

International diversification after 1985 — the argument becomes stronger

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The performance of South African traded securities *vis-à-vis* securities on two overseas stock exchanges is considered in this article. It can be seen how the recent political instability in South Africa and the associated depreciation in the rand have led to dramatic returns, in rand terms, on those overseas markets. It is argued that these large returns on foreign markets may well not be repeated but that the increased risk of South African assets has made the diversification benefit of overseas investment that much greater. It therefore appears that serious consideration should be given to allowing certain institutions to have some holding of foreign assets so as to offer some protection to the real value of South African savings.

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Die prestasie van Suid-Afrikaanse sekuriteite teenoor sekuriteite op twee oorsese effektebeurse word in hierdie artikel beskou. Daar kan gesien word hoe die onlangse onstabiliteit in Suid-Afrikaanse politiek en die daarmee gepaardgaande depresiasie van die rand gelei het tot dramatiese opbrengste, in rand, op oorsese markte. Daar word geargumenteer dat hierdie buitengewoon hoë opbrengste wel dalk nie herhaal sal word nie maar dat die verhoogde risiko verbonde aan Suid-Afrikaanse bates die diversifikasievoordeel van oorsese beleggings nogtans verhoog. Dit wil dus lyk asof ernstige oorweging geskenk moet word daaraan om sekere instansies toe te laat om 'n sekere aantal vreemde bates te besit om sodoende die werklike waarde van Suid-Afrikaanse beleggings te beskerm.

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Introduction

The increased volatility of the exchange rate market in South Africa since the deterioration in the South African political situation has made the case for an internationally diversified portfolio that much stronger.

We will argue below that allowing a small percentage of an investor's funds to be invested in foreign currency denominated assets will increase the expected real wealth of local investors. These benefits will be reaped in the form of an internationally hedged portfolio with substantially decreased risk which will offer some immunity to further debasement of the South African currency and ensure larger expected returns during domestic economic downturns.

South African exchange control regulations

The current exchange control regulations restrict the South African investor's equity holding to those securities quoted on the Johannesburg Stock Exchange (JSE). The abolition of the financial-rand discount in February 1983, however, effectively removed exchange control over non-residents. This development was seen by many investment analysts as an indication of the likely removal (or at least relaxation) of exchange control applied to South African residents.

One step in the process of relaxation took place in September 1983, when the gold mines were allowed to be paid for their gold in American dollars and were also allowed to hold these receipts in dollars for a limited period. The process of exchange control relaxation was, however, dramatically halted in 1985 when increasing political instability led to a collapse of the rand, a re-introduction of the financial-rand system and the debt moratorium. In the near future it is thus unlikely that any steps will be taken which would enable individual investors to hold foreign assets. However, because the uncertain position of South Africa and its currency make international diversification that much more attractive it would make good sense if financial institutions, life insurers and pension funds¹ were allowed to invest a proportion of their assets abroad. This would go some way to protecting (and encouraging) savings against a scenario of hyperinflation on a debased currency without exposing the small local foreign exchange to large capital movements based on volatile political perceptions.

The ex-post performance of diversified portfolios

If some form of foreign investment was allowed, the South African investor could turn to any of the world's stock exchanges as well as commodity markets. For illustrative

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purposes, assume that he initially decides to restrict his investments to the two major stock markets, that is, the New York Stock Exchange (NYSE) and the London Stock Exchange (LSE) (as well as the JSE, of course). Assume further that, because of the vast number of companies quoted on the NYSE and the LSE, a detailed analysis of individual securities would not be undertaken, and that the potential investor would decide to invest in a fund linked to the performance of the market as a whole, a so-called index fund. Such an index and an index fund are weighted toward the larger companies, because the representation of shares in the index depends upon the market value of the securities issued. The performance of these funds could be represented by the performance of the Standard and Poor's Composite Index on the NYSE and the Financial Times United Kingdom Actuaries Index on the LSE (both market-capitalization type indices of a large number of securities). The JSE Actuaries All-share Index is also a market-capitalization type index on the South African exchange, and therefore can be considered to be representative of the market as a whole.

It should also be borne in mind that the South African investor would have to pay for these foreign securities in the foreign currency concerned. Therefore he would have to buy American dollars or pounds sterling and movements in the rand/dollar and rand/sterling rates of exchange would have to be considered. Therefore all the security prices would be converted to prices in rands, to reflect the position of the South African investor. The risk would consist of the variability of the security prices, expressed in rands, which would depend upon the variations in the rand/dollar or rand/sterling rate of exchange.

Most investors will be well aware of the trade-offs that have to be made between return on one hand and risk (measured by the variability of return) on the other.

The annual return and monthly risk of South African, American and British securities for each of the 13 years 1973 through to 1985 are shown in Table 1. It will be seen that in some years the South African index produced a greater return than the two foreign indices (for example, in 1973, 1974, 1979 and 1980). In each of these years one of the foreign markets proved considerably less risky than the JSE. Over the whole period 1973–1985 the LSE produced the

biggest return but this was combined with the largest associated risk. In fact with the large depreciation of the rand over the latter part of the period considered the NYSE also outperformed the JSE (from 1973 to 1983 the JSE had outperformed the NYSE) and had the lowest associated risk.

It has been argued that the upper limit on the proportion of assets permitted to leave the country for foreign investment could be as low as 5%². It is therefore instructive to examine the effect of foreign diversification on the risk and return of a South African investor's portfolio, with varying proportions of the funds invested in shares on the NYSE and LSE. In all hypothetical instances considered the bulk of an investor's funds is assumed to be held in shares quoted on the JSE.

In Table 2 it is shown how different portfolios would have performed in each of the years 1973–1985 as well as the performance of the portfolio for the entire 13-year period.

Example 1 shows the situation in which all funds are held in South Africa, and serves as a control which will illustrate the benefits of foreign investment. In Example 2, 90% of the funds was retained in South Africa and 5% invested in each of the two foreign markets. In Example 3 these proportions are 80% in South Africa and 10% in each of American and British shares, whereas in Example 4, 50% is held in South Africa and 25% in each of the foreign markets. Example 5 allows for equal proportions in all three markets.

The return of a portfolio is merely a linear combination of the returns available from the individual securities. This linear combination does not apply to the risk, where the correlation, or the amount of co-movement between the individual securities, must be considered³.

Benefits from foreign diversification manifest themselves in one of two forms: either as an increase in the return achieved or as a decrease in the risk associated with the diversified portfolio. Consider Example 2 in Table 2 (in which 90% of funds is invested on the JSE and the remaining 10% is shared equally between the NYSE and the LSE). When Example 2 is compared with a situation where all funds are invested locally (Example 1), it may be noted that in seven years of a recent ten-year period the South African investor would have increased his percentage return. These years were 1975, 1976, 1981, 1982, 1983, 1984 and 1985. It is immediately noticed that the effect is strongest over the period of rand depreciation (1982–1985). Over this period one would not only have received diversification benefits stemming from contrary movements of the indices but also from the hedged foreign currency position. Turning to the risk of the portfolios it is seen that without exception, the risk associated with the portfolio that included foreign securities was less than that associated with the purely South African portfolio.

As the proportion of funds allowed out of South Africa is increased, the risk is reduced even further. The losses experienced in 1975, 1976 and 1981 would have been turned into substantial gains if as much as two-thirds of an investor's portfolio consisted of foreign securities from the American or British markets. Viewed overall over the period 1973–1985 it will be seen that the South African portfolio (Example 1) produced a return that was on average 3% less than the returns achieved in Example 5. Moreover the risk of the all-South African portfolio was two and a half times the risk of the portfolio consisting of equal investments in each of the three markets considered.

Table 1 Return and risk for the JSE, NYSE and LSE (1973–1985).

obs	JSE RET	JSE RSK	NYS RET	NYS RSK	UK RET	UK RSK
1973	1,14	8,75	-16,38	6,07	-50,39	7,25
1974	9,04	10,47	-18,37	6,97	-9,79	16,48
1975	-18,67	7,08	49,39	7,30	45,18	10,78
1976	-11,55	7,56	-3,89	2,27	35,06	10,59
1977	7,16	4,75	-12,57	3,10	25,26	5,62
1978	24,53	5,78	13,03	5,31	32,47	5,31
1979	59,79	5,80	-3,69	4,88	-9,85	6,10
1980	27,60	6,39	18,58	4,25	22,24	4,20
1981	-4,93	7,75	10,81	4,78	12,60	7,39
1982	8,89	7,79	30,00	4,64	8,30	3,98
1983	14,24	8,73	32,27	2,70	21,86	5,21
1984	14,39	5,83	37,98	9,36	42,29	6,94
1985	19,79	7,12	95,29	11,34	103,04	11,67
1973–1985	7,35*	7,12	9,70	5,85	10,78	8,42

*Geometric Average

Table 2 *Ex-post* portfolio returns and risks (in percentage a year) for various combinations of three markets (1973–1985)

	Example 1		Example 2		Example 3		Example 4		Example 5	
	Return	Risk	Return	Risk	Return	Risk	Return	Risk	Return	Risk
1973	1,14	8,75	-2,31	7,62	-5,53	6,65	-16,12	3,98	-21,87	3,24
1974	9,04	10,47	6,73	9,07	4,42	6,00	-2,52	4,02	-6,37	3,70
1975	-18,67	7,08	-12,07	5,75	-5,48	4,42	14,31	2,92	25,30	2,14
1976	-11,55	7,56	-8,84	6,72	-6,12	5,94	2,02	4,21	6,54	3,99
1977	7,16	4,75	7,08	4,31	7,00	3,89	6,75	3,02	6,62	2,51
1978	24,53	5,78	24,35	5,04	24,17	4,33	23,64	2,62	23,34	2,35
1979	59,79	5,80	53,13	5,17	46,48	4,59	26,51	3,24	15,42	2,99
1980	27,60	6,39	26,88	5,78	26,16	5,19	24,01	3,62	22,80	3,02
1981	-4,93	7,75	-3,27	6,96	-1,60	6,21	3,39	4,35	6,16	3,80
1982	8,89	7,79	9,92	6,89	10,94	6,01	14,02	3,56	15,73	2,57
1983	14,24	8,74	15,53	7,75	16,80	6,77	20,64	4,09	22,68	3,10
1984	14,39	5,83	16,97	5,29	19,55	4,89	27,24	4,55	31,52	4,32
1985	19,79	7,12	27,61	6,39	35,64	5,36	59,47	5,34	71,88	7,11
1973–1985	7,35	7,12	8,35	6,30	8,69	5,36	9,69	3,22	10,17	3,13

Example 1: 100% of funds invested in South Africa.

Example 2: 90% of funds invested in South Africa.
5% of funds invested in United States.
5% of funds invested in United Kingdom.

Example 3: 80% of funds invested in South Africa.
10% of funds invested in United States.
10% of funds invested in United Kingdom.

Example 4: 50% of funds invested in South Africa.
25% of funds invested in United States.
25% of funds invested in United Kingdom.

Example 5: 33 1/3 of funds invested in South Africa.
33 1/3 of funds invested in United States.
33 1/3 of funds invested in United Kingdom.

What causes this dramatic reduction in risk? As mentioned earlier, the correlation or co-movement of the three markets plays a major role in the determination of the risk of a portfolio consisting of securities from all three markets. Over the period considered the average correlation between the JSE Actuaries All-share Index and the Standard and Poor's index on the NYSE was close to zero, as was the average correlation between the South African exchange and the United Kingdom Actuaries index on the LSE. The greatest benefit would have been obtained if the securities had been negatively correlated, but, as is evident from Table 2, the reduction in risk, given zero correlation, is still considerable.

Implications and Conclusions

These results relate to a recent period. What implications can be made about the future?

South African shares are traded and priced on international markets and the expected returns (in foreign markets) reflect the risk and diversification potential inherent in South African assets. Prices of South African assets denominated in foreign currency showed a dramatic weakness in 1985 because of the collapsing rand (and since September 1985 the financial rand). The present prices thus reflect a large increase in perceived riskiness of South African assets. The huge rand returns for holdings in the NYSE or LSE can thus not be used as any indication of what portfolio returns might be expected in the future. They are for the most part due to the dramatic fall in the rand as the foreign market exchange digested the increasing political instability. The study can, however, allow us to draw implications for the future as regards portfolio risk. In contrast to extrapolating realized returns it is reasonable to assume that the inter-relationships between markets have some measure of stability. Thus for example South Africa's economic performance, linked as it is to the price of gold, tends to move

countercyclically to that of the US where strong growth rates and low inflation have been associated with a weak gold price and low real growth rates and high inflation with a strong gold price.

Under an assumption of reasonably stable correlation structure one could expect a similar degree of risk reduction through diversification in the future as in the past. As South Africa has entered a period of considerable uncertainty regarding the value of its currency and thus the wealth of its inhabitants, it is conjectured that the argument is stronger than ever that some form of international diversification be practised by pension fund and life assurers to protect this wealth.

In fact as pointed out above, because the foreign rates of return are becoming increasingly dominated by the volatile exchange rate movements risk reductions in the future may well be more dramatic than in the past.

It is not by chance that those counters on the JSE with foreign components, (e.g. Rembrandt, De Beers) which represent the only avenue for foreign investment, have recently shown explosive growth.

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Notes

1. This, in fact, was suggested by W. Holtes quoted in 'Swiss Bank accounts come a step nearer', *Business Argus* supplement to *Weekend Argus*, 3 October 1983.
2. M. Daling, quoted in 'Attempt to Divert Liquidity from South Africa', *Business Times*, 12 June 1983.

3. Return on portfolio = $\sum_i w_i R_i$

where w_i — proportion in security i ; and R_i — return on security i .

Risk of a portfolio = $\sum_i \sum_j w_i w_j \text{Cov}(i,j)$

where $\text{Cov}(i,j)$ — covariance between R_i and R_j . For a fuller treatment of this issue see Markowitz (1952) and Sharpe (1964).

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