The Investment Analysts Journal

Number 31 – Winter 1988

Die Beleggings-ontleders Tydskrif

Nommer 31 – Winter 1988

The Investment Analysts Journal

Number 31 – Winter 1988

Contents

Die Beleggings-ontleders Tydskrif

Nommer 31 – Winter 1988

Inhoud

This issue in brief

Financial sanctions and foreign policy

Will sanctions against South Africa work or not? Is there a difference in the effectiveness of financial as opposed to trade sanctions? These remain important and still unanswered questions two years after the passing of the Comprehensive Anti-Apartheid Act by the US Congress. In this article by two of the authors of a major recent study on the matter of economic sanctions published by the Institute for International Economics in Washington DC, an attempt is made to measure the success of financial sanctions from a foreign policy point of view in terms of an index involving 103 cases, excluding the case of South Africa. The findings, however, will be of interest to all those concerned with the prospects for sanctions and this country.

Financial flexibility and the assessment of future cash flows

In an uncertain world, financial flexibility has a twofold importance: it is necessary to the exploitation of business opportunities, but it is necessary also to ensure that if events turn out negatively, the enterprise is able to survive. Critical to an assessment of financial flexibility is an analysis and evaluation of cash flow, yet currrent accounting practice leaves much to be desired regarding cash flow disclosure. Caroline Koornhof of the Wits Accounting Department suggests how disclosure in South Africa might be improved.

The individual investor on the JSE

Professor Colin Firer, of the Wits Business School, reports here on an investigation of individual investment behaviour in SA during calendar 1985. The investigation took place against a background of declining individual investor involvement during the first half of the 1980s and a rise in the relative importance of institutional investors. Clearly, any continuation of such a trend could be important because of its effects on JSE efficiency and the whole nature of the market economy in SA. While the stock market boom of 1986/7 witnessed a recovery of individual investor activity, the uncertainty of the current situation has again affected individual investors adversely. Professor Firer's findings, therefore, are of continuing relevance to research analysts.

Gary Hufbauer and Kimberly Elliott
Financial sanctions and foreign policy 7

Caroline Koornhof
Financial flexibility and the assessment of future cash flows 13

Colin Firer
The individual investor on the JSE 21

Peter Brews
South Africa, hi-technology and the future: Affordable imperative or fantastic folly? 33

Investment basics XXII – Options trading in the gilt-market
David Bullard
Part 2 – Pricing and use of options 43

South Africa, hi-technology and the future: Affordable imperative or fantastic folly?

Conventional wisdom holds that economic growth in SA is essential to balance population increase and demographic change. But this may be too simplistic a view. There is enough evidence to suggest that growth can have unexpected consequences. It may well aggravate the inequality of income and wealth distribution. It is necessary, therefore, in South Africa's case to put growth under the microscope of analysis if correct conclusions are to be reached and errors of planning avoided. This is done by Peter Brews in this thoughtful paper.

Investment basics XXII – Options in the gilt-market
Part 2 – Pricing and use of options

David Bullard's first article set the scene for an understanding of options trading. In this article, he deals with the matters of options pricing and their use in portfolio investment.

The following firms have, in addition to our advertisers, assisted in the financing of this issue of the journal and thanks are due to them for their kindness.

Bo en behalwe ons adverteerders, het die onderstaande maatskappye hulp verleen met die finansiering van hierdie uitgifte van die tydskrif en hulle word bedank vir hulle vriendelikheid.

J D Anderson and Company Inc

Anderson Wilson and Partners

Davis Borkum Hare and Company Inc

Ed Hern Rudolph Inc

Edey Rogers and Company Inc

Fergusson Brothers Inc

Frankel Kruger, Vinderine Inc

George Huysamer and Partners

Ivor Jones Roy and Company Inc

Kaplan and Stewart Inc

Martin and Co

Mathison & Hollidge Inc

Max Pollak & Freemantle

Senekal Mouton and Kitshoff Inc

Simpson McKie

The Investment Analysts Journal

Thirty-first issue
Winter 1988

The measures taken during the first half of 1988 to subdue the domestic growth of the South African economy were inadequate, even at the time they were announced, and it should have surprised nobody that they have had to be followed by additional monetary and fiscal action since June. The problem, again, is the balance of payments. After three years of substantial current account surplus, this has lapsed into deficit, and now the capital account has turned negative as well, resulting in an erosion of the reserve position. The point is that South Africa faces further negotiations with its foreign banking creditors in 1990 and it dare not enter those negotiations in a position of reserve weakness.
It is very sad that the economic upswing which dates from mid-1987 has been so short-lived. South Africa desperately needs growth because its population is increasing at a rapid rate and growth, therefore, is necessary merely to stand still in per capita terms. But the problem is more complicated than that. The average rate of population increase is around 2,5 per cent per annum, while the black urban population is increasing at over 7,5 per cent per annum. Even 3 per cent per annum, therefore, is an inadequate target for the growth of real GDP which averaged less than 1,5 per cent per annum during the first eight years of the decade.

The BoP problem has to do with the unusually high positive correlation that exists between real domestic demand growth and the growth of imports. This the authorities should have realised, but they appear to have been more influenced by the Government's desire to stretch the economic upswing out as long as possible to satisfy its own political needs. The last thing Mr P W Botha wanted was a recession in October and he has done all he could to avoid this. But by compromising on economic policy for a short-term political benefit, he may well have made the economic situation in 1989 worse. With the decline that has taken place in the rand exchange rate, an increase in inflation is almost inevitable and other inflationary pressure will rise if there is any capitulation on the matter of public sector pay. We face the prospect of a deficit before borrowing well in excess of 6 per cent of GDP (twice what Mr Barned du Plessis has indicated the level should be), and monetary policy is being compromised to prevent the interest cost burden of the farming community from rising.

What can be expected economically when both fiscal and monetary policy have been abandoned as serious instruments of government control? South Africa will need all the luck it can muster, but luck is not the substance upon which official policy should be made to depend.

The editor

Die Beleggingsontleders-Tydskrif

Een-en-dertigste uitgawe
Winter 1988

Die maatreëls wat gedurende die eerste helfte van 1988 getref is om die binnelandse vraag in die Suid-Afrikaanse ekonomie te demp, was ontoereikend, selfs op die tydstip toe dit aangekondig is. Dit sou dus niemand verbaas het dat dit deur bykomende monetêre en fiskale optrede gevolg sou word nie – 'n beleid wat sedert Junie toegepas moes word. Die oorsaaklike probleem is weer eens die betalingsbalans. Nadat daar drie jaar lank 'n aansienlike surplus op die lopende rekening was, het dit in 'n tekort omgeswaai, en nou het die kapitaalrekening ook negatief begin raak, wat daarop uitloop dat die reserweposisie weggekalwe word. Die punt is dat Suid-Afrika in 1990 verdere onderhandelinge met sy buitelandse krediteure in die bankwese tegemoet gaan en hy durf nie daardie onderhandelinge aanknoop in 'n posisie van reserweswakheid nie.
Dit is baie jammer dat die ekonomiese opswaai wat van middel 1987 ondervind is, so kort van duur was. Suid-Afrika het groei uiters dringend nodig, omdat sy bevolking teen 'n vinnige tempo toeneem en groei derhalwe noodsaaklik is om bloot net te kan water trap in per kapita-terme. Maar die probleem is eintlik ietwat ingewikkelder. Die gemiddelde bevolkingsgroeikoers is om en by 2,5 persent per jaar, terwyl die swart stedelike bevolking teen meer as 7,5 persent per jaar toeneem. Selfs 3 persent per jaar is derhalwe 'n ontoereikende mikpunt vir die groei van reële BBP wat gedurende die eerste agt jaar van die dekade gemiddeld minder as 1,5 persent per jaar gehandhaaf het.

Die betalingsbalans-probleem staan in verband met die buitengewoon hoë positiewe korrelasie wat daar bestaan tussen 'n reële binnelandse toename in aanvraag en die groei in uitvoere. Dit moes die owerheid besef het, maar dit wil voorkom asof die sterkste dryfveer die Regering se begeerte was om die ekonomiese opswaai so lank moontlik uit te rek om sy eie politieke behoeftes te bevredig. Die laaste ding wat mnr P W Botha wou gehad het was 'n resessie in Oktober en hy het alles in sy vermoë gedoen om dit te vermy. Maar deur 'n tussenoplossing te kies in sy ekonomiese beleid vir politieke voordeel in die korttermyn, kon hy wel met daardie kompromie veroorsaak het dat die ekonomiese situasie in 1989 gaan versleg. Met die besliste depresiasie in die rand se wisselkoers, is 'n toename in inflasie bykans onvermydelik en ander vorme van inflasionêre druk sal toeneem indien daar enige kapitulasie is in verband met die aangeleentheid van salarisse in die openbare sektor. Ons staar die moontlikheid in die gesig van 'n tekort voor lenings van ruim meer as 6 persent van die BBP (twee maal dit wat mnr Barend du Plessis aangedui het die vlak na verwagting sou wees), en monetêre beleid word in gevaar gestel om te keer dat die rentekostelas van die boerderygemeenskap styg.

Wat kan ekonomies verwag word wanneer sowel fiskale as monetêre beleid as ernstige instrumente van regeringsbeheer in die slag gebly het? Suid-Afrika sal al die geluk nodig hê wat hy kan monster, maar geluk is nie die hoofbestanddeel waarvan amptelike beleid afhanklik gemaak behoort te word nie.

Die redakteur

One simple word defines security. Food.

Tiger Oats Limited. Founded in 1921. Now employing 23 000 people. With sales of over R4 billion annually. Tiger Oats is active in a well organised blend of interrelated industries. It produces household names in almost every food category and enjoys brand leader status in most.

For Tiger Oats, however, this is only half the story. We are also one of this nation's most active participants in numerous 'self-help' community schemes. These encompass programmes to combat malnutrition, the promotion of black business interests; providing the means for equal opportunity in its truest form.

We have assumed this responsibility of helping to secure a better South African future, because we aim to continue taking the best produce the country can provide. And make it better.

Gary Hufbauer and Kimberly Elliott*

Financial sanctions and foreign policy

It may come as a surprise that financial sanctions have been "successful" nearly half the time they have been used since the Second World War. In fact, they have been more frequently and more effectively employed in pursuit of foregin policy goals than export and import sanctions. These observations are not so surprising once one realizes that financial sanctions typically involve the reduction, suspension, or termination of economic or military assistance from rich industrial nations (often the United States) to smaller and poorer developing countries.

The analysis that follows is based on 103 case studies of economic sanctions, beginning with the blockade of Germany in World War I and continuing through 1985. We define economic sanctions as the deliberate government-inspired withdrawal, or threat of withdrawal, of "customary" (rather than contractual) trade or financial relations. "Foreign policy goals" encompass changes actually and purportedly sought by the "sender" state – the country imposing sanctions – in the political behavior of the target state.

Financial sanctions and foreign policy

Unlike David Baldwin (*Economic Statecraft,* Princeton University Press, 1985), we have not attempted to assess the role of symbolism – for both domestic and international audiences – in the use of effectiveness of sanctions. Nor have we tried to appraise the usefulness of sanctions in deterring future "bad" behavior. Rather, we define the "success" of an economic sanctions episode – as viewed from the perspective of the sender country – in terms of two parts: the extent to which the policy outcome sought by the sender was in fact achieved, and the contribution made by sanctions. We devised an index, scaled from 1 to 4, for each element and then multiplied the two together to get an overall "success score." The policy result was rated as follows: (1) failed outcome; (2) unclear but possibly positive outcome; (3) positive outcome; (4) successful outcome. The sanctions contribution was rated likewise as: (1) zero or negative; (2) minor; (3) modest; (4) significant. A score of 9 or higher is a "success."

Success by our definition does not mean that the target country was vanquished by the denial of economic contacts or even that the sanctions decisively influenced the outcome. A score of 9 means that sanctions made a modest contribution to the goal sought by the sender country and that the goal was in part realized; a score of 16 means that sanctions made a significant contribution to a successful outcome. By contrast, a score of 1 indicates that the sender country clearly failed to achieve its goals.

The use of financial sanctions

Financial sanctions were used either alone or in combination with trade controls in 74 of our 103 cases. Export and/or import sanctions, unaccompanied by financial measures, were used in only 24 instances (by contrast, financial sanctions were used alone in 26 cases). In 29 of the 74 cases, all three types of sanctions were imposed. The United States, which was a sender in 68 of the cases overall, has played an even more dominant role in the use of financial sanctions, employing them in 85 percent of the cases in which they were used without accompanying trade controls (see Table 1).

The most common type of financial sanction is the interruption of official development assistance. Although Export-Import Bank financing, multilateral development bank loans, and other forms of official and private credit have been linked to political goals from time to time, the majority of cases involve the manipulation of bilateral economic and military assistance to developing countries.

The ultimate financial sanction is a freeze of financial assets held by the target country in the sender country. A freeze not only stops financial flows, but also directly and indirectly impedes trade. The legal and political consequences of an assets freeze are severe because it entails blocking access of the target country to its own assets. Because of the seriousness of a financial blockade, foreign assets have only been frozen in times of great hostility. In fact, all 11 cases occurred either during or just prior to a period of military conflict or were accompanied by limited military force. In all of these cases, financial sanctions were also supplemented with trade controls, often a complete embargo.

In our judgment, only three of these cases had successful outcomes and sanctions made at most a modest contribution. It should be mentioned that Baldwin, among other observers, would rate the episodes a success if they signalled that military action was imminent. By this standard, we would concede that many of the episodes were a "success." By our standard, however, the following cases were failures: the United States versus Japan in 1940, versus Argentina in 1944, versus China and North Korea in 1950, versus North Vietnam in 1954, versus Cuba in 1960, and versus Kampuchea in 1975; and Indonesia versus the Netherlands in 1957. The freezing of Iranian assets by the United States in 1979 and Argentinian assets by the United Kingdom in 1982 clearly contributed to the resolution of those conflicts by inhibiting the ability of the target countries to purchase weapons and ammunition (in the Iranian case, Teheran was inhibited in pursuing its war against Iraq). Economic sanctions, including an assets freeze, also contributed to Egyptian President Gamal Abdul Nasser's willingness to negotiate a compromise solution for governing the Suez Canal after he had nationalized it in the summer of 1956. In general, however, even an assets freeze made a limited contribution to the pursuit of major objectives, and, in these cases, sanctions were usually a small supplement to the use of military force.

Comparing financial and trade sanctions

The economic and political effects of trade and financial sanctions differ in several ways. Trade controls are usually selective, affecting one or a few goods – for example, Soviet imports of wool from Australia in 1954 (as part of an espionage scandal), or US exports of nuclear technology to various developing countries in the 1970s. In such cases, the trade may only be diverted rather than cut off. Whether import (export) prices paid by (received by) the target country increase (decrease) after the sanctions are applied depends on the market in question. Often the price effects are very modest.

By contrast, finding alternative financial sanctions may be harder and is likely to carry a higher price (in terms of the interest rate), and require greater credit security because of the uncertainties created by sanctions. Official development assistance may be irreplaceable. In addition, financial sanctions, especially involving trade finance, may interrupt a wide range of trade flows even without the imposition of explicit trade sanctions.

*Dr. Gary Hufbauer is the Wallenberg Professor of International Financial Diplomacy at Georgetown University. Kimberly Elliott is a Research Associate at the Institute of International Economics. Dr. Hufbauer and Jeffrey Schott, assisted by Ms. Elliot, authored *Economic Sanctions Reconsidered: History and Current Policy* (Institute for International Economics). The article appearing here, was first published in the June/July 1988 issue of the Harvard International Review. It is reproduced with the kind permission of that journal together with a postscript written for the Investment Analyst Journal by Dr Hufbauer.

WE NOURISH THE FLOWERING OF ENTERPRISE

Having created a major business venture, Gencor places it in the hands of entrepreneurially-minded managers whose mission is to accelerate development.

Many of South Africa's greatest industries have blossomed in their hands.

Reproduction of bank notes authorised by the South African Reserve Bank.

MUNDELS 14675

The economic effects of financial sanctions also tend to tilt the political balance in a more positive direction, again viewed from the perspective of the sender country. The pain from trade sanctions, especially export controls, usually is diffused throughout the target country's population. Financial sanctions are more likely to hit the pet projects or personal pockets of powerful government officials who are in a position to influence policy. On the sender's side of the equation, an interruption of official aid or credit is unlikely to create the same political backlash from business firms and allies abroad as an interruption of private trade.

Comparing episodes of financial sanctions with trade sanctions reveals other factors that may contribute to leverage. All but three of the 26 financial cases feature the United States as the sender; the United States was a co-sender with the Netherlands in the fourth. Only one episode did not involve the manipulation of economic, food, or military assistance. The 24 trade cases (involving import controls three times, export controls 16 times, and the two together 5 times) present a rather different picture. The United States is the principle sender in only half the cases and was a target in two. The Soviet Union, which is represented in none of the financial cases, was a sender in two cases and a target in five.

The different cast of characters appearing in the financial sanction episodes creates significant differences in relevant economic and political variables. Given the predominance of aid manipulation in the financial sanctions cases, several observations follow:

- the ratio of gross national product (GNP) of the sender country to that of the target country was more than 10 times higher;
- the cost to the sender of financial sanctions was, on average, negligible;
- the economic and political health and stability of the target was typically very weak;
- relations between the sender and target countries were relatively close prior to the imposition of sanctions;
- the incidence of international cooperation with the sender country was lower – because it was not needed.

In addition, the economic costs of sanctions as a percentage of target country GNP were nearly twice as high when finance was interrupted as when trade was interrupted.

The relative effectiveness of financial sanctions

Contrary to popular perceptions that economic sanctions never work, our evidence indicates that financial sanctions were successful in nearly half of the cases where they were used.[1] Moreover, whether used alone or supplemented with export and import sanctions, they are twice as likely as trade controls alone to be successful.

Financial sanctions contributed at least modestly to a successful outcome in 46 percent of the cases in which they were used alone and they succeeded 40 percent of the time no matter what the combination (including solo appearances). This compares to a 21 percent success rate for cases in which trade sanctions were used without a financial accompaniment.[2]

Single economic tools (either trade or financial sanctions, but not both) were often used when the goal was relatively modest – for example, settlement of expropriation disputes, improvement in human rights, or inhibiting the spread of nuclear weapons technology. Financial sanctions were useful 40 percent of the time in pursuing such goals, while import sanctions succeeded in 1 of 3 cases (the only three cases in which import controls were used alone), and export controls in only 2 of 10 cases. Financial sanctions were successful in an astounding 80 percent of the cases in which they were used to destabilize governments. However, it should be noted that covert activity accompanied the overt sanctions in all the success cases, that there was no offsetting assistance from third parties, and that the targets were typically small and weak, with serious economic and political problems apart from the sanctions.

Explaining declining success

Despite the relative success that financial sanctions have achieved on average since the Second World War, their effectiveness has declined dramatically since the early 1970s. We found a similar trend with regard to all types of sanctions, but the decline is substantially sharper for financial sanctions. An astonishing 77 percent of the episodes involving financial sanctions between 1948 and 1972 were successes, compared to only 15 percent since then (with the number of cases evenly divided between the two periods). There would appear to be three major reasons for the collapse in effectiveness.

The first is the relative decline of the US position in the world economy. In the early years after World War II, the US economy provided the only source for assistance in rebuilding war-devastated economies elsewhere. Even well into the 1960s, the United States remained the primary source of development assistance. Since then, however, resource constraints in the United States, the recovery in Europe, and the emergence of Japan as a major economic player have made the United States just one donor among many. Moreover, with economic development has come reduced vulnerability for many potential targets. Perhaps, too, the relative decline of the United States and post-Vietnam caution mean that target countries are less fearful that economic sanctions presage "something worse."

A second reason for the greater success in the earlier period may have been a shift in the objectives that senders hoped to achieve. The manipulation of economic assistance proved more effective in resolving military conflicts arising out of colonial disputes and expropriation claims, and in campaigns to destabilize "undesirable" governments, than in improving human rights.

In three of four cases in the 1940s and 1950s, the goal was ending "minor" military conflicts related to colonial disputes. The United States succeeded in getting the Netherlands to recognize Indonesian independence in 1948-49, and France and the United Kingdom to withdraw military forces from Egypt during the 1956 dispute over nationalization of the Suez Canal. France, on the other hand, failed to get Tunisia to end its support for Algerian rebels from 1957 to 1963. In the fourth case, the United States successfully destabilized two uncooperative governments during a period of substantial instability in Laos.

In the 1960s, financial sanctions were imposed nine times by the United States against much smaller, developing countries. Economic aid was reduced or suspended three times in successful efforts to force an acceptable settlement of expropriation claims: against Ceylon in 1961-65, Brazil, 1962-64 (though the settlement was reached only after a recalcitrant government had fallen), and Peru, 1968-74. The manipulation by the Johnson administration of food aid also succeeded in persuading India to put more emphasis on improving agriculture. The manipulation of aid flows twice contributed to successful campaigns to destabilize governments perceived as threatening to US interests: the Diem regime in Vietnam in 1963 and the Allende regime in Chile a decade later. In 1965, financial sanctions forced Egyptain President Nasser to quiet his anti-

[1] Overall, we found that sanctions "worked" in 37 percent of the 103 cases studied.

[2] Financial sanctions linked to import controls would appear to be the best combination, succeeding in 4 of 6 cases, but that is a very small sample for drawing conclusions.

Table 1: The use of financial sanctions

Case	Active years	Goals	Success rating
US v. Netherlands	1948-49	Recognize Republic of Indonesia	16
US v. UK, France	1956	Withdraw troops from the Suez Canal	12
US v. Laos	1956-62	Destabilize Prince Phouma and Gen. Phoumi; prevent Communist takeover	9
France v. Tunisia	1957-63	End support for Algerian rebels	1
US v. Ceylon	1961-65	Settle expropriation claims	16
US v. Brazil	1962-64	Settle expropriation claims; destabilize Goulart government	12
US v. Egypt	1963-65	Cease military activity in Yemen and Congo; moderate anti-US rhetoric	16
US v. Indonesia	1963-66	End "Crush Malaysia" campaign; destabilize Sukarno government	8
US v. South Vietnam	1963	Ease repression; remove Nhu; destabilize Diem	12
US v. India	1965-67	Alter policy to favor agriculture	16
US v. Peru	1968	Forego aircraft purchases from France	1
US v. Peru	1968-74	Settle expropriation claims	12
US v. Chile	1970-73	Settle expropriation claims; destabilize Allende government	12
US v. South Korea	1973-77	Improve human rights	4
US v. Chile	1973	Improve human rights	6
US v. Turkey	1974-78	Withdraw troops from Cyprus	1
US v. Paraguay	1977-81	Improve human rights	6
US v. Guatemala	1977-86	Improve human rights	4
US v. El Salvador	1977-81	Improve human rights	6
US v. Brazil	1977-84	Improve human rights	9
China v. Vietnam	1978-79	Withdraw troops from Kampuchea	1
US v. Pakistan	1979-80	Adhere to nuclear safeguards	4
US v. Bolivia	1979-82	Improve human rights; deter drug trafficking	6
EC v. Turkey	1981-82	Restore democracy	6
Netherlands, US v. Suriname	1982	Improve human rights; limit Suriname alliance with Cuba and USSR	9
US v. Zimbabwe	1983-84	Temper opposition in United Nations to US foreign policy	4

Note: On a scale of 1 to 16, a 9 or above is a "success". See explanation of methodology in text.

American rhetoric and cease military activity in Yemen and the Congo. They failed, however, to dissuade Peru from purchasing expensive military aircraft from France and made only a minor contribution to the destabilization of President Sukarno in Indonesia in 1966.

In the 1970s and 1980s, the primary focus of financial sanctions shifted to improving human rights around the world, a worthy goal that proved less amenable to economic pressure. There were only two marginal successes in this period, to which sanctions made only a modest contribution: the United States against Brazil in the late 1970s and the United States and Netherlands against Suriname in the early 1980s (which also had the goal of reducing Cuban and Soviet influence). All but two of the other 11 cases featured the United States as the sender country and all were uniformly failures.

Besides efforts to improve human rights – by the United States in South Korea, Chile, Paraguay, Guatemala, El Salvador, and Bolivia, and by the European Community in Turkey after a military coup – the United States also tried to pressure Turkey into removing its troops from Cyprus, Pakistan into abandoning its efforts to develop a nuclear weapons capability, and Zimbabwe into moderating its opposition in the United Nations to US foreign policy. China cut off all economic aid and technical assistance to Vietnam, but failed in persuading Hanoi to remove its troops from Kampuchea. More important goals, usually concerns about Soviet influence or strategic position, often superseded the human rights or other "modest" objectives in these later cases. Moreover, sanctions in these cases were often forced on reluctant administrations by a more enthusiastic Congress. This may have led target countries, often correctly, to believe that the sanctions would not be sustained.

The third major difference between the pre-1973 and the post-1973 periods was the type of assistance interrupted. Economic aid was the dominant choice in the earlier period, while military assistance was prominent in the later period, especially in the human rights cases where military governments were often the target. It is surprising that suspension or termination of military assistance to military dictatorships did not have more impact. These governments obviously perceived internal dissent to be a greater threat to their longevity.

The future of financial sanctions

The United States recently cut off all economic aid to Haiti after the violent disruption and postponement of elections there. Congress has also threatened to discontinue aid to Zaire if human rights abuses are not curbed and to reduce aid to El Salvador if the killers of two Americans are released as part of President Duarte's amnesty program. Evidently financial sanctions will remain in the US foreign policy tool kit despite their recent ineffectiveness.

While it is possible that the US government will learn to use sanctions "more wisely," in terms of the objectives sought and the specific means used, previous levels of US dominance in the world economy cannot be restored. The resource constraints on foreign economic and military aid will get tighter – the State Department announced early in 1988 that congressional budget cuts would result in the elimination of 42 military and economic assistance programs in 30 countries and restrictions on other parts of the foreign aid program – and the Export-Import Bank will remain strapped for money. These facts point to a continuation of the dismal trend in the usefulness of financial sanctions, rather than a return to the glory days of old.

Postscript

US financial sanctions against Panama came to full flower in March 1988, some weeks after our essay was written. This unhappy episode underscores several of our major themes.

The Noriega regime in Panama was an ideal target for destabilization by economic sanctions: Panama is a small country (population 1985, 2.2 million; GNP 1985, $4.9 billion); the US is the main destination of Panamanian exports (55% in 1984); prior to the episode, diplomatic and financial ties between the United States and Panama were extremely strong; and, in the larger

scale of world events, the goal was of modest dimensions – namely to replace the despotic drug-ridden government of the day.

But the United States bungled the episode at critical points, thereby adding one more embarrassing setback to a string of policy reversals in Central America.

To begin with, the US "punch" was telegraphed as early as April 1987, when the US Senate recommended the termination of US aid because Panama was not "fully cooperating" in the war against drugs. The US government then suspended economic and military aid in July 1987. Thus, General Noriega had a full eight months to plan his response to the ultimate financial squeeze. Swift and sure action by the United States might have destabilized Noriega; the slow turning of the screws gave him time to line up alternative sources of finance (Cuba, Libya), plan for alternative export markets (Europe, Japan), and identify potential disloyal elements within the armed forces.

In addition, the fallout from sweeping financial sanctions, when they were imposed in March 1988, severely affected the 1 000 US business firms and 40 000 American citizens in Panama. This created a substantial political backlash within Washington, and exceptions were soon made that took some of the pressure off Noriega.

Finally, there was the idiosyncratic element of General Noriega's own forceful personality. He was quoted as saying, "Virility is proven by remaining in power", a pithy echo of Mussolini's famous response, in October 1935, to League of Nations sanctions:

> To sanctions of an economic character we will reply with our discipline, with our sobriety, and with our spirit of sacrifice. To sanctions of a military character, we will reply with orders of a military character.

Early in the Panamanian episode, the United States failed to tempt Noriega with the agreeable solution afforded Marcos and Duvalier – a comfortable and secure villa in a country of his choosing, free of all further legal harrassment from Federal prosecutors. Thus, with his back to the wall, Noriega marshalled the forces of nationalism and drew from the well of anti-American sentiment to remain in power.

"On combining the best of the old with the best of the new."

Bill McAdam, Managing Director of The Board of Executors

As South Africa's longest-standing independent investment house, we are experienced in all traditional trust company services. Yet we have also realised the necessity of expanding our services to meet the demands of modern-day financing.

"This ability to see into the future without losing sight of the past is an integral part of everything we do. And it's proved remarkably successful. For both us and our clients."

Our services include: Portfolio management, estate planning, trust formation, participation mortgage bond investments, mortgage loans, pension fund management, money market dealing, income tax compliance and consultancy, management of overseas assets, corporate finance, commercial and industrial property broking, property syndications and valuations, insolvency and liquidations and company secretarial services.

"As our corporate emblem, the group of statues at our head office building in Cape Town is a constant reminder of the tradition on which we were founded. A tradition based on discretion, personal service and the ability to move into the future without compromising our clients' financial security.

"This philosophy has been the very core of our existence since 1838.

The Board of Executors

Since 1838, people have trusted us to manage their money.

OGILVY & MATHER RIGHTFORD SEARLE-TRIPP & MAKIN 15852

Caroline Koornhof *

Financial flexibility and the assessment of future cash flows

Abstract

Information on financial flexibility is important to consider when projecting the cash flows of an enterprise. The level of financial flexibility can influence inter alia the risk profile, solvency and rate of return of an enterprise. At present, a gap exists between the informational needs of users and the actual information on financial flexibility presented in the financial statements. This paper suggests several improvements to the existing disclosure of this type of information.

Problem facing the financial analyst

It is generally accepted that for an enterprise to survive, prosper and grow in the present inflationary and recessionary economic environment, good control should be exercised over cash flows.

One of the major problems encountered by the financial analyst in projecting and evaluating the cash flows of an enterprise is that existing cash flows may change due to the influences of future opportunities and threats. The analyst should therefore attempt to identify future events, assess the resulting changes in existing cash flow patterns and evaluate the effect thereof on his cash flow projections.

The following aspects of this problem warrant closer scrutiny:

- the need for historical cash flow information
- the need to predict future cash flows
- the effects of uncertain future events on cash flow patterns.
- the influence of financial flexibility on cash flow patterns.

An increasing number of enterprises are enhancing the reporting value of their financial statements by including historical cash flow statements. The information on historical cash flows assists the financial analyst in identifying the current cash flow patterns of the enterprise. This enables him to project future cash flows and to determine their influence on the future liquidity, profitability, solvency and risk of the enterprise.

Projected cash flows may indicate whether the enterprise is generating sufficient cash to:

- maintain its current operating capacity
- pay its liabilities, interest and divident on due dates
- invest in the future expansion and growth
- survive in the current inflationary environment.

Thus the information derived from the future cash flows contribute to the analyst's knowledge of the enterprise and ultimately to the final decision of whether to invest or not.

An enterprise operates in a dynamic environment where even daily events, be they threats or opportunities, may alter the envisaged strategies of the enterprise. It is further apparent that such events may alter the cash flow patterns of the enterprise. The financial analyst needs to take cognisance of the potential effects that unexpected future events may have in determing his cash flow projections. It is difficult to predict future threats and opportunities but the analyst should use his knowledge of the enterprise, the industry and his economic forecasts to identify some of these future events.

The environment in which enterprises operate forces them to review and alter their cash flow patterns regularly. As unexpected adversities and opportunities assail the enterprise, management will weigh the available strategies and will select the most feasible alternative to meet the changed circumstances. The set of feasible alternatives available to management to change, inter alia, the current cash flow patterns may be described as the financial flexibility of the enterprise. The analyst needs to evaluate and assess the influence of financial flexibility as this may have a direct impact on the future success of the enterprise.

The projection of future cash flows is complicated by the uncertainty of the future events and the uncertainty of the enterprise's reactions to these events. Information on financial flexibility can assist the analyst by identifying feasible alternatives and thus reducing the uncertainty of the enterprise's reactions to future events. This is confirmed in The Discussion Memorandum (1980) issued by the Financial Accounting Standards Board (FASB), which states that information on financial flexibility is relevant for the assessment of only **part of the uncertainty** in the cash flow prospects of an enterprise. It is further apparent that the greater the number of feasible alternatives available to an enterprise, the higher the financial flexibility of the enterprise. It follows that a high level of financial flexibility reduces the number of threats and increases the available opportunities to the enterprise.

The influence and importance of financial flexibility on the future cash flows of an enterprise is addressed in this paper. In particular, the need of the analyst for information on financial flexibility to assist in predicting cash flows is contrasted to the minimum information on financial flexibility presently required and disclosed in the financial statements of enterprises.

A review of available literature has indicated that little emphasis has as yet been placed on the importance of information on financial flexibility in South Africa. This may largely be due to the fact that the needs of the users of financial statements for information on financial flexibility have not yet been researched. In the United States, a Discussion Memorandum (1980) on reporting funds flows, liquidity and financial flexibility, addressed in some depth, the importance of, and the type of information on, financial flexibility that could be included in the corporate report of enterprises. No evidence could be found of any such specialised research study completed in South Africa. Thus, the specific needs of users in South Africa for information on financial flexibility have not yet been identified.

Financial analysts' need for information on financial flexibility

As information on financial flexibility is important to the analyst in predicting cash flows, the relevant and useful information which should be available to the user, is now addressed. To identify the information needs of the analyst, it is necessary however to define financial flexibility.

Financial flexibility is defined in paragraph 16 of Discussion Paper 8 (1985):

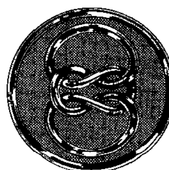
"Financial flexibility may be regarded as the ability to con-

* Department of Accounting, University of the Witwatersrand

SEEKING OUT
AN ENVIRONMENT THAT
PROMISES
GREATER SECURITY
CAN BE DAUNTING.

BUT NEVER COMPROMISE.

BECAUSE WHEN YOU
FIND IT, YOU'LL KNOW YOU
HAVE ALL THE
SHELTER AND GROWTH
YOU WILL EVER NEED.

YOUR OASIS FOR LIFE.  FEDLIFE

MEMBER OF FEDSURE GROUP • S.A.'S LARGEST INDEPENDENT LIFE ASSURER • ASSETS EXCEEDING R2 BILLION
1987 NET PREMIUM INCOME R293 MILLION • AVERAGE ANNUAL GROWTH OF NEW PREMIUMS OVER LAST 5 YEARS – 46%

trol and adjust cash receipts and payments to respond to adversities and opportunities."

This definition is similar to that used in the Statement of Financial Accounting Concepts No. 5 (1984) except for a more direct identification of what is seen as "the ability to control and adjust receipts and payments." The definition states:

"Financial Flexibility is the ability of an entity to take effective actions to **alter amounts and timings of cash flows** so that it can respond to unexpected needs and opportunities."

It may be concluded from the above definitions that the information on financial flexibility should identify the feasible alternatives available to management to change the current cash flow patterns of the enterprise in response to threats and opportunities.

The Discussion Memorandum (1980) issued by the Financial Accounting Standards Board (FASB) identifies the importance of financial flexibility as being:

" . . . a measure of the adaptability of a business. The need for adaptability may be offensive or defensive. A business may need financial flexibility to take advantage of an unexpected new investment opportunity or to survive a crisis resulting from a change in operating conditions. Financial flexibility comes from quick access to cash. A financially flexible business may have a large inflow of cash from operations, large borrowing capabilities, or assets that can be realized quickly in significant amounts."

In the light of the definitions on financial flexibility, it is now possible to address the needs of analysts, as a major user group of financial statements, for information on financial flexibility. It has been established in reviewing the problems that analysts encounter that they will benefit from information on financial flexibility.

General information requirements

Some of the general information requirements to evaluate financial flexibility can be identified. In an attempt to establish guidelines for evaluating potentially useful information, four major groups of information, not necessarily mutually exclusive, are identified:

- the potential for utilising finance
- the potential for altering investment strategies
- the potential for altering operations
- other qualitative and quantitative information.

The potential for utilising finance

Information on the potential for utilising finance may be subdivided into the potential to raise and repay equity capital, the potential to raise and repay outside finance and the potential for changing the existing financing structures.

Information on the potential to raise and repay equity capital is useful to the analyst in establishing the probability of the enterprise issuing or redeeming share capital in response to future events. Relevant information on this type of financial flexibility may include the details of unissued shares, the latest share issue prices, the premiums payable on the redemption of preference shares, the dividend policy, details of share options, present market prices and details of any conversion rights. The analyst requires adequate information to be able to assess the amount and timing of cash flows from the issue or repayment of shares as well as the payment of dividends.

For information about the potential for raising or repaying outside finance, the conditions and durations of all existing loans should be available. If the Articles of Association of the enterprise impose limitations on the borrowing capacity, then the unutilised borrowing capacity is important information in evaluating the financial flexibility of the enterprise for raising outside finance to meet unexpected events. Everingham and Hopkins (1982) state further that information on any restrictions placed on the future borrowings of the enterprise by existing loan agreements should be disclosed as this will also affect the analyst's evaluation of the financial flexibility. Other relevant information may include the market value or net realisable value of all unbonded, non-operating and separable assets, details of available unsecured loans and other unutilised lines of credit, unutilised bank overdraft facilities and credit ratings with financial rating agencies.

The financing structure may be altered by changing the relationship between equity capital and outside finance and the relationship between long-term and short-term finance. Relevant information may thus include the gearing targets and rates of return targets set by management, as well as the available options for utilising specialised finance such as government subsidies, decentralization allowances, strategic loans and export allowances. In this regard the Discussion Memorandum (1980) of the FASB confirms that the disclosure of management discussions and the analysis of information about the policies and the plans for future investing and finance activities may be useful for assessments of the financing capacity and thus the financial flexibility of an enterprise.

The potential for altering investment strategies

Future cash flows can be altered by changes in the enterprise's investment strategies as cash flows may be generated by, for example, disposing of non-operating and separable assets without necessarily disrupting operations. Relevant information may include information on the leasing policies of the enterprise. Decisions to enter into sale and leaseback arrangements or financial and operating leases rather than acquiring ownership of new assets, can materially alter the future cash flow patterns of the enterprise. The discontinuance of material segments of the enterprise will influence not only the existing investment strategies, but will also alter the existing operations. At present, segmental reporting identifies the material segments of the enterprise and may serve as a basis for identifying the potential effects on future cash flow patterns. The altering of existing short-term investment policies such as the granting of credit terms, the changing of stock levels and the investment or disinvestment in speculative investments may also influence cash flows.

The potential for altering operations

The existing amount of cash generated from operations can be altered materially by changing the cash inflows or cash outflows from operations. Relevant information to the analyst may include plans for future changes in production, increased markups on costs, reductions or increases in fixed and variable costs, reorganisation of production lines, introduction of new products or the discontinuance of existing products or business segments, potential new markets and changes in competitors. The operations will also be influenced by the turnover rates of the working capital and the length of the operating cycle. In this regard the FASB Discussion Memorandum (1980) notes that the faster an enterprise's assets can be converted to cash, the greater its financial flexibility.

Other quantitative and qualitative information

The potential for changes in cash flow patterns, can be altered by decisions regarding:

- future expansion and diversification plans
- capital commitments
- changes in group structures
- listing or delisting of an enterprise on a stock exchange
- changing the legal structure of the entity (for example from a company to a close corporation) and
- contingent liabilities.

South Africa's major gold mines are to be found along the northern rim of a huge depression formed nearly three billion years ago and known as the Witwatersrand basin. This golden arc is believed by geologists to be the shoreline of an ancient inland sea.

It was through Gold Fields' exploration initiatives west of Johannesburg in the early 1930's that this shoreline began to reveal itself. In 1931 Gold Fields committed the then princely sum of £500 to the preliminary investigation of that section of the arc which is today known as the West Wits Line. And the world's greatest gold find.

Today, the Gold Fields group is still in search of new treasure – spending some R34 million on exploration in 1988 alone.

Because for those with the entrepreneurial spirit, the shoreline never ends.

What kind of investor would sink money into a sea without water?

Gold Fields' geophysicist Dr. Rudolf Krahmann, surveying the West Wits Line – 1931.

GOLD FIELDS
OF SOUTH AFRICA LIMITED
Enriching man through minerals

McCANN 206134

The relationship between financial flexibility and risk

There is an inverse relationship between financial flexibility and risk; the lower the financial flexibility of a company becomes, the higher the risk becomes.

> "An enterprise that has fully utilised its borrowing capacity in the capital intensive projects may achieve extremely high rates of return but at the expense of sacrificing its financial flexibility and increasing its risk profile." (Everingham and Hopkins (1982)).

Any decisions affecting financial flexibility should be made within the parameters of risk and rate of return. A low financial flexibility may ultimately influence the solvency of an enterprise facing adverse circumstances and may be critical to the survival of that enterprise (Discussion Memorandum (1980)). Information on recent changes in the financial flexibility of an enterprise is thus important in evaluating the risk profile.

Developments in cash flow reporting

The developments in cash flow reporting in the United States and South Africa are discussed briefly to explain the reasons for the change to cash based reporting. This change has emerged as a result of the recognition of the importance of managing cash and, inter alia, evaluating financial flexibility.

The Statement of Changes in Financial Position forms part of the financial statements of enterprises and until recently was usually reconciled to the net movement in working capital. The importance of cash management to the success of an enterprise has led to an increasing number of enterprises presenting their Statements of Changes in Financial Position on the cash approach.

In the Statement of Financial Accounting Concepts No. 1 (1978) it is concluded that financial reporting should provide information that is helpful in assessing the **amount, timing and uncertainty of prospective cash flows** of an enterprise. Of interest is that the concepts statement requires not merely historical information but also information useful in projecting cash flows. It is apparent, therefore, that enterprises should include relevant information to assist analysts in forecasting cash flows and reducing future uncertainties.

The Statement of Financial Accounting Concepts No. 5 (1984) elaborates further on the information required on cash flows:

> "Statements of Financial Position include information that is often used in assessing an entitiy's liquidity or **financial flexibility,** but a statement of financial position provides only an incomplete picture of either liquidity or financial flexibility unless it is used in conjunction with at least a cash flow statement."

The importance of information on financial flexibility was discussed further in the FASB Discussion Memorandum on Reporting Funds Flows, Liquidity and Financial Flexibility (1980). This Discussion Memorandum identifies specifically the types of information that can assist users in assessing financial flexibility. The key factors in assessing financial flexibility which may require disclosure in the financial statements are identified as:

- the nearness to cash of investments
- the ability to obtain additional financing
- the amount of operating assets
- the ability to increase short-term funds flows by modifying operating and investing activities, including the ability to discontinue operations or sell operating assets.

Although the term financial flexibility is subsequently included in the FASB Exposure Draft on Cash Flow Information (1986) and recently in the Statement of Cash Flows (1987), those proposals omit details as to the type of information on financial flexibility that should be contained in the financial statements.

It is merely noted in the Statement of Cash Flows (1987) that:

> "Important uses of information about entity's financial position include helping users to assess factors such as the entity's liquidity, **financial flexibility,** profitability and risk."

The Accounting Practices Committees (APC) of the South African Institute of Chartered Accountants issued a Discussion Paper on Cash Flow Statements in 1985. The Discussion Paper was subsequently replaced by Exposure Draft No. 63 (1986). Both these papers concluded that the provision of cash flow information ensures that the users of financial statements are better informed as to liquidity and financial flexibility. They fail, however, to address the type of information on financial flexibility that should be included in the financial statements. In South Africa, therefore, very little emphasis has been placed on financial flexibility information when drafting the financial statements of an enterprise.

While information required by Schedule 4 of the Companies Act may be relevant to cash flow projections, this information is not recognised in the context of financial flexibility. Other information on financial flexibility may be contained elsewhere in the corporate report. It is, thus, apparent that the analyst wishing to assess the effects of financial flexibility on an enterprise's future cash flows must scrutinize the financial statements in detail, in order to seek out all reported information relevant to his predictions.

It is clear that the preparers of the financial statements, have access to all information, as well as a specialised knowledge of the enterprise's business and future prospects. It is, therefore, encumbent on them to communicate this information to the user in the most meaningful format. The relevant information may vary from enterprise to enterprise and currently its disclosure depends largely on the discretion of the preparer. A guideline on disclosure requirements may to some extent standardize and improve the disclosure of information on financial flexibility. This would ensure that relevant information is neither omitted nor overlooked. If the objective of financial statements is indeed to provide information helpful in assessing the amount, timing and uncertainty of prospective cash flows, such statements will be sadly lacking if they do not contain adequate information on financial flexibility.

The preparer of financial statements wishing to include information on financial flexibility may however be faced with several problems. Information on financial flexibility should, inter alia, assist the user in establishing the influence thereof on future cash flows and thus information on future trends, events and decisions are required. This presents the preparer with two main problems concerned, respectively, with:

- the objectivity and verifiability of information concerning the future, and
- the sensitivity and confidentiality of information, the disclosure of which could affect the enterprise detrimentally.

Another factor that the preparer should bear in mind is the cost of including the information on financial flexibility versus the benefit to be derived from the information. Only if the benefits derived from the information by the analysts and other users exceed the costs of including the information in financial statements, is it feasible to include the relevant information on financial flexibility. At present it may be difficult to assess the benefits that users will derive from the information as the specific needs of users for information on financial flexibility is not yet clear.

The preparer may not find it feasible to group all information on financial flexibility under a separate heading as the information tends to be of an interrelated nature thus also pertaining to other sections of the financial statements. It is further submitted that information on financial flexibility is not only obtained from or used with a cash flow statement. In this regard the Statement of Financial Accounting Concepts No. 5 (1984)

Own your share of South Africa.

THE JOHANNESBURG STOCK EXCHANGE.

"SCHARRER, EDWARDS, FRASER 816"

states that information on financial flexibility should be used in conjunction with **at least** a cash flow statement. This is confirmed in the Statement of Financial Accounting Standards No. 95 (1987) where it is stressed that the statement of cash flows should not be used in isolation, but should be used in conjunction with the other components of the financial statements to enhance the value to the analyst.

Suggestions for improvements

At present, there appears to be a gap between the information requirements of the users (specifically the analyst) and the information on financial flexibility contained in the financial statements. The situation is aggravated by the fact that no guideline exists in South Africa as to the minimum information on financial flexibility to be included in the financial statements and further that no empirical study has as yet identified the specific needs of users for information on financial flexibility.

It is therefore suggested that:

- research is necessary to identify the specific needs of analysts and other user groups for information on financial flexibility
- preparers of financial statements become aware of the users' need for information on financial flexibility and consider presenting the relevant information in the notes to the financial statements or in the information outside the financial statements, such as in the form of summary tables highlighting borrowing capacity, the cash flow cycle, recovery rates and target ratios
- the pending South African Accounting Statement on cash flow information should address the issue of what constitutes minimum disclosure requirements for information on financial flexibility and
- consideration be given to expanding segmental reporting to include information on financial flexibility.

Acknowledgement:

The author wishes to express her appreciation for the assistance received from professor M D F Steele and Mr J W M Mende, both of the Department of Accounting.

References:

Accounting Practices Committee of the South African Institute of Chartered Accountants, *Cash Flow Information,* Discussion Paper No. 8 (DP8), 1985.

Accounting Practices Committee of the South African Institute of Chartered Accountants, *Cash Flow Information,* Exposure Draft No. 63 (ED63), 1986.

Accounting Standard Board of the Institute of Chartered Accountants in Australia *Statement of Sources and Application of Funds,* Statement of Accounting Standards, 1987.

Ernst and Whinney, *Reporting Funds Flows, Liquidity and Financial Flexibility,* Financial Reporting Developments Report on FASB Discussion Memorandum 1981, p 17.

Everingham, G K and Hopkins, B D. (1982). *Generally Accepted Accounting Practice,* Second Edition, Tenth Update, Juta, p 381.

Everingham, G K and Hopkins, B D. (1985). Seminar on New Developements in Financial Reporting.

Financial Accounting Standards Board, *Objectives of Financial Reporting,* Statement of Financial Accounting Concepts No. 1 (SFAC No. 1), 1978, par 25.

Financial Accounting Standards Board, *Reporting Funds Flows, Liquidity and Financial Flexibility,* Discussion Memorandum 1980, pp 107-123.

Financial Accounting Standards Board, *Recognition and Measurement in the Financial Statements of Business Enterprises,* Statement of Financial Accounting Concepts No. 5 (SFAC No. 5), 1984, par 24 and par 52.

Financial Accounting Standards Board, *Statement of Cash Flows,* Proposed Statement of Financial Accounting Standards No. 023 (SFAS No. 023), 1986.

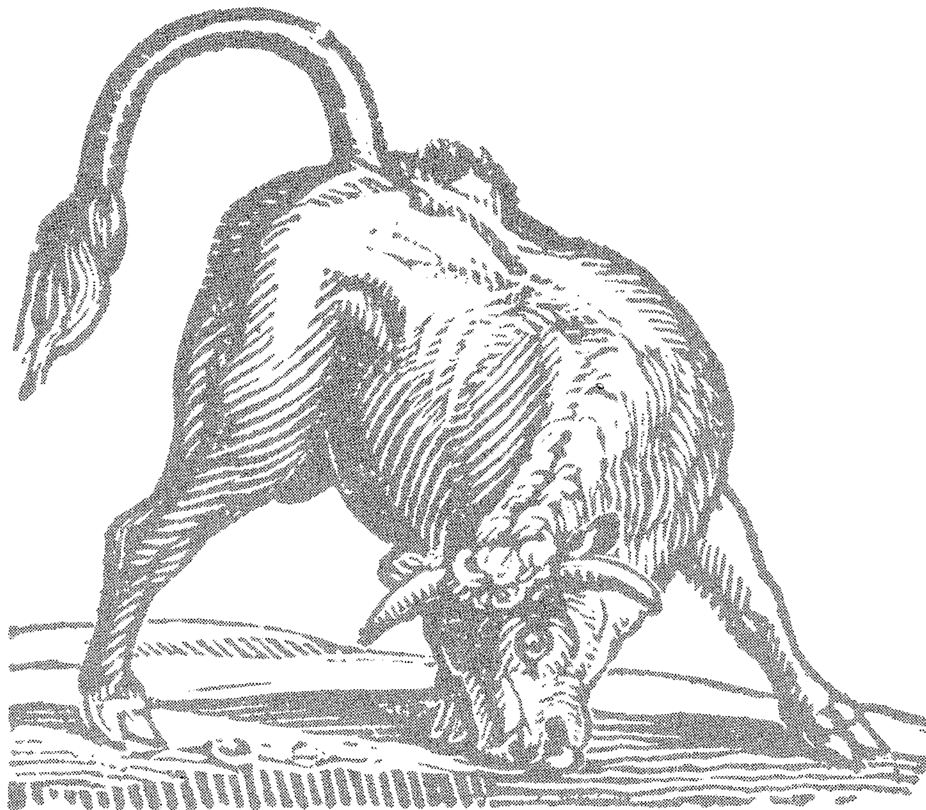
Financial Accounting Standards Board, *Statement of Cash Flows,* Statement of Financial Accounting Standards No. 95 (SFAS No. 95), 1987.

International Accounting Standards Board, *Statement of Changes in Financial Position,* International Accounting Standard No. 7 (IAS7), 1979.

THE LIFEGRO

UNIT TRUST SCHEME WITH

THAT LITTLE EXTRA.



LIFEGRO FUND MANAGERS LIMITED

Lifegro Fund Managers Limited undertake to repurchase units at the ruling price. Unit prices vary from day to day in line with the movement in prices of the securities which make up the portfolios. The initial charge is a maximum of 5% which is included in the selling price. The management company service charge is 0,5% p.a. of the market value of the unit portfolio. No provision will be made for amortisation of assets. Tel. 881-2111.

FREEDMAN & ROSSI • BBDO 801015

Colin Firer*

The individual investor on the JSE

Introduction

In recent years there has been a decline in the level of individual investor activity on the Johannesburg Stock Exchange (JSE) in favour of institutional investment. In January 1985, 23,9% of purchases on the JSE were made by private investors, whereas two years previously the figure was 37,4% (JSE, 1985).

A similar trend was observed in the seventies on the New York Stock Exchange (NYSE). These trends are a cause for concern for two reasons:

(i) in the short-run market price volatility may be increased by the large-bloc trades of institutions, and
(ii) over the long term, the capital allocation process may be less efficient since institutions typically tend to concentrate their holdings in a relatively small number of companies.

It will be of interest to identify just who makes up this "dying breed" – the individual investor group – to discover how they make their investment decisions, the nature of their portfolios, their objectives in investing on the stock exchange, and their views on the efficiency of the market place.

A US study of individual investors

In 1974 Lease, Lewellen and Schlarbaum undertook a survey of individual investors on the New York Stock Exchange. The objective of their research was to determine from a broad-scale mail questionnaire survey the demographic characteristics, investment strategy patterns, information sources, asset holdings, market attitudes and perceptions, and frame-work of broker relationships displayed by the investor population.

They selected a random sample of 10% (2 500) of the clients of a New York stockbroking firm, and received a 40% (1 260) response.

Their studies were reported in a series of papers from 1974 to 1979 (Cohn, Lewellen, Lease and Schlarbaum, 1975; Lease, Lewellen and Schlarbaum, 1974, 1976, 1977, 1979; Schlarbaum, Lewellen and Lease, 1978(a), 1978(b). Among their more significant findings were:

> One third of the sample was over 65 years of age. Half were professional or employed in managerial positions. Half had completed some tertiary education. Over 80% conducted their business through stockbrokers, and half spent less than 5 hours a month on research.
>
> Investors primarily used fundamental analysis, invested for the "long-run", were reasonably well diversified (holding 10 to 15 securities), and only 25% relied on their brokers or professional investment advisors in making their investment choices.
>
> They believed insider trading was widespread and that insiders were able to earn superior rewards. They thought that regulatory agencies were not providing sufficient protection for the individual investor and believed that it was necessary to take substantial risks in order to achieve acceptable returns.

Objectives

No such study appears to have been carried out on the JSE. We believe that efforts should be made to stimulate individual investment on the JSE in order to ensure that the market retains its function as both a primary and secondary source of capital for the South African economy.

Before any marketing effort can be initiated, the present customer base and any potential target markets should be clearly identified. It was therefore decided to carry out a survey of individual investors in South Africa in order to:

(i) obtain data on their demographics
(ii) compare South African and American investors
(iii) provide a basis for investigating the changing pattern of investor behaviour over time
(iv) investigate the investment decision making processes used by such investors.

Methodology

The stockbroking firm of Fergusson Bros., Hall, Stewart and Co Inc. kindly agreed to distribute copies of the questionnaire to 2 500 of their clients. It was assumed that, since they have one of the largest individual client bases in South Africa, a survey sample taken from among their clients would be representative of the South African individual investor group.

The sample was selected by choosing every third name on the broker's private client mailing list until 2 500 names were obtained. The selection was done by the staff of Fergusson Bros. in order to protect the confidentiality of their clients.

Four hundred and ninety nine replies were received within the time-limit of six weeks. This was a 20% rate of return, and represented 6,6% of the stockbroker's clients. By comparison, the American researchers based their study on 4% of the clients of one stockbroker and demonstrated (by comparing the sample with a random sample of investors taken from the roster of all the broker's accounts) that their results were representative of the body of investors at large (Lease et al 1974, p 418).

A questionnaire, divided into 8 sections, was designed. A total of 66 multiple choice questions were posed. The questions were ordered under the following headings:

(i) Demographics
(ii) Investment goals
(iii) Investor decision methods
(iv) Investment strategies
(v) Portfolio composition
(vi) Portfolio evaluation
(vii) Investor attitudes

The eighth section was added for the purposes of another study (on investor risk perceptions), and consequently will not be discussed here.

The questionnaire was pilot-tested with the faculty of the University of the Witwatersrand Business School to ensure that:

- the questions would be understood by the recipients
- the layout was simple to follow and easy to use
- the process of completion was made as easy as possible
- the questionnaire length was not excessive
- the respondents knew what to do with completed forms.

In total the questionnaire comprised 16 pages (section 8 occupying the last page only) and was produced in A5 booklet form. A prepaid, self-addressed envelope was included for the convenience of the respondents.

The stockbroking firm distributed the questionnaires with their

* Professor of Finance, Graduate School of Business Administration, University of the Witwatersrand

Leadership in furniture and appliance retailing through serving the needs and enhancing the lifestyles of all consumer markets throughout South Africa.

Russells

Dion
DISCOUNT PRICES · DISCOUNT CREDIT

Giddy's

Wanda

Frasers furnishers

Gold Dollar FURNISHERS

SQUARE DEALS
Furniture as good as new!

REMUS
FURNITURE • WHOLESALERS

ARROW FURNISHERS

RUDICKS

RF

The Rusfurn Group Limited

Vallun Wilkins Associates 2415

monthly newsletter. They included a covering letter explaining what was being asked of their clients and requesting their cooperation. An assurance of compelte anonymity was given to the respondents.

The questionnaire was mailed at the beginning of August 1985, a time when recipients were not expected to be on holiday. It was hoped that they would thus be in a position to respond during the time limit set, and they were asked to return the completed questionnaire within 3 weeks.

Results

Demographics

The demographics of the sample are summarised in Table 1. This shows the survey group to be predominantly male, relatively old (almost half are over 55 years of age), and very well educated (41% having completed some tertiary education). Three quarters of the group were married and 91% of respondents were the heads of households. The average household size was 2,8 members and the average age of the sample 52 years.

Table 1: Individual investors on the JSE – demographic characteristics

1 Age	
Under 25	2,4%
26 – 35	12,4%
36 – 45	17,5%
46 – 55	19,3%
56 – 65	19,5%
Over 65	28,9%
2 Sex	
Male	83,6%
Female	16,4%
3 Marital status	
Married	74,3%
Unmarried	25,7%
4 Residential location	
Pretoria, Witwatersrand, Vereeniging	48,5%
Cape Town	13,4%
Durban	12,1%
Other urban area	15,6%
Rural	10,3%
5 Education	
Below matric	7,6%
Matriculation	21,6%
Post-matric diploma	19,8%
Bachelor's degree	23,7%
Post-graduate degree	27,3%
6 Occupation	
Professional & Technical	32,0%
Self-employed	10,8%
Manager	14,9%
Clerical sales	3,3%
Artisan	0,8%
Farmer	3,1%
Retired	25,9%
Other	9,3%
7 Income	
Under R16 000	11,1%
R16 000 – 29 000	17,7%
R30 000 – 59 900	35,5%
R60 000 – 99 900	23,2%
R100 000 – 250 000	8,6%
Over R250 000	3,9%

Half the group lived within 50 kilometers of Johannesburg. Of the 65% who were actively employed, nearly a half worked in professional and technical occupations. Relative to the population as a whole, the group was reasonably affluent, having a median income in the R34 000 to R60 000 range.

The demographic profile described above is, as might well be expected, quite different from that of the population at large. The major issue is, of course, how representative the sample was of the individual share-holding community. Certainly the fact that the sample was drawn from an English-speaking brokerage firm may result in the data not being generalisable to Afrikaans-speaking investors.

The evidence accumulated shows very similar trends to the 1970s studies in the United States, where securities ownership was found to be concentrated in the affluent, urban, upper-age segments of the community (Lease, et al., 1974).

Share ownership

A number of questions were posed relating to the share ownership and dealing history of the respondents. A surprising 70% started investing more than 10 years ago, and only 2,2% had begun within the past year.

Three-quarters of the sample made their first acquisition, and 90% their most recent acquisition through a stockbroker. The discrepancy arises mainly because 12% of first acquisitions were the result of gifts and inheritances. (Not surprisingly 29% of those widowed received their first shares as a gift or inheritance). 11% first bought shares through a bank, although only 3,3% made their most recent purchase this way.

In reply to the enquiry as to when last they dealt on the JSE the following responses were obtained:

during the past week	18%
during the past month	33%
during the past year	34%
longer than a year ago	13%
cannot remember	2%

The high percentage of investors dealing within the past year was more or less constant across all age groups, with the over 65 group at 88%.

Types of transactions undertaken

Respondents were asked to indicate which of the securities traded on the secondary capital and money markets they had ever purchased. Almost all had owned ordinary shares; a third had owned preference shares. A quarter claimed to have bought options, 17% long-term government and semi-government stock, 13% company debentures and 10% Treasury bills. In addition, some 6% stated that they had sold shares short, a markedly lower percentage than in the US (23%).

Asset composition

Participants were asked to indicate the market value, broken down into 11 groups, of the assets they owned. 83 did not respond. The balance answered some of the question but most failed to respond 'none' as requested if they did not own that particular class of asset. A questionnaire that provided information in some of the categories was assumed to have been answered completely, even if only one category was recorded.

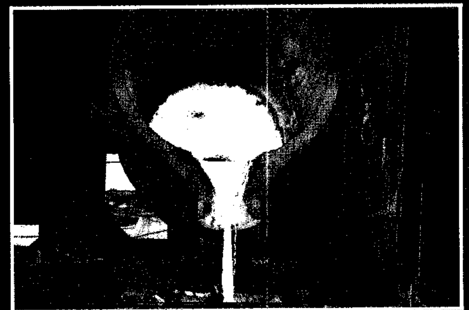
In order to get an idea of the reasonableness of this assumption, the percentage responses in each of the categories was compared to the profile in Lease et al's 1974 US study. Very marked differences occurred in the categories: company debentures, personal property, and other assets. Only two-thirds of the respondents in the SA study volunteered a value to their personal possessions, compared to 97% of the US sample. Mutual fund ownership and the possession of savings accounts were also lower in SA.

Samancor has vast reserves of manganese and chrome. Substantial expertise in mining and the production of alloys. And a world-wide reputation, earned over 50 years, for meeting its quality commitments and delivery deadlines. But wide as its horizons already are, it is still

Manganese

Manganese ore is produced at mines in the North Western Cape.
High-carbon ferromanganese and silico-manganese are produced at the group's works in the Transvaal.

Chrome

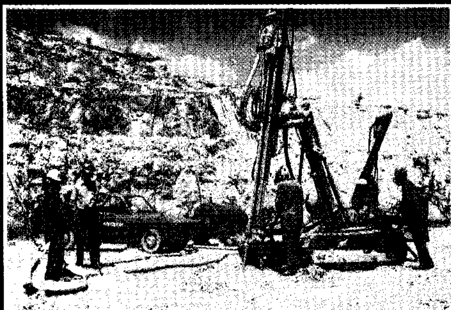


Seven mines in the Transvaal and Bophuthatswana produce chrome ore.
Ferrochrome is produced at the Witbank and Steelpoort works in the Transvaal.

Samancor Limited, Samancor House,
Telephone (011) 491-7911. Teletex

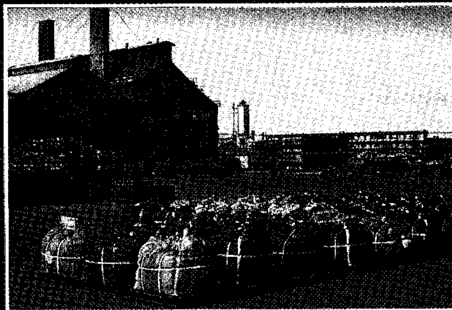
constantly reaching beyond them. To improved processes and advanced technologies, and to new products for changing markets. All designed to ensure that the Samancor of tomorrow will be even more dependable and competitive than the Samancor of today.

Metals

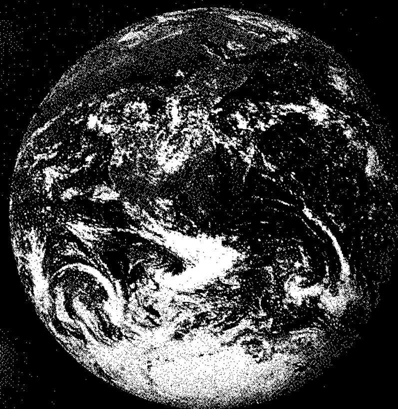


High quality quartz is converted into silicon metal, 75% ferrosilicon and 15% milled and atomised ferrosilicon.

Other Products

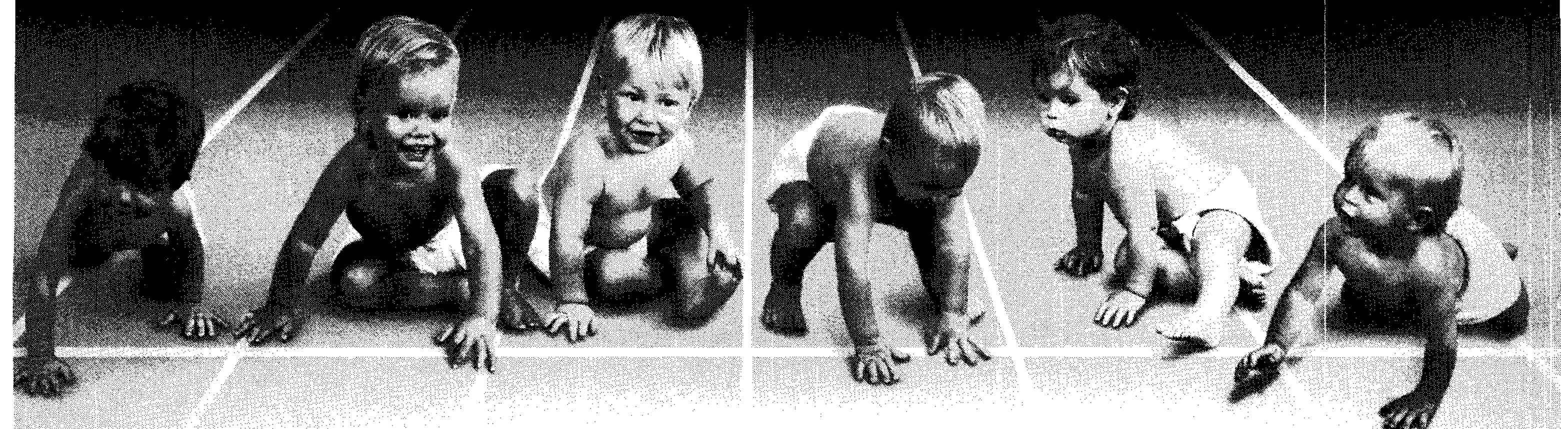


Yellow phosphorous, phosphoric acid, sodium tripolyphosphate, phosphate fertilizer and dolomite are produced.



88 Marshall Street, Johannesburg 2001
(9) 486179. Telefax (011) 491-7392

dPA 1001



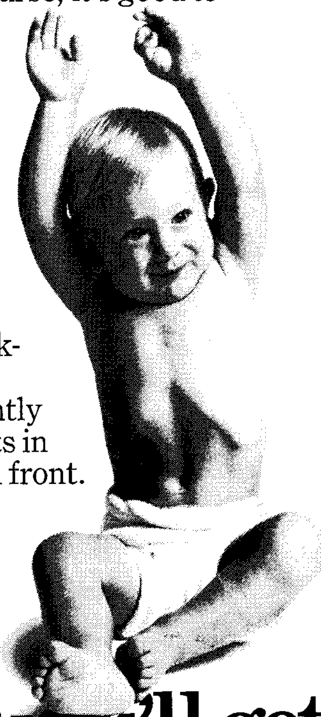
Life is going for your goal.

There's one race we're all involved in. The human race. And the good news is, we can all win.

In this race, it doesn't matter who gets there first. As long as you get there.

Each goes at his own pace, in his own individual style.

But because it's so easy to go off course, it's good to have someone behind you. Someone who can put you on the right track. Someone who has both vast financial expertise and resources to do something about it.



At Sanlam, you know you'll be treated like an individual, with your own personal plan, designed to match your pace throughout life.

Free financial analyses and investment advice — they're yours for the asking as a Sanlam policy-owner.

Sanlam's record bonuses, consistently high returns and the lowest admin costs in the assurance industry put you right in front.

And with your growing prosperity comes the certainty that you're outrunning inflation.

With Sanlam, you've got the assurance to go for your life goals... and to reach them.

Assurance is knowing you'll get there. With Sanlam.

Looking at the mean value of the responses in each asset category, personal residence at R162 000, followed by ordinary shares at R112 000 and other real estate at R109 000 made up the bulk of the assets disclosed. In the US, the largest asset category was ordinary shares.

Investment goals

Investors were asked to define their objectives in owning shares. From Table 2 it can be seen that 59% regarded short-term capital gains as of minimal or no importance and about the same percentage felt that dividend income was important or very important. Given the conventional wisdom that investors place heavy emphasis on dividends, the fact that only 22% of respondents felt they were "very important" is surprising. Long term capital appreciation was felt to be the most important objective with over 80% of respondents claiming high importance for it.

Table 2: Individual investors on the JSE – investment goals

1 What are the objectives of owning shares?

	Very important	Important	Slightly important	Irrelevant
Short-term cap gains	16,8	24,2	28,5	30,5
Intermed term c/gains	29,1	42,3	22,1	6,5
Long-term cap apprecn	54,9	26,3	12,7	6,1
Dividend income	22,0	38,5	23,0	16,5

2 What standard is used to compare performance?

JSE index	16,0%
Friend's returns	0,6%
Own standard	52,8%
Interest rates	13,8%
Mutual fund performance	2,3%
None	8,4%
Other	6,2%

3 What rate of return do you think is attainable?

0 – 5%	9,1%
6 – 10%	31,5%
11 – 15%	23,8%
16 – 20%	20,4%
21 – 25%	9,4%
Over 25%	5,7%

4 Do you calculate your returns?

Yes	49,2%
No	50,8%

The average return which the sample felt could be obtained from share investment was 13%. However, when compared to the response to a question dealing with rates of return actually achieved, an almost identical histogram to the one presented in Table 2 was obtained.

Since half the sample acknowledged that they did not actually calculate the returns they achieved, these similarities are quite understandable.

The question relating to the standard used to compare portfolio performance yielded some interesting results. From Table 2 it can be seen that 52,8% claim to use "their own standard" when comparing performance.

The relatively small percentage (16%) who claimed to use a JSE index as their standard of comparison is in marked contrast to the US survey, in which 42% said that they used a stock exchange index. This seems to highlight a lack of sophistication amongst South African investors, and offers an opportunity for the JSE to better market the indices as a standard of comparison.

How investment decisions are made

Using a four point scale, (ranging from 'almost always' used (1), through 'generally used' (2), and 'occasionally used' (3), to 'never used' (4)), respondents were asked to indicate the extent to which they employed each of a number of different methods which could be used to evaluate a share. 70% responded in the top half of the scale in answer to fundamental analysis, compared to only 37,5% for technical analysis. Mean scores of 3,4 (indicating low usage) were obtained in reply to the question seeking information on the reliance placed on paid investment newsletters, and the recommendations of professional advisors. Half the respondents generally or always used stockbrokers advice.

When asked to indicate the usefulness of various sources of information, stockbrokers recommendations received the highest response (a mean of 2,1) followed by financial periodicals (2,4). Over 50% of the respondents found investment newsletters (published by investment advisors, rather than stockbrokers) to be only occasionally or never useful.

18% of the sample claimed to deal with more than one stockbroker. The response here may have been biased downwards by the fact that the questionnaire was distributed by a stockbroker. By contrast 78% of American investors used more than one brokerage house (Lease et al., 1974).

60% purchased periodicals in order to obtain investment advice; just over 20% used an advisory service. The average annual amount spent on periodicals was R120, and on advisory services R264.

Investment strategies

The theory of risk reduction by means of the grouping of shares into portfolios is well known in academic and investment circles. The investors polled were asked to state in how many different companies they owned shares. 16% held less than 3 different shares, and 60% less than 10. The mean value, calculated from the interval midpoints, and assuming the average in the "more than 20" category to be 25, was 10.

This compares with the mean of 11 found in the US study. Research on the JSE has shown that efficient diversification occurs when randomly selected portfolios of about 15 to 20 shares are created (Boshoff, 1986). One may thus conclude that the benefits of diversification are not entirely lost on the individual investor in S.A. Depending on degree of diversification within the individuals' portfolios, potentially up to 90% of the diversifiable risk may have been eliminated.

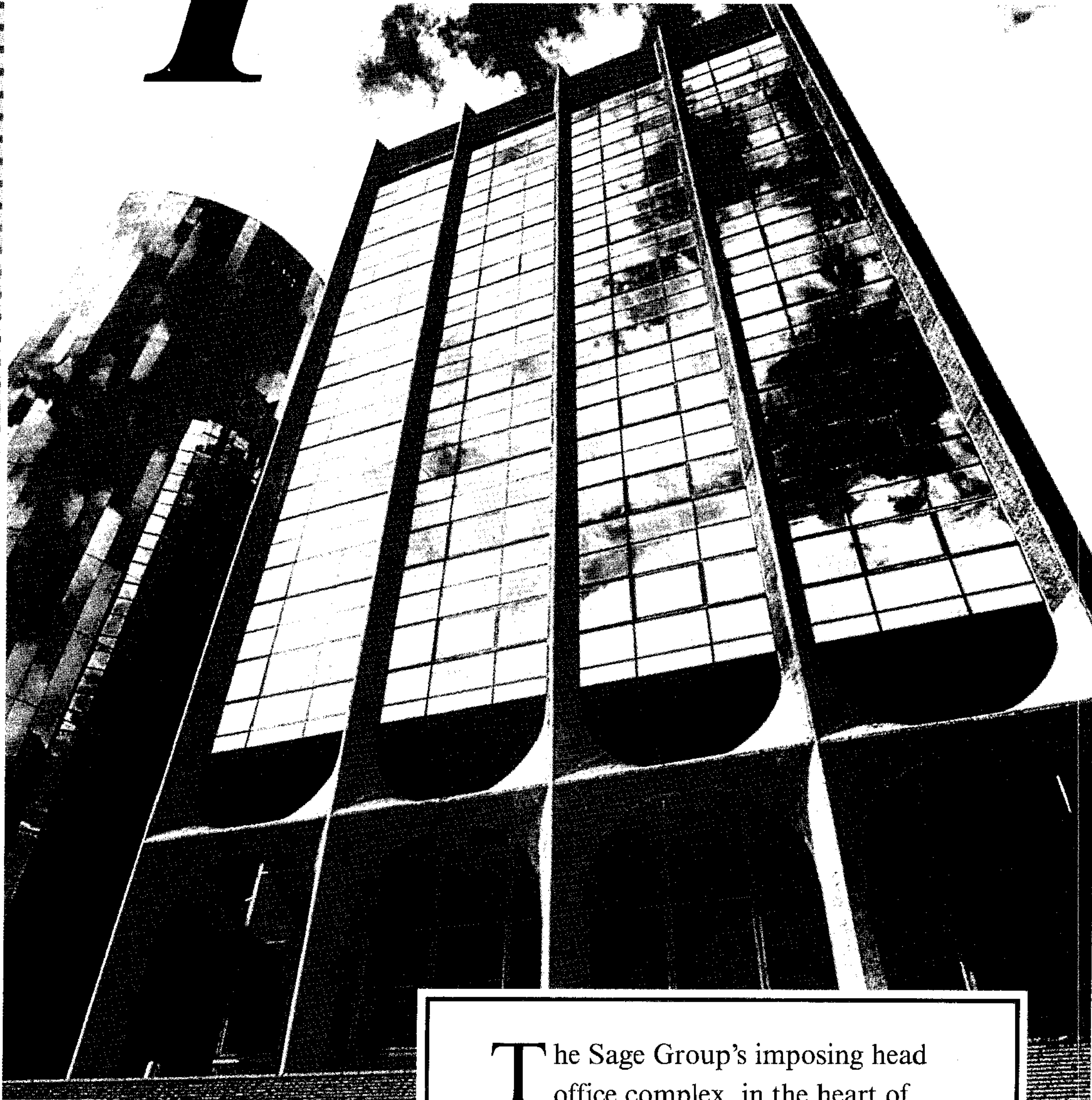
Approximately 31% of the respondents own shares in mutual funds. This can be regarded as an additional source of portfolio diversification.

Frequency of trading information was sought by asking respondents to indicate on average the number of share transactions that they make per year. Nearly 20% answered 11 or more, a third in the range 1 to 3, only 3,8% replied none, and the mean value, based on the midpoints of the class intervals in the questionnaire, was 6,6.

For 20% of the respondents, the average value of each transaction was under R1 000. Only 2% claimed an average value of over R20 000. The mean transaction value for the sample was of the order of R5 700.

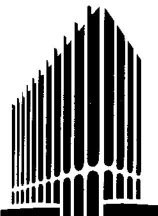
Three-quarters of the respondents were not bound by a particular share price range when making their purchase deci-

It reflects well



The Sage Group's imposing head office complex, in the heart of South Africa's business capital, reflects the vitality and enterprise of Johannesburg's financial community and of the Sage Group. A policy of balanced growth and controlled diversification has made Sage a powerful force in the financial services industry. Assets managed by the Group exceed R2,5 billion and are spread across the fields of Investment and Finance, Property and Construction and Insurance and Financial Services.

SAGE HOLDINGS LIMITED



SH 88/06

sions. In general respondents tended to avoid shares trading at less than 50 cents.

An integral part of the investment decision making process should involve the measurement of investment performance ex-post. The mean claimed rate of return achieved during the past five years before tax and costs was 13%. In the US study, admittedly now some 10 years old, a mean value of 9,3% was observed.

Given the relatively high level of inflation in South Africa over the past 5 years, together with the relatively high brokerage costs for small transactions, and the additional rewards required when making risky investments, the 4% apparent additional reward earned by South African investors over their American counterparts does not seem excessive.

Investor attitudes

In order to further probe investors' perceptions of the environment in which their decisions are made, the final portion of the questionnaire requested the respondents to rate, on a five point scale, their extent of agreement with specific statements of opinion about the investment market-place, and their personal role therein. The mean responses to the statements are presented in Table 3.

The ratings suggest that the overwhelming majority of respondents enjoy the investment activity (81% agreeing either moderately or strongly with the statement). They believe that by relying totally on mutual funds as an investment medium, they would definitely reduce the degree of satisfaction they get from participating in the stock market.

50% expected their portfolios to grow over the next 5 years, whereas only 20% thought the opposite. Although a third of the respondents neither agreed nor disagreed with the statement that personally managing one's portfolio would produce better returns than a mutual fund investment, three-quarters of the balance believed they could do better. This may, in part, be due to the fact that, of the 50% of the sample who took a view on the relative costs of mutual fund investment versus brokerage fees, most believed that mutual fund charges were too high.

Thus, it seems that the group not only invests because they enjoy doing so, but also because they believe it is the more profitable avenue to pursue. They also appear satisfied with the extent of protection afforded to individuals by the JSE regulations.

Their comments on the perceived efficiency of the JSE make interesting reading. Fully three quarters agree that there is a

Table 3: Individual investors on the JSE – investor attitudes

Mean score	Statement to be responded to
1,80	I enjoy investing and look forward to more such activity in the future
2,59	Over the next 5 years my shareholdings as a percentage of my entire investment portfolio will increase substantially
3,39	The individual investor will soon disappear as a force on the JSE
1,98	Were I to rely exclusively on mutual fund investments, it would reduce the personal satisfaction I obtain from making investment decisions
2,54	The individual investor who manages his/her own portfolio of shares is likely to fare better financially than the investor who puts his/her money into mutual funds
2,25	Share prices are not predictable in the short term
2,36	The JSE regulations afford the individual investor ample protection
2,89	I am substantially better informed than the average investor
2,81	The individual investor who trades regularly is more likely to fare better financially than the individual who adopts a buy and hold strategy
1,97	I feel there is a small group of investors who consistently make money on the basis of insider information
2,61	Compared to the brokerage fees paid on ordinary share transactions, mutual fund management fees are excessive
2,41	I try to buy on the way up and sell on the way down
3,26	Most individual investors are net losers
2,42	Stock market prices can be seen to move according to measureable forces
2,08	Investors buy shares on future expectations rather than on past performance
2,15	In the long run share investment produces returns that beat the inflation rate
3,28	Shares that pay a high dividend are more valuable than shares that pay a low dividend
3,68	Growth-oriented companies should not pay dividends
2,77	To make money on the JSE an investor must be prepared to take substantial risks
2,51	The rewards an investor can earn from investments in shares are directly related to the risks taken
2,87	By adding the shares of more companies to my portfolio I can reduce my overall risk without affecting my return
2,03	Stags (ie. investors who are able to obtain shares in a company before it is publicly quoted) make large profits
3,05	Given the risk level of my portfolio my average return has been less than that of the market
3,80	I trade more frequently than the average investor
2,59	I consider myself to be less inclined to take risks than the average investor.
3,08	Mutual fund managers do not take enough risks to produce an acceptable rate of return
3,78	I prefer to take substantial financial risks in order to achieve substantial financial gains from my investments
3,58	The degree of diversification; ie. the number and kind of different securities held in my portfolio; is substantially more than for the average investor
2,96	The level of risk; ie. variability of returns; in my portfolio is substantially lower than for the average investor

Investors were asked to indicate their reaction to each of the above statements on the following scale:

1	Strongly agree
2	Moderately agree
3	Neither agree nor disagree
4	Moderately disagree
5	Strongly disagree

It's not only our beer that has stood the test of time.

For more than ninety years SAB has been part of the Southern African economy.

An involvement that has grown beyond beer to satisfy almost all mass market consumer needs, from soft drinks and clothing, furniture and footwear, to supermarkets and hotels.

Through boom times and bad times our commitment to quality products, services and human relations has proved its worth.

And year after year our earnings reach new heights – standing the investor's ultimate test of success.

THE SOUTH AFRICAN BREWERIES LIMITED

small group of investors who consistently make money through insider trading, and the same percentage believe that stags do make large profits.

They believe that prices move as a result of measurable forces, but that in the short term share prices are not predictable. On balance, the feeling was that most individual investors are not net losers. The group was roughly equally divided over the question of whether a buy and hold stance would be more profitable than an active trading strategy.

In summary, they have no doubt that the market is not strong-form efficient, but seem to believe that there is a measure of weak-form efficiency.

As a group, the respondents are convinced that, in the long run, they can beat inflation through share investment, and they seem to understand the basic financial concept that value is created by expectations of future performance.

On the thorny question of dividends, they do not believe that growth companies are entitled to withold dividends from their shareholders, but most (75%) do not accept the view that high dividend paying companies are more valuable than low dividend payers. Thus, they seem to be subscribing to the bird in the hand approach to dividend payment, and yet seem to be acknowledging that it is more than just the dividend that creates value.

The statements designed to test issues relating to modern portfolio theory produced the following results. As a group the respondents did not agree that adding shares to a portfolio can reduce risk without affecting reward. Do they not believe in the concept of systematic and unsystematic risk, or perhaps they presumed that the statement referred to an already well diversified portfolio?

They did, however, believe that rewards earned are related to risk taken, although they were somewhat evenly divided on the question of whether it was necessary to take substantial risks in order to make money on the JSE. They strongly denied that they preferred to take such risks in order to make substantial gains and felt that they were, as a group, not substantially more diversified than the average investor.

They felt that their returns were not less than that achieved by the market as a whole, but did consider themselves to be more risk averse than the average investor.

Conclusions

This paper has attempted to characterise the individual investor on the JSE during 1985. The concern being expressed at the time about the disappearance of the small investor from the JSE, perhaps temporarily diminished during the boom of 1986/7, will no doubt continue to grow in 1988 consequent upon the October stock market collapse.

Until a substantial body of evidence on this investor group's personal situation, their investment objectives and strategies and their perceptions of the market-place becomes available, neither the stock exchange authorities nor the financial community will be in a position to contemplate a course of action designed to counter the prevailing trend.

The research presented here is but a first step in the process of providing such evidence.

Acknowledgement

The author wishes to acknowledge the assistance given by Fergusson Bros., Hall, Stewart and Co. Inc. Without their co-operation, it would not have been possible to carry out this study.

References

Boshoff H (1986). *Portfolio Risk Management,* 2nd quarter, McKie van Velden Inc., Johannesburg.

Cohn R A, Lewellen W G, Lease and R C Schlarbaum G G (1975). Individual Investor Risk Aversion and Investment Portfolio Composition. *Journal of Finance,* Vol 30(2), 605-629.

Lease R C, Lewellen W G and Schlarbaum G G (1974). The Individual Investor: Attributes and Attitudes. *Journal of Finance,* Vol 29(2), 413-438.

Lase R C, Lewellen W G and Schlarbaum G G (1976). Market Segmentation: Evidence on the Individual Investor. *Financial Analysts Journal,* Sept. – Oct., 53-60.

Lewellen W G, Lease R C and Schlarbaum G G (1977). Patterns of Investment Strategy and Behaviour Among Individual Investors. *Journal of Business,* Vol 51(7), 296-333.

Lewellen W G, Lease R C and Schlarbaum G G (1979). Investment Performance and Investor Behaviour. *Journal of Financial and Quantitative Analysis,* Vol 14(1), 29-57.

Schlarbaum G G, Lewellen W G and Lease R C (1978a). The Common-Stock-Portfolio Performance Record of Individual Investors: 1964-70. *Journal of Finance,* Vol 32(2), 429-441.

Schlarbaum G G, Lewellen W G and Lease R C (1978b). Realised Returns on Common Stock Investments: The Experience of Individual Investor. *Journal of Business,* Vol 51(2), 299-325.

JSE (1985). 36th Transaction Study of Share Purchases and Sales.

Wealth is not a prerequisite when you talk to Syfrets.

More often than not it's the result.

It's not surprising that a large percentage of the people who talk to Syfrets also enjoy a considerable amount of wealth.

But when you consider that only a fraction of them started out wealthy, then you begin to see the role that Syfrets can play in building your financial future.

Syfrets Portfolio Managers have an outstanding investment performance record. They will help you achieve capital and income growth in the most tax-efficient way possible.

Syfrets Unit Trust offers investors, with as little as R100, the opportunity to tap the extensive skills of the dynamic Syfrets Managed Assets team.

Syfrets deposits enable you to enjoy high interest rates and complete flexibility. Deposit periods from 32 days to 36 months with facilities for guaranteed minimum rates and prime linked deposits.

And if you need medium to long-term bond finance, talk to our lending specialists. We will develop a highly competitive package structured to suit your specific requirements.

Whatever your financial goals, Syfrets guarantees you personal attention from specialists who are able to assess your needs and develop an appropriate investment package. Because the truth is, success in our business depends on one prerequisite. Our success in making you wealthy.

Talk to Syfrets. We'll show you the way towards a better financial future.

Talk to Syfrets. Specialists in creating wealth.

Syfrets

JWT 64627/E/L

Peter Brews *

South Africa, hi-technology and the future: Affordable imperative or fantastic folly?

1. Introduction

That the modern world is presently enjoying unprecedented technological advance is apparent even to the most uninformed observer. Micro-electronics and the now famous computer chip have contributed much to this development.

In the field of manufacturing the move has been from electro-mechanical manufacturing processes, best suited to long-run, dedicated production, to computer controlled manufacturing systems, suited to high-quality, low-volume, low-priced manufacturing. Dedicated, inflexible capital (in the economic sense) has been replaced by flexible, programmable capital, capable of changing its production pattern at the pressing of an 'Enter' key on a computer keyboard. Flexibility is and will be the key word in the world of manufacturing in the last decade of the twentieth century. Toffler's third wave, the move from smoke stack, industrial revolution type production to hi-tech 'clean' post-industrial revolution type production, has arrived.

In the field of information technology and information management the revolution has been equally pervasive. The dramatic and hopefully permanent decline in the price of computer hardware, together with the commercialisation and explosion of software has made computers accessible to all in the modern economy. Spreadsheets, expert systems, database management systems, local area networks and the like have contributed to the development of a new and fast growing field in the discipline of management science: management information systems.

In the services sector the influence is equally astounding. In financial services we have witnessed the development of a global capital market, facilitated by the parallel appearance of a global communications network. Nationally, we have enjoyed the benefits of electronic funds transfer and banks that never sleep (except when the system is down, or your card is devoured for some reason). In the retailing sector automatic checkouts, bar coding and home shopping have become realities, while in the supply of garage services, computer diagnostics have become the requirement for the sophisticated modern vehicle.

Finally, in the office we have enjoyed an equally astounding change: the typewriter and Typex have been replaced by PCs and word processing; office mail has been replaced by electronic mail; middle management has been replaced by data bases and networks; accounting clerks have been replaced by data capturers, or no one (the data is captured somewhere else, maybe the Bahamas, and the results sent via satellite to the company mainframe in downtown New York); and fax machines have replaced messengers. All a result of hi-technology. All delivering, no doubt, greater efficiency: the production of more output with the same or less inputs.

Yet this paper will debate a deceptively simple question: can South Africa afford hi-technology? Unfortunately the answer is more complex. In answering this question four issues will be addressed: the role technology has played in the economic progress of the developed and developing world; South Africa's utilisation of technology in the past; South Africa's technological development and utilisation in the years to come, given various alternative socio- political scenarios for the foreseeable future; and finally a discussion on the concept of 'affordability' in the South African context.

First, technology in the developed and developing world.

2. Technology in the developed and developing world

As a general proposition, technological progress has been based primarily on two factors: labour; or capital-saving advances. Historically, the use of tractors, ploughs, computers or automated textile looms can, in the main, be described as labour saving. Capital saving, though more rare, is probably more appropriate in a developing, or third world setting and can comprise the use of low cost, efficient, labour-intensive production functions, essential in any long-run employment-oriented development strategies. A third type of technological progress (a hybrid of capital and labour saving technology) occurs when the skills or quality of the labour force are upgraded. This is described as 'labour augmenting' technology.

Most economists, when viewing the developed world (economies such as the United States, the United Kingdom, West Germany and Japan) acknowledge the central role played by technology in the economic growth process. According to Kuznets, Nobel prize winner in Economic Science, technology is one of the driving forces behind economic growth:

> 'A country's economic growth may be defined as a long-term rise in capacity to supply increasingly diverse economic goods to its population, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands.' (Kuznets, 1973).

Todaro, the noted development economist, attributes economic growth to the interplay between three major factors: capital accumulation (new investment in land, plant and machinery and human resources); growth in popultion and ultimately growth in the labour force; and technological progress. (Todaro, 1981.)

Dornbusch and Fisher (1981) argue that two sources of growth in real output over time exist: growth in the availability of factors of production and improvements in technology. In fact they note (p599) that almost half the growth in output in the United States between 1929-1969 was attributed to technical progress. In summary, there seems little doubt that technical progress has played a significant and positive role in the growth and advancement of modern economies.

Unfortunately the record of technology in the developing, or third world has, according to some, not been nearly as admirable. This school of thought contends that technology contributes to 'dualism', a characteristic of many third

* Lecturer in Finance, Economics and Strategy, Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. Keynote address delivered to the Unisys User Group conference on Monday, 23 May 1988 in Port Elizabeth, South Africa

BARLOW RAND **CIRCUIT BREAKER INDUSTRIES** BARLOW RAND **BARLOW MOTOR HOLDINGS** BARLOW RAND **M B BLOW MOLDERS**
ADCOCK-INGRAM BARLOW RAND **NAMPAK** BARLOW RAND **BLAIKIE-JOHNSTONE** BARLOW RAND **DOUGLAS COLLIERY** BARLOW RAND
BARLOW RAND **DURBAN ROODEPOORT DEEP** BARLOW RAND **HARMONY GOLD MINING CO** BARLOW RAND **PERSETEL**
COLD CHAIN BARLOW RAND **C G SMITH SUGAR** BARLOW RAND **PETERS PAPERS** BARLOW RAND **GOLDEN LAY FARMS** BARLOW RAND
BARLOW RAND **RAND MINES** BARLOW RAND **REUNERT** BARLOW RAND **C G SMITH FOODS** BARLOW RAND **PERSEUS COMPUTER SYSTEMS**
TIGER FOODS BARLOW RAND **RAND MINES PROPERTIES** BARLOW RAND **GEC SOUTH AFRICA** BARLOW RAND **ATC** BARLOW RAND
BARLOW RAND **MEADOW FEEDS** BARLOW RAND **NATIONAL PANASONIC** BARLOW RAND **BLUE CONTINENT COLD STORAGE**
JUNGLE OATS BARLOW RAND **ROTOFLEX** BARLOW RAND **CONSOLIDATED CITRUS CONTAINERS** BARLOW RAND **ERPM** BARLOW RAND
BARLOW RAND **HYPACK** BARLOW RAND **NAMPAK TISSUE** BARLOW RAND **KING FOOD** BARLOW RAND **TELKOR**
BARAIR BARLOW RAND **INFORMATION SERVICES MANAGEMENT** BARLOW RAND **RCP GROUP** BARLOW RAND **SAPEC** BARLOW RAND
BARLOW RAND **DELTA SOFT** BARLOW RAND **SA OIL MILLS** BARLOW RAND **RHODIUM REEFS** BARLOW RAND **POLYCELL**
SPICERS BARLOW RAND **METAL BOX SA** BARLOW RAND **NATAL CANE BY-PRODUCTS** BARLOW RAND **BARLAN FORMS** BARLOW RAND
RAND **WITBANK COLLIERY** BARLOW RAND **REUNERT TECHNOLOGY SYSTEMS** BARLOW RAND **MIDDELBURG STEEL & ALLOYS**
BARLOW RAND **FEDERATED TIMBERS** BARLOW RAND **WELGEDACHT EXPLORATION** BARLOW RAND **COOPER & DE BEER** BARLOW
ROBOR INDUSTRIAL HOLDINGS BARLOW RAND **IMPERIAL COLD STORAGE** BARLOW RAND **ALUMEX** BARLOW RAND **BARLOW HANDLING**
BARLOW RAND **SAPHAR-MED** BARLOW RAND **ELECTROCOL** BARLOW RAND **NASHUA SA** BARLOW RAND **RADIMED**
BARLOW COMPUTER SERVICES BARLOW RAND **PPC LIME** BARLOW RAND **TIGER BAKERIES** BARLOW RAND **THOS BEGBIE & CO**
BARLOW RAND **BARTONS** BARLOW RAND **FEDERATED-BLAIKIE** BARLOW RAND **BUILD-N-SAVE** BARLOW RAND **UNIPLY** BARLOW RAND
BROLLO AFRICA BARLOW RAND **G E HUDSON** BARLOW RAND **THESEN & CO** BARLOW RAND **ISM** BARLOW RAND
BARLOW RAND **BARLOW'S TRACTOR CO** BARLOW RAND **ANDROMEDA ELECTRONIC SYSTEMS** BARLOW RAND **ROBOR** BARLOW RAND
SMITHCHEM BARLOW RAND **METAL BOX GLASS** BARLOW RAND **BARPLATS** BARLOW RAND **SA SUGAR DISTRIBUTORS** BARLOW
RAND **BERG RIVER TEXTILES** BARLOW RAND **HEXTEX** BARLOW RAND **BARLOW RAND PROPERTIES** BARLOW RAND
BARLOW RAND **S WAINSTEIN** BARLOW RAND **DAIRYMAID** BARLOW RAND **AEROLAK AFRICA** BARLOW RAND **COUNTRY FAIR FOODS**
BDM SECURITY CARDS BARLOW RAND **PRINTPAK** BARLOW RAND **SABAX** BARLOW RAND **RENOWN** BARLOW RAND
BARLOW RAND **JIFFY MANUFACTURING** BARLOW RAND **OCEANA FISHING** BARLOW RAND **BLYVOORUITZICHT GOLD MINING CO**
LANGEBERG FOODS BARLOW RAND **W G BROWN INVESTMENTS** BARLOW RAND **RAND REGISTRARS** BARLOW RAND
BARLOW RAND **FATTI'S AND MONI'S** BARLOW RAND **PRETORIA PORTLAND CEMENT** BARLOW RAND **BARLAND INDUSTRIAL EQUIPMENT**
MILLSELL CHROME MINES BARLOW RAND **B & D EDUCATION SYSTEMS** BARLOW RAND **MARINE OIL REFINERS** BARLOW RAND
BARLOW RAND **COLLECT-A-CAN** BARLOW RAND **SA SEA PRODUCTS** BARLOW RAND **BARLOWS MANUFACTURING CO**
SACO SYSTEMS BARLOW RAND **WRIGHTECH** BARLOW RAND **AIROMATIC** BARLOW RAND **FLORTIME** BARLOW RAND
BARLOW RAND **PLASCON-EVANS PAINTS** BARLOW RAND **MARINE OIL REFINERS** BARLOW RAND **LOTZABA FORESTS** BARLOW RAND
DAIRYBELLE BARLOW RAND **ROMATEX** BARLOW RAND **ISLAND VIEW STORAGE** BARLOW RAND **TECHNOLOGY SYSTEMS INTERNATIONAL**
BARLOW RAND **BARCOM ELECTRONICS** BARLOW RAND **LOGOS PHARMACEUTICALS** BARLOW RAND **VAN DYCK CARPETS** BARLOW RAND

Barlow Rand. The name behind 400 respected S.A. companies.

Ranked 78th in Fortune's directory of the 500 largest companies outside the US. In sales and assets, first on the list of South Africa's publicly owned industrial corporations. Responsible for nearly a quarter-million jobs and R940 million in new capital projects during 1987.

As a group, it's also highly diversified. With major interests and market shares in mining, ferro-alloys, computers, electronics, electrical engineering, textiles, building and construction supplies, consumer durables, packaging, pharmaceuticals and food.

Barlow Rand. A vital part of South Africa's future.

GREY PHILLIPS BUNTON MUNDEL & BLAKE 84976

world countries. Dualism comprises different sets of conditions of which some are 'superior' and other 'inferior'. Dualism implies that the 'superior' and 'inferior' can coexist in close proximity at the same time. Urban and rural; wealthy and poor; highly educated elites, and masses of illiterate poor. But according to Todaro (ibid) the concept has more serious attributes. He points out that some conclude that the coexistence of the dualism is chronic, not transitional, and may not be eliminated or rectified over time. In fact, not only may the dualism not diminish, it may even have an inherent tendency to increase. Finally, the argument goes, the existence of superior elements do little or nothing to pull up the inferior element. Rather, they may actually push down the inferior, widening, rather than narrowing the gap.

Technology also plays its part. Todaro argues:

> 'But this initial element of dualism – the coexistence of "superior" with "inferior" phenomena – is not limited to the distribution of wealth, income, and power. It also exists in the technological nature of third world industrial production. Small enclaves of modern industries (mostly urban manufacturing) using modern, imported, capital-intensive production methods to produce sophisticated products in large quantities, coexist with traditional, labour intensive, small scale activities catering for limited local needs.'

Second, the coexistence of small, modern enclaves in the midst of traditional societies, and a small group of "progressive" wealthy elites amid masses of poor, show no signs of disappearing. 'The vast majority of third world peoples seem today as untouched by "development" as they were, say ten to fifteen years ago.' (Todaro, p67.)

Todaro argues further that a distrubing relationship may exist between economic growth, poverty and income distribution in the third world:

> 'For a given low level of GNP and per capita income, the more unequal the distribution of income, the more aggregate demand and production will be influenced by the consumption preferences of the rich. In spite of the fact that they may constitute only a small portion of the population, the rich can control a very disproportionately large share of national resources. Their dominant purchasing power can bias production and imports toward luxury goods even while the masses are barely subsisting.' (Todaro (ibid), p119.)

The consequences of this, according to Todaro (ibid), are that a sizeable proportion of the financial, technical and administrative resources in a typical third world country are devoted to the production of sophisticated consumer luxury goods, to cater for the demands of a small but economically powerful minority. Furthermore, the production of these goods normally requires relatively sophisticated capital-intensive production techniques, compared with the relatively more labour-intensive technology of necessity goods production. As a result, fewer jobs are created, profits increase as the production function becomes more capital intensive, and the distribution of income tends to widen even further. Rather than 'trickle down', the wealth may 'trickle up' and exacerbate poverty.

With economic growth, income distribution widens, and the gap between rich and poor grows. Technology, and in particular capital-intensive (hi-tech) technology, though positive in the developed world, may have unintended negative effects in the developing world, with this negative effect being more serious the more unequal the distribution of income is.

If the analysis is correct, the implications for South Africa are obvious. Economic growth, far from being a tide that raises all ships (and creating an eventual 'black middle class'), may be a process that floats a few liners, but sinks the rest. To ascertain whether the process has occurred in South Africa, analysis of economic growth and technology in South Africa is helpful.

3. Economic growth, technology and South Africa

Mercabank (1985), in its study of industrialisation and growth, provides an interesting analysis of strategies for growth and their inter-relationship with technology and dualism. Dualism in this sense refers to economic dualism. Table I below summarises the Mercabank framework:

Table 1: Mercabank's growth strategies/characteristics

Growth Strategy **Characteristics**	**Export Led Emphasis**	**Import Replacement Emphasis**
Output Pattern	• Mining & mineral benefication • Some agricultural & manufactured food products • Hi-tech industries	• Expansion in intermediate & capital intensive industries
Production Function and Technolgy	• Highly capital intensive • High labour productivity • International marketing	• Highly capital intensive • Highly skilled labour
Scale of Enterprise	• Large scale operations	• Large scale operations • Monopolistic tendencies
Role of Government	• Limited, possibly export subsidisation	• Extensive, eg: direct and indirect import control
International Relations	• Based on integration & co-operation • Open economy	• Stimulated by political & economic sanctions/boycotts • Closed economy
Effect on Dualism	• Continued domestic economic dualism	• Continued domestic economic dualism

Clearly, in Mercabank's view, economic growth based on an export led or import replacement emphasis will not, unaided, lead to a decline in economic dualism in South Africa. As explained previously, these growth strategies may even contribute to an increase in the dualism – trickle up, rather than trickle down.

For many decades South Africa has followed a combination of export promotion and import replacement policies to fuel its economic growth: South Africa's systematic policy of export promotion began, according to Mathews (1987), in 1972 with the Reynders Commission Report, and signalled a move from import replacement to export promotion as the main thrust

The average man earns close to R1 MILLION in his lifetime.

We at UAL feel he should be able to keep some of it.

Calculate the average man's salary over a 45 year working span; the resultant figure is an approximate R1 000 000.

Hard work, dedication and commitment enables him to achieve this.

We at UAL feel he should be able to keep some of it.

Living expenses and the Receiver consume the bulk of this money, but there is a little left over. Protection against inflation and capital growth is what the investor is after.

UAL now has four professionally managed unit trusts, offering unitholders a relatively low-risk investment, that can give a potential inflation beating, tax-free capital return without sacrificing liquidity.

Management Company Limited

WHERE YOU AND YOUR MONEY COUNT

100 Main Street, Johannesburg 2001 Tel: (011) 630-6111

As in the case of all unit trusts, the value of units fluctuates relative to the market value of the underlying securities comprising the fund's portfolio. The fund's selling price includes a maximum initial charge of 5% and also includes the compulsory charges being brokerage and marketable securities tax. A service charge of ½% p.a. of the fund's market value is deducted from income. The management company undertakes to repurchase units in accordance with the requirements of the Unit Trusts Control Act. No provision for amortisation of the existing securities is considered necessary.

of growth policy. Initial and investment allowances (tax concessions to facilitate capital formation) were part of government policy for many years, which together with negative real interest rates, made the cost of imported capital relatively cheaper. Some import replacement programmes have also been based on perceived 'strategic' necessity, and stimulated by international boycott: for example, the world arms boycott, commenced in 1963, triggered the development of a now substantial arms industry, while oil embargoes (real or potential) have stimulated the development of the Sasol plants and, more recently, Mossel Bay. Atlantis Diesel Engines can be placed in the same category, all essentially technology based import replacement programmes induced by threat of external sanction.

This two-pronged growth strategy has had significant consequences: the country's economic openness (and significant export sector) has given it the ability to import. Exports have been mainly raw materials or primary products, while imports have been mainly capital goods. This has contributed to the country becoming a sophisticated user of licensed technology, and has restricted the necessity and aptitude to develop local technology. However, where forced by 'strategic' necessity, the country has developed local technology, usually as a result of massive government intervention, and at a reasonably high cost. In most instances this technology has taken decades to develop. In summary, while South Africa's export earnings have allowed the country to import most of its capital needs (plant and machinery), at the same time the country has developed, where necessary, its own technology, but usually at a very high cost.

However, this reliance on external technology, and external demand to fuel economic growth (typically, our business recoveries have been export led, and our recessions export or import induced) has, together with other government policy (specifically the policy of apartheid) contributed to the development of a highly imbalanced and unequal society. While all countries, whether capitalist, socialist, or mixed exhibit a degree of inequality, South Africa is rated by Todaro (ibid, p129) as a middle income country with a high degree of inequality in income distribution. The country's peer group in the distribution of income tables includes Brazil, Mexico, Venezuela and Jamaica. Conversely our major trading partners, such as Japan, the United Kingdom and the United States are classified as high income, low inequality countries. This high degree of inequality has resulted in South African society displaying schizophrenic characteristics: in fact the characteristics of both a developed and an underdeveloped country.

These characteristics are outlined in Table 2 below:

Table 2: Developed/Underdeveloped country characteristics

	D Cs	U D Cs
Population	Stable growth rate if not ZPG. Well educated, high output per capita	High growth rate, extremely low education level, low output per capita
Health Services	Well developed, low infant mortality, high life expectancy	Almost non-existent, high infant mortality, low life expectancy
General Living Standards	High – considerable disposable income, high consumption levels	Extremely low, basics of food & shelter not even catered for – high malnutrition level
Economies	Well developed, diversified, manufacturing & technology based	Mainly subsistence type economy or primary raw material producer, low technology, non-diversified

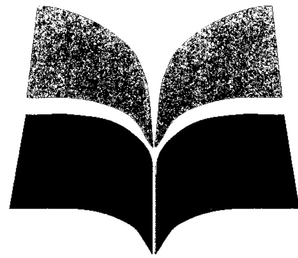
Following the analysis, three propositions can be made concerning the present socio-economic structure of South Africa: Firstly, the white population group display developed country characteristics, while the black population display underdeveloped country characteristics. Secondly, the developed portion of the economy (reasonably well developed and diversified, though more primary commodity than manufacturing based) is based primarily on imported capital: plant, machinery and technology supplied by external elements. Thirdly, the growth pattern (export led or import replacement based) while, until recent times, it may have delivered adequate economic growth rates, may also have contributed to an increasing economic dualism, and ultimately to the societal dualism of the type referred to earlier in this paper. This growth path (and technological pattern) may have been fertile ground for trickle up, rather than trickle down wealth distribution.

Unfortunately, the tendency to trickle up has been greatly exacerbated by government policy. In different political circumstances, redistributive tax policy would have been employed to narrow the gap and reduce the dualism. Unfortunately, apartheid, and all its ramifications, has worked in the opposite direction: the delivery of unequal education for decades has contributed to inequality; the use of national resources (since the fifties) to develop a local oil and arms industry has resulted in massive capital allocation which may have been employed elsewhere; the systematic denial of 'black' business rights and property rights in 'white areas' (until recently) has greatly frustrated many South Africans' abilities to accumulate capital; the forced depopulation of blacks from so-called 'white' urban South Africa to black homelands in the sixties and seventies (when influx control was at its most stringent) resulted in massive increases in homeland populations, forcing people to move from relatively low- fertility, accessible urban areas, to high-fertility, rural areas, which are inaccessible; and finally, the allocation of the tax base, primarily to meet the needs and interests of a minority in the society, have resulted in a highly unequal and imbalanced society. Today approximately fifty percent of the people in South Africa live on fifteen percent of the land and produce two percent of the national income. It is within this context that the debate on the affordability of high technology in South Africa should be joined. So much for the past. But what of the future?

4. Alternative future socio-political scenarios for South Africa and technology

A scenario can be described as a coherent, internally consistent future world which may occur. In the past few years an extensive body of literature has appeared on scenario-based planning. In addition, the developing of socio-political scenarios for South Africa has become a growth industry. This paper draws from scenarios developed by three independent sources, though mapping out the future is at best a perilous undertaking. Successfully predicting what actualy occurs is unlikely: it is the margin of error that counts. Table 3 below details alternative future socio-political scenarios for South Africa, according to three sources. In each case the year in which the scenarios were developed is included in brackets after the proponent's name. Where available, the proponent's view of the sustainability or likelihood of the scenarios materialising is included.

Malbak



Our diversity
is
Our strength

Turnover of R800 million

Earnings of R6-million

AND ... we're still growing.

Table 3: Alternative future socio-political scenarios for South Africa

Scenario Proponent and Name	Scenario Characteristics	Scenario Probability/Sustainability (where provided)
Schlemmer's Four Scenarios (circa 1985)[1]		
Effective Reform/Negotiated Settlement	Negotiation between major elements of ANC, Trade Unions, Inkatha, homeland based grouping and Government	Unlikely (around 1985)
Partially Effective Reform	Two senarios are similar, only a matter of degree. Characteristics not specified by Schlemmer, though sustainability of either in doubt.	Either scenario considered likely (around 1985)
Sham Reform	Upward regeneration to Effective Reform, or downward regeneration to Collapse/Reconstruction considered possible	
Collapse/Reconstruction under Majority Rule	Increased ungovernability in townships, complete external sanctions, overextension of police, army, complete politicisation of trade unions, culminates in release of political prisoners, transfer of power, capitulation.	Unlikely (around 1985)
Schlemmer's Three Scenarios (circa 1987)[2]		
(Until 1995)		
Modern Reform Alliance	'Indaba' type reform, central/liberal blacks in local, regional, then central power sharing	Can work, but no solution. Boycotted by more radical elements
Co-optive Domination	Continuation of present impasse, co-option of black juniors into cabinet: tokenism, representing a black conservative/government alliance.	Continuation of present stalemate, bolstered by co-option
Siege State	Sanctions bite, undermine economy, white centre, right re-unification, society militarises, state control of economy increases, similar to Rhodesia in final seven years, without South African support.	
The Economist Scenarios (circa 1985)[3]		
Degenerative Collapse	Slow, inevitable decline, constrained by militant right wing, democratic reforms are suspended. State Security Council becomes Committee for National Security. Civil rights eroded, co-opted blacks struggle to hold positions, regime proves unstable, vulnerable to military coup ultimately	
Siege State	After bout of innovation SA becomes politically introverted. Government based on military strength, containment of dissent by ad hoc power broking. White elite retains command, with judicious co-option. Authoritarian, can continue in power for long time.	
Sunter's Scenarios (circa 1987)[4]		
High Road	Sanctions kept at levels of 1987. Small government, servant of the people. No prescriptions about ultimate form: outcome is negotiation based, acceptable to majority of South Africans	

Low Road	Sanctions increase, economy becomes more controlled, government bigger, more centralised, based initially on co-option, degenerating into confrontation and conflict. Fine early on: top team takes on multiracial complextion, but fundamentally flawed	Not sustainable
Fortress South Africa	Isolated military fortress, dynamic inside fortress cannot be predicted.	End game: wasteland

Source:
1: Summary of Presidential Address to the SAIRR, November 1985.
2: Presentation to the Wits Business School, July 1987.
3: The Economist, 17 August 1985, p16.
4: Sunter, C (1987). *The World and South Africa in the 1990s,* Human & Rousseau, Tafelberg.

The striking aspect of the scenarios is their similarity. All rule out 'Collapse/Reconstruction' in the foreseeable future. Equally, both Schlemmer and The Economist rule out 'Effective Reform/Negotiated Settlement' under present conditions. Also all three sources include a siege state, in one guise or another, with both Schlemmer and The Economist foreseeing a brief 'mini-boom' of innovation as the country enters the siege. (This also occurred post-1965 in Rhodesia, for a period.) This state of siege highlights the importance of international reaction to political developments in South Africa. At this point it is suggested that South Africa is tending towards siege, and for this reason much of the ensuing comments in this paper will be directed at Technology in the Siege. However, a technological scenario based on the re-integration of South Africa into the modern world economy will also be developed.

Within the Siege State three 'technological futures' may face South Africa. These are Technological Decline in the Siege; Technological Survival in the Siege; and Appropriate Technology in the Siege. The scenario dealing with re-integration into the world economy is labelled Hi-tech Onslaught. Table 4 below details the characteristics of each. The political and economic assumptions applicable to each scenario are described, together with the scenario characteristics and outcome. While the four scenarios are described as separate 'future' worlds, it is obviously possible that elements of each may occur at the same time. To an extent, this is included in the scenarios. More of a combination than described is also possible. (See Table 4).

5. Affordability in the South African context

This paper has suggested that the impact of technology may to a significant degree depend upon the environment within which the technology is applied. Highly capital intensive technology, while contributing to economic growth in a developed context, may have serious dislocating effects in a developing context. Technology may promote rather than remove pre-existing structural imbalances. The paper has also inferred that the recent growth path of the South African economy (export led/import replacement) has tended to exacerbate the dualism. Unfortunately, accompanying government policy, rather than correcting for these effects has greatly contributed to them. All these factors combined have resulted in a highly unequal society: land ownership, skills ownership and other resource endowments are highly skewed in their distribution. This distribution, unlike most third world countries, also has a racial overtone. It is in favour of the white minority, against the black majority. Furthermore, it has been pointed out that most of South Africa's technology in the past has been imported and based on licence. Notable exceptions are where, for 'strategic' reasons, substantial government intervention has enabled the country to develop its own technology. Finally, alternative future technological scenarios have been developed, based on alternative future socio-political scenarios. In the development of the technological scenarios a view was taken that South Africa is currently entering the State of Siege, an alternative predicted by the three sources drawn from.

Regarding the technological scenarios, three possibilities may exist in the Siege. Technological Decline (which the country definitely cannot afford); Technological Survival (which the country may barely afford, but at a high price, particularly in socio- economic terms); and Appropriate Technology in the Siege, which though more affordable than the first two scenarios, would result in the economy, over time, adopting a different growth path, and exploiting different markets than before. Finally, a scenario based on re-integration into the developed world economy was suggested. Given present political circumstances, this scenario is considered the least likely to materialise.

All the scenarios (socio-political and technological) have implications for business, and the society within which business operates. The most serious problem facing South African society today is inequality. Future political stability (irrespective of the government of the day) to a large extent depends upon how the dualism and distribution skewness is reduced. Every individual or institution (public or private sector) should do everything in its power to reduce this inequality. Unfortunately this immediately exposes an inherent conflict of interest in the system. From businesses' perspective (the micro-economic view) competitive pressure (and sound business principles) may require that operations become more and more capital intensive. From a macro-economic perspective this may be undesirable, as it contributes to increased dualism. Essentially, this highlights the conflict between efficiency and equity in this context. A solution does however exist. Firstly, it is the primary responsibility of every wealth-generating unit in the society to ensure its own survival. Running businesses into liquidation in the name of labour intensive production (and equity) is false economy in the long run. Secondly, increased efficiency, everything else being equal, means higher profits, and ultimately higher taxes. The equity/efficiency conflict is thus resolved at this level, by the government of the day allocating the tax base to offset the imbalance.

The conclusion is therefore quite simple. It is neither technology, nor hi-technology which the country cannot afford. It is not even the deleterious effects of this technology upon the society that is unaffordable. Rather the failure of public policy

Table 4: Future alternative technological scenarios for South Africa

Scenario Name	Assumed Political/Economic Developments	Scenario Characteristics	Scenario Outcome
Technological Decline in Siege	Ever increasing political and economic isolation, siege becomes tighter and tighter, local unrest increases, domestic stability deteriorates, eventually leading to Collapse/Reconstruction. Exchange rate declines, inflation, interest rate increase, growth declines, unemployment increases. Highly skilled emigrate.	Since foreign technological access denied, SA forced to rely on home grown technology, which is inferior. Local ability to develop technology eventually exhausted, import replacement too costly. More and more government intervention required to sustain marginal technology, aimed chiefly at military, security development to contain unrest, which fails.	Eventual collapse, after substantial wasted effort to sustain unsustainable. Whole society suffers. Reconstruction very difficult. Wasteland a possibility.
Technological Survival in Siege	Similar to above, except government proves able to contain internal unrest, and preserve stability in Southern Africa. No Collapse/Reconstruction. Exchange rate may stabilise, though inflation, unemployment and economic growth remain a problem, though not as serious as in Scenario I.	Despite foreign technological denial, home grown technology proves capable of sustaining economy, generating sufficient wealth to contain socio-political situation. Hi-tech investment in military, security, 'strategic' areas successful, though an extremely heavy burden on national resources.	SA emerges from siege, but with a more dual economy than before. Though some welfare expenditure is undertaken most of the tax base allocated to military, security, strategic and technological survival.
Appropriate Technology in Siege	Same external pressures, except domestic economy becomes inward oriented, based on inward urbanisation, black consumer expenditure, more labour intensive. Informal sector increases, based on urbanisation. Domestic political tensions decline. More wealth invested in socio-economic upliftment than in Scenarios I or II.	Despite foreign technical denial, home grown technology sustains, in an appropriate fashion. Modern sector survives, with tinkering and formal and informal sectors develop appropriate technology to suit the circumstances that face them.	SA emerges from siege, with dualism on the decline, but more developing than developed country. Technology gap between SA and industrial countries widens, Third world becomes SA appropriate export market.
Hi-Tech Onslaught	SA achieves reform acceptable to world; re-integrated into world economy. First world sector of economy re-enters world arena, tax base allocated to socio-economic upliftment, according to affordability. Exchange rate improves, though in short/medium term inflation and unemployment remain a problem	Concentrated hi-tech drive, S A develops knowledge intensive manufactured exports. Competes with western world, NICs. Result of concerted business/government hi-tech push. Can also include Scenario III, with inward urbanisation resulting in low technology being developed symbiotically: so-called 'dual logic' economy in different sense.	S A continues as dual society/economy, though tax base allocation gradually erodes dualism. Eventually S A joins developed countries. If Scenario III included, inward urbanisation also contributes to removal of dualism.

(ultimately government failure) renders the situation unaffordable. A government which fails to correct for the dislocation, or worse exacerbates the dislocation, renders the entire situation ultimately unaffordable. The principal problem in South Africa is not the affordability of hi-technology, but the affordability of current government policy.

In the long run, Technological Decline, or mere Technological Survival in the Siege, both the products of political choices, are unaffordable. Ultimately, a State of Siege, itself a product of political mismanagement, is unaffordable. Equally, it still needs to be shown that a Hi-Tech Onslaught is within the capabilities (or affordability) of the country. But a Hi-Tech Onslaught is preferable to a Total Onslaught.

The challenge is therefore threefold:

(i) Firstly, the social dislocation caused as countries (and organisations) progress up the technological ladder must be recognised. The trade-off between efficiency and equity must be acknowledge, especially in the South African context, with the country's unique history and current situation.

(ii) Secondly, individuals and organisations must do their best to soften the dislocating effects of technological advance. Here hi-technology can play an astounding role. In the field of education high technology can be applied with great benefit. Essentially the application of labour augmenting technology, the productivity and skills of human resources can be efficiently and effectively upgraded employing hi-technology. In this sense, technology may become a welcome saviour to South African society.

(iii) Finally, and perhaps most importantly, others must be convinced that an Effective Reform/Negotiated Settlement is the only true road to a sustainable future. This future will not be without its problems, but it stands a better chance of success than the present road. The road of confrontation, conflict and siege is likely to reap a technology South Africa can ill-afford, not to mention the other costs the society will be called upon to bear, both during the siege and for decades thereafter.

References

Kuznets, S (1973). *Modern Economic Growth: Findings and Reflections.* American Economic Review 63, No. 3 (June), pp247-258.

Todaro, M P (1981). *Economic Development in the Third World.* 2nd Edition, Longman, London.

Dornbush, R & Fisher, S (1981). *Macro-Economics,* 2nd Edition, McGraw-Hill.

Mercabank Ltd (1985). *Focus on Key Economic Issues No. 36 – Industrialisation and Growth.* May, Mercabank, Ltd, Johannesburg.

Mathews, J (1987). *International Economic Relations for South African Students.* Southern Book Publishers (Pty) Ltd, Johannesburg.

Sunter, C (1987). *The World and South Africa in the 1990s.* Human, Rousseau & Tafelberg, Cape Town.

David Bullard

Investment basics XXII
Options trading in the gilt-market

Part 2: Pricing and use of options

Having looked, in the last issue, at a little of the background to gilt or bond options, we now turn our attention to the pricing of options and the practical use of these instruments.

Pricing

One of the reasons given by reluctant participants for not using options is the difficulty in pricing them. However, the pricing of an option is no more 'inaccurate' than the pricing of a gilt which assumes that each half yearly coupon is re-invested at the original yield to maturity – surely rather a wild assumption on a 20 year instrument. The calculation of a fair price attempts to ensure that neither the buyer or seller of the option have an obvious financial advantage. There are two systems currently in use; Black and Scholes and the binomial system. The difference in the two systems would warrant an article of its own but the essential difference for purposes of this article is that the binomial system takes into account potential early exercise of an option and the Black and Scholes system does not. Obviously this impacts on options on interest bearing instruments like bonds where the price changes every day.

The calculation of price takes into account the following:

(i) the current market price of the underlying security
(ii) the strike price of the option
(iii) the cost of money for the period of the option; risk free rate
(iv) the time to the expiry of the option
(v) standard deviation of the price of the asset; the past trend
(vi) cumulative probability function; the future trend.

It is quite plain to see that (i)-(iv) rely on fixed information while (v) and (vi) are variable. The standard deviation of the asset will obviously vary dependent on the frequency with which movements of the asset are recorded. A daily closing rate will produce a different result from recording every trade. This will also affect the cumulative probability function which is rather a grandiose way of wondering what the price of an asset is likely to do in the future. All this contributes to what is known as the volatility of a stock and is the single most misunderstood aspect of options. Over the past six months the price of a stock may have been stable for the first five months and then may have moved erratically in the last month. Obviously the last month's behaviour is far more pertinent when trying to decide what the future is likely to hold. It will be appreciated that all voltility really does is to indicate when you are flying upside down. It was never intended to give all the answers and the important factor when buying or selling options is what the market *actually* does in the future. No computer programme will tell you that.

Even if you believe that a particular computer model gives a totally accurate picture of stock volatility, you could be in for something of a culture shock when the market trades further and further away from that volatility. Not so long ago, the price of November put options rose some 30% in half an hour. The market price of the stock had not altered and therefore all the data remained the same for both price movements. The price rise was simply caused by demand. Perceptions of the market had changed and demand for put options exceeded supply, at least for half an hour. All those puts are now showing a healthy profit and the only difference is that the early buyers paid a lower price. Strictly speaking, if everyone were governed by their computer models, the price would not have moved until the spot rate had moved, but markets being what they are, dealers decided manually to over-ride their information and take a position based on fundamentals. Price discovery does not come out of a machine. Only when an investor is prepared to pay a price for something is there any certainty as to the price. Although we all rely on increasingly sophisticated pricing systems, demand and supply are the final arbiters. What a pity that it is impossible to build market sentiment into a pricing model.

Why use options?

Successful investment managers look for opportunities to improve their return on capital. This means that they have to be active in markets to be consistently profitable. That involves taking the rough with the smooth. Obviously, nobody buys stock with the intention of losing money so it is as important to cut losses as it is to make profits. Options are a transfer of risk and like everything there is a risk/reward consideration. Bearing in mind that the pricing is based on time and probability what is actually happening when an option is sold?

The seller receives a premium but has unlimited risk. The buyer pays a premium and has unlimited profit potential. If the option expires unexercised, he forfeits his premium.

This is rather simplistic and would suggest that anyone must be mad to write options but, obviously, risk can be managed and if the writer of an option has a contrary view to the buyer, then he will be happy to receive a premium for an option he never believes will be exercised.

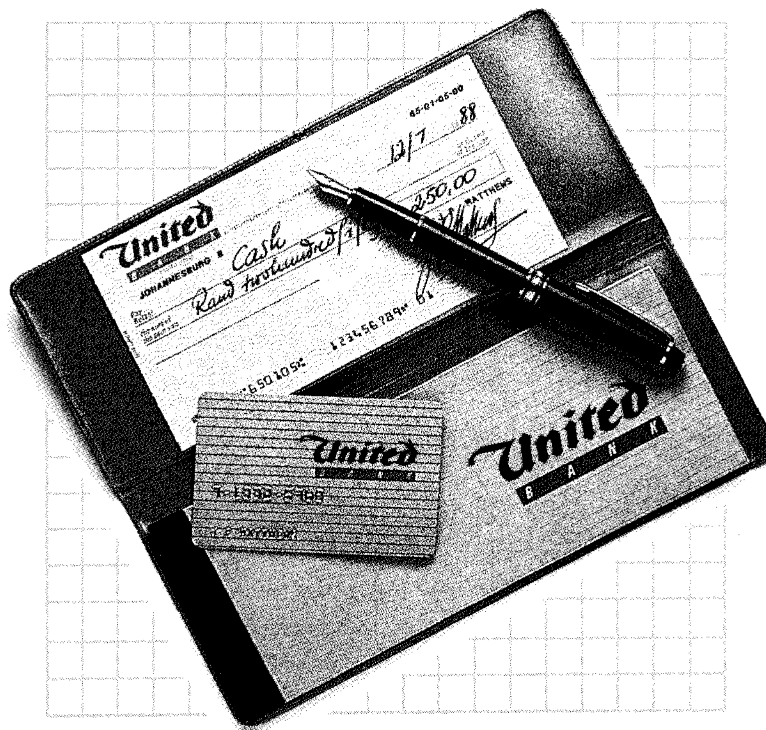
Call options

If long term interest rates are expected to fall, investors go long of gilts hoping for capital gains. An alternative would be to buy call options. Compare the two decisions.

1. Assume you purchase R1 million nominal of Eskom L168 at 16,75% YTM for settlement on 2nd June 1988. The price paid would have been R670 767. The benefits are that interest will be accrued daily and, provided short-term interest rates do not rise sharply, it will be possible to borrow short-term money to invest in long-term gilts and enjoy the extra benefit of running yield while that happy situation continues. If interest rates fall, you will make a capital gain of some R400 per 0,01% move. The downside to all this is that if long rates rise you will make a capital loss and if short-term rates rise you will lose running yield. In other words, the investment will be giving a negative return.

Instead of buying in the physical market, you can buy a 17% call option maturing on August 4th for R11 500. Were the spot rate to be 16,75% so the price of the option reflected 25 points (0,25%) of intrinsic value, the amount would be about R10 000; the balance of R1 500 paying for the time value. You can own that option for two months unless you decide to sell it, and therefore you have that amount of time on hand for rates to fall. If rates do fall after you purchased the option, the price of this *in-the-money* call will rise by at least the intrinsic value. So the capital gain is the *same* as owning the physical. There is no accrued interest benefit or running yield however. If rates rise, the price of the option will fall by at least the intrinsic value with the maximum loss being the original premium of R11 500. As can be appreciated, were rates to rise substantially, you could take a far greater loss on the physical than on the option. This can be further illustrated by assuming that by 7th

Introducing The Cheque Account That Costs Less, Pays More, Operates Everywhere. Only From United.



All the convenience of an electronic card account coupled with the traditional features of a cheque book and the added benefit of a special savings account now brought together into one account.

Up to 50% lower bank charges

Charges guaranteed for 12 months and still lower thereafter

Best interest rates on credit balance, up to 11%

Overdraft rate linked to prime

Interest rates and charges never changed without prior advice

One account number for life, even if you move

All standing payment arrangements travel with you automatically

Make any account transactions at any branch as easily as at your own

---

Open a United cheque account and you can use it immediately, anywhere in the Republic. You can cash a cheque, arrange an overdraft, get a statement, change standing instructions, arrange stop orders or cancel them, as conveniently anywhere in the country as you could at your local branch. It's a whole new era of convenience and affordable banking services.

United

More of a helping hand than ever before.

LINDSAY SMITHERS FCB 8490/E

July rates have risen to 16,95% on E168. The potential loss on the physical position would be roughly R8 000 with the prospect that rates might still rise. There is also the problem of selling stock into a weak market. That in itself will push the rates up and the price down. By contrast the option is still worth about R5 000 assuming the same risk free rate and volatility. It has 5 points of intrinsic value and still a month to run. It is probably a lot more comfortable to sit with that option for the next month, than to be long of the stock.

Put options

Much the same philosophy applies to puts as to calls. If rates are perceived to be rising, what can the portfolio manager do? He can short the stock, meaning he can sell what he does not own. To do this he has to borrow it every settlement day and pay whatever short-term money cost that may apply. It is not always easy to borrow stock and there is the added possibility that he may be caught in a bear squeeze, that is, unable to buy the stock to cover his short position. He also has none of the benefits of being long, like running yield and accrued interest. His alternative is to buy put options and, when rates rise, to buy the stock in the physical market against his puts. As with calls, he has time on his side and can trade the physical against an in-the-money put, thereby giving himself greater flexibility.

These two examples amply illustrate that options can be successfully used as an alternative to the physical market. However, we have only considered the situation from the point of view of the buyer. What benefit does the seller get? Obviously he receives a premium which, if he is long of stock, enhances his book value. If he writes a naked option, in other words he has no stock to deliver against that option, he runs the risk that he will have to cover his obligations by buying in. Although the writer would appear to have the greater risk, it is all a matter of interest rate view and, obviously, someone has to be right. However, options are usually run as part of a complex strategy in a moving market with the aim of balancing positions and guarding against large potential losses.

Out-of-the-money options

The previous examples use in-the-money options. Another alternative is to consider out-of-money options. Here, you will not pay for intrinsic value, only for time value. In the case of a call, you buy the option at a strike rate below current market rates. In other words, you are taking a view that the rate will fall sufficiently to:
(i) recover the premium, and
(ii) show a profit.

In the case of the put, obviously the opposite applies and you hope that rates will rise above the strike rate to cover the premium payment and show a profit. Too many investors do not use options to trade but look only at the likelihood of the stock reaching its strike by maturity. With options trading, your view only has to be *partly* correct.

For example: in mid-April, the price for a 17,5% November put option on E168 was R2 300. In terms of volatility this look cheap but it was not easy to sell such options. The spot rate was 16,37% at the time and the most common response was that clients did not see rates going to 17,5% by November. Those clients were missing the whole point of this deal. The rates did *not* need to go to that level as long as they rose in the near future, thus pushing up the price of that particular put option. Quite simply, the sooner and the further rates rose, the more the option would have been worth. In fact, rates did rise and towards the end of April touched 16,86%. At that time, the bid for 17,5% November puts was R6 200, producing a very handsome return for the initial investor.

Every day, similar opportunities present themselves and there is a very definite swing towards trading options, not just as a hedge but as a profit generator.

Options as insurance

Having looked at options as an alternative to a physical position, what about hedging? No one knows what the future holds and the days are passing when an investment manager just takes a position and hopes he's right. It is prudent to "lock in" potential loss by buying and selling options. If, for instance, your view is that rates will fall within two months, you could buy the physical and buy puts for at least part of that portfolio. If you are correct and rates fall, you will make capital gains on your position but you will lose the premium paid on the put options because they will not be exercised. If rates rise, you will be exercising puts by selling at least part of your holding. While there is a loss, it will probably be quantifiable with options (the option premium plus the rate differential). That is a decision that the investment manager must make and he will obviously decide how much "insurance" he needs, just as he will decide how bullish he is and buy stock accordingly.

The possibilities for options trading are limited only by imagination. In a quite market it is often better to write options and receive premium. In a volatile market, it is profitable to both by and sell options. While options strategies enjoy some exotic names like butterflies, strangles and straddles and while you will inevitably hear of gammas, thetas and delta neutrality, options are largely a matter of simple mathematics and common sense.

Previous issues of the journal

Issue Number 1, November 1972

D G Krige
Capital investment and risk analysis for a new mining venture

J A Rogers
Equity performances in the sixties and seventies

M Dagut
Interest rates – another aspect

A Jammine
The use of computers in investment research

Issue Number 2, May 1973

R J Friedland
The future of monetary gold

R W Bethlehem
Defining the cost of capital

Libra
A plea for a South African Securities and Exchange Commission

Issue Number 3, November 1973

R K M Roseveare
Inflation: Current accounting practice and the investment analyst

J P Wall
Aspects of the short-term money market in South Africa

AP Jammine, D M Hawkins
An analysis of an international set of share indices

M F van Breda
The re-investment assumption in capital budgeting examined

L Sandler
A note on the rule 72 or how long it takes to double your money

Issue Number 4, June 1974

R W Bethlehem
The new Companies Act – An investment analyst's view

M van den Berg
Some observations on inflation and the long-term rate of interest in South Africa

W F Rademeyer, H H Lemmer
Die prys/verdienste verhouding as hulpmiddel by die waardering van aandele

R Gross
Risk analysis of ordinary shares quoted on The Johannesburg Stock Exchange

Issue Number 5, December 1974

P A Kerbel
Portfolio selection and the South African experience

D C True
Trade-in versus salvage value: their treatment in DCF

I R Woods
The cost of capital raised by way of a rights issue

H I D du Plessis
Notes on the characteristics and performance of some South African mutual funds

Issue Number 6, August 1975

Geoffrey Bethlehem
The objective of the firm and its cost of capital

R J Friedland
Prospects for the oil price

Paul J Strebel
Expanded ratio analysis

Issue Number 7, February 1976

P J Blomkamp
The behaviour of industrial share prices in relation to gross national product and interest rates in South Africa

P J C Seneque
Restating financial statements for inflation: Is it necessary? Is it sufficient?

David Collins
Some fallacies in financial analysis

J F Affleck-Graves and A H Money
A comparison of two portfolio selection models

Issue Number 8, August 1976

G C Olivier
Political developments and international relations in Southern Africa

Ian Hadassin
An investigation into the behaviour of earnings and share prices of South African listed companies

I J Lambrechts
The practice of capital investment decision-making in South Africa

M E Rivalland
Some aspects of share investment and the law

Issue Number 9, March 1977

G L de Wet
Responsibility and economic forecasting

B P Gilbertson, F J P Roux
The Johannesburg Stock Exchange as an efficient market

J E Whillier
Simplified method of assessing the value of a South African gold mine

I R Woods
An analysis of the possible effects of a rights issue on the issuing company's share price

Issue Number 10, August 1977

C R Freemantle
The history of "securities rand" and the effects the securities rand differential has had on overseas investment in South Africa

P J Strebel
The limited efficiency of The Johannesburg Stock Exchange

P A Kerbel
Portfolio selection: a non-technical overview

I J Lambrechts
Die praktyk van die kritiese rentabiliteit

R I K Jesse
The reverse yield gap and real return

Issue Number 11, April 1978

Peter Lewin
Money, inflation and economic growth

D S J Remenyi, W S A Zuchini
Some aspects of an asset replacement/protection model under conditions of inflation

I R Woods
On calculating average rates of return

B P Gilbertson, F J P Roux
Some further comments on The Johannesburg Stock Exchange as an efficient market

John Rogers
Redemption yields and valuations of South African gilts

Issue Number 12, August 1978

P J C Seneque
Factors affecting dividend policy

G S Andrews
Strategic considerations for investment decision-making

Tamir Agmon
Investment decisions in an inflationary economy

P J Strebel
Twin trading and tests for stock market efficiency

A D Cohen
An econometric approach to exchange rate forecasting

W T Floquet
Earnings per share and P/E ratios

Issue Number 13, April 1979

W A A Maguire
Standards of accounting practice and the objectives of financial reporting

P J C Seneque
The relationship between portfolio theory and the efficient market hypothesis

G Bethlehem
The influence of financial policy on the growth, profitability and size of firms

Alan D Boy
Some results of an empirical study of ratio analysis in South Africa

P R du Toit
Net asset value

Issue Number 14, September 1979

Peter Milburn-Pyle
Measuring the investment performance of pension funds in South Africa

B P Gilbertson
The pricing of industrial shares on The Johannesburg Stock Exchange

S M Place
Valuation of fixed interest securities

J F Affleck-Graves, A H Money, C G Troskie
A principal component index subject to constraints

R W Bethlehem
Adjusting per share earnings and dividend data for capital changes

Issue Number 15, May 1980

Azar P H Jammine
Inflation and unemployment: the root causes of the capitalist dilemma

J P Botha
The random walk model and the behaviour of gold prices: a note

I J Lambrechts, F J Mostert
An analysis of the behaviour of market prices during rights issues

J F Affleck-Graves, A H Money, C G Troskie
An empirical comparison of the performance of different stock market indices

R W Bethlehem
Interest rates, yield curves and the valuation of ordinary shares

Issue Number 16, October 1980

A A Roos
The South African forward exchange market

R M Gidlow
Intervention policies of the Reserve Bank in the foreign exchange market

A F T Payne
Options trading

B M Gourley
A framework for reporting

G M W Cross
The structure of interest rates

Issue Number 17, April 1981

W T Floquet
The case for equities – An address to The Association of Pension and Provident Funds of South Africa on 24 March 1981

John D Paulus
Rational expectations – The challenge to economic stabilisation policy

A P Faure
Reserve Bank accommodation and monetary policy

B Gilbertson, M Goldberg
The market model and The Johannesburg Stock Exchange

A C Valsamakis
Return on investment – an integrated measure of profitability and performance

Issue Number 18, October 1981

Robert Reeve
Business investment decisions under inflation: some South African evidence

Stanley Diller
Analyzing the yield curve: a new approach

R M Gidlow
Review of the gold sales policy of the United States Treasury (1978-79)

S T Goddard, S A Michener, J A Rickard
An illustrative method for valuing annuities

A C Valsamakis
The use of comprehensive cash flow analysis as a basis for risk measurement and determination of debt capacity

Issue Number 19, June 1982

J J Cloete
An eclectic role for monetary policy

R A C Gilbertson, J F Affleck-Graves, A H Money
Trading in low priced shares: An empirical investigation 1968-1979

Stephen Goddard, Steven Michener, John Rickard
A graphical solution to the lease evaluation problem

G D I Barr
The puzzle of the two markets

I J Poluta
The effect of taxation on earnings per share

Issue Number 20, November 1982

L M Lachmann
Why expectations matter

F E Halse
Ownership and control of large companies in the RSA

N Bhana
The take-over objectives of South African acquiring companies

D Konar
Some thoughts on the availability and uses of accounting information

B P Gilbertson, M N Vermaak
The performance of South African mutual funds: 1974-1981

I S Davies
An introduction to gold-mining taxation – Part 1

Issue Number 21, June 1983

G D I Barr
A theory of the financial rand discount

Rory F Knight, John F Affleck-Graves
An efficient market hypothesis and a change to LIFO: an empirical study on the JSE

P J C Seneque, B M Gourley
Dividend policy and practice in South Africa

N Bhana
The valuation of take-overs by companies listed on The Johannesburg Stock Exchange

I S Davies
An introduction to gold mining taxation – Part 2

Issue Number 22, December 1983

R W Bethlehem, C Rogers
Keynes' Theory of Investment in Retrospect

J J Cloete
Keynes and the stabilisation of economic activity

T G Thompson
A microcomputer database for a notional index fund

J A Rickard, A M Russel
The "hidden" costs and benefits associated with the different loan repayment frequencies

I S Davies
An introduction to gold mining tax – Part 3

Issue Number 23, June 1984

P Milburn-Pyle
"Is a pension fund's investment yield influenced by the size of the fund's assets?"

G T D Jones
The role of hedging in the marketing of gold

D F Rees
The Krugerrand premium – an optimal strategy for the Reserve Bank

G D I Barr, B S Kantor
Interest rates, the exchange rate and money supply in South Africa

F D Durand
Popular myths: Gilt switching

Issue Number 24, November 1984

P D F Strydom
The economics of information

P A Bowen
A hypothesis: Portfolio theory is elegant but useless

J le R Retief, John F Affleck-Graves, W D Hamman
Leverage=Risk? Empirical findings for the JSE

Trevor Blench, John F Affleck-Graves
Bond immunisation in South Africa

B P Gilbertson
The role of share risk measurements in the management of investment portfolios

Issue Number 25, May 1985

G T D Jones
Hedging and regret minimisation: A policy for the management of foreign currency exposure

D K Flynn
The reasons and objectives for accounting standards as perceived by users, providers and regulators of accounting information

D J Bradfield, G D I Barr
A gold share evaluation model

C Grim, G S Andrews
The impact of strategic planning on corporate performance in a turbulent environment

R Jesse
Investment basics XVI
The analysis of bank shares

Issue Number 26, November 1985

P A Bowen, P J Edwards
Uncertainty and incomplete information in the evaluation of building projects

Investment Analysts Society of Southern Africa
Report on sound investment principles for pension funds

B H Fischer, C Firer
The risk/return characteristics of the postage stamp market

R F Knight, J F Affleck-Graves, W D Hamman
The effect of inventory valuation methods on share prices: Some new evidence for the JSE

M Steele, M Davis, M Kloss
Foreign exchange differences: Accounting practice vs accounting principles

C Firer
Investment basics XVII
What is the return on your investment?

Issue Number 27, May 1986

C Firer and G Meth
Investor information requirements and disclosure in annual reports

W G Klerck and G S du Toit
An investigation into the return distribution of ordinary industrial shares on The Johannesburg Stock Exchange

M le Plastrier, W Thomas and J Affleck-Graves
The valuation of call options on gilts and warrants in South Africa

G S Andrews and F Butler
Criteria for major investment decisions

R W Bethlehem
Inflation as an obstacle to job creation in South Africa

G T D Jones
Investment basics XVIII – Risk and return – part 1

Issue Number 28, November 1986

N J Lovell-Greene, J F Affleck-Graves and A H Money
A survey of investment appraisal methods used by financial analysts in South Africa

G D I Barr and B S Kantor
The gold price and the forward rate of interest

W G Klerck
Forecasting share prices on the Johannesburg Stock Exchange using multivariate time series analysis

Thomas Plaistowe and Rory F Knight
Premium to book value may be a contrary indicator

Report on sound investment principles for pension funds – part 2

G T D Jones
Investment basics XIX – Risk and return – part 2

Issue Number 29, May 1987

E S Shung, D A Stadler and J F Affleck-Graves
The performance of family controlled companies on the JSE: A financial and investment evaluation

John A Rickard, Neville J Hathaway and Allen M Russell
The true cost of loans with rests between adjustment of principal

G D I Barr and D J Bradfield
The role played by bullion and gold shares in international diversification

Nicholas R Sealy and Rory F Knight
Dividend policy, share price and return: A study on The Johannesburg Stock Exchange

G T D Jones
Investment basics XX – Risk and return – Part 3

Issue Number 30, November 1987

S R Favish and J F Affleck-Graves
Estimating the market risk premium on The Johannesburg Stock Exchange using ex post and ex ante models

Colin Firer, Mike Ward and Frank Teeuwisse
Market timing and the JSE

A R P Hamblin
Anatomy of the financial rand

David Bullard
Investment basics XXI – Options trading in the gilt-market Part 1 – A background to the market

Printed by National Commercial Printers, Malherbe Street, Parow.