ross, sets out to analyse the policies that have governed Reserve Bank intervention in the foreign exchange market since the publication of the interim report of the De Kock Commission in early 1979. It is also concerned with suggesting ways in which the effectiveness of such intervention policies may be improved, and discusses the benefits likely to flow from intervention and the methods of intervention most likely to prove successful. The attention the article gives to technical complexities should prove of considerable help to all concerned with a study of this esoteric subject. Clearly, it is one whose importance is going to increase with the changes in monetary policy likely to flow from the final recommendations of the De Kock Commission whose last report is due to be published in early 1981.

Options trading

This is a valuable background article on a subject that has not previously been discussed in this journal. Options trading has, of course, always been a feature of trading on The Johannesburg Stock Exchange, but it has not until now achieved a relative volume that can be compared with the volume of options trading on the more developed stock exchanges of North America or Western Europe. Mr A. F. T. Payne, now with the Graduate School of Business at Melbourne University, sets out to examine the historical development of options trading in South Africa and to discuss how the options trading might develop here in the future. He provides useful statistical support for his text, some from sources which, until now, have not been available to the general public.

A framework for reporting

It goes without saying that market efficiency depends to a very great degree on the regular disclosure of information necessary to a proper evaluation of corporate performance. Mr B. M. Gourley's article directs attention as to how financial reporting might be improved to make such evaluations possible. It presents a framework for developing a financial reporting strategy using the valuation model propounded by Stern, as a basis for discussion.

The structure of interest rates

This article by Mr G. M. W. Cross is the seventh in our "Investment basics" series and continues the discussion of interest rates started in the sixth article which appeared in the previous issue of the journal. Mr Cross covers a wide-ranging subject briefly but fully, bringing to the reader's attention the complexity and dynamic qualities of the relationship between short-term and long-term interest rates and how fluctuations in both can be exploited to improve portfolio performance.

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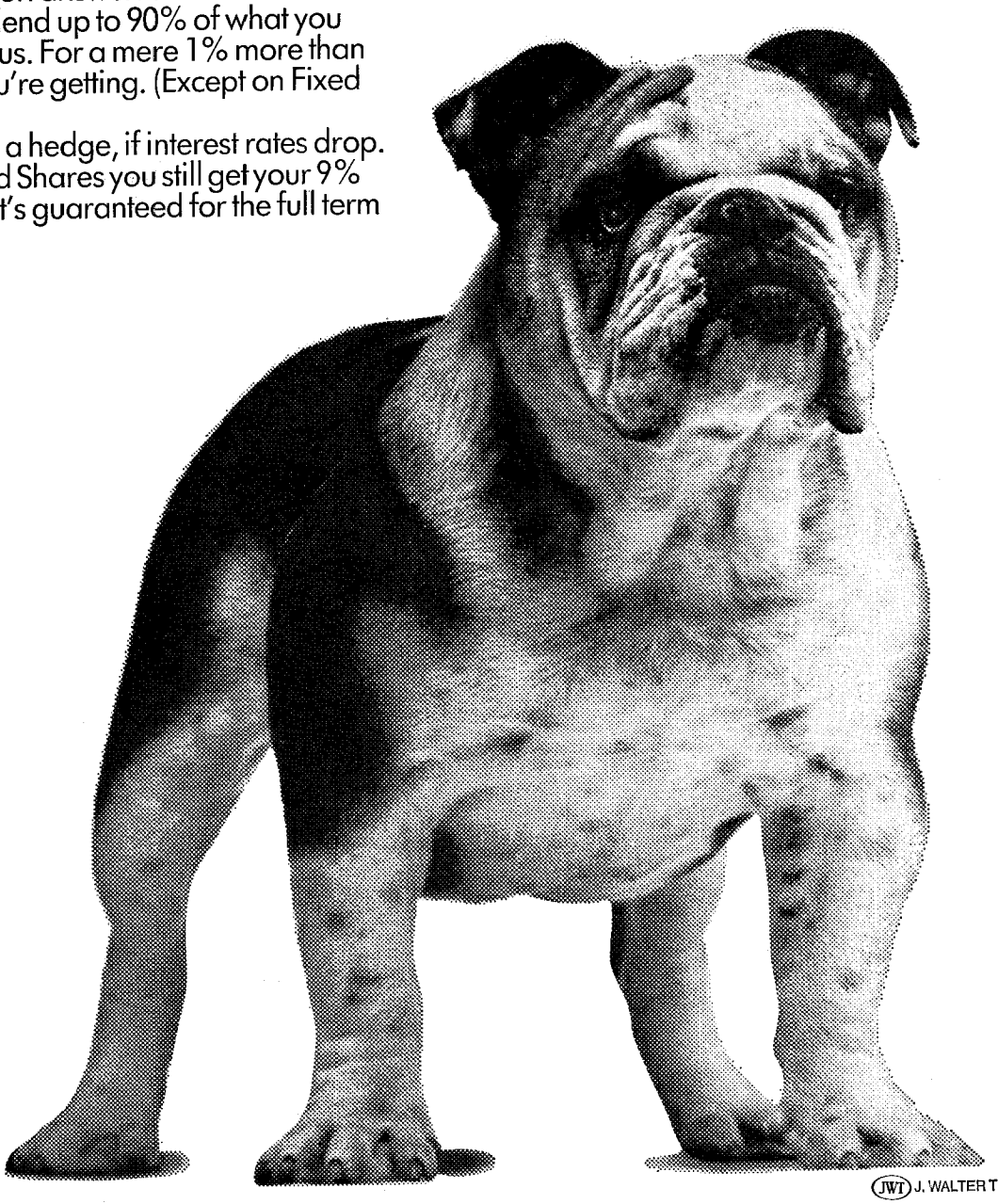

The Investment Analysts Journal

Die Beleggings-navorsers Tydskrif

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'This new approach has not produced the stability in monetary aggregate growth or in the economy that many had expected. On the contrary... the swings in the economy, the monetary aggregates and interest rates have been huge... Adjusting reserve growth to counter unwanted money movements (in fact) means dealing with "yesterday's" money problem by adjusting reserves today, an approach which probably adds to the instability of both. Even if the monetary aggregates grow at rates within the annual targets for all of 1980, which seems possible, the instability of the money supply and the markets make us wonder whether we can stand much more of such "success".'

J. Henry Schroder Bank & Trust Co
New York

October 6, 1980

In an address to the Economic Society of South Africa on 13 October 1980, Dr Gerhard de Kock, Governor-designate of the South African Reserve Bank, drew attention to a number of changes that had taken place in the world economic environment since the early 1970s which were likely to have an enduring impact on the nature of the South African business cycle and, therefore, also on the formulation of monetary policy in the Republic. Most outstanding of these changes were the redistribution between countries of payments surpluses and deficits, the world-wide increase in rates of inflation, the rise in the free market price of gold, the increase in world demand for South Africa's mineral exports and the replacement of the Bretton Woods monetary system by a system of floating exchange rates. Whereas previously cyclical fluctuations in the South African economy tended to follow the business cycle of the major industrial countries by between six and fifteen months, this no longer appeared to be the case and it now seemed as if economic upswings in South Africa would peak later and continue for longer than had previously been the case. In the past, the South African business cycle had had a fairly clear interaction with the overseas business cycle, upswings and downswings abroad, tending respectively to overlap with downswings and upswings at home, forcing, through their effects on export and import growth, counter-cyclical adjustments in official monetary and fiscal policy.

There is something, however, which is troubling about Dr De Kock's analysis because it has been presented as the background rationale for the introduction of policy changes that are likely to have the effect, on Dr De Kock's own admission, of greatly increasing the volatility of local money and capital markets. It would be unwise to believe that such volatility would be without adverse effects on

'Dié nuwe benadering het nie die stabiliteit in die groei van monetêre groothede of in die ekonomie meegebring wat baie mense verwag het nie. Inteendeel... die skommelings in die ekonomie, die monetêre groothede en rentekoerse was besonder groot... Die aanpassing van reserwegroei om ongewenste geldskommelings teen te werk, beteken inderdaad dat "gister" se geldprobleem die hoof gebied word deur reserwes vandag aan te pas, 'n benadering wat waarskynlik tot die onbestendigheid van albei bydra. Selfs as die monetêre groothede vir die hele 1980 teen koerse binne die jaarlikse streefsyfers groei, wat moontlik lyk, laat die onbestendigheid van die geldhoeveelheid en die markte ons wonder of ons veel meer van dié soort "sukses" kan verdra.'

J. Henry Schroder Bank & Trust Co
New York

6 Oktober 1980

In 'n toespraak voor die Ekonomiese Vereniging van Suid-Afrika op 13 Oktober 1980 het dr Gerhard de Kock, aangewese President van die Suid-Afrikaanse Reserwebank, die aandag gevestig op 'n paar veranderings wat sedert die vroeë sewentigerjare in die ekonomiese milieu van die wêreld plaasgevind het en wat waarskynlik 'n langdurige uitwerking op die aard van die Suid-Afrikaanse besigheidsiklus sou hê, en dus ook op die formulering van monetêre beleid in die Republiek. Die opvallendste van dié veranderings was die herverspreiding tussen lande van betalingsurplusse en -tekorte, die wêreldwye styging in inflasiekoerse, die styging in die vrye markprys van goud, die toename in die wêreldvraag na Suid-Afrika se mineraaluitvoere en die vervanging van die Bretton Woods- monetêre stelsel deur 'n stelsel van swewende wisselkoerse. Terwyl vorige sikliese skommelings in die Suid-Afrikaanse ekonomie geneig het om die besigheidsiklus van die groot nywerheidslande met tussen ses en vyftien maande te volg, wil dit voorkom of dit nie meer die geval is nie, en dit lyk of ekonomiese opgange in Suid-Afrika later 'n hoogtepunt sal bereik en langer sal duur as wat voorheen die geval was. In die verlede het die Suid-Afrikaanse besigheidsiklus 'n taamlik duidelike wisselwerking met die oorsese besigheidsklus getoon; ongange en neergange in die buiteland het en geneig om onderskeidelik gedeeltelik saam te val met neergange en opgange hier te lande, wat deur middel van hulle werking op uitvoer- en invoergroei, teensikliese aanpassings in amptelike monetêre en fiskale beleid afgedwing het.

Daar is egter iets in dr De Kock se ontleding wat hinder, aangesien dit aangebied is as die agtergrondsmotivering vir die instelling van beleidsveranderings wat, soos dr De Kock self erken, waarskynlik die uitwerking sal hê om die onbestendigheid van plaaslike geld- en kapitaalmarkte

domestic economic activity in South Africa and on the general maintenance of a rate of real GDP increase adequate to the socio-political requirements of the country. In the US, as the quotation at the head of this editorial makes clear, grave misgivings are already being expressed about the present preoccupation with the regulation of money supply growth to the seeming exclusion of fluctuations in interest rates. Unfortunately, it is not only stock and share prices which are adversely affected by exaggerated interest rate fluctuations. Spending on new capital formation too is discouraged by the higher risk premiums which then become operative and it is new capital formation which both the US and South Africa require if their economic development is to be maintained.

The suggestion that the gold price now fluctuates on a plateau permanently higher than that which previously applied could encourage a complacency about the possibility of a re-run of the events of 1974/75. The growth rate of the South African economy then had risen to a level that was clearly in excess of that which could be sustained in the long run and the same is the case now. The danger, therefore, again exists of our being forced into an economic downswing by world events over which we have little control. A worsening of the present American recession through its effects on US inflation, the US trade balance and activity levels in other major Western economies, could conceivably have an adverse effect on the gold price comparable in proportions to the adverse effect that materialised five years ago when the price declined from nearly $200 an ounce to close to $100 an ounce in a matter of twenty months. All that would be required would be some clearing of the political clouds currently hanging so threateningly over the world economic scene. The South African balance of payments today is stronger than it was in 1975 and so is our reserve position, but there can be no gainsaying that our dependence on the gold price for the maintenance of our recovered state of economic well-being has been greatly increased over the past year.

The reshuffling of the world's economic cards to which Dr De Kock referred has indeed resulted in South Africa being dealt a new and much improved hand. We do have aces today which we sorely lacked in the middle 1970s. But the value of an ace depends not only on the cards in one's own hand. It depends, too, on the distribution of cards in the hands of other players. Despite our apparent economic strength, we need still to be cautious, allowing sufficiently in our policy formulations at corporate and national level, for adverse possibilities as to allow for adjustment that is not needlessly painful should adjustment become necessary.

Fluctuations in money and capital markets derive from the basic instability of the expectations of market participants and it is right that these should be given full freedom of expression. Certainly, doubts can be raised as to the wisdom of intervention which seeks to hide the instability of expectations through direct interest rate controls. But monetary and fiscal authorities have a responsibility for encouraging stability in levels of economic activity and it should not be out of place for them, in exercising that responsibility, to endeavour, through their own economic action, to influence business expectations in a manner encouraging of long-term industrial development.

There is a danger in the emerging conventional wisdom of monetarism which damns all intervention in a blanket fashion and delegates to markets (so frequently quite short

grootliks te laat toeneem. Dit sou onverstandig wees om te glo dat dié onbestendigheid nie enige nadelige uitwerking sou hê op binnelandse ekonomiese bedrywigheid in Suid-Afrika en op die algemene handhawing van 'n koers van reële BBP-styging wat toereikend vir die sosiopolitieke behoeftes van die land is nie. Soos blyk uit die aanhaling bo-aan hierdie rubriek, word ernstige twyfel reeds in die VSA uitgespreek ten opsigte van die huidige besorgdheid oor die regulering van die groei van geldhoeveelheid tot skynbare uitsluiting van skommelings in rentekoerse. Ongelukkig is dit nie net effekte- en aandelepryse wat nadelig beïnvloed word deur oormatige rentekoersskommelings nie. Besteding aan die vorming van nuwe kapitaal word ook ontmoedig deur die hoër risikopremies wat dan in werking tree en dit is die vorming van nuwe kapitaal wat die VSA sowel as Suid-Afrika nodig het om hulle ekonomiese ontwikkeling vol te hou.

Die bewering dat die goudprys nou op 'n vlak skommel wat permanent hoër is as wat voorheen van toepassing was, kan 'n onbekommerde houding teenoor die moontlikheid van 'n herhaling van die gebeure van 1974/75 meebring. Die groeikoers van die Suid-Afrikaanse ekonomie het destyds tot 'n peil gestyg wat duidelik hoër was as wat op die lang duur gehandhaaf kon word, en dit is ook nou die geval. Die gevaar bestaan dus weer dat ons deur wêreldgebeure waaroor ons min beheer het, in 'n ekonomiese neergang ingedwing kan word. 'n Verergering van die huidige Amerikaanse resessie kan begryplikerwys, deur middel van die uitwerking daarvan op inflasie in die VSA, die VSA-handelsbalans en bedrywigheidspeile in ander groot Westerse ekonomieë, 'n nadelige uitwerking op die goudprys hê wat na verhouding vergelyk kan word met die nadelige uitwerking wat vyf jaar gelede verwesenlik is toe die prys binne twintig maande van byna $200 per ons tot byna $100 per ons gedaal het. Al wat nodig is, is dat die politieke stormwolke wat tans so dreigend oor die ekonomiese toneel van die wêreld hang, ietwat moet opklaar. Die Suid-Afrikaanse betalingsbalans is tans sterker as wat dit in 1975 was, en dit is ook die geval met ons reserweposisie, maar daar kan nie ontken word dat ons afhanklikheid van die goudprys vir die handhawing van ons herstelde toestand van ekonomiese welvaart oor die afgelope jaar grootliks verhoog is nie.

Die herskommeling van die wêreld se ekonomiese kaarte waarna dr De Kock verwys het, het inderdaad tot gevolg gehad dat Suid-Afrika 'n nuwe en heelwat verbeterde hand ontvang het. Ons beskik vandag oor ase waaraan ons in die middelsewentigerjare 'n groot tekort gehad het. Maar die waarde van 'n aas hang nie net af van die kaarte in jou eie hand nie. Dit hang ook af van die verspreiding van die kaarte in die hande van ander spelers. Ondanks ons klaarblyklike ekonomiese krag, moet ons nogtans versigtig wees en by die formulering van ons beleidsrigtings, op maatskappy- sowel as landsvlak, voldoende voorsiening maak vir nadelige moontlikhede en ook vir aanpassing wat nie onnodig pynlik is nie, indien aanpassing nodig sou word.

Skommelings in geld- en kapitaalmarkte is die gevolg van die basiese onbestendigheid van die verwagtinge van deelnemers aan die mark en volkome uitdrukkingsvryheid kom hulle toe. Daar kan sekerlik twyfel uitgespreek word oor die raadsaamheid van ingryping met die doel om die onbestendigheid van verwagtinge deur middel van direkte rentekoersbeheer te verbloem. Maar die monetêre en fiskale owerheid het 'n verantwoordelikheid om stabiliteit in die peile van ekonomiese bedrywigheid aan te moedig

focused in their assessments), the sole responsibility for deciding what in the long-term our economic priorities should be. If through a preoccupation with money supply we fall into the trap of actually encouraging money and capital market instability, we may once again reap a whirlwind.

The Editor

en dis nie misplaaste optrede as hulle in die nakoming van dié verantwoordelikheid poog om deur middel van hulle eie ekonomiese optrede besigheidsverwagtinge te beinvoled op 'n wyse wat langtermynnywerheidsontwikkeling aanmoedig nie.

Daar bestaan 'n gevaar in die opkomende konvensionele monetêre denke wat alle ingryping voor die voet verdoem en aan markte (wat so dikwels kortsigtig in hulle waardeskattings is) die alleenverantwoordelikheid opdra om te besluit wat ons ekonomiese prioriteite op die lang termyn moet wees. As ons as gevolg van 'n beheptheid met geldhoeveelheid in die slagyster trap deur in werklikheid die onbestendigheid van die geld- en kapitaalmark aan te moedig, kan ons weer eens 'n storm maai.

Die Redakteur

By A. A. Ross

An address given to the Investment Analysts Society, 24 June 1980

The South African forward exchange market

I must say that when I was first approached in connection with this talk this afternoon, my initial reaction was of some apprehension in being asked to address such a distinguished audience on what I perceive to be a rather mundane although, let's face it, very topical subject. I don't really want to go into too much detail this afternoon and will confine myself to the basic principles involved which I think will be more useful to you.

The key aspect of any forward exchange market is the forward premium/discount rate and (so that we all know what we're talking about) I think we should start with a brief definition or explanation of this. I would say that a forward premium or discount is the cost or benefit to an exporter or importer, who has contracted to sell or receive goods quoted in a foreign currency, of covering that currency back to his own from the date of order to the date of payment or receipt. This cost or benefit – we call it a premium or discount – will be expressed in the foreign exchange market as points, which are applied to the spot rate to get to the forward rate. The discount or premium will be expressed as a percentage per annum.

In the case of a South African importer having a foreign currency obligation, he will at the moment enjoy a *discount* in covering forward from the rand to the dollar, although if he has to go beyond the dollar, for instance to the Swiss franc, he may find that the *premium* he pays on the Swiss franc leg will exceed the discount he would receive on the rand/dollar leg. Equally, a South African exporter who has contracted to sell his goods in a foreign currency would pay a *premium* to get from a foreign currency (for instance the US$) back to the rand and this would be expressed as a cost percentage p.a. based on the period for which the exporter required cover. The reason why an importer and exporter will wish to take cover is obviously to close any foreign currency exposure that they might have and to fix in rand the amount they will have to pay or will receive. At the moment in terms of the South African Reserve Bank regulations, an importer or exporter can cover a maximum of 12 months without special approval, which could be from the date that he places or receives an order at the earliest until the date that he pays or gets paid at the latest.

However, in the case of an *exporter,* there has to be good justification to take the period beyond 6 months (for instance in competing for a new market overseas or in matching international competition or because the type of goods exported warrants the extended period of credit). However, a basic principle of financing is that the period of credit extended should not exceed the useful life of whatever it is that is being financed – for instance it would be very difficult to justify a credit period of more than 6 months for a shipment of bananas or maize. However, before we get involved with the influence that the forward premium or discount has on credit periods and costs, I think we should go back and briefly trace the recent development of this forward rate in our South African market.

You may all remember that for the last few years an importer and an exporter both paid the Reserve Bank 1% p.a. (in other words a 1% premium) in order to cover their imports and exports from and to the US dollar. Having got the US dollar cover, a foreign exchange dealer could (and still can) take out the third leg of any cover that might be required in the international foreign exchange markets. The old system of covering rand to dollars was at least a mechanism whereby importers and exporters could fix their rand obligations and proceeds, but the amount of the premium was a purely arbitrary figure and had nothing to do with underlying foreign exchange markets and interest rates.

That system had been in operation for several years until about 15 months ago when, as I'm sure you will all recall, the De Kock Commission recommended certain changes to our South African foreign exchange market. One of the changes was the scrapping of the public selling and buying rates which sadly removed the rather comfortable 0,5% turn that a South African authorised dealer made on handling a foreign exchange transaction, but more significantly the De Kock Commission recommended a major change in the principles underlying the rates quoted for forward exchange cover. The Commission proposed that these rates should henceforth reflect interest rate differentials between the South African and the US dollar rates, which was a very correct recommendation and is, after all, the way that forward premiums and discounts operate throughout the rest of the world. Just to prove this point let us suppose that we were all living in Germany and I was your banker and you had imports from the United States which you asked me to cover. I would basically have to sell my holding of DM's spot, converting them into US $ and put them on deposit in the US until the date when you had to pay your US supplier. The rate that I would quote you for covering your US dollar obligations would obviously be based on the interest rate differential between the two centres for the period concerned.

If we have a look at some current international deposit rates and forward premium/discount rates, you will see what I mean.

Forward rates against the US dollar

Currency	Spot rate	3 month rate	Premium or discount	6 months rate	Premium or discount
£	2,3400	2,2950	7,69D	2,2710	5,89D
DM	1,7650	1,7645	0,11P	1,7590	0,75P
SF	1,6300	1,6140	3,92P	1,5970	4,04P
DFL	1,9350	1,9400	1,03D	1,9340	0,85D
YEN	215,40	216,60	2,22D	216,45	0,97D
BFR	28,26	28,59	4,67D	28,83	4,05D

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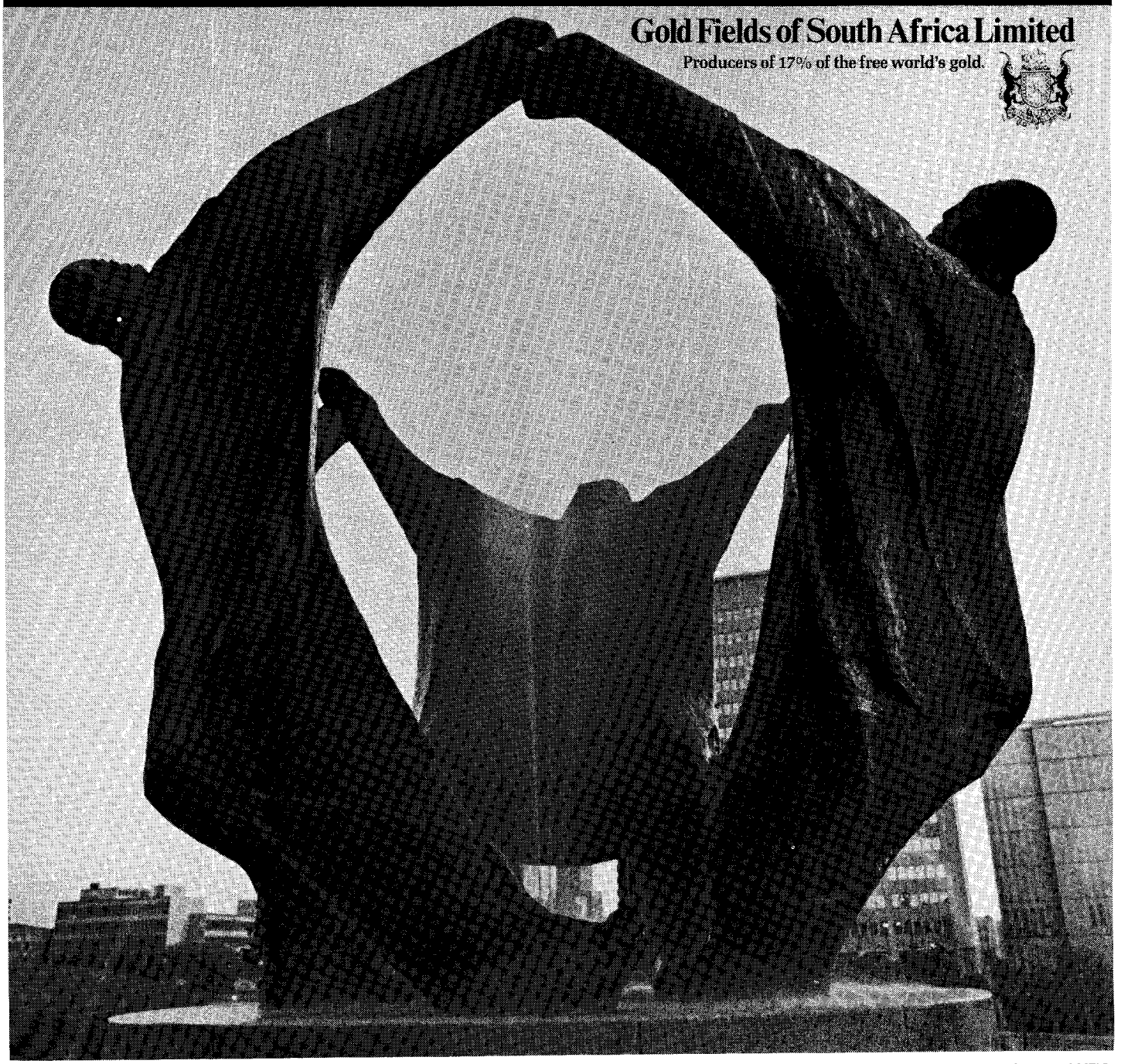

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Euro-deposit rates (%)

Currency	3 month	6 month
£	16 7/8	15 1/8
DM	9 1/16	8 1/2
SF	5 3/8	5 1/4
DFL	10 1/4	10 1/16
YEN	11 1/2	10 1/4
BFR	14	14
US$	9 1/8	9 1/8

You will notice that by adding the relevant forward premium to or by deducting the forward discount to the dollar from any Euro-deposit rate you will arrive back very close to US dollar deposit rate.

This proves one vital principle and if you forget everything else I say this afternoon, please remember just this one point. That forward premiums and discounts reflect interest rate differentials. They have at best *very little* and usually *nothing* to do with expectations of currency movements.

Now, around April last year, arising out of the Reserve Bank's acceptance of some of the De Kock Commission's recommendations, the Reserve Bank immediately moved from the old 1% premium for both importers and exporters to a 2% discount for importers and a 2% premium for exporters. This more or less reflected the interest differentials between South African and US dollar rates at that time. Shortly after implementing this change, South African rates moved down and US interest rates started to rise. This would have been around May last year, and as you all know, that rate remained unchanged right up until the 17th April this year. This was even though South African interest rates had continued to move down, and US interest rates had moved up and continued to move up more rapidly through the last quarter of last year and the first quarter of this year.

So, why didn't the Reserve Bank change the 2,5% rate, when this was obviously the wrong rate in the market? Well to answer that, we have to look at the South African Reserve Bank's overall forward currency book. As you will remember at the time (May last year, and this continued throughout the period to September), importers were tending to cover because they felt that there was a cap on the rand, as to how high the rand would be allowed to go against the US dollar, and that the rand would not move up by more than 2,5% p.a. It therefore made good commercial sense for them to take advantage of the 2,5% discount.

Exporters, on the other hand, a large proportion of whom sell for cash and who might not be interested in cover in any event, also felt that the rand would not move up by more than 2,5% p.a. and therefore they tended not to cover. On the capital side as well, private sector companies and public sector corporations, who had borrowed overseas, would have taken out cover with the South African Reserve Bank through to the dollar (some of them getting a special rate through to the Swiss franc and DM) whereas there was no converse entry in the South African Reserve Bank's books because South Africans, as you know, are not allowed to make loans abroad without specific approval.

All this contributed to a total unbalanced book at the Reserve Bank during the period – I guess at up to 3 billion rand. Now a central bank, using the same principles as we discussed earlier on, would normally lay off this imbalance by placing funds on deposit overseas to earn the interest rate differential. However, in South Africa's case, our foreign currency cash reserves were at a very low level throughout this period and the amount that was available for placing on deposit overseas was nowhere near the amount of the total imbalance of the Reserve Bank's book. The result was that the Reserve Bank had in effect to lay off this exposure with the South African Treasury (which flows through to all of us) and one of the effects of implementing the De Kock Commission's recommendation was that the South African taxpayer was subsidising South African importers to the extent of 2,5% p.a. To have increased the rand/dollar forward exchange rate at a time when there were no basic changes in the rand/dollar exchange rate expectations, would have had no effect on the fundamental imbalance, but it would have meant, if the rate went to 5 or 7,5%, that we continued to subsidise the South African importer but at a much higher level.

That position pertained through until around about September last year, when, because the gold price had started to climb, South Africa's current account surplus had started to widen and expectations changed to the view that the rand would tend to move up against the dollar by *more* than 2,5% p.a. This was reinforced by the belief that the US dollar would continue to be weak against our major trading partners (and you must remember that the Reserve Bank uses a basket of currencies in setting the rand/dollar exchange rate). So around last September a change started to appear in the forward exchange market whereby importers tended no longer to cover, and exporters (using the converse of the argument) tended to cover. By November, as a result of this change, the feeling was that the fundamental imbalance of the Reserve Bank had reduced to below 2 billion dollars. At that stage, it would have been possible for the Reserve Bank to have increased the forward premium/discount rate, perhaps even to have doubled it, and yet to have taken the same amount out of Minister Horwood's pocket – up to 100 million rand p.a. (2,5% x R3bn or 5% x R2bn).

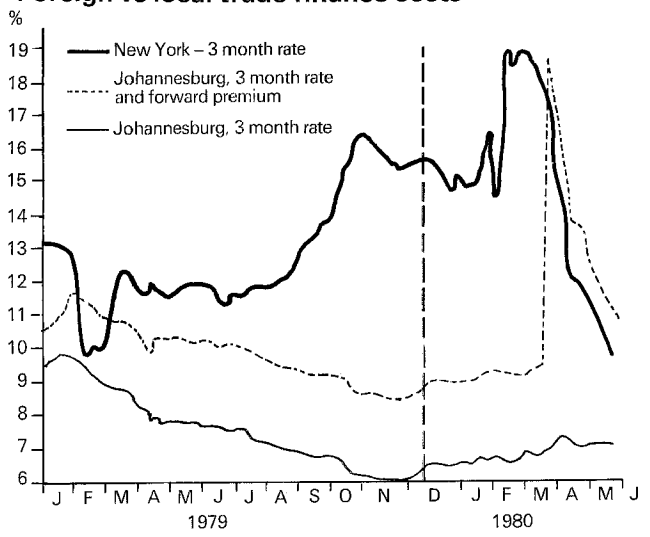
Anyway, this was not done at the time because I guess it would have achieved nothing positive and in any event, at that particular stage, another important situation was developing – this of course was the liquidity inflow, which arose from the continually rising gold price through November and December last year, causing a build-up of surplus liquidity in the South African money market at a time when the Reserve Bank felt that short-term interest rates were already too low. The Reserve Bank found the 2,5% forward exchange rate level was a useful tool in controlling this liquidity as importers and exporters set about changing their terms of trade to take advantage of what became increasingly attractive means of financing South African trade.

You will see that a South African exporter quoting in dollars was in a position to offer his foreign buyer finance at all-in rates of around about 9,5% p.a.

You can also see, supposing this importer was an American concern, that the US domestic interest rates were rising throughout this period and this gap was becoming wider and wider and consequently exporters found that they had a new and very useful marketing tool which they used on a broad basis. Importers, on the other hand, suddenly found it attractive both from their own and their foreign suppliers' point of view to pay for their imported goods as soon as possible, even though they

may previously have been having 2 or 3 months free credit, and to obtain a discount. Let's look at some figures:

Foreign vs local trade finance costs

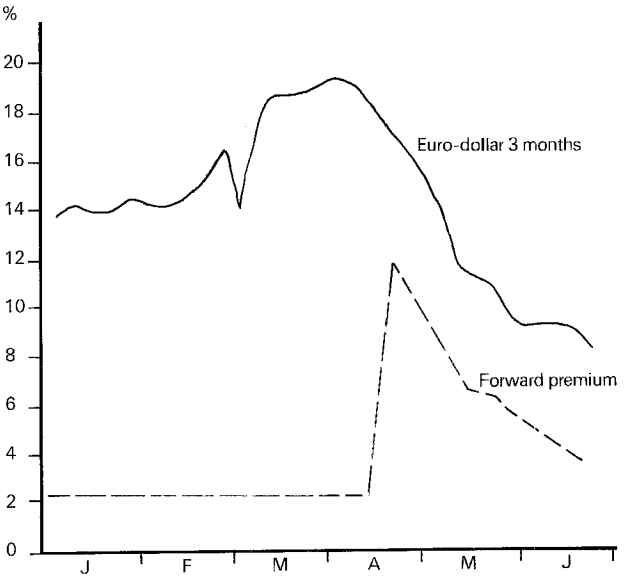


The discount would be pitched at a level which took into account the cost to the importer of financing himself in South Africa for this additional period, but nonetheless made it attractive for the foreign exporter to receive cash at an earlier stage and thereby to reduce his (very expensive) foreign overdraft. We have been assuming that the trading partner had been quoting in US dollars, but you will see from what I said earlier that whether he was British or German or Swiss or French really doesn't matter because having got into the dollar at a very cheap rate, he could then, using the forward markets, get into these other currencies at equally cheap rates. And so this whole saga of rand financing, as we call it, developed and the figures involved became enormous. I would say that during the period November until early April, the amounts were running at around about 4 – 500 million rand per month.

Now, whilst these figures were equalled by the current account surplus inflow, there was no major drain on the net reserves as far as the Reserve Bank was concerned and, by keeping the forward rate down at an unrealistically low level, the Reserve Bank was able to control what would have been an embarrassing inflow of liquidity. I believe that this was entirely the right strategy at the time. However, it was a rather dangerous game, simply because the figures involved were so large and when finally the gold price started to weaken and the country wanted to have a flexible gold sales policy, the low level of the Reserve Bank's foreign cash reserves simply did not permit this. Also at that time it came to the Reserve Bank's notice that at least one bank in South Africa was using the South African money market to finance international trade, and of course that is simply not on. The concept of South Africa becoming lender to the world on an ongoing basis (although satisfying and good for our morale) is plainly ridiculous. (Funnily enough, this is exactly what happened in Britain some 5 years ago, when the Bank of England was eventually forced to close the window on the use of the London Acceptance Market for financing international trade.) And so we came to the major move on 17th April this year when the Reserve Bank increased the forward cover rate from 2,5% to 12% p.a. which, at that stage, was the interest differential between South African and US interest rates.

To have moved the rate by any lesser amount would have been ineffective because the interest rate gap was still there for traders to take advantage of, although at a lower level of profitability. I prefer to think of the Reserve Bank's action as simply a reflection of the fact that it had run out of room to manoeuvre, rather like a sailing boat on the one tack getting too close to the shore and being forced to tack the other way. It did not mean that the policy had changed, but merely that the Reserve Bank was pursuing another tack to get there.

Euro-dollar rate vs forward rand premium



Well, as you know the 12% (the second best bargain of the year) didn't last very long and for two good reasons. The first was that following the increase from 2,5% to 12%, the 12% apllied for the full period, this is anything from 2 weeks up to 12 months. However, as I explained before, this forward cover rate should reflect interest differentials and it didn't take the market and the Reserve Bank very long to realise that whilst 12% might have been the correct differential at the 1, 2 and 3 month maturities, it certainly was not the correct differential for any longer period. This was because the Euro-dollar interest rates were expected to decline and the 6, 9 and 12 month rates were considerably less. Therefore, early the following week the Reserve Bank split the forward exchange rate into the three maturity bands which we still have today, namely:

(i) 1-121 days, which spans the 3 month maturity period;
(ii) 122-243 days, which spans the 6 month maturity period; and
(iii) 244-365 days, covering the longer end.

Further, as the US recession started to bite deeper, the US interest rae structure started to decline at a rapid pace so that we find today that the 3 month Euro-dollar rate, which had been as high as 20% when the Reserve Bank pushed the premium to 12%, has now declined to around the 9% level and of course the premium, now accurately reflecting deposit rate differentials, has come down by a similar amount. At the moment the Reserve Bank is setting this forward exchange rate in neutral territory. In other words, it is neither favouring use of domestic nor overseas finance. But of course, it is a useful tool with which to influence trade finance and I am sure we will continue to see it used again in the future.

We keep another chart on a daily basis showing which way we think the premium should move according to relative interest rates

Months	1	2	3	6	9	12
1. Euro-deposit rates	9,00	9,06	9,25	9,25	9,06	9,13
2. SA deposit rates	4,50	4,75	5,00	5,50	5,75	6,00
3. Difference between 1 and 2	4,50	4,31	4,25	3,75	3,31	3,13
4. Forward discount/premium	4,00	4,00	4,00	3,50	3,00	3,00
5. Margin between 3 and 4 (possible future movements in forward rate)	0,50↑	0,31↑	0,25↑	0,25↑	0,31↑	0,13↑

From today's chart you will see that the Reserve Bank can be expected to increase the 3 and 6 month rates by 0,25% and don't pay too much attention to the 1 and 2 month rates because very little financing takes place over this short period.

If the differential moves out beyond 0,5% in any period, we will naturally assume that the Reserve Bank is once more trying to influence traders to finance here or overseas and this will be one useful pointer to see which way the Reserve Bank is currently seeking to influence domestic liquidity and local interest rates, the foreign reserves and the exchange rate. But we are still left with the Reserve Bank's fundamental problem of its imbalanced forward exchange book. However, as expectations abound that the rand will rise by more than the forward cover discount for importers and premium for exporters, importers will increasingly tend not to cover and exporters to cover, thereby reducing the imbalance. But more importantly the cash portion of South Africa's foreign reserves should now be building up rapidly and enable the Reserve Bank to have a larger quantum of money to place on deposit overseas to earn interest differential, which can then be placed against the losses sustained on its forward currency book.

Ladies and gentlemen, in conclusion, I would have thought that the implications of this new flexibility of management of the forward exchange rate between the rand and the dollar will lead inevitably to greater liquidity. After all, at a gold price of even $500 an ounce, we have a current account surplus at the rate of some 3,5 billion rand p.a. (at $600 this rises to R5 billion) and of course, as traders return to their more normal terms of trade, the short-term capital outflow which took place earlier this year is starting to reverse. It is impossible to put a precise figure on this, but if we assume that the amount of capital which went out of the country during the period from October to April was in the range of 2-3 billion rand, it would not be unrealistic to expect a short-term capital inflow of at least R200 million a month over the next few months. Add this figure to the current account surplus and you will see that the net capital inflow will be running at some R600 million per month for the next few months. This is an extremely healthy situation and will obviously enable the government to maintain its expansionary policies. This is in marked contrast to previous economic recoveries. After all, every time the government has gone on an expansionary tack in recent years and the import bill mounts up, we have almost immediately run into balance of payments difficulties. Somehow, I don't think that that is going to happen too quickly this time around, and the government will have a free rein to deal, hopefully, with other, more pressing problems.

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By Prof. R. M. Gidlow

Intervention policies of the Reserve Bank in the foreign exchange market

The De Kock Commission of Enquiry into Monetary Policy recommended, inter alia, that South Africa should aim for the eventual establishment of a unitary exchange rate system in which the rand would be allowed to float on a managed basis.(1) An evolutionary policy is being adopted in the effort to establish a managed float, but the adoption of such a system will require that the Reserve Bank abandon its present policy of fixing, albeit on a flexible basis, the rand/dollar rate, and instead become an active intervener in the foreign exchange market. The purpose of this article is to analyse both the intervention practices which the central bank has carried out, and the changes in dealing policy which it has initiated.(2) In the process ways are suggested in which the effectiveness of these policies could be improved.

DEALING POLICY OF THE RESERVE BANK

Immediately after the release of the De Kock Commission report at the end of January 1979 the fixed public buying and selling rates of the authorised dealing banks were scrapped. As a result of this, margins shrank to around 0,1 per cent from the previous fixed margin of 0,5 per cent for transactions above R2 000. Shortly thereafter the Reserve Bank started to adjust its own rand/dollar rate more frequently, and at the end of February 1979 the Bank abandoned the practice of quoting fixed official rates for spot rand/dollar transactions. In theory this implied that very frequent changes in the rate could materialise, but in practice rates have on occasion remained fixed for a week or more. From May 1979 onwards the central bank started to make adjustments in the spot rate during the course of the day, and in September 1979 it announced that it would no longer quote a dealing rate for rand/dollar transactions on Reuter's monitor. Instead, dealing rates with the authorised dealers would be finalised on an individual enquiry basis through a newly installed direct dialling system between the Bank and authorised dealers. The quote of the Reserve Bank on the monitor would only indicate the rate at which it last dealt.

These were useful steps in the evolutionary process of establishing an interbank market which would enable the rand to be floated. The resort to indicated dealing rates, for instance, could lead to a more flexible interbank market. The authorised dealers on occasion may become prepared to quote rates which are outside the range of that of the Reserve Bank if the latter changes its rates more frequently. Moreover, the ability of the banks to trade efficiently in foreign exchange was improved by the installation of better communications with the Reserve Bank.

Nevertheless, despite these modifications in dealing arrangements, several criticisms have been voiced. Despite the resort to more frequent changes in the spot dollar rate which are undertaken by the authorities, the essential features of the previous dollar-pegging system have remained. Rates are sufficiently rigid often to generate one-way traffic in foreign exchange as participants act on expectations of either a devaluation or revaluation of the rand. The limited extent to which the rand/dollar rate moves can discourage dealers from taking long positions in either the rand or the dollar, and there is a danger that clients could suffer because of the lack of interest of the dealers in rand/dollar transactions. The dealers, instead, could concentrate their trading expertise on dollar/third currency transactions where rates are allowed to float. Although this is constrained by the strict limits which are fixed by banks on open positions in foreign currencies, this does not prevent position taking which is unwound before the end of each day.

Rand/dollar spread

In February 1979 the Reserve Bank reduced the spread between its own buying and selling rates from 29 points to 20 points. This move probably reflected the desire of the Bank to align its spread more in accordance with those in the market where banks were quoting spreads of less than 10 points at times. In addition, the narrower spread helped De Beers, the diamond mining concern, which was still selling its dollars to the Reserve Bank at less advantageous rates than those which prevailed in the interbank market. Nevertheless, some dealers allege that this 20-point spread is too wide for such a small foreign exchange market, and argue that both the banks and clients would benefit if it was reduced.(3) This wide spread does mean that the authorised dealers normally avoid approaching the Bank to settle positions, except say at the end of the day, because more advantageous rates prevail in the interbank market. It can create a situation in which either the buying or selling price of the central bank is competitive while the other one is out of line with market rates, thus generating one-way business with the Bank. Narrower spreads would encourage greater participation by the Reserve Bank in foreign exchange dealings which will in any case be essential if a managed floating of the rand is to be established.

On the other hand, the monetary authorities may feel that the wide spread on rand/dollar transactions, by yielding a profit on spot exchange transactions, is justified in view of the losses which have been sustained on forward exchange account.(4) Moreover, any further narrowing of the spreads maintained by the Bank would reduce the scope for the rand to fluctuate, which is contrary to the objective of progressing towards a managed floating of the rand. This disadvantage, however, could be overcome if the authorities adjusted the rand/dollar rate more frequently.

INTERVENTION POLICIES OF THE RESERVE BANK

One logical implication of the new arrangements which came into force in 1979 was that the Reserve Bank would become a participant in the interbank market by *intervening to buy and sell dollars on its own initiative.* Towards the end of 1979 this materialised. Even so, the Bank continues to rely almost entirely upon arbitrary adjustments in its own rand/dollar rates as the means of dictating rates in the interbank market.

Reluctance to intervene

This reluctance to intervene on the part of the Reserve Bank could be the result of several factors. For decades the central bank has conducted foreign exchange business

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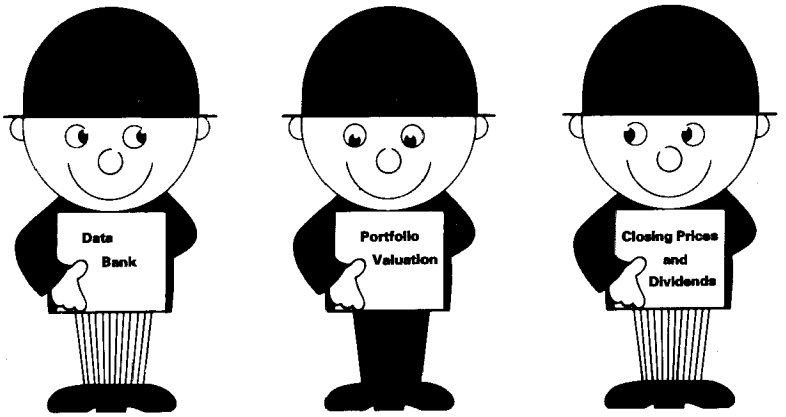

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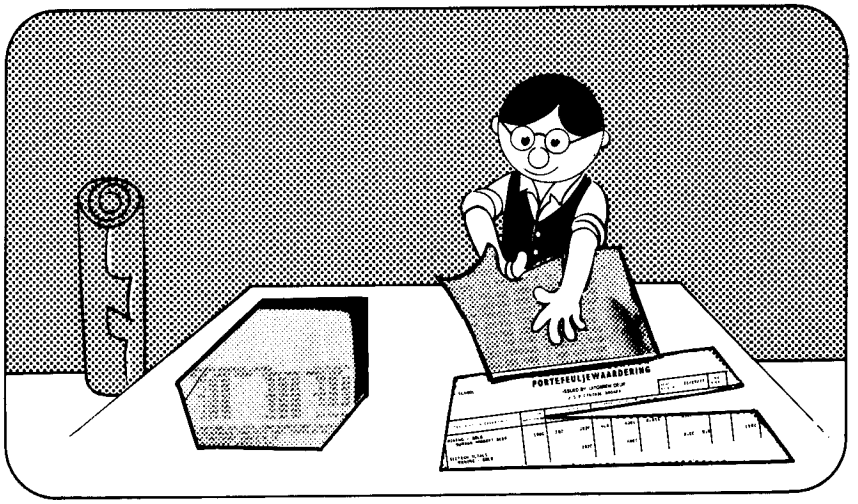

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with the banks at fixed but adjustable rates over which it has direct control. Intervention in the market represents a departure from this practice. The objectives behind such intervention are often to alter rates in the market, but the alternative method of influencing rates by an adjustment of the dealing rates of the Reserve Bank is simpler, avoids the loss or accumulation of dollars, and enables the central bank to desist from dealing with the authorised dealers at possibly different rates during a single intervention operation.

In view of the imbalance which prevails in the foreign exchange market due to gold bullion and diamond export receipts being handled by the Reserve Bank, there is normally a need for the banks to buy dollars on a net basis from the Reserve Bank. Reluctance to intervene and sell dollars, therefore, could result from a shortage of dollars held by the central bank. This constraint, however, has not been present in recent times, even though the foreign exchange holdings of the Bank were relatively low in 1979.[5] The foreign reserves of the Reserve Bank rose sharply in 1979 as a result of the balance of payments surplus, and the appreciation of the gold reserves following the rise in the gold price.[6] In these circumstances the foreign exchange reserves could have been boosted further by, for instance, selling more gold on the market, slowing down the repayment of foreign loans, or even raising new foreign credits.

The Reserve Bank could also be inhibited in its intervention policies by realisation that it is a focal point of attention given its dominant position in the foreign exchange arena. If so, this only highlights the case for steps to be taken to ensure that the foreign exchange market is more balanced. Even if the central bank insists on continuing to handle gold bullion sales it could allow diamond export receipts to be channelled through the banking system rather than persist with the practice of arranging for De Beers to sell its receipts directly to the Reserve Bank.[7]

Under the present arrangements the Reserve Bank does enjoy the benefit of receiving an orderly inflow of foreign exchange from diamond receipts. Yet the monetary authorities of other countries implement their monetary policies without being direct recipients of a significant portion of export receipts. The switching of diamond receipts would enlarge the current inadequate volume of foreign exchange which is handled by the banks. A precedent for such a change, moreover, was provided when in March 1979 the Chamber of Mines was allowed to sell its foreign exchange receipts from Krugerrand exports to the local authorised dealers in foreign exchange rather than to the Reserve Bank.

Benefits of intervention

Intervention by the Reserve Bank has a number of advantages over the arbitrary method of adjusting its own rates at which it will deal when approached by the authorised dealers. It is a more market-oriented policy. Suppose, for instance, there is a shortage of dollars in the interbank market while at the same time the central bank is accumulating dollars and wishes to see the value of the rand rise. If it raises its own dealing rates for rand/dollar transactions without intervening in the market, this will cause the authorised dealers to raise their own rates in the interbank market, but it does not automatically relieve the shortage of dollars, although it does become cheaper to buy dollars from the Reserve Bank. The shortage of dollars which persists in the market without any intervention, although not indicative of any genuine weakness of the rand, could even deter the Reserve Bank form revaluing the rand.

One can conclude from this analysis that more active intervention by the Reserve Bank could create a more balanced interbank market. The authorised dealers, in any case, would prefer the central bank to sell more dollars in the market through intervention to relieve shortages rather than be forced to buy from the Reserve Bank at its less advantageous dealing rates. Such intervention could be particularly helpful in view of the drastic cut in profit margins on foreign exchange business which the banks have incurred under the new dispensation.

Greater confidence in the rand might be engendered by more active intervention because the market could become confident that the rate was being determined to a greater extent by the forces of demand and supply, rather than being an officially regulated rate. This could encourage participation in the market by foreigners who are interested in taking positions in the rand.

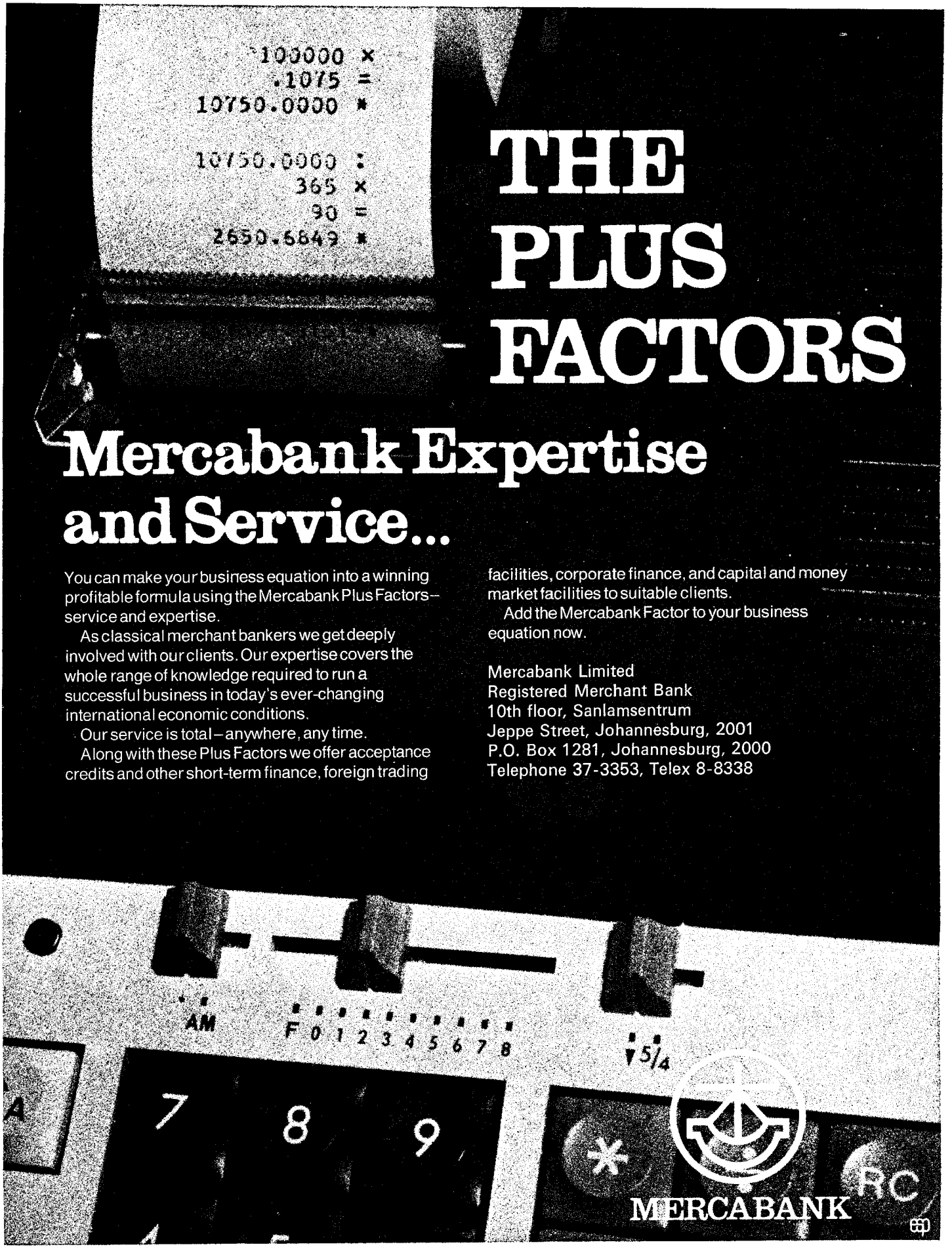
Such a result, however, is unlikely as long as the Reserve Bank continues to handle the receipts from gold bullion and diamond exports which help to perpetuate the imbalance in the interbank market. In these circumstances potential participants in the market can never be certain in the short term whether the Reserve Bank is solely channelling the receipts from these items into the market or whether it is adding to or drawing down dollars from its foreign reserves. Even more important, the rand is not a reserve currency. Foreign investors do not have any strong motivation for taking positions in the rand since other currencies with broader markets and investment facilities offer better alternatives.

Methods of intervention

Apart from intervention being of rare occurrence, the suitability of the Reserve Bank's methods of intervention have been questioned. On a number of occasions the Bank has sold dollars to the authorised dealers on its own initiative in amounts which reportedly were as high as R10 million.[8] This intervention, however, has been accompanied by an immediate upward adjustment in the dealing rates of the Reserve Bank, and this has placed some dealers in an unfortunate position.

An example will illustrate this. On 22nd January 1980 the Reserve Bank was quoting rates of $1,2211 for selling dollars and $1,2231 for buying, whilst the authorised dealing banks were quoting around $1,2211 and $1,2221 which reflected a shortage of dollars in the market. The Reserve Bank then intervened by selling dollars to a number of banks at a reported rate of $1,2221, but followed this action by immediately raising its own dealing rates to $1,2222 and $1,2242. This meant that those banks who bought the dollars at $1,2221 could only sell them at best at $1,2222, and thus incurred a loss.

This practice can be criticised on several grounds. It means that the Bank is ensuring that it makes a profit if any of the dollars which it has disposed of through intervention are sold back to it. Yet the central bank was assured of a profit anyway since in the above case, even if it had not changed its own dealing rates, authorised dealers could only sell dollars back to the Reserve Bank at $1,2231 after having bought them at $1,2221. In any case it can be argued that profit and loss considerations should not dominate the thinking of the authorities when they are intervening in the market. In addition, even in the absence of any adjustment in the rates quoted by the Reserve Bank, interbank rates should rise following the sale of the dollars, and



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particularly so if market conditions are thin at the time of the disposal of the dollars.

This method of intervention, if continued, could produce several negative reactions. Already, authorised dealers allegedly have started to quote wider spreads to the Reserve Bank, and in particular are tempted to offer to take dollars from the Bank only at the upper rate which is quoted by the latter.[9] This could make the central bank even more determined to raise it own rates following intervention in order to ensure that it earns a profit if any dollars are sold back to it. This method could also impair trading conditions in the interbank market. For instance, if the market has been short of dollars for a few days, and suddenly certain banks start to offer large amounts of dollars, other dealers will fear that the Reserve Bank has intervened. As a result they may refuse to deal until the expected upward adjustment in the rates quoted by the central bank materialises. During the interval, banks could be left holding dollars which they cannot offload in the market.

On the other hand, a number of arguments can be presented in defence of the practice of raising dealing rates for rand/dollar transactions following intervention by the central bank. Firstly, banks should not complain about losing money because they know what the existing indicated dealing rates of the Reserve Bank are when the latter intervenes. This advantage is not shared by banks in the major overseas foreign exchange markets when central banks intervene. Indeed, these central banks can even disguise their intervention operations.

Secondly, the authorities may feel this practice is justified if they are unsure whether interbank rates will respond much if dollars alone are sold to authorised dealers. It can be argued that this uncertainty should not exist because the Bank can judge by the state of the market the magnitude of dollar sales which would be sufficient to alter the rates. During late 1979 and early 1980, however, there was an acute shortage of dollars in the spot market even though overall there was no shortage of dollars. This in turn made it more difficult for the Reserve Bank to be confident that dollar sales alone in the spot market would lead to a strengthening of the rand.

Implications of distorted market

This shortage of spot dollars has been brought about by a combination of factors. *On the one hand expectations have risen that the rand would appreciate against the dollar, while on the other the shortage of spot dollars has been worsened by the rules applied by the Reserve Bank in respect of currency swap transactions with authorised dealers.*

This predicament can be explained by reference to events in January 1980. At that time many exporters, in the wake of the surge in the gold price to around $850 an ounce, sold their dollar proceeds forward in anticipation that the rand would rise in value. This meant that the banks built up long forward positions in dollars, and the danger arose that they would have overall net long dollar positions. In order to avert such an outcome banks wanted to sell either spot and/or forward dollars. However, it was exceedingly difficult for banks to accumulate any spot dollars which they could then sell because exporters were selling forward while importers were buying spot dollars rather than buying forward. As regards the forward dollars held by the banks, these could not be sold forward in the market, because of the lack of clients of banks who wanted to buy forward, in view of expectations that the rand would rise. In addition, if banks tried to sell their forward dollars to the Reserve Bank and buy spot dollars they incurred a penalty. This is because the Bank is only prepared to enter into swap transactions with authorised dealers based on its own separate spot buying price and selling price for rand/dollar transactions if the dealers wish to swap out of a net long position. In the latter circumstances the Reserve Bank at that time was not prepared to enter into swap transactions based on the 2,5 per cent premium of the rand against the dollar and a single arbitrary spot rate.[10] Given these conditions the only alternative for banks was to keep a net overall short position in dollars by selling spot dollars which are obtained by foreign dollar loans.

This creates a situation in which the rand looks weak, *but the reality is that there is an abundance of forward dollars held by the banks, but a shortage of spot dollars.* It can be argued that in these circumstances banks should not maintain any net long forward positions in dollars. In other words, they should arrange forward contracts with the Reserve Bank when clients want to sell dollars forward. Moreover, since the banks know what the forward buying rates of the central bank are for rand/dollar transactions, they should charge clients rates which enable them to obtain forward contracts from the Reserve Bank without incurring a loss. Unfortunately, those banks which adhered to such advice would lose business to other banks who continued to quote more competitive rates. The fierce competition for business in turn partly reflects the present restricted size of the foreign exchange market.

Case for improved swap facilities

If the Reserve Bank modified its facilities and entered into swap transactions based on its published premium rate for the forward rand against the dollar and an arbitrary single spot rate so that banks could swap out of net long forward dollar positions, the shortage of dollars which can characterise the market at times of expectations of an appreciation of the rand would at least be reduced. In such conditions banks could sell dollars forward and buy spot without incurring a penalty. This in turn would mean that *when the central bank intervened in the market by selling dollars there would be a better chance that the rand would appreciate to the extent desired.* This should help to eliminate the incentive to follow such intervention by immediately raising the rate. The case for such swap facilities can also be supported by the fact that in the case of the major non-dollar currencies local banks can undertake swap facilities to swap out positions without incurring a penalty.

The problem is that under the present exchange rate policy the provision of such swap facilities could have marked effects upon the foreign exchange position of the Reserve Bank. At times when the rand is looking weak there is a danger that the banks will want to buy dollars forward from the Reserve Bank and sell dollars spot. In contrast at times when the rand is strong all the banks could desire to undertake swap transactions with the Reserve Bank by selling dollars forward and buying spot dollars. This could have a marked adverse effect upon the foreign exchange holdings of the Reserve Bank, and even force the authorities to sell extra amounts of gold which may depress the price. On the other hand, given strength in the gold price and a rising level of the foreign reserves the authorities would be in a strong position to provide more favourable swap facilities.[11] They would, if necessary, be able to borrow short-term funds from the Euro-dollar market, particularly since the Reserve Bank's credit status would, in such circumstances, be high.

The Reserve Bank may be reluctant to grant such swap

facilities because of fears that banks would swap out of positions at the expense of the central bank. For instance, under the conditions which existed in early 1980, banks could earn as much as 14 per cent on short-term balances in New York while the forward premium on the rand was only 2,5 per cent. A bank could, therefore, fund its New York account by buying spot dollars and selling forward dollars through a swap transaction with the central bank.

The authorised dealing bank would sell its dollars forward at a cost of 2,5 per cent per annum but the spot dollars which it bought would earn 14 per cent in New York. The counterpart to this would be that the Reserve Bank would be selling spot dollars and buying forward, thereby losing 14 per cent on its spot dollars and benefiting by only 2,5 per cent on its forward dollar purchases.

This practice could easily take hold if the forward rate for the rand against the dollar did not accurately reflect interest rate differentials. Under recent circumstances, however, the opportunities and the incentive for banks to make a profit from this practice have been limited. This is because there is a shortage of spot dollars, and because they would be reluctant to hold such dollars in view of expectations that the rand will appreciate against the dollar. It can be argued, moreover, that the central bank should not be too concerned about the scope for banks to earn profits at its expense since its exposure to losses on forward exchange account should now be reduced.[12] In any case the Reserve Bank has flexibility at its disposal which is not shared by the authorised dealers. In the first few months of 1980, for instance, it could have placed funds in the Euro-dollar market without being subject to legal limits, taken advantage of the high interest rates, and then sold dollars to banks at a 2,5 per cent discount on the spot rate, and consequently made profits on such deals. The authorised dealers are not in a position to do this on any significant scale, because of the strict limits on foreign currency positions which they face.

Swap facilities and exchange rate regime

This analysis highlights the problems associated with any extension of the swap facilities provided by the Reserve Bank. In particular, while the central bank continues to operate its present policy of variable dollar pegging there is a high risk of one-way traffic in foreign exchange dealings. Thus, *ideally any introduction of more favourable swap facilities by the authorities necessitates the prior adoption of a managed floating exchange rate system for the rand.* As long as the gold price continues to perform as strongly as it has during the past few years there can be no guarantee that a floating of the rand would eradicate tendencies towards one-way traffic.[13] This is because expectations of an appreciation of the rand may persist. Nevertheless, the greater freedom for the rand to fluctuate would at least considerably reduce the danger of such a one-sided market developing. This in turn would require, inter alia, that the authorities scrap their present pegging policy, and instead rely on intervention to influence the rand/dollar rate. The paradox here is that the need for extended swap facilities would be lessened with a floating rate because the incidence of one-way traffic would be reduced.

If the authorities are not prepared to grant such swap facilities and do not intend to introduce a floating exchange rate system for the rand in the near future, they should at least consider granting the banks the opportunity to take larger open positions in foreign exchange. Given such a relaxation the banks could obtain useful swap facilities by means of resort to the Euro-dollar market. The present strength of the foreign reserves would permit a relaxation in this direction as well as promote the establishment of a forward exchange market. Banks could undertake swaps by borrowing rand and then selling the local currency for dollars in order to invest in the Euro-dollar market. In view of the present interest rate differentials between South African money market rates and those overseas the banks could reap a useful profit from this practice which could be used to offer importers a better rate on forward purchases of dollars.[14] This could help reduce the imbalance which is currently faced by banks on forward exchange account by encouraging more importers to buy forward dollars even in the presence of expectations that the rand will appreciate, and thereby relieve the shortage of spot dollars.

References

1 *Exchange Rates in South Africa: Interim Report of the Commission of Inquiry Into the Monetary System and Monetary Policy in South Africa,* Government Printer, Pretoria, RP112, 1978.

2 In this paper 'dealing policy' refers to the method whereby the Reserve Bank fixes the rates for spot and forward rand/dollar transactions for purposes of conducting transactions with the authorised foreign exchange dealers when the latter approach it to buy or sell dollars. 'Intervention practices' refer to the buying and selling of dollars by the Reserve Bank when it approaches the banks on its own initiative and where there is no predetermined rate of exchange laid down.

3 According to local banking sources turnover in the South African foreign exchange market is around R20 billion per annum.

4 At the end of March 1978 the government owed the Reserve Bank R1 132 million in respect of losses on foreign exchange holdings, gold transactions, and forward exchange contracts. Warning was given at the time of potential further losses on forward contracts, which could be substantial at the then current exchange rates, and would also be a charge on the government. See comments by Senator Horwood, Minister of Finance, House of Assembly Debates, *Hansard No. 10,* April 1978, pp. 4 270-71.

5 At the end of July 1979 the total foreign reserves held by the Bank amounted to R2 536 million, but only R300 million was held in foreign exchange. By the end of December 1979 the Bank held R354 million in foreign exchange out of total reserves of R4 035 million.

6 The total foreign reserves of the Reserve Bank of R4 035 million at the end of 1979 compared with R2 044 million at the end of 1978.

7 The value of diamond sales in South Africa in 1978 was around R400 million. See *Chamber of Mines Report,* Johannesburg, February 1979, p.3.

8 Information provided by money market sources.

9 *Ibid.*

10 An example will illustrate the importance of this point. Let us suppose that the spot rates quoted by the Reserve Bank are such that it is only prepared to enter into swap transactions to enable banks to swap out existing net long positions in dollars based on a spot buying rate of $1,2249 to the rand and a spot selling rate of $1,2229. In addition, we will assume that a bank has a net long forward dollar position on a three months' basis brought about buying three months forward dollars from clients. We will further assume that the bank bought the dollars from the clients at $1,2314 based on its spot dollar buying rate of $1,2239 plus 75 points which reflects a 2,5 per cent annual premium of the rand against the dollar for three months. If the bank sold these dollars three months forward to the Reserve Bank the latter would buy them at $1,2324 based on its spot buying rate of $1,2249 plus 75 points. The bank would therefore incur a loss. At the same time the bank would buy spot dollars from the Bank at $1,2229 to the rand.

Let us now suppose instead that the Reserve Bank was prepared to enter into swap transactions based on a 2,5 per cent premium for the rand against the dollar and an arbitrary spot rate of $1,2239. This would mean that the authorised dealing bank which had bought the three months forward dollars at $1,2314 could sell them to the Reserve Bank at the same price, i.e. the single buying or selling rate of the Bank of $1,2239 plus 75 points. At the same time it would buy spot at $1,2239.

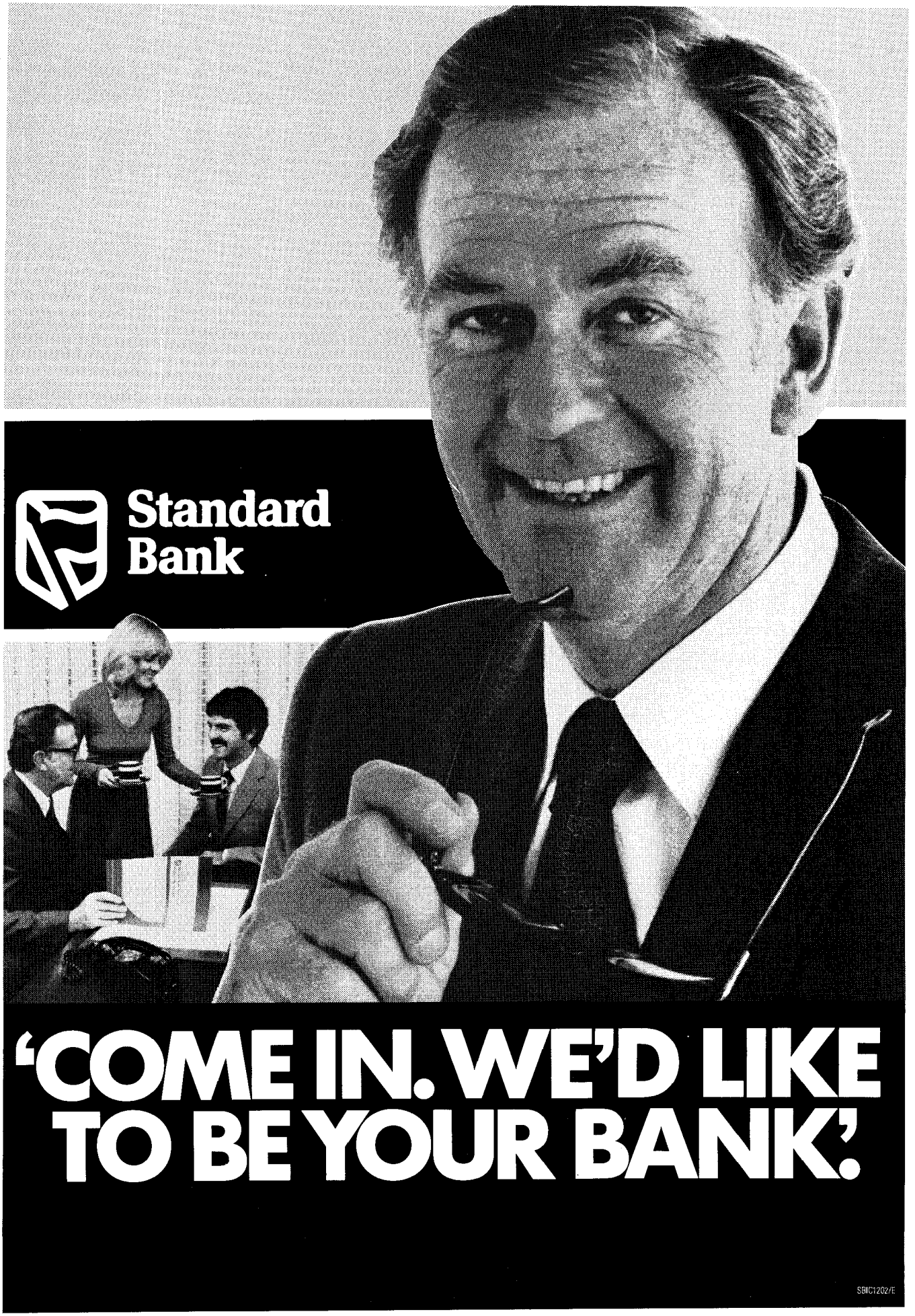
If such swap facilities were available there would be no guarantee that banks would not lose money if they swapped out of the net forward positions, since this would depend upon the spot rate at which it bought or sold dollars from clients. Nevertheless, the risk of losses would be reduced and it could even make a profit.

11 During 1979 the surplus on the current account of the balance of payments was roughly $3 billion, while in 1980 it could exceed $6 billion were the gold price to remain above $600 an ounce.

12 In view of expectations that the rand will appreciate, exporters have been selling forward and importers resisting the buying of forward dollars. This means that the traditional excess of forward sales of dollars over forward purchases by the Reserve Bank should have fallen. Consequently its exposure to losses in having a net long rand position whilst selling dollars for instance at a 2,5 per cent discount to the spot rate is reduced.

13 In August 1976 the gold price fell to $103,50 an ounce, but by January 1980 it had risen to $850 an ounce.

14 In April 1980 the authorities started to quote forward rates for rand/dollar transactions which accurately reflected interest rate differentials. As long as the Reserve Bank continues with the practice the scope for banks to undertake such profitable transactions will be at least considerably reduced.



Registered Commercial Bank

By A. F. T. Payne

Options trading

INTRODUCTION

Options over shares have been used in securities markets since their inception, and have formed part of the South African securities industry since the late 1800s. Little, however, is known about the size and nature of the options market in South Africa.

Options have traditionally been traded in a non-standardised, 'over-the-counter' or 'conventional' options market. In 1973 the Chicago Board Options Exchange (CBOE) in the USA came into existence using standardised options, and enabling these options to be readily resold on an organised options exchange. In recent years increasing interest has been shown in the remarkably successful exchange traded option.

Whilst a lot of attention has been drawn to the exchange traded option overseas, relatively little attention has been directed at the conventional option market in South Africa. The objective of this article is briefly to examine the historical background of conventional options in South Africa, to determine the size and importance of the option market, and look at possible future developments in the options industry. At present, there is no exchange traded option market in South Africa.

DEVELOPMENT OF OPTIONS TRADING

The origin of options trading in shares can be traced to the last two decades of the seventeenth century in Amsterdam where options were taken over the Dutch East India Company and Dutch West India Company. Options were introduced in London in the 1690s, when investors and speculators, with experience in Amsterdam, moved to England following the accession of William and Mary to the English throne in 1688.[1]

Options were probably first traded in South Africa soon after the establishment of The Johannesburg Stock Exchange (JSE) in 1887 although no records exist from that era to substantiate this. Following the establishment of the JSE, rules and regulations were adapted from those used on the London Stock Exchange (LSE) – an institution which has "exerted a considerable influence on the business and conduct of the local exchange".[2] The combined influence of the Dutch and British in South Africa and the development of the mining industry led to the development of options trading in this country.

Prior to World War II options were written inter alia by mining houses and for 10 years or so after the war. They were not written in their own stock but rather in shares of companies "down the line". For example, Anglo American might write options in Western Deep Levels (an Anglo group company) but not in Anglo American Corporation shares. Mining houses still deal in options but very occasionally. Most mining houses wrote options in this way, the most active probably being Anglo American and Johannesburg Consolidated Investments.[3]

Stockbroking companies first started dealing in options to any extent in the late 1940s when two members of the JSE, Mr M. R. Johnson and Mr R. C. J. Anderson began to sell options. Later Mr R. Lurie and others entered the options business. The current market for options developed from these beginnings.

THE NATURE OF OPTIONS

An option is a contract which gives the purchaser the right to buy (in the case of a call option) or sell (in the case of a put option) a given number of shares (or less, as the purchaser may exercise part of the option and need not exercise all of the original contract) at a set price during a set period of time. Other types of option include double and straddle options. A double option is a combination of both a put and a call and gives the right within the lifetime of the option to exercise a put option or a call option *but not both*. A straddle option is a combination of both a put and a call and gives the right within the lifetime of the option to exercise *both* a put option and a call option.

The mechanics of option trading have been described elsewhere[4] and will not be discussed in any detail here.

The main options that are traded in South Africa are call options with relatively little interest being held in put, double and straddle options. Options may be taken out for any time period from one week to over a year. Options of 3, 6, 12 and 13 months are fairly common. The exercise price is normally the current market price of the stock although it may be set at any price acceptable to both the option buyer and option seller. Unlike certain European options, South African options may be exercised at any time during the currency of the option.

Options may be exercised "cum" or "ex" dividends. All incidental accruals (such as dividends, capitalisation issues, rights issues, etc.) accrue to the purchaser on exercise of the option (if he lapses the option the incidental accrual becomes the property of the seller). It may suit the buyer to exercise "ex" dividend (in the case of the purchaser being an individual as he would be taxed on the dividend) or "cum" dividend (in the case of the purchaser being a company in which case the dividend is free of tax).

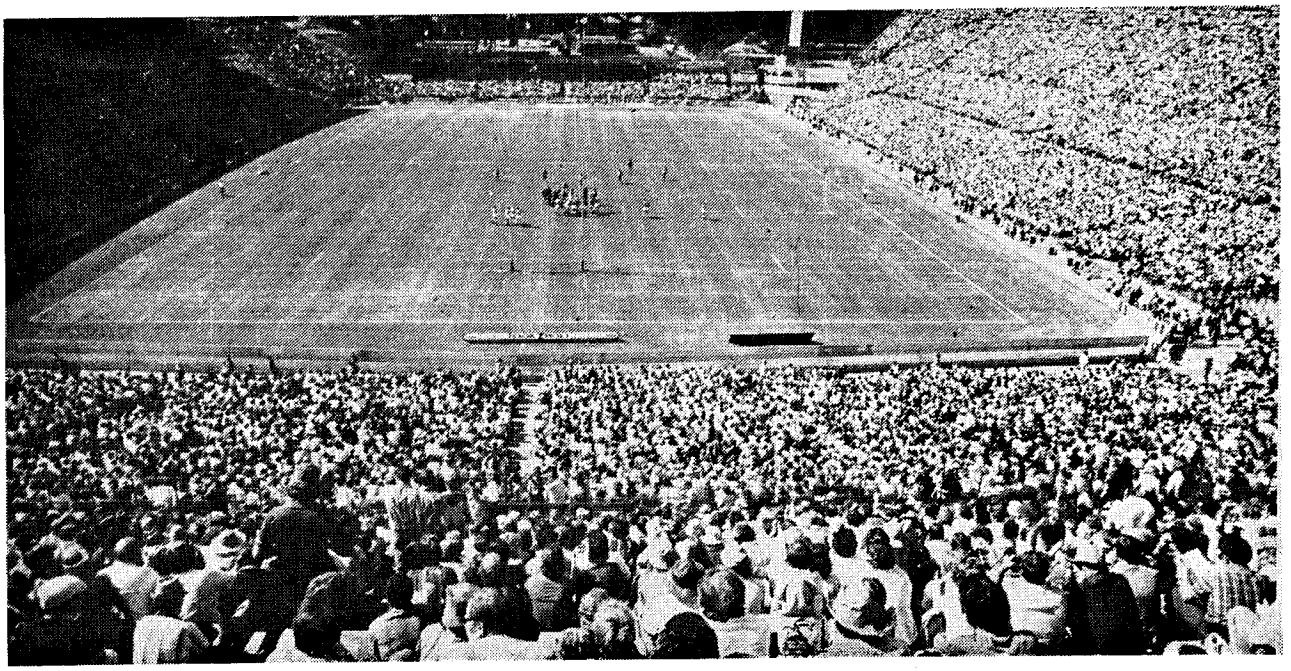
The price paid (or premium) for an option is usually expressed as a percentage of the exercise price. The premium is a function of many factors including the price of the stock, the volatility of the stock and general market conditions and sentiments.[5] The premium paid for a call option on quality stocks such as De Beers or Anglo American might typically be:

2 months 10 %
3 months 12,5%
6 months 16,5%
12 months 22%
13 months 24%

For more speculative stocks, where the price is more likely to fluctuate, considerably higher premiums might be paid.

THE EXTENT OF THE OPTIONS MARKET

Little has previously been known about the extent of the South African options market. The JSE makes available to member firms details of option transactions only on a weekly basis. This information is made available to the press stating the number of shares, the name of the share,



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the type of option and the average option money paid. However, it does not state the number of different option contracts and does not distinguish between different lengths of option. For example, if a three-month call option on 1 000 De Beers shares was struck at a share price of R850 and with a premium of R97, and one for six months on 2 000 shares at a share price of R860 and with a premium of R163, the published statistics amalgamate these as follows:

3 000 (shares); De Beers; R141 (weighted average premium calculated by (1 000 x 97 + 2 000 x 163)/3 000 = 141).

Annual statistics regarding volume and value of options transactions are not published by the JSE.

In order to determine the extent of the options market in South Africa, the JSE has co-operated with the author by providing a computer print-out of options statistics for the period 1972 – 1978 with the exception of 1974.[6] In the remainder of this section these statistics are analysed and for the first time an accurate picture of the extent of the options market can be established.

OPTION VOLUME AND VALUE

Details of option volume and value are given in Table 1. Option volume measured in millions of shares over which options were taken fluctuated considerably over the period 1971 – 1978. Volume rose more than fourfold from 0,8 million to 3,6 million shares between 1971 and 1972. Volume dropped to less than 1,0 million shares by 1975 and then rose to nearly 4,0 million shares in 1978. Option volume as a percentage of share volume varied between 0,26 per cent in 1971 to 0,98 in 1978. By comparison, in the USA over-the-counter market, option volume as a percentage of share volume on the New York Stock Exchange varied between 0,47 and 1,30 between 1961 and 1973.[7]

Value of option trading ranged from a low of R235 000 in 1971 to a high of R1 018 000 in 1978. Total option value compared with total share value reached a maximum of 0,12 per cent in 1976. The table shows the amounts spent on options is extremely small compared to amounts spent on shares.

TYPES OF OPTIONS

The results of an analysis of the number of shares over which options were taken for call, put, and double options are shown in Table 2.

Note

1971 has been omitted from Tables 2 and 3 because no breakdown into calls, puts and doubles is made in the data supplied for that year.

TABLE 1
Volume and value of option transactions compared with volume and value of share transactions on JSE

Year	Millions of shares		Option volume as per cent of share volume	Rand (million)		Option value as per cent of share value
	Option volume	Share volume		Option value	Share value	
1971	0,830	313,8	0,26	0,235	569,5	0,04
1972	3,562	577,2	0,62	0,728	1 169,3	0,06
1973	2,433	510,3	0,48	0,650	1 267,8	0,05
1974	N/A	467,8	N/A	N/A	1 627,7	N/A
1975	0,992	343,0	0,29	0,294	776,0	0,04
1976	1,945	303,9	0,64	0,794	663,4	0,12
1977	2,197	327,6	0,67	0,753	739,2	0,10
1978	3,993	405,9	0,98	1,018	954,6	0,11

Source: Published and unpublished records, JSE.

TABLE 2
Analysis of option type by volume of shares over which options were taken

Year	Number of shares over which options were taken				Calls as per cent of total
	Calls	Puts	Doubles	Total	
1972	3 389 900	128 400	43 800	3 652 100	95,17
1973	2 402 300	11 500	19 000	2 432 800	98,75
1974	N/A	N/A	N/A	N/A	N/A
1975	975 200	6 600	10 000	991 800	98,33
1976	1 933 100	11 500	–	1 944 600	99,41
1977	2 132 300	22 400	42 000	2 196 700	97,07
1978	3 979 900	43 500	–	3 949 900	98,91

Source: Unpublished records of JSE.

The results show that call options accounted for at least 95 per cent of all options in terms of shares over which options were taken. This percentage is much higher than an average of 66,97 per cent for call options as a percentage of all conventional options traded in the USA between 1974 and 1976.[8] It appears that the South African trader/speculator has a considerably greater preference for call options than his American counterpart.

STOCKS IN WHICH OPTIONS WERE TRADED

Table 3 provides information regarding the number of different stocks in which options were traded for different option types. In 1973, options were written in 200 different stocks, the highest figure for the period.

TABLE 3
Number of stocks in which options were traded

Year	Calls	Puts	Doubles
1972	194	10	12
1973	200	4	4
1974	N/A	N/A	N/A
1975	91	7	1
1976	99	4	–
1977	83	6	4
1978	109	12	–

Source: Unpublished records of JSE.

Certain stocks had a greater level of activity in their options than others. The most recent year for which data were available (1978) was taken and an examination made of stocks in which there was a high relative degree of option activity. Table 4 gives information on 17 stocks having options taken over more than 100 000 of their shares or amounting to more than R25 000. Of the 12 stocks having call options taken over more than 100 000 of its shares in 1978, these stocks accounted for 66,9 per cent of all option volume with 33,1 per cent being distributed amongst the remaining 97 stocks. In value terms, the 11 stocks with options amounting to more than R25 000 accounted for 72,4 per cent of all option turnover 1978.

OPPORTUNITIES FOR NON-RESIDENTS

A discussion of options trading in South Africa would not be complete without brief mention of special opportunities available to non-residents who deal in options. Non-residents may use 'financial rand' to invest in approved securities.[9] These financial rands were available at a discount of around 16 per cent of the free rate of exchange in January 1980. This means non-residents may purchase South African securities at 84 per cent of their cost in commercial rand (or free rand).

If a non-resident purchases a South African call option of 13 months, this can encompass three dividends on a stock like De Beers. Payment of these dividends may be made in commerical rand after deduction of non-resident taxes (15 per cent on dividends) to the purchaser of the option and can be exchanged at the current rate of exchange applicable to commercial rand. This can significantly increase the return to an option buyer.

Options incorporating a stock and a currency component currently account for an estimated 5 per cent of the total volume in option transactions.

TABLE 4
Stocks in which there was the greatest activity in options on the JSE in 1978

JSE stock code	Stock having options taken over more than 100 000 option shares	Stock having options taken over amounting to more than R25 000
AF Lease		X
Broadacre	X	
Doorns		X
Elands		X
FS Saai		X
GF Prop	X	X
Grootvl	X	X
Harties		X
Leslie	X	X
Loraine	X	X
Rusplat	X	X
Sallies	X	
Venters	X	X
Village	X	
Vlaks	X	
W Nigel	X	
Wispeco	X	

Source: Unpublished records of JSE.

DEVELOPMENTS IN THE FUTURE

Despite some growth in the South African market for options, the levels of option activity appear to be well below those in the USA. Looking some distance into the future and given an increased level of interest in options, developments are possible in two areas. Firstly the conventional options market could be improved and secondly an options exchange could be established.

Efforts have been made in the USA for some years to improve the conventional options market.[10] "Special" options are a feature of the US market. These options include options already in existence which are made available for resale. Some of the larger option dealers have sufficient inventory of these special options to place regular advertisements in the financial press offering them for resale, thus creating a limited secondary market in options. However, trading in these special options has not reached a significant volume, and a viable secondary market has not been established.

More recently, efforts have been made to introduce more efficient trading and clearing techniques for conventional options. One organisation in the USA, The Options Organisation, Inc (OOI) has since 1973 been working towards a computerised system to automate trading in conventional options. The system[11] utilises a computer with continuously active terminals capable of selective interaction with other terminals in the system.

The trading of an option contract under the OOI system requires entry of a bid and an offer being made on a computer terminal. These bids and offers are anonymous, firm and subject to immediate automated matching. When a match between a bid and an offer is not made the person making the last entry is anonymously notified through the terminal of the respective nearest bid or offer and the two nearest matched entries are automatically placed in negotiation mode.

However, the OOI did not become an operating entity possibly because of the conflict of interest with the trading personnel who control the operations of the stock.

For such a system to become practical in South Africa a very much larger turnover in options would be necessary. It is difficult to foresee demand for conventional options in South Africa reaching a level that would make the introduction of such a system viable in the immediate future.

A development more likely to occur in the near future is the establishment of an option exchange. The success of the Chicago Board Options Exchange has led to four more options exchanges being established in the USA, two in Canada, and one each in Australia, Amsterdam, London and Singapore.

The JSE is giving some attention to the possibility of setting up a formal options exchange but plans have only developed as far as monitoring the situation on other major exchanges overseas.

It seems likely that in the future options will continue to be a small but important adjunct to the share market. The introduction of an options exchange following the London system where the options market is part of the London Stock Exchange, rather than the completely separate exchange set up by Amsterdam, would seem most appropriate.[12]

The increased flexibility, marketability and standardisation of exchange traded options make this form of option superior to the conventional option. However, it seems likely that if an options exchange were established by the JSE, only a very limited number of stocks would be listed, at least initially. Options on the limited number of stocks would never satisfy all the needs of all option writers and buyers and even if an options exchange was established it seems probable that both markets could co-exist together, as is currently the case in several other countries.

References and footnotes

1 Morgan, E. V. and Thomas, W. A. *The Stock Exchange*, Elek Books, 1962, pp. 21, 59.

2 Republic of South Africa, *Report of the Stock Exchange Inquiry Commission and Minority Report of Dr A. J. Norval*, 1965, p. 27 (The Broome Report).

3 Correspondence from Mr M. R. Johnston (Jnr) of Lurie, Johnston and Co, 14th May 1979. The author is grateful to Mr Johnston for supplying much background information on the option market in South Africa.

4 (a) Woods, I. R., "Calls and Puts", *The South African Banker*, Vol. 65, No. 4, November 1968, pp. 451 – 460.

(b) Cloete, J. H., *Johanneburg Stock Exchange Practice*, Johannesburg Professional Publications, 1937, pp. 34 – 40.

(c) Johannesburg Stock Exchange, *The Johannesburg Stock Exchange Manual*, The Penrose Press, pp. 31 – 33.

(d) Lurie, Johnston and Co Inc, "Purchase of South African Call Options", Confidential Report for Clients, 1979.

5 A discussion of valuation of options is beyond the scope of this paper. Much work has recently been done in this area following the publication of the work of Black and Scholes. See Black, F. and Scholes, M., "The Pricing of Option Contracts and Corporate Liabilities", *Journal of Political Economy*, Vol. 81, No. 3, May – June 1973, pp. 637 – 654 and the excellent review article by Smith, C. W., "Option Pricing: A Review", *Journal of Financial Economics*, Vol. 4, May – June 1976, pp. 3 – 51.

6 Statistics for 1974 were not available.

7 Bookbinder, A. I. A., *Security Options Strategy*, Programmed Press, 1976, pp. 111.

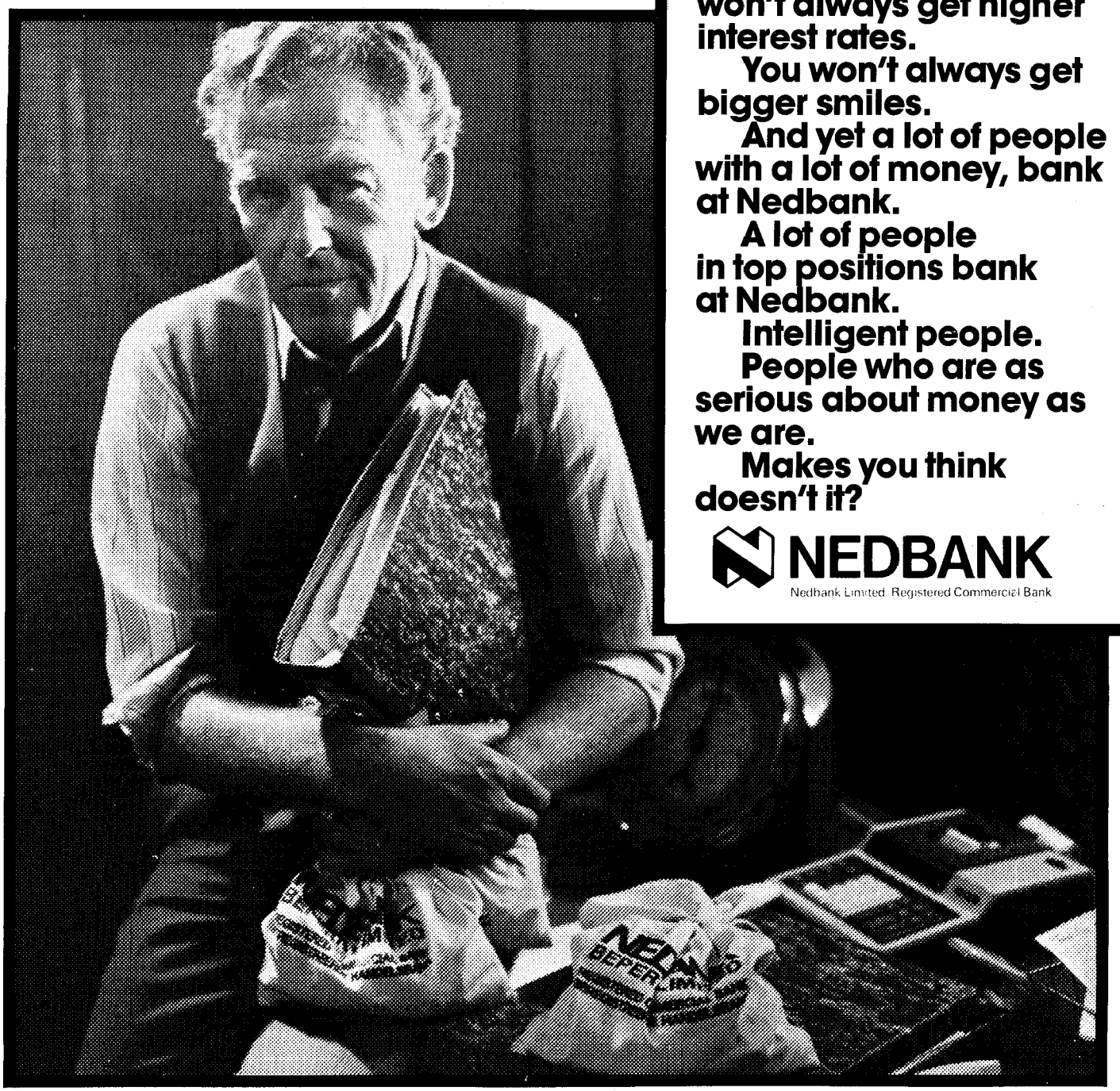
8 Correspondence from Mr S. B. Whitten, Financial Analyst, Securities and Exchange Commission, USA to the author, dated 25 November 1977. No later data are available from the SEC.

9 A full description of financial rand and free rand is beyond the scope of this article. For further information see reference 7 above, and, Lurie, Johnston and Co Inc, "Financial Rand" (undated), and "Writing Options in South African Securities by Non-Residents", 15th May 1979, Confidential Reports for Clients.

10 Parts of the following discussion are from Payne, A. F. T., "The Conventional Options Market", *Journal of the Securities Institute of Australia*, 1978, No. 4 (December), pp. 19 – 24.

11 This is fully described in a proposal from the Option Organisation Inc to the American Stock Exchange dated 26th March 1973.

12 The Amsterdam Options Exchange (European Options Market) requires ten times the option volume of the London Traded Options Market to break even. The Amsterdam Market has been operating at levels well below break even.



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By B. M. Gourley

A framework for reporting

INTRODUCTION

In accounting literature there is much information on the objectives of financial reporting. One important objective is that of providing information to help assess the risk/return characteristics of securities. There is, however, less than specific guidance offered on how this objective is to be achieved. It has been stated that "accounting is a source of market imperfection".[1] Certainly if financial reporting is to achieve its objectives it must serve a more positive function to the financial markets than it has thus far rendered. This paper, therefore, directs attention as to how financial reporting might at least get closer to achieving its objectives by focusing on specific items of information within the general framework of a valuation model.

In presenting a framework for development of a financial reporting strategy, it is necessary to make the assumption that the ethos of the firm is unimpeachable, and that management consists of men of integrity who are well-intentioned in their efforts to serve the interests of shareholders and other interested parties, including that of society in general. If this assumption is made, then there should be no objection on the part of management to a financial reporting strategy of full disclosure except where this is seen to not be in the best interests of the shareholders (i.e. in withholding information that could aid competitors). It is suggested that the shareholders are basically concerned with ascertaining the value of the company's shares and a reporting framework which centres around attempting to provide correct intrinsic values would suit their requirements. Therefore, the framework selected is one of a valuation model which has as inputs information which could be provided through the financial reporting medium of the firm.

The valuation model which has been adapted for use in this situation is that model propounded by Stern.[2] Stern's model does not specifically incorporate the tools of portfolio theory nor does it attempt to overcome the severe limitations of the historic cost model. It must, therefore, be adapted.

A FRAMEWORK FOR REPORTING

Stern's valuation model is based on the belief that the value of the company's shares can be described in terms of the following:

$$V = \frac{NOPAT}{c} + tD + IT\,\frac{r-c^*}{c^*(1+c^*)}$$

Where NOPAT = expected net operating profit after taxes but before financing costs
c = market's required rate of return for business risk
t = marginal company income tax rate
D = interest-bearing debt
I = new investment capital
T = time horizon for which growth potential is expected to continue
r = the expected rate of return after taxes on new investment
c* = weighted average cost of debt and equity capital (after tax)

The equation is divided into its three main terms, and each of these is discussed below.

1 Expected net operating profit after taxes but before financing costs/market's required rate of return for business risk

This is an expression of a fundamental principle of valuation: the market value of the firm's equity is equal to the anticipated net operating profit discounted at a rate that is a measure of the risk involved (i.e. capitalised anticipated profits).

1.1 Expected net operating profit after taxes but before financing costs (NOPAT)

If NOPAT equals anticipated profits then it follows that profits computed on the historic cost model will not be satisfactory. The reasons for the model's failure are well documented,[3] the main criticism being its failure to deal with price changes resulting in the profit figure not being close enough to what investors really need: a reasonable surrogate for economic income.

It is suggested here that two important policy decisions be taken by management so that NOPAT can be computed on a more realistic basis. The first decision is to change from the historic cost model to the replacement cost model. The second is to provide a clear guideline for choosing between accounting alternatives.

(a) Change to replacement cost model

The rationale for changing to the replacement cost model is that it provides a method of computing a figure for economic income which, if not perfect, is at least closer to reality than the historic cost model –

"Theoretically, replacement cost income is virtually identical to economic income in a perfectly competitive economy." (4.98).

Economic income is the measure of change over a period of time in the value of the firm's assets. The value of the firm's assets is in turn computed by discounting, at the market rate of return, the expected cash flows to be derived from those assets. The argument in favour of replacement cost measurement is based on the theoretical relationship between the discounted present value of an asset and its replacement cost –

"At any point in time the replacement cost of an asset is the most objective possible approximation of its discounted present value – the theoretically best measure of asset worth." (4.82).

The replacement cost income concept seeks to separate two components of earned income: that component which has resulted from operating activities (properly called 'operating profit'), and that component which has resulted from holding activities. If the profit figure is to be recurring (in the sense that it is

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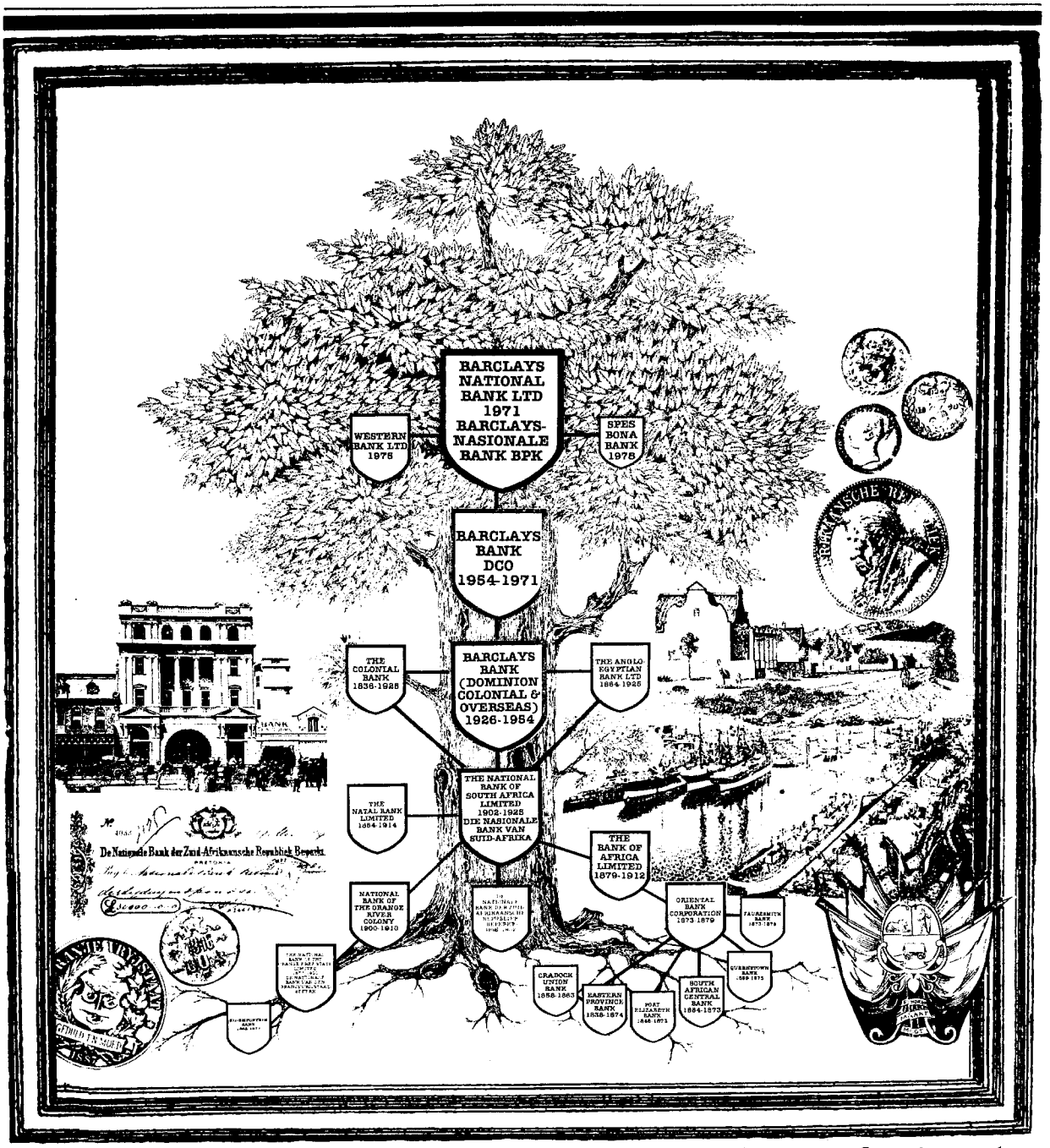

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expected to be repeated, and therefore supposedly useful for predictive purposes), then it is important that this distinction is made. Holding gains are attributable to external price changes, and therefore result from a set of decisions quite different to those relating to operating activities. They are therefore subject to different expectations. Commingling the two activities obscures the picture and makes an assessment of what can be expected in the future almost impossible. Because replacement cost income is computed using current figures, it must be at least more useful than historic cost for determining the long-run profitability of the entity.

In this regard, Edwards and Bell state:
"Current operating profit... indicates whether or not the current proceeds from the sale of product are sufficient to cover the current cost of the factors of production used in producing that product. The factors of production are valued in this case not at prices which could be obtained by selling them outside the firm, but at the prices which would currently have to be paid in order to bring the factors of production into the firm. The existence of a profit for a particular period indicates that the firm is making a positive long-run contribution to the economy; the production process in use by the firm is an effective means for converting resources having one value into an ouput having a larger value.

If this profit exceeds interest on the current cost of the firm's asset at the beginning of the period, the production process of the firm is worth continuing. Current operating profit, therefore, is essentially the long-run profit associated with the existing process of production carried on under existing conditions.

... Current operating profit is a measure of the amount of current output, in the sense of value added, which is profit." (5.98).

It will probably be helpful to illustrate the relationship between historical cost income and replacement cost income. This can be accomplished by preparing a reconciliation of the two profit figures, as follows:

XYZ Company
Reconciliation between historical cost and replacement cost income
19 x 1

	R
Replacement cost current operating profit	300
Plus: Cost savings that were realised through sale or use during the year (realised holding gains)	100
Historical cost operating profit	400
Plus: Cost savings that were not realised through sale or use during the year (unrealised holding gains)	200
Total replacement cost income	R600

This reconciliation indicates that traditional historical cost operating profit (R400 in this example) is actually composed of two components:

1 the current operating profit component of replacement cost income (R300), and
2 that portion of cost savings (or holding gains) that relates to assets that have been consumed in whole or in part or sold during the current period (R100).

It is suggested that this separation facilitates the evaluation of holding activities and, by isolating the effect of price changes, maintains the integrity of operating results.

An important caveat should be introduced at this point. It is possible that in an individual firm, the relationship between changes in asset prices and changes in operating flow potential do not move in the same direction. For example, as an asset's price changes, future operating flows could remain constant or change in the opposite direction. If this can be expected to occur, then replacement cost income will not be a useful surrogate for economic income.

The first term of the equation therefore should be split into two parts: that part representing operating profits which expect to be repeated (NOPAT) and that part representing realisable holding gains which need not necessarily be repeated in perpetuity depending on changes in price levels. (HG).

Stern's model assumes that I (new investment each period) is financed out of the previous period's NOPAT. Thus NOPAT in this expression would more properly be shown as NOPAT-I and the ratio of reinvestment (i.e. retention ratio) to current profit would therefore be

$$\frac{I}{NOPAT.}$$

In separating out the holding gains it is necessary to assume that this same ratio pertains.

Thus, if holding gains can be forecast for the forthcoming (say) three time periods, the value assigned to them would be expressed as follows:

$$1 - \frac{I}{NOPAT}\ ,HG_1\ (1 + c)^{-1}$$

$$+ 1 - \frac{I}{NOPAT}\ ,HG_2\ (1 + c)^{-2}$$

$$+ 1 - \frac{I}{NOPAT}\ ,HG_3\ (1 + c)^{-3}$$

To this then is added the capitalised value of operating profits not treated as I, expressed more specifically as follows:

$$\frac{NOPAT-I}{c}$$

From the shareholders' point of view one other beneficial effect flowing from the introduction of the replacement cost model is that the

possibility of "secret reserves" being built up in the balance sheet, and, thus, providing sources of future profits to prospective take-over bidders is eliminated. It is not possible to "raid" a company where the values of tangible assets are fully disclosed.

(b) Guidelines for choosing between accounting alternatives

Whether the firm adopts the replacement cost model or the historic cost model there is still a variety of accounting alternatives possible. Stern suggests that in reality there is no choice: the firm must select that alternative which maximises cash flow to the firm. However, this suggests that the tax authorities have different rules for different companies which is not in fact the case. There are tax laws which govern the allowance or disallowance of certain expenses, and they are not dependent (except in one instance) on the accounting reporting options selected by the company. The exception to this is the valuation of inventory and here the guideline offered by Stern would apply. The company must select LIFO since this maximises cash flow (by reducing tax expense). However, LIFO would probably be the method of valuation under the replacement cost model so there is no conflict.

Therefore, the Stern guideline must be rejected and the following applied: the firm must select that alternative which is likely to be most recurring.

"Current operating profit indicates the amount that the firm can expect to make in each period over the long run." (5.99).

The corollary to this is that in each instance where a choice exists the choice made must be to disclose in the annual financial statements sufficient quantitative data for these to be meaningful. Since the profit figure disclosed in the annual financial statements will not be the profit figure for tax purposes, there will be additional compulsory disclosure reconciling the two.

Because it is so important that the profit figure be recurring, it is essential that any figure which management feel to be non-recurring should be separately shown in the annual financial statements. There is a Statement of Generally Accepted Accounting Practice (No. 1.003) which governs the disclosure of abnormal and extraordinary items. The statement is very narrow in its definitions and it is unlikely that these definitions will in all cases coincide with management opinion on what is non-recurring. The point is that there is no legal constraint on additional discretionary disclosure, and whether or not definitions agree is academic. As long as shareholders and other financial statement users are given the information they can draw their own conclusions and make whatever adjustments they deem necessary.

1.2 Market's required rate of return for business risk (c)

It is difficult to arrive at a c objectively but there is market information that can be used in the form of the capital asset pricing model which describes the overall risk-return relationship of an individual security. The capital asset pricing model will establish a weighted average cost of capital (or required rate of return) c* and from this, c can be derived.

$$\text{i.e. } c^* = c\ \left(1 - \frac{tD}{D + E}\right)$$

c^* = weighted average cost of capital
t = marginal company income tax rate
D = interest bearing debt
E = aggregate market value of ordinary shares

It is noteworthy that the market establishes its required rate of return for a given level of risk based on the information that it has. No market can react to information it does not receive. Thus, the more comprehensive the information given to the market the more accurate and reliable c* will be. Basically the market requires information to determine its risk levels. There are no conclusive studies defining those particular characteristics which go to make up the risk attached to a particular security, but on the studies so far conducted it would appear that the nature of this information would include (i) accurate disclosure of debt levels, on the assumption that the higher the debt level the higher the risk (beta); (ii) disclosure of operating leverage on the assumption that the higher the operating leverage of a firm, the higher the volatility of returns; and (iii) disclosure of different activities undertaken by the firm and their relative contribution, on the assumption that the more diversified the activities of a firm, the lower the level of risk that can be attached to that firm. This means that segment reporting is recommended. Segment reporting can be defined as information about an enterprise's operations in different industries, its foreign operations and export sales, and its major customers.

Stern maintains that the risk is also influenced by the nature of the firm's assets. "Therefore, planned changes by management of asset composition should be reported to the market. This includes industry and geographical distribution." (2.13).

2. **Marginal tax rate times interest bearing debt**

$$\left(tD \text{ or } \frac{tbD}{b}\right) \qquad \text{where } b = \text{interest rate on borrowed funds}$$

This expression is again an application of fundamental principles. In computing the value of the firm the market will capitalise not only profits as measured by the expression NOPAT, but will also take into account the tax savings which benefit the company through the use of debt. This implies that the company has a stable capital structure, that debt would be refinanced as it became due, and that the tax saving is, therefore, available in perpetuity. Thus, the capitalised tax savings would be part of the value of the company. This will hold true only if the debt levels are kept within "prudent limits". The fixing of those limits is beyond the ambit of this paper.

The debt figure (D) should include all debt including

lease commitments, or so-called "off-balance sheet financing". One of the most significant defects in traditional financial reporting is the failure to reflect off-balance sheet financing. Currently, what is reported to shareholders is:

"the amount paid by way of leasing charges for the use of any asset other than immovable property, which, if owned by the company, would have been subject to a charge for depreciation." (6)

It is suggested that future lease charges be capitalised to an asset account with a corresponding liability for future lease commitments. Leasing charges should be apportioned between that which is, in fact, interest on debt, and that which is a reduction in the liability.

The rate at which the tax savings is capitalised will be the effective interest rate on the debt itself. Since debt is the component here which management is in a position to alter, management should convey its target debt ratio to the market if the target ratio is different from the current capital structure or has fluctuated widely in the past.

3 Expected growth rate on new investment capital for specified time horizon

$$(IT\frac{r-c^*}{c^*(1+c^*)})$$

It will be noticed that in the first two expressions no allowance has been made for growth. Growth can be described as the difference between what investors expect to earn as quantified by c*, and what the firm will earn over and above c* assuming management will not invest in new projects (I= new investment capital) with expected rates of return (r) less than the weighted average cost of capital (c*).

Thus, $\frac{I(r-c^*)}{c}$ measures the discounted value of new investment in the firm. However, since r cannot exceed c* forever (the discounted value of the growth potential would be infinite), a finite time horizon is introduced: T. The introduction of a finite time horizon results in a mathematical expression which simplifies to:

$$\frac{IT\,(r-c^*)}{c^*(1+c^*)}$$

(Mathematical proof of this simplification is shown in Appendix 1.)

It is probable that if a certain proportion of NOPAT is retained for growth, then a similar proportion of HG will also be retained and reinvested at a similar return. The value of this retention should then also be added to the value of the firm. This value would be expressed as follows:

$$\frac{I}{NOPAT}rHG_1\quad\frac{a}{Tc^*}(1+c^*)^{-1}$$

$$+\frac{I}{NOPAT}rHG_2\quad\frac{a}{Tc^*}(1+c^*)^{-2}$$

$$+\frac{I}{NOPAT}rHG_3\quad\frac{a}{Tc^*}(1+c^*)^{-3}$$

(Where T corresponds to the finite time horizon previously referred to.)

The information needed by the market to calculate growth in this way is as follows:

–I– which is new investment capital. Stern defines I as– "net fixed capital additions: capital expenditures minus depreciation and other non-cash charges plus additions to working capital (net current assets) and other long-term assets, or, what amounts to the same thing, additions to total assets minus additions to current liabilities". (2.7). Stern believes – "that rates of return on fixed capital do not change much on average and over time, and since the rate of return multiplied by the amount of fixed capital is equal to the level of net operating profit, a forecast of anticipated incremental investment tells investors half of what they need to know in order to calculate future profits". (2.14).

– T – which is the time horizon for which growth potential is expected to continue. This factor is exogenous to the firm and its management, and is determined almost exclusively by the market. It is a measure of the market's confidence (T years) in management's ability to out-perform the weighted average cost of capital.

"T is a function of product cyclicality, the state of monetary policy, and the degree of government regulation and product technology. Again given the firm's expected asset composition, the market determines T." (2.13).

–r– which is the expected rate of return, after taxes, on new investment. Stern suggests that "all companies (should) include a statement about, and even the calculation of, the rate of internal growth in net operating profits in their annual reports and in presentations to investment analysts". (2.14).

It is suggested that it is unlikely that r would remain constant over time period T (an assumption made in the Stern model). It is more likely that r will tend back toward c* (the cost of capital) over time. If this is true the equation should be expanded to form one expression for each time period with a different r for each time period.

ADVANTAGES AND DISADVANTAGES OF FRAMEWORK

Stern's framework has been adopted in the previous section to read as follows:

$$V=\frac{NOPAT-I}{c}+1-(\frac{I}{NOPAT}),H_1(1+c)^{-1}$$

$$+\ 1-(\frac{I}{NOPAT}),H_2(1+c)^{-2}$$

$$+\ 1-(\frac{I}{NOPAT}),H_3(1+c)^{-3}$$

$$+\ tD$$

$$+\ IT\frac{r-c^*}{c^*(1+c^*)}$$

$$+\frac{I}{NOPAT}rH_1\ \frac{a}{Tc^*}(1+c^*)^{-1}$$

$$+\frac{I}{NOPAT}rH_2\ \frac{a}{Tc^*}(1+c^*)^{-2}$$

$$+\frac{I}{NOPAT}rH_3\ \frac{a}{Tc^*}(1+c^*)^{-3}$$

Protea Holdings Limited

Preliminary report to shareholders for the year ended 30th June, 1980 and declaration of final dividend

The audited trading results of the Group for the year ended 30th June, 1980 and published results for the previous financial year are as follows:

(Thousands of Rand)	Year ended 30th June **1980**	1979	*Per cent increase*
Group turnover	**276 532**	214 467	*29*
Group trading profit before tax	**28 274**	18 207	*55*
Taxation	**11 818**	8 145	*45*
Group trading profit after tax	**16 456**	10 062	*64*
Outside shareholders' interest	**(529)**	17	—
Attributable taxed income of associated companies	**927**	645	*44*
Preference dividend	**(505)**	(505)	—
Earnings attributable to ordinary shareholders	**16 349**	10 219	*60*
Ordinary listed shares (thousands)	**29 921**	29 588	*1*
Earnings per share (cents)	**54,6**	34,5	*58*
Dividends per share (cents)	**24**	17	*41*

Earnings per share are the highest ever achieved by your Group – 58% up on last year's record earnings. The main reason for the substantial profit improvement was the strong upswing in economic activity which benefitted all areas of group business.

A further increase in earnings is expected in 1981 and the Annual Report which is due for release at the beginning of September will include a forecast of earnings.

The Board has decided to declare a final dividend of 16 cents (1979 – 12 cents) which together with the interim dividend of 8 cents (1979 – 5 cents) gives a total distribution for the year of 24 cents (1979 – 17 cents). The final dividend will be paid to shareholders registered at the close of business on 5th September and dividend cheques will be posted on or about 26th September, 1980. Non-resident shareholders' tax will be deducted where applicable. The share transfer registers of the company will not be closed for the purpose of the dividend.

14th August, 1980

F.G. BEARD
AIDAN BEARD
Directors

Registered Office:
Esme Lane
off West Street
2196 Sandown
P.O. Box 3195
2000 Johannesburg

Transfer Office:
103 First Floor
The Johannesburg Stock Exchange
Diagonal Street
2001 Johannesburg
P.O. Box 3195
2000 Johannesburg

Chemicals • Consumer products • Electrical and electronics • Instrumentation and laboratory • Medical • Metals and engineering • Protective clothing

It is a framework which indicates to management some of the specific requirements of investors which could be met through the financial reporting medium of the corporate entity. It is suggested that these requirements would satisfy the stipulation made in the Sandilands Report:

"Investors would undoubtedly like to see accounts drawn up in a form which provides the most satisfactory basis for assessing the future prospects of a company – a quality which has been described to us as 'predictive ability'." (7.47).

It is further suggested that this information would more closely approximate the Companies Act requirement of 'fair presentation' and overcome at least some of the limitations of the current conventional reporting framework. It is further suggested that a reporting framework which provides information of a consistent nature would reduce the area of so - called 'organisational slack' which again is likely to be for the benefit of all except a less well intentioned management who have no wish to be judged in this way.

The framework is tailored to accommodate the theory of efficient markets and if adopted would contribute to increased efficiency for the benefit of all. The more efficient the market the more accurate the ascertainment of cost of capital, thus improving the efficiency of the finance function in the firm. Furthermore, the adoption of such a framework minimises the possibility of takeovers for the purpose of so-called 'asset stripping' since there can be no profit advantage where the share price reflects the 'intrinsic' value of the firm.

The adoption of the framework will necessitate management formulating their strategic targets in accordance with the parameters of the framework. Stern cites the particular advantages of his framework in this context as follows:

(a) management can test the sensitivity of assumptions by varying estimates of the parameters, and
(b) management can simulate the impact of its assumptions on the pro-forma price of its firm's ordinary shares.

These advantages should not suggest an attempt by management to manipulate the parameters but rather a method of choosing between alternative business decisions where the impact of the decisions can be evaluated before the implementation thereof. It is suggested that the framework is particularly advantageous in that it sharply reduces areas of political conflict within the organisation as well as the amount of 'organisational slack' in the form of alternative reporting options.

CONCLUSION

This paper has been devoted to identifying specific parameters which satisfy some of the needs of users of company financial reports. Investors have been credited with the objective of seeking to ascertain the value of their shareholding in the company and financial reporting with the objective of providing relevant information to this end. It is suggested that use of the valuation model originated by Stern, expanded and modified, would help in the achievement of the shareholders' objective. The information inputs to this model highlight the main theme of this paper, that what is reported has a direct impact on the value (price) of the company's shares on the stock market, and should, therefore, be an integral component of the entity's corporate strategy.

To give some plausibility to this model it would need to be empirically tested. To conduct a test it would be necessary to persuade a sufficiently large number of companies to provide information as suggested in this paper, and then test whether it was easier to predict future share prices for this group than some other group of companies where information is not provided. To persuade a sufficient number of companies to provide this information seems an insurmountable obstacle to empirical testing. The only alternative lies in persuading the accounting profession as the preparers of external reports of the value of the additional information.

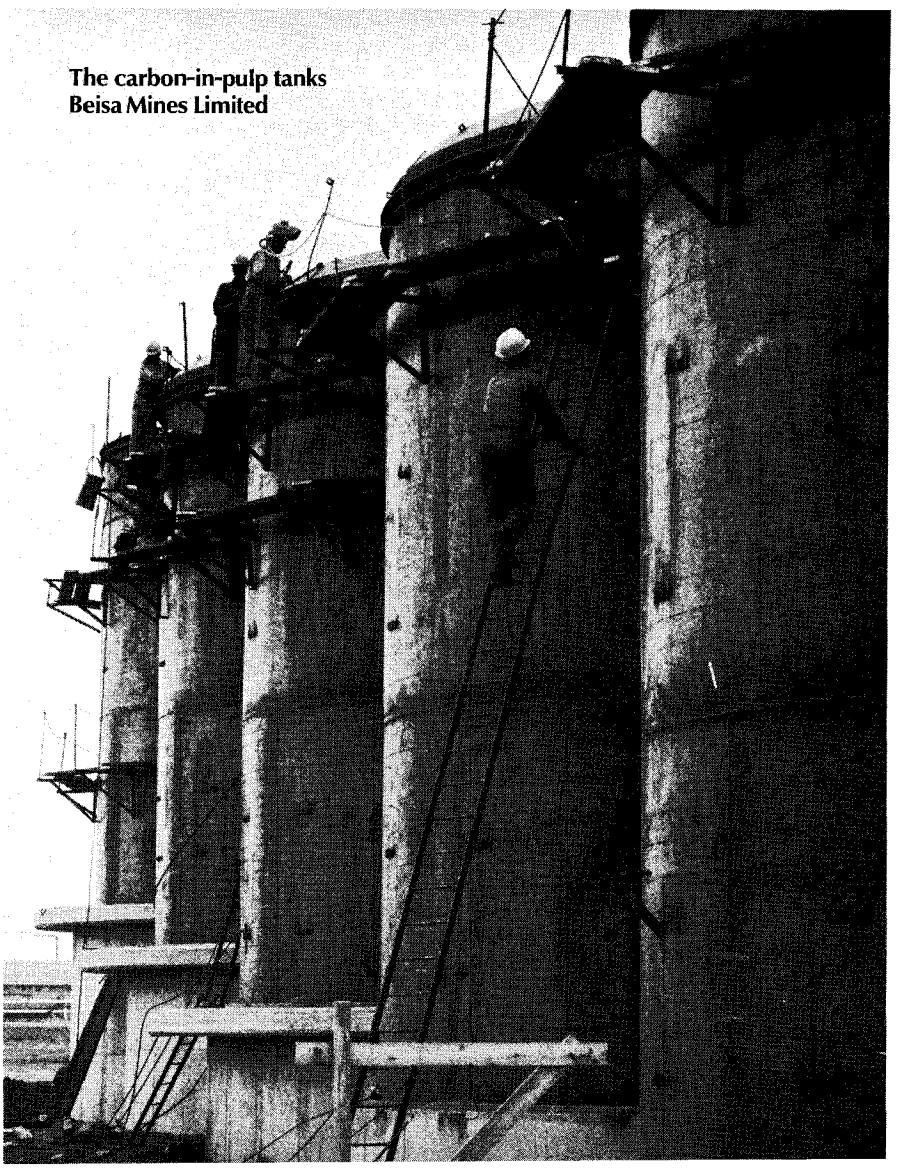
"No other professional group has the interest or inclination to explore and effect improvements in external reports, the responsibility for initiating such changes must either rest with accountants or remain undone; since the societal costs of inaction are high (i.e. inefficient allocation of capital resources) we would opt for the first alternative." (4.56).

Appendix 1

MATHEMATICAL PROOF OF SIMPLIFICATION OF FORMULA SHOWN

(X is short for NOPAT)

TIME:	NOTES*	0	1	2	3	4	T	X
profits:			X	X	X	X	X	XXX
return on reinvestment	1			Ir	Ir	Ir	Ir	
					Ir	Ir	Ir	
	2				$\frac{(Ir)^2}{X}$	$\frac{(Ir)^2}{X}$	$\frac{(Ir)^2}{X}$	
	3					*!?	*!?	
TOTALS on return on reinvestment and normal profits			X	X + Ir		X + 2 Ir + $\frac{(Ir)^2}{X}$ X $(1+\frac{Ir}{X})^3$ . .		X $(1+\frac{Ir}{X})$ T – 1



The carbon-in-pulp tanks
Beisa Mines Limited

On 3 July 1980 a bold new name entered the mining financial listings of the Johannesburg Stock Exchange. Gencor was formed through the merger of General Mining and Finance Corporation Limited with Union Corporation Limited.

Gencor has the financial and technical resources to take bold initiatives and tackle the biggest projects, such as the Beisa Mine in the Orange Free State.

Beisa is the first primary uranium producer in South Africa. Gold will be produced as a by-product, recovery of which will be by means of a carbon-in-pulp plant – a method not previously used on a large scale in South Africa. Production is scheduled to commence during 1981.

Union Corporation Limited

General Mining Union Corporation Group

$$4 \qquad = X\left(1 + \frac{Ir}{X}\right) = X\left(1 + \frac{2Ir}{X} + \frac{(Ir)^2}{X}\right) \text{etc}$$

$$= X\left(1 + \frac{Ir^2}{X}\right)^2$$

PV of this stream of TOTALS at time 0 is $V = X(1+c)^{-1} + X\left(1 + \frac{Ir}{X}\right)(1+c)^{-2} + X\left(1 + \frac{Ir}{X}\right)^2(1+c)^{-3}$

$$+ X\left(1 + \frac{Ir}{X}\right)^3(1+c)^{-4} + \ldots X\left(1 + \frac{Ir}{X}\right)^{T-1}(1+c)^{-T}$$

$$5 \qquad V = X(1+c)^{-1} + (1+c)^{-1} + X(1+c)^{-1} \ldots \text{T terms} \ldots X(1+c)^{-1}$$

$$V = \frac{TX}{1+c}$$

Now if $\frac{1 + \frac{Ir}{X}}{1+c} = 1$ (assumed) then $\frac{Ir}{X} = c$ and $\frac{Ir}{c} = X$

Combining, we get $V = \frac{T}{1+c} \cdot \frac{Ir}{c} = \frac{rIT}{c(1+c)}$

6 Finally, allowing for operational cost of funds reinvested, which is c%

we express $V = \frac{(r-c)IT}{c(1+c)}$ →

*Notes attached.

Notes

1 In each period, I is invested out of previous period's X (ratio of reinvestment to current profit is $\therefore \frac{I}{X}$). Thus I earns Ir in each period up to T.

2 Assuming same reinvestment ratio applies, a proportion $\frac{I}{X}$ of Ir will be reinvested, earning $\frac{I}{X} \cdot Ir \cdot r$ from period 3 onwards. (i.e. $\frac{(Ir)^2}{X}$)

3 Similarly, from period 4 onwards, you get not only returns from reinvested returns on reinvestment, but also returns from reinvested returns on reinvested returns – re investment – and so on ad nauseam.

4 Note that periods 1-3 follow normal compound interest pattern. ∴ extend pattern to point T to avoid insurmountable complications, mentioned in (3).

5 It is assumed that $\frac{1 + \frac{Ir}{X}}{1+c} \div 1$

6 Every R reinvested comes out of X, where it could have been earning a return of c. A more correct but more complicated method would have been to use r-c instead of r, throughout in the above table.

References

1 Birkett, W. P. and Walker, R. G. Accounting: a source of market imperfection. *Journal of Business Finance and Accounting,* Vol. 2, No. 2, 1974, p. 192.

2 Stern, J. *Analytical Methods in Financial Planning.* The Chase Manhattan Bank, N.A. 1974.

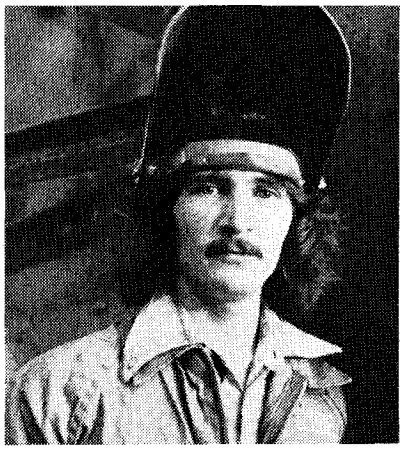
3 Davidson, S. (ed.) *Handbook of Modern Accounting.* McGraw-Hill Book Company, USA 1970.

4 Revsine, L. *Replacement Cost Accounting.* Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1973.

5 Edwards, E. O. and Bell, P. W. *The Theory and Measurement of Business Income.* University of California Press, 1961.

6 The Companies Act, No. 63 of 1973 (as amended), para. 36 (M).

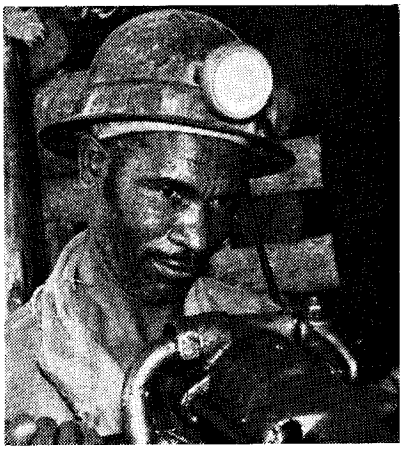
7 Sandiland, F. E. P. (Chairman). *Inflation Accounting: Report of the Inflation Accounting Committee.* Her Majesty's Stationery Office, London, September 1975.



Globe – ship repair & heavy engineering

Feralloys – ferro-alloys

Prieska – copper, zinc & pyrite

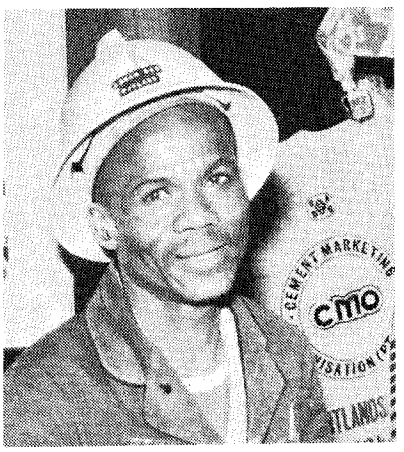


Hartebeestfontein – gold & uranium

Head Office – management

I & J – fishing and frozen foods

T. W. Beckett – dry foods



Anglo-Alpha – cement, lime & stone

Consol Glass – glass & plastic containers

Anglovaal. Much more than a Mining Group.

These Anglovaal people are part of the 70 000 faces that make up our Group of about 200 companies. Working *with* us and not *for* us to create a better future for South Africa – in our trawlers and fish processing plants, quarries, ship repair and heavy engineering firms, gold and base mineral mines, tea and coffee factories, glass and cement plants.

With revenues of Group companies totalling more than R1 500 million and distributable earnings of well over R280 million, our spread of activities influences the economy in a multitude of ways: bolts, nuts and cement used in the construction of your home and office; your daily tea and coffee; and the milk bottle on your doorstep.

And we earn millions of rands in foreign exchange each year from the export of gold, uranium, base minerals and other products.

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Anglo-Transvaal Consolidated Investment Company, Limited
56 Main Street, Johannesburg, 2001.

JWT FIB 3358

By G. M. W. Cross

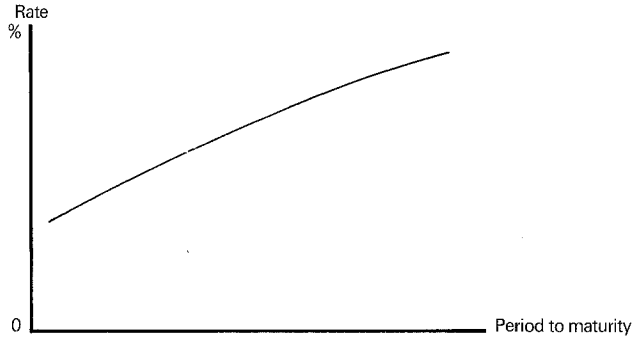
Investment basics – VII

THE STRUCTURE OF INTEREST RATES

The rate of interest is the price of money and is determined at any point in time by the laws of supply and demand. The rate of interest therefore is a function of the demand for and supply of funds for any given period and level of risk.

While the absolute level of interest rates is determined by the demand for and supply of funds, the structure of interest rates reflects the time value of money and the market's expectations concerning the future trend of interest rates. A yield curve is the clearest means of indicating the level and structure of interest rates and Figure 1 below illustrates the "normal" or positive yield curve:

Figure 1



The level or position of the curve reflects the demand for and supply of funds – clearly where D⟨S the curve would tend to shift upwards and conversely when S⟨D.

The shape of the curve, however, is a more complex matter, being a function of not only the time value of money, but also the market's expectations about the future trend in interest rates, inflationary expectations, etc.

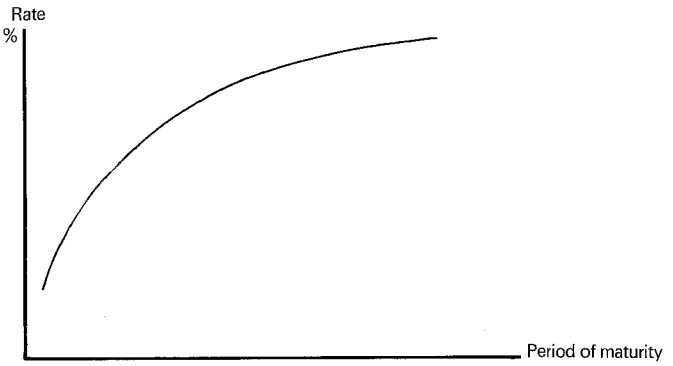
The "time value of money" has nothing to do with inflation. In a world where there is no inflation and interest rates are not expected to move up or down a positively sloping yield curve would persist, reflecting quite simply the premium to be paid on current rather than future consumption – R100 today is more desirable than the same amount of money (in real terms) a year hence and even more so than R100 twenty years down the road. Looking at it from another angle, an investor expects a premium for any loss of liquidity even in a risk and inflation-free world.

As Keynes aptly put it, "the rate of interest at any time, being the reward for parting with liquidity, is a measure of the unwillingness of those who possess money to part with their liquid control of it".

Turning to the structure of interest rates it has already been noted that market expectations play a major role in determining the shape of the curve.

The above graph depicts a steep, positively sloping curve which has been representative of the situation in South Africa in 1980 and is usually indicative of market expectations of an increase in interest rates. The wide differential between short and long-term rates indicates

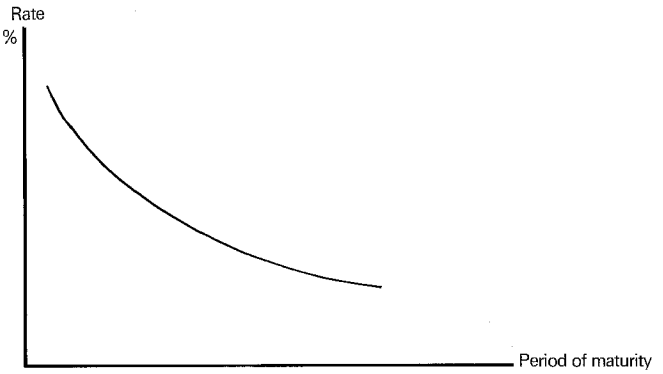
Figure 2



that investors are prepared to accept (relatively) low rates of interest on short-term deposits rather than accept significantly higher rates on longer term money. This is symptomatic of a market experiencing a high level of liquidity but where investors anticipate that this will be short-lived and that interest rates will rise as the demand for funds starts to exceed the supply. In addition expectations of high and continuing rates of inflation may make investors wary of committing funds for long periods at fixed rates below the expected rate of inflation. Investors have consequently been prepared to keep their funds liquid, albeit at low rates of interest, in order to avoid the risk of severe capital loss which may occur on longer term investments when interest rates rise.

The converse situation occurs when interest rates are expected to decline:

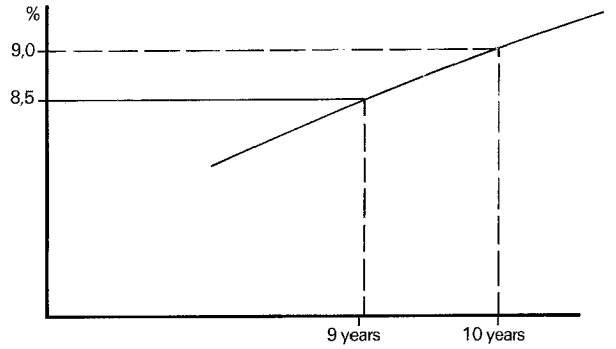
Figure 3



The above inverted or negatively sloping yield curve illustrates the situation which has prevailed in the UK and many other overseas markets during 1980. Tight monetary policies have pushed short-term rates above long-term ones but the markets have expected this to be a temporary or relatively short-lived phenomenon. Borrowers have been prepared to pay high rates for short-term funds but have not been prepared to lock themselves into paying these high rates for long periods – similarly investors will accept a lower rate for long-term investments if they expect rates to decline and revert to a more normal situation.

In a relatively stable environment an investor might expect to face a fairly gently sloping positive yield curve which would show little movement over a period of years. To the extent considered prudent one could then invest in longer term securities and "ride the yield curve" with little risk. What is meant by riding the yield curve may be illustrated as follows:

Figure 4

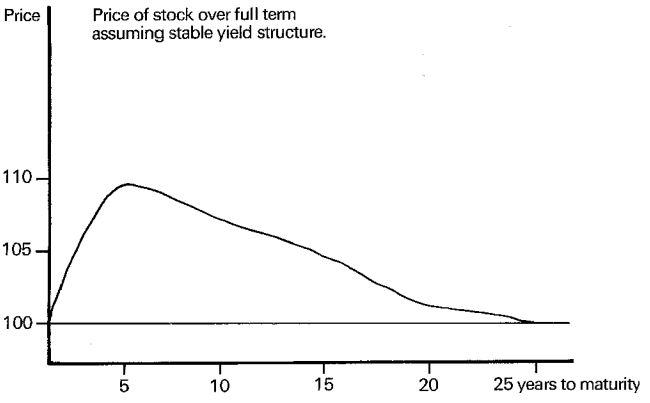


In the above illustration a ten-year stock yields 9,0% while a nine-year stock yields 8,5%. Thus a purchase today of a ten-year stock at par would give a yield to redemption of 9,0% but in a year's time, *provided that the yield curve did not move,* the stock could be sold at a yield of 8,5% which would result in a capital profit of 3,1%. The overall return therefore over the one-year period held would be 12,1%, made up of 9,0% income yield and 3,1% capital appreciation. This total yield is generally referred to as the performance yield.

Another way of looking at the question of riding the yield curve is to consider the price of a stock rather than its yield to redemption. In SA, stocks are quoted in terms of yield to redemption whereas in many markets overseas stocks are quoted in terms of price.

Even assuming a stable yield curve the price of a stock will vary over its life as the following table and graph illustrate:

Life years	Stable yield structure	Price of 10% stock
1	5,50	104,3
3	6,50	109,4
5	7,65	109,6
7	8,30	108,9
10	8,90	107,2
15	9,50	104,0
20	9,85	101,3
25	10,00	100,0

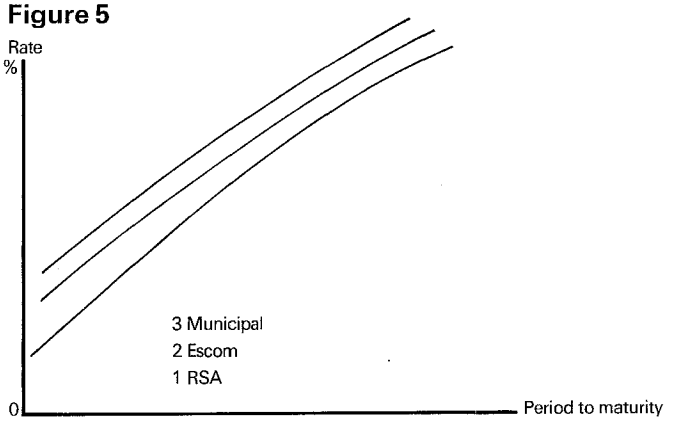


On the basis of the stable yield structure as shown above it can be seen that the price of a stock with a coupon of 10% will rise from par, peaking when it has approximately five years to redemption and thereafter declining until redemption date when its price will again revert to par.

Unfortunately in the real world the yield curve is not stable but shifts up and down and also changes its shape. Investment strategy must therefore be aimed at attempting to either maximise profits or minimise losses that might be caused by movements in the yield curve.

Reference has been made thus far to the yield curve as though there was only one such curve indicating the structure of interest rates. There are in practice several such curves representing the yield structures for different securities. For example the rates on Government (RSA) securities will always be lower than those on say, Escom securities (Figure 5 below) which will in turn be below those on lower status municipal stock.

Figure 5



Opportunities exist for investors to take advantage of changes in the relative positions of yield curves. Market anomalies occur from time to time as the gaps between stocks widen and narrow in certain years and investors can buy or sell those securities that move out of line. In adverse market conditions when money is tight, differentials between prime and secondary stocks tend to widen while during periods of falling rates and high liquidity these differentials narrow. It should further be noted that even for a category of stocks such as Escom, there is no single yield curve. In any year there may be several different stocks maturing yet the redemption yields on each may differ due to varying coupon rates and quantities in issue.

An investor in fixed interest securities has to take cognizance of a host of variables when formulating investment strategy. The structure of interest rates which he is faced with is influenced by a wide range of factors reflecting the market's view of the future, a view determined by expectations of current and future monetary and fiscal policy, inflationary expectations and all other economic variables which influence financial markets. The investor should therefore consider not only the current structure of interest rates and future shifts in the yield curve but also the changes in differentials between different classes of securities.

In addition an investor in fixed interest securities has to take due regard of his liability structure when deciding to what extent he can invest in short and long-dated securities. At the one extreme there are the discount

houses whose liabilities are exclusively short-term and for whom highly liquid shorter dated investments are essential, while at the other are pension funds and life insurance companies whose liabilities are usually long-term and who can therefore accept longer term and less liquid investments. The "time" axis of the above graphs need only be as little as 12 months or could be as great as 25 years but whichever category of investor one falls into the same basic principles apply when formulating strategy for fixed interest investment.