

# Options trading

## INTRODUCTION

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

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

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

## DEVELOPMENT OF OPTIONS TRADING

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

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

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

Stockbroking companies first started dealing in options to any extent in the late 1940s when two members of the JSE, Mr M. R. Johnson and Mr R. C. J. Anderson began to sell options. Later Mr R. Lurie and others entered the

options business. The current market for options developed from these beginnings.

## THE NATURE OF OPTIONS

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

The mechanics of option trading have been described elsewhere<sup>(4)</sup> and will not be discussed in any detail here.

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

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

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

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

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

## THE EXTENT OF THE OPTIONS MARKET

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

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

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

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

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

### OPTION VOLUME AND VALUE

Details of option volume and value are given in Table 1. Option volume measured in millions of shares over which options were taken fluctuated considerably over the period

1971 – 1978. Volume rose more than fourfold from 0,8 million to 3,6 million shares between 1971 and 1972. Volume dropped to less than 1,0 million shares by 1975 and then rose to nearly 4,0 million shares in 1978. Option volume as a percentage of share volume varied between 0,26 per cent in 1971 to 0,98 in 1978. By comparison, in the USA over-the-counter market, option volume as a percentage of share volume on the New York Stock Exchange varied between 0,47 and 1,30 between 1961 and 1973.<sup>(7)</sup>

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

### TYPES OF OPTIONS

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

#### Note

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

**TABLE 1**

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

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

Source: Published and unpublished records, JSE.

**TABLE 2**

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

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

Source: Unpublished records of JSE.

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

### STOCKS IN WHICH OPTIONS WERE TRADED

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

**TABLE 3**  
Number of stocks in which options were traded

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

Source: Unpublished records of JSE.

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

### OPPORTUNITIES FOR NON-RESIDENTS

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

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

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

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

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

Source: Unpublished records of JSE.

### DEVELOPMENTS IN THE FUTURE

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

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

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

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

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

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

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

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

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

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

### References and footnotes

- 1 Morgan, E. V. and Thomas, W. A. *The Stock Exchange*, Elek Books, 1962, pp. 21, 59.
- 2 Republic of South Africa, *Report of the Stock Exchange Inquiry Commission and Minority Report of Dr A. J. Norval*, 1965, p. 27 (The Broome Report).
- 3 Correspondence from Mr M. R. Johnston (Jnr) of Lurie, Johnston and Co, 14th May 1979. The author is grateful to Mr Johnston for supplying much background information on the option market in South Africa.
- 4 (a) Woods, I. R., "Calls and Puts", *The South African Banker*, Vol. 65, No. 4, November 1968, pp. 451 – 460.  
(b) Cloete, J. H., *Johannesburg Stock Exchange Practice*, Johannesburg Professional Publications, 1937, pp. 34 – 40.  
(c) Johannesburg Stock Exchange, *The Johannesburg Stock Exchange Manual*, The Penrose Press, pp. 31 – 33.  
(d) Lurie, Johnston and Co Inc, "Purchase of South African Call Options", Confidential Report for Clients, 1979.
- 5 A discussion of valuation of options is beyond the scope of this paper. Much work has recently been done in this area following the publication of the work of Black and Scholes. See Black, F. and Scholes, M., "The Pricing of Option Contracts and Corporate Liabilities", *Journal of Political Economy*, Vol. 81, No. 3, May – June 1973, pp. 637 – 654 and the excellent review article by Smith, C. W., "Option Pricing: A Review", *Journal of Financial Economics*, Vol. 4, May – June 1976, pp. 3 – 51.
- 6 Statistics for 1974 were not available.
- 7 Bookbinder, A. I. A., *Security Options Strategy*, Programmed Press, 1976, pp. 111.
- 8 Correspondence from Mr S. B. Whitten, Financial Analyst, Securities and Exchange Commission, USA to the author, dated 25 November 1977. No later data are available from the SEC.
- 9 A full description of financial rand and free rand is beyond the scope of this article. For further information see reference 7 above, and, Lurie, Johnston and Co Inc, "Financial Rand" (undated), and "Writing Options in South African Securities by Non-Residents", 15th May 1979, Confidential Reports for Clients.
- 10 Parts of the following discussion are from Payne, A. F. T., "The Conventional Options Market", *Journal of the Securities Institute of Australia*, 1978, No. 4 (December), pp. 19 – 24.
- 11 This is fully described in a proposal from the Option Organisation Inc to the American Stock Exchange dated 26th March 1973.
- 12 The Amsterdam Options Exchange (European Options Market) requires ten times the option volume of the London Traded Options Market to break even. The Amsterdam Market has been operating at levels well below break even.