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THE LIFE ASSURANCE INDUSTRY IN SOUTH AFRICA : ENVIRONMENT, STRUCTURE AND OBJECTIVES.

MORRIS BERNSTEIN

A Thesis submitted to the Faculty of Commerce, University of the Witwatersrand, Johannesburg, for the degree of Doctor of Philosophy.

Johannesburg 1976.

ABSTRACT

One of the major purposes of this study was to analyse the corporate objectives of life assurance companies. Particular attention was paid to ascertaining whether their corporate behaviour could be described as aiming to maximize profits, assets or new business sales. The writer investigated whether they tried to maximize the profits they distributed to policyholders and, where applicable, to shareholders. A study was made of any differences that existed between the corporate objectives of mutual and proprietary companies. A critical analysis was made of the hypothesis that,since mutual companies belonged to their policyholders, they tried to maximize the benefits paid to their existing with-profit policyholders.

To provide a background to the analysis of corporate objectives, a brief history of life assurance in general, and of life assurers in South Africa in particular, was given.

Since insurance legislation imposes certain constraints on life assurance companies, an analysis was made of insurance and income tax legislation as it affected life offices. Particular attention was paid to the fact that life assurers are obliged by law to invest a substantial percentage of their assets in approved securities. A successful investment policy was fundamental to a life assurer achieving long-term profitability, and therefore the investments available to life assurers were analysed. The principles governing the manner in which their funds were invested were also studied.

There was little literature relevant to the subject being investigated. A considerable amount of information was, however, obtained from various actuarial journals, the annual reports, accounts and chairman's statements of the various life assurers, newspaper articles, circulars issued by the Life Offices' Association of South Africa and those issued by the Registrar of Insurance. Additional references were obtained from various books and periodicals.

The actual corporate objectives of life assurers were studied from

both a theoretical and an empirical approach. To obtain direct information from the companies on their corporate objectives, a questionnaire was sent to executives of the thirty companies each of whose assets, as reflected in the report of the Registrar of Insurance for the year ending December 31, 1973, exceeded five million rand. The replies to this questionnaire were then analysed. A number of mathematical models of a life assurance company were developed in order to test the effect on profitability to a company of variations in the rate of interest earned on its funds, the expense levels at which it operated, the levels of new business sold and the type of products marketed. The hypothesis that mutual companies aimed to maximize the benefits they distributed to their existing with-profit policyholders was analysed mathematically, by general reasoning and also empirically.

The findings of the study were that both proprietary and mutual companies aimed to maximize the benefits they paid to their with-profit policyholders and the former also tried to maximize the benefits they paid to shareholders. It was believed possible to simultaneously maximize benefits to both shareholders and policyholders as there was usually a fixed relationship between the percentage of profits that was distributed to each of these groups.

The behaviour of proprietary companies differed from that of mutual companies as, to the former, the maximization of profits was their main corporate objective whereas, in general, mutual life assurers were observed to be sales maximizers. It was concluded that all life assurers aimed to earn the maximum expected yield on their funds.

After critical analysis, the hypothesis that mutual life assurers attempted to maximize the benefits they paid to their existing with-profit policyholders was rejected.

ACKNOWLEDGEMENTS

I am indebted to Professor A. Spandau, my Supervisor, for his valued assistance and guidance given to me in the writing of this thesis. The assistance he gave me went far beyond the call of duty and I owe him the deepest debt of gratitude. I also benefited from various discussions with Professor R.N. Brits. I would like to thank Mr. A.N.J. Stretton for his helpful comments in regard to the contents hereof, and also to express my appreciation to Mr. W.J. Haslam who scrutinized my calculations and assisted with the computer programmes used in Chapter 6.

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CHAPTER 1

INTRODUCTION

1.1 Nature and Scope of Inquiry

The South African life assurance industry owned assets of approximately R4 237-million as at the end of March, 1975.[1] Thus, in terms of the assets they own and control, they are important financial institutions in the South African economy. In fact, in regard to the capital raising function of the long-term insurers, with the exception of the mining finance houses, the long-term insurers are the largest non-banking institutional investors in South Africa and, furthermore, their assets have expanded at a far higher rate than the economy as a whole.[2] The manner in which they invest their funds and the principles underlying their investment philosophy have been discussed in various actuarial journals. Investment policies of life assurance companies have also been studied by :

(i) H. Holtman, 1962,[3]

(ii) T.J. de Villiers de Vos, 1964,[4]

(iii) G. Clayton and W.T. Osborn, 1965,[5]

(iv) L.D. Jones, 1968.[6]

Whilst these and other studies analysed the investment policies of life

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1. South African Reserve Bank, Quarterly Bulletin, December, 1975, No. 118, p. S-38.

2. K.A. Munro, An Analysis of the Economic Functions of Institutional Investors, with particular Reference to their Role in the South African Economy, M. Com. dissertation, University of the Witwatersrand, 1974, pp. 44, 262.

3. H. Holtman, Investment Aspects of South African Life Offices, M. Com. dissertation, University of Cape Town, 1962.

4. T.J. de Villiers de Vos, Die Beleggingsbeleid van Suid-Afrikaanse Lewensversekeringsmaatskappye, M. Comm. dissertation, University of Stellenbosch, 1964.

5. G. Clayton and W.T. Osborn, Insurance Company Investment. Principles and Policy, London, George Allen and Unwin, 1965.

6. L.D. Jones, Investment Policies of Life Insurance Companies, Boston, Harvard Business School, 1968.

assurers, they also provided some valuable information on the wider subject of their corporate objectives. Inevitably, in a study of corporate objectives, subjects such as insurance and income tax legislation and investment principles must be discussed. However, this was done only to the extent that they were relevant to the analysis of corporate objectives of life assurers.

1.2 Purpose of the Study

One of the major purposes of the present study was to analyse the corporate objectives of life assurance companies, a subject on which there is little literature. The objectives of companies are influenced by a number of factors, some of which are constraints. For example, whilst a life assurance company may wish to maximise the yield it earns on its assets, in South Africa it does not have complete freedom as to the manner in which its funds are invested, since a substantial percentage of its assets have to be invested in approved securities.[1]

The writer tried to establish whether life assurance companies set themselves clear objectives and what these objectives were in practical terms and what they should be in theory. The theoretical assessment of the objectives of life assurance companies depends on reaching a definition of norms against which performance can be judged. Maximisation of sales, assets or profits were defined as standards against which actual performance was judged. In a more peripheral context their attitudes towards social responsibilities were also investigated.

The differences between the corporate objectives of mutual and proprietary life offices were analysed. The hypothesis that mutual life assurers belonged to their policyholders and existed primarily for the benefit of their with-profit policyholders was examined. It will be shown that,whilst all the profits of a mutual life assurer do belong to its with-profit policyholders, they are seldom, if ever, completely distributed to them.

1. This subject is analysed in Sections 4.3, 4.3.1 and 4.6.3 of Chapter 4.

1.3 Plan of the Thesis

The arrangement of this thesis is as follows :

In Chapter 2 an analysis is given of the evolution of the level premium concept, which made it necessary for life assurers to accumulate substantial funds, and hence be very concerned as to how these funds were invested. A short history of the development of life assurance in general, and in South Africa in particular, is given in Chapter 3.

In Chapter 4 the relevant legislation affecting the South African life assurance industry is discussed. Of particular importance is the fact that companies are obliged to invest substantial funds in approved securities. The statutory valuation bases of assets and of actuarial liabilities is also of relevance to life offices, as they have a considerable influence on the manner in which surpluses emerge. These statutory valuation bases cause considerable new business strains in a new, rapidly expanding office and can considerably defer profitability and limit the extent to which companies can attempt to maximize sales.

The investments that are available to life assurers and the principles governing the manner in which their funds are invested are studied in Chapter 5. It will be observed that, except for the requirement that a certain percentage of their funds has to be invested in approved securities, the only other restriction on their freedom of investment is that they must hold South African assets of an amount at least equal to their total liabilities. Insurers were traditionally more concerned with the safety of the capital value of their investments than the yield on their funds but the latter has become more important in the last few decades. In the investment of their funds, assurers also have to take into account the nature of their liabilities. For example, if an office's liabilities were mainly in respect of ten year single premium endowment policies, they would have to invest their funds substantially differently to the way they would have done had their liabilities all been in respect of long-term recurring premium business.

A mathematical model for a life assurance company is developed in Chapter 6 and the effect on profitability of differences in an assurer's

expenses, rates of interest earned, levels of new business written and type of product sold, is studied. Moreover, a mathematical analysis is given to refute the hypothesis that mutual life assurers wish to maximize the benefits provided to their existing with-profit policyholders.

The corporate objectives of companies are analysed in Chapter 7. Particular attention is focused on the objectives of life assurance companies, including their attitude towards their social responsibilities. Wherever practicable, a differentiation was made between the objectives of mutual and proprietary life assurers.

An empirical investigation was made into the corporate objectives of life assurance companies in South Africa and a detailed questionnaire was sent to executives of thirty life assurers in South Africa. This was done with the assistance of the Department of Business Economics of the University of the Witwatersrand and their assistance is gratefully recorded. The covering letter to the questionnaire and the questionnaire itself are reproduced in Appendices 1 and 2. The analysis of the replies to this questionnaire is given in Chapter 8. It emerged from the analysis that mutual life assurers were basically sales maximizers, whereas proprietary life offices were more concerned with profitability.

The writer's conclusions are given in the last Chapter in which the theoretical approach of Chapters 6 and 7 are related to the results of the empirical investigation described in Chapter 8.

Inevitably a large number of technical terms have been used. As these terms may not be familiar to persons outside the industry, a glossary of life assurance terminology is given in Appendix 3.

1.4 Sources of Information

This study is based on information obtained from both primary and secondary sources. A considerable amount of primary information was obtained from the returns to the questionnaire that was sent to the life assurance companies. The annual reports, accounts and the chairman's statements of the various companies also proved to be a valuable source of information. A number of circulars issued by the Life Offices' Association of South Africa and the Registrar of Insurance were found to be of

great use. Statistics were obtained from the published accounts of companies, the Annual Reports of the Registrar of Insurance and from the Quarterly Bulletin of the South African Reserve Bank.

There is little authoritative secondary literature covering the specific subject of corporate objectives of life assurance companies. On the numerous other issues with which this study is concerned, knowledge was obtained from various periodicals and books.

CHAPTER 2

FUNDAMENTAL CONCEPTS

2.1 Development of the Level Premium Plan

It is essential that at this early stage of the thesis a clear outline is given on the emergence of the level premium method of paying for insurance and of the difference in investment problems between life and non-life funds.

In the early years of assurance, contracts were on a one year basis and premiums were calculated on the basis of 'assessmentism' i.e. the premium in each year was supposed to be sufficient to meet the mortality risk incurred in that particular year, as well as to cover the expense involved in administering the contract.

The above basis meant that the premium increased each year as the age of the assured increased and also that the contract was renewable at the option of both the assured and the assurer. There were two major disadvantages. The assured could only renew the contract if he were in good health and this caused particular problems as he grew older. Because of deteriorating health, the assured could find that at the very time he needed insurance most he was unable to obtain it. The second disadvantage was that the premium increased rapidly as the assured's age increased and, at an older age, the assured might have been unable to afford the premium, even if he were in good health. At very old ages the premium became virtually prohibitive as it was so high.

The following quotation bears this out :

'... in 1755 a common premium rate for ... insurances was £5 per £100 insured for ages 20 to 50, and £6 per £100 insured for ages 50 to 60, but thereafter the rates increased steeply if it was possible to grant cover at all'[1].

From the aforegoing it can be observed that, even though premiums

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1. H.F. Fisher and J. Young, Actuarial Practice of Life Assurance, Cambridge, Cambridge University Press, 1965, p. 6.

CHAPTER 2

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1. H.F. Fisher and J. Young, Actuarial Practice of Life Assurance, Cambridge, Cambridge University Press, 1965, p. 6.

differed according to age of the assured at inception of the contract, the variations were rather crude compared to modern conditions where the premium alters for each different age at inception.

When the Equitable offered its first contracts in 1762 an important step was made to bridge the gap between 'assessmentism' and the level premiums charged today. The contracts of the Equitable were based on level premiums, depending on the age of the assured at the time of underwriting and on the term of the contract, and were guaranteed renewable by the life office.

As the rate of mortality increased with an advance in age, the premium rate for a one year term assurance increased as the age at entry advanced. Thus in order to charge a level premium throughout the duration of the contract it was necessary to charge a higher premium than theoretically required at the younger ages. The excess was then used to build up a reserve, suitably invested, to be utilized in the later years to offset the fact that the premium charged would be less than theoretically required at that stage i.e. a level premium was charged for an increasing risk. Cohen and Zinborg described the difference between the two approaches as follows :

'Under the old basis, if all the actuarial calculations were correct, annual income equalled annual outgo, leaving nothing to be invested other than, perhaps capital surplus and contingency reserves. Under the new basis, a reserve for investment was deliberately established'[1].

The calculation of the level annual premium necessitates that the office assumes that a certain minimum rate of interest can be earned on its funds. In Table 2.1 a conservative rate of four per cent per annum has been used. The extent of the *investment element present* in the level premium can be clearly seen from Table 2.1.

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1. J.B. Cohen and E.D. Zinborg, Investment Analysis and Portfolio Management, Homewood, Illinois, Richard D. Irwin, 1967, p. 692.

Table 2.1 Comparison of the Level Annual Premium with One Year Term Premiums[1]

Age x	Theoretical Whole Life Premium	Expected deaths per year per 1 000 lives of age							
		x	x + 10	x + 20	x + 30	x + 40	x + 50	x + 60	x + 70
20	7,10	1,43	1,59	2,91	7,88	19,30	44,62	100,29	212,63
30	10,61	1,59	2,91	7,88	19,30	44,62	100,29	212,63	401,48
40	16,70	2,91	7,88	19,30	44,62	100,29	212,63	401,48	-
50	27,09	7,88	19,30	44,62	100,29	212,63	401,48	-	-
60	44,81	19,30	44,62	100,29	212,63	401,48	-	-	-
70	76,44	44,62	100,29	212,63	401,48	-	-	-	-

The table shows, at various decennial ages, the theoretical whole life level premium for life assurance cover of 1 000 compared to the expected number of deaths per annum per 1 000 lives at these ages. For example, at age forty at inception the theoretical whole life assurance premium would be R16,70 for R1 000 sum assured. The theoretical year by year premium (or one year term premium) calculated on a similar basis would, ignoring expenses and profits, therefore, be such that the premiums charged each year would be exactly sufficient to meet the expected death claims arising in that year. Therefore, if people aged forty, fifty, sixty and seventy were each to insure their lives for R1 000, then the one year premium that each life would have been charged is derived from Table 2.1 as being R2,91, R7,88, R19,30 and R44,62 respectively.

---

1. The theoretical whole life premium was calculated per 1 000 of sum assured. All figures in Table 2.1 are based on the ultimate mortality tables of South African assured lives S.A. 1956-62 and a rate of interest of four per cent per annum was used. The rates are theoretical, as expenses were ignored and death claims were assumed to be met at the end of the year in which death occurs.

An illustration of the difference between the level annual premium and the year-by-year premium is given in Figure 2.1 below and is derived from the data for age forty in Table 2.1.

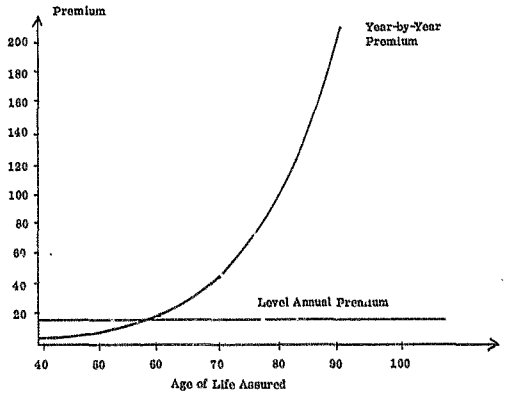


Fig. 2.1. The Level Premium compared to the Year-by-Year Premium for a Person age Forty.

From Figure 2.1 it can be observed how the one year term premium is lower than the level one for most of the first twenty years but thereafter it rises steeply and, in the extreme case, if the assured lives till age 100, the one year premium is 2404 per cent of the level premium that would have been charged at age forty.

In order to build up the necessary reserves to meet its obligations, an assurer has to earn at least the rate of interest assumed in the premium rates. Due to this fact, and the long term over which a rate of

interest has effectively to be guaranteed, it is usual for a life office to be conservative in estimating the rate of interest to be used in the calculation of premium rates.

In Table 2.2 below, the level of reserves that a company builds up from level annual premiums on whole life assurance contracts can be examined. It is shown that the longer a policy is in force, the larger are the reserves, as the interest earned on the assurer's funds more than adequately compensates for the increased mortality costs in later years. The older the age at entry, the sooner are reserves built up, since the older the age of the assured at inception, the larger is the level annual premium and the shorter is the person's life expectancy.

Table 2.2 Table of Reserves Accumulated for Whole Life Assurances[1]

Age at Inception	Reserves Accumulated Per R1 000 Sum Assured After				
	10 Years	20 Years	30 Years	40 Years	50 Years
	R	R	R	R	R
20	71,376	174,647	304,948	462,797	603,471
30	110,369	251,364	410,610	573,990	716,886
40	166,464	337,388	519,913	681,763	802,405
50	212,717	429,498	621,825	766,191	854,146
60	275,359	512,630	701,748	814,737	-

It is apposite at this stage to illustrate the interrelationship between reserves, level premiums and mortality rates. *Mathematically the following* relationship is true :

$$({}_nV_x + P_x)(1 + i) = q_{x+n} + {}_{n+1}V_x p_{x+n}$$

where ${}_nV_x$ and ${}_{n+1}V_x$ are the theoretical reserves held by the company after n and (n+1) years respectively for a person age x at inception of a

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1. Basis: S.A. 1956-62 Ultimate *Mortality Four* per cent Interest.

contract; q_{x+n} and p_{x+n} are respectively the probabilities of a person (x+n) years old dying or surviving in the following year; i is the rate of interest the company earns on its funds, and P_x is the net premium[1] *that would be used in a valuation for a person age x at inception of a contract.*

The above equation states that the reserve held by the company after n years for a person age x at inception,plus the level premium paid at that stage, both accumulated with a year's interest at rate i, provide sufficient to meet the expected death claims and to create the necessary reserve for the survivors. Whilst this relationship is true per policy it is more easily explained in the context of a number of policyholders all age (x+n) years at the beginning of the year concerned. The total reserves held in respect of their policies plus the total premiums due, both accumulated with a year's interest,will be exactly sufficient to meet the expected death claims that arise and to establish the necessary reserves for those that survive.

The advent of the level annual premium system was an essential reason for the accumulation of funds by life offices. Clayton and Osborn believed that what was also very important was the fact that life offices acted as intermediaries for the collection of the public's savings and undertook to invest these suitably to provide reasonable benefits when they fell due[2]. In recent years there has been a much greater demand for endowment assurances in which the investment element of the premium is far more important than the pure life assurance element.

The level annual premium system created the need for life assurance companies to become involved in investment. This aspect of their operations has become increasingly important as life assurance has subsequently developed.

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1. The net premium used in a valuation is usually limited to ninety five per cent of the actual premium a company receives, the difference being an allowance made in a valuation for expenses.

2. Clayton and Osborn, op. cit., p. 48.

2.2 The Difference in Investment Problems between Life and Non-Life Funds

It has been observed how the development of the level annual premium plan in life assurance led to companies accumulating reserves. That the position of non-life (general) business was different has been noted by Baker as follows :

'General business ... is essentially of a short-term nature and the premiums received are normally no more than sufficient to cover the risks underwritten in a particular year'[1].

In general insurance the premiums charged should be sufficient to cover claims, expenses and provide a profit margin. In life business the accumulation of sizeable funds was essential to the fulfilment of the assurer's obligations under the contract, whereas in non-life insurance various reserves were built up as safeguards. The claims experience in non-life insurance fluctuated far more than in life assurance and there were occasionally large claims in respect of catastrophes. Therefore, in addition to holding reserves for the unexpired risks and for outstanding claims, the insurer would need to keep various contingency reserves readily available if required. These contingency reserves had to be related to the value of the risks underwritten even after substantial reinsurance had been placed.

A difference in principle between non-life insurance and life assurance is that, in the latter the premiums are fixed at the outset for the duration of the contract and cannot be altered by the assurer, whereas in non-life insurance contracts are essentially for one year at a time, renewable at the instance of both the assured and the assurer. At each renewal date the premium and the conditions of the contract can be altered by the insurer if necessary i.e. in non-life insurance the insurer can increase or decrease premium rates at renewal dates to take account of changes in claims experience and increases in expenses. In life assurance on

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1. C.J. Baker, 'Investment Problems of Non-Life Funds', Paper presented to the Insurance Institute of London, February 2, 1959, p. 1.

the other hand, the assurer can only alter premiums for new contracts and cannot retrospectively change the terms and conditions of contracts previously entered into.

Since premium income in non-life insurance is primarily needed to meet claims and expenses there is a strong motive for liquidity. There is also a strong precautionary motive for liquidity due to the large fluctuations in claims experiences. Thus there is a much stronger demand for liquidity in non-life insurance than in life assurance where income is almost invariably far greater than payments as the company has to build up reserves. The life assurer is therefore usually easily able to meet all its commitments from current income and still have a considerable amount of funds available for long-term investment.

Rather than hold cash however, it is usual for short-term insurers to keep a sizeable percentage of their assets in highly marketable securities. Within the liquidity constraints imposed on them, short-term insurers do try and maximize their investment income and thus earn some interest income in addition to their premium income. In this regard Baker commented as follows :

'While the life offices are concerned in obtaining the maximum yield on their funds consistent with safety of capital in order to be able to quote competitive premium rates and to declare attractive bonuses, the proprietary companies transacting general business seek to increase their profits, and particularly their investment income, again *consistent* with the *safety* of capital and also with liquidity, in order to augment their reserves and to be able to pay higher dividends on their shares'[1].

Paish and Schwartz have pointed out that the return to the shareholders of a non-life company arose from the profit margins in the premium rates, the interest earned on the investible portion of premium income and from interest income on various reserve funds.[2]

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1. Baker, op. cit., pp. 1-2.

2. F.W. Paish and G.L. Schwartz, Insurance Funds and Their Investment, London, P.S. King and Sons, 1934, p. 11.

CHAPTER 3

THE EVOLUTION OF LIFE ASSURANCE AND THE DEVELOPMENT OF OF THE INDUSTRY IN SOUTH AFRICA

3,1 The Earliest Origins

Documents excavated have shown that there was a type of life assurance in the city of Miletc in Asia Minor as long ago as 205 B.C.[1] A citizen of the town for example paid 3600 drachmen towards a communal fund and in return received thirty drachmen per month for life. On the citizen's death any balance remaining reverted to the fund except for 150 drachmen which was paid to the next of kin for the funeral of the deceased member.

While the above example refers to annuity business the principle of basic life assurance also dates back very far indeed. Mehr and Osler report that the first evidence of personal insurance for which contributions were made dates back to the societies of ancient Greece, the Eranoi or Thiasoi, which were benevolent societies supported by contributions from members.[2] They later developed into societies providing for the payment of burial expenses of members and for the immediate cash needs of their dependants.

It is also known that life assurance dated back to the Roman Collegia and F.A. Jack has reported an extract from the Collegium Cultorum Dianae et Antinoi at Lanuvium of the year 136 A.D. which described a type of funeral insurance as follows :[3]

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1. H. Van Barneveld, Inleiding tot de Algemene Assuranticekennis, Tweede druk, 's-Gravenhage, Martinus Nijhoff, 1961, p. 29.

2. R.I. Mehr and R.W. Osler, Modern Life Insurance, 1st ed. rev., New York, The MacMillan Company, 1956, p. 648.

3. F.A. Jack, An Introduction to the History of Life Assurance, London, P.J. King and Son, 1912, pp. 19-20.

'New members must pay an entrance fee of 100 sestertii and provide an amphora of "good wine" and thereafter contribute to the fund 5 asses monthly. The capital formed constituted the provision for a burial of members, on the death of one of whom a sum of 300 sestertii (funeraticium) was paid out to meet the expenses. Of this amount 50 sestertii was distributed among the funeral train'[1].

As early as in 191.2 Jack pointed out that the Collegium Cultorum Dianae et Antinoi was clearly a mutual society for the purpose of insuring that on death a sufficient sum of money was available for a suitable funeral. These benefits were secured by means of making level payments and the analogy to the modern concept of life assurance was to that of paying premiums over a period of time to receive a sum assured or a funeral benefit in the event of subsequent death.

Some of the Roman military societies provided for the payment of a sum of money in the event of a member dying within a defined period. They also provided, on survival till the end of that period, for the payment of a lump sum or the payment of an annuity till the death of the beneficiary.[2] These benefits are very similar to the concepts of term and endowment assurance being marketed at the present time.

3.2 Development of Life Assurance

3.2.1 England

The merchant guild was a society primarily geared for the privilege of carrying on trade, but there was also the element of brotherhood, as the following statement illustrates :

'If a member was sick or in financial trouble, the guild came to his assistance. The guild also provided a good funeral for a member who died and looked after his widow and children.'[3]

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1. Jack explained that in 136 A.D. 100 sestertii were approximately equal to fourteen shillings and seven pence in English currency and that there were four asses to each sestertii.

2. C.F. Trenerry, The Origin and Early History of Insurance, including the Contract of Bottomry, London, P.S. King and Sons, 1926, p. 219.

3. H. Heaton, Economic History of Europe, rev., New York, Harper and Row, 1948, p. 202.

In this regard it is of interest to note the claim made by Mehr and Osler who regarded the British guilds as being directly descended from the Eranoi, Thiasoi and the Collegia.[1] Moreover, there was a bridge between the guilds of Hellenistic or Roman days and those of the Middle Ages.[2]

Whilst it is difficult to fix with certainty the exact period of the origin of the merchant guild, it is believed to be fairly safe to assume that this occurred in the second half of the eleventh century.[3]

It has now become apparent that the need for insurance against misfortune dates back far into history, although it must be noted that, more often than not, this was not really life assurance in the modern sense, as the benefit paid depended on the financial circumstances of the deceased's dependants.[4]

The earliest life contracts were issued in the sixteenth century on the lives of mariners and were essentially of a short-term nature and covered particular voyages. In this regard they were more akin to accident insurance. In the sixteenth and seventeenth centuries, before setting out on a long journey, people often insured their lives for the benefit of their heirs or creditors. Raynes stated that there is a record of a policy dated June 18, 1583, registered in the Chamber of Assurances in the Royal Exchange.[5] This is probably the earliest life insurance policy of which we have a record. The policy was a term insurance for a period of twelve months for a sum assured of £383.6.8 on the life of William Gibbons and the single premium paid was £30.13.4. This and other early contracts were very different from the long-term contracts of today in that the premiums

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1. Mehr and Osler, op. cit., pp. 618-9.
2. Heaton, op. cit., p. 198.
3. Jack, op. cit., p. 72
4. Fisher and Young, op. cit., p.4.
5. H.E. Raynes, Insurance, London Oxford University Press, 1960, p. 100.

were not calculated on any sound actuarial principles but were more a matter of bargaining between the broker and the underwriter.[1]

The first registered life office in England was the 'Hand-in-Hand Society' which was established in 1696 by 100 incorporators.[2] The first office to open to the general public appears to have been 'The Society of Assurance for Widows and Orphans', founded in 1699.[3] Its object was to provide a death benefit of £500 on each member's death funded by a contribution of five shillings from each of 2000 members. The Society survived for twelve years but apparently never attained the required membership. It did, however, pave the way for 'The Amicable Society for a Perpetual Assurance Office' which was founded in 1706, operated on similar lines and received a charter from Queen Anne. At the outset the Society charged an annual premium of £6.4.0. for a death benefit which depended on the number of deaths amongst the Society's members.[4] Once firmly established, the 'Amicable' offered a death benefit that ranged between £100 and £300. The original concept of offering a death benefit equal to the fund available divided by the number of deaths was not insurance as is known today since the death benefit depended on the number of members dying in a particular year. In addition the premium was a fixed amount per £100 sum assured irrespective of the age of the person to be assured. Whilst at inception the 'Amicable' apparently laid down no limits as to age at entry, they shortly afterwards stipulated that entrants had to be between the ages of twelve and forty five and be in good health. The

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1. Ibid., p. 101.
2. Mehr and Osler, op. cit., p. 350.
3. P.R. Cox and R.H. Storr-Best, Surplus in British Life Assurance, Actuarial Control over its Emergence and Distribution during 200 Years, Cambridge, Cambridge University Press, 1962, p. 8.
4. Ibid.

'Amicable' was eventually merged with the Norwich Union Life Society in 1866.

In the early eighteenth century several offices opened in England.[1] Among these was 'The Society for the Equitable Assurance on Lives and Survivorships' which was established in 1756 and became known as the 'Old Equitable'. The company still exists today and in this regard Mehr and Osler commented as follows :

'When Old Equitable issued its first policies in 1762 life insurance as we know it today was born'[2]. For the first time scientific principles were put into practice in that the premiums differed according to the age of the life assured at inception of the contract. The Society offered whole life assurances as well as temporary assurances for a period of one or more years.[3]

A fundamental difference to the contracts previously issued was that the assured could now automatically renew his policy irrespective of the state of his health and the premiums were on a level for the term of the contract. These aspects were discussed in greater detail in Chapter 2.

The first table of premiums for the Society was calculated by James Dodson, a mathematician, who based them on the London Bills of Mortality for the years 1728 to 1750, a period when the death rate was very high. This high death rate was mainly caused by the particularly severe weather of 1740-1, the high food prices, famine and fevers. From these tables Dodson derived the probability of a person dying at the different ages and hence he scientifically calculated his premiums. Notwithstanding the high death rates on which his calculations were based, the resulting life assurance premiums were so much less than those

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1. Mehr and Osler, op. cit., p. 650.
2. Ibid., p. 651.
3. Cox and Storr-Best, op. cit., p. 11.

customarily charged for year to year assurances at the time, that his scheme was mainly attacked on the grounds that the premiums were too low and hence it would fail.[1]

The first scientific valuation of the Society was made in 1776 by William Morgan, the actuary of the Company. Because the actual deaths experienced by the Society were less than those assumed in Dodson's rates, and also because carefully selected lives insured by a life assurance society do experience a lighter rate of mortality than that of the whole population, the premiums charged by Dodson were in fact found to be excessive. As a result of the valuation, the premiums were *reduced by one-tenth and a bonus equal to one-tenth* of the premiums paid was distributed to the members either in cash or as a reduction from the next premium due.[2] In 1782 a new premium scale was adopted using Price's mortality table based on the deaths in Northampton in the years 1735 to 1780. Using this table and calculating premium rates at a three per cent rate of interest, the resultant premiums were so far below those then in use by the Society that they were increased by fifteen per cent to prevent too sudden a reduction in the Society's income.[3]

Developments hereafter were rapid. In 1783 the Royal Exchange Assurance placed its life business on a scientific basis and so did the Westminster and the Pelican, established in 1792 and 1797 respectively.[4] During the following fifty years a large number of life offices were found in England.

3.2.3. United States of America

The first organization in America for the purpose of providing benefits payable on the occurrence of death was "The Presbyterian Ministers' Fund" founded in 1759.[5] The fund granted survivorship annuities commencing

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1. M.E. Ogborn, *Equitable Assurances: The Story of Life Assurance in the Experience of the Equitable Life Assurance Society 1762-1962*, London, George Allen and Unwin, 1962, p. 30-1.
2. Cox and Storr-Best, op. cit., p. 14.
3. Ibid.
4. Ibid., p. 18.
5. J.B. MacLean, Life Insurance, 6th ed., New York, McGraw Hill Book Company, 1945, pp. 506-7.

on the death of the policyholder and payable for the lifetime of the beneficiary. The annuity which could be purchased varied from £10 to £35 per annum and the annual premium was one-fifth of the annuity payable on death.

During the last fifteen years of the eighteenth century approximately thirty insurance companies were formed, and of these five had the power to issue life assurance policies. 'The Insurance Company of North America', chartered in 1794, seems to have been active and did, but it only issued six policies in five years.[1]

The 'Pennsylvania Company for Insurance on Lives and Granting Annuities' was established in 1812 and was the first commercial company to be organized in America for the sole purpose of issuing life policies and annuities. It was also the first company in America to operate on a scientific basis, requiring an application form, a medical examination and charging premiums that varied with the age at entry.[2]

The first American company to operate on a mutual basis was 'The Mutual Life Insurance Company of New York,' which was chartered in 1842 and commenced business in the following year. In its first five years of operation, it issued 4 000 policies.[3] In 1845 the 'New England Mutual' was established and two years later the 'Mutual Benefit of New Jersey' was founded. The subsequent development of life assurance was very rapid and by 1869 there were 110 active life offices in the United States.

3.2.3 Other Countries

The first country in Europe to have commercial insurance operations appears to be Holland where the first life assurance company was founded in 1807.[4] This life office, called the 'Nedlig Leeftijd Fonds',

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1. Ibid., pp. 507-8.
2. Ibid., p. 509.
3. Ibid., p. 512.
4. Cox and Pedersen, op. cit., p. 10

Levensverzekeringen', operated on scientific principles.[1] The first life assurance company in France was founded in 1819 whilst in Italy the 'Compagnie di Assicurazioni di Milano' was founded in 1826. By 1950 life assurance was being transacted in Germany, Austria, Switzerland, Canada and Australia but in other parts of Europe, Russia and Japan, life assurance came a good deal later.[2]

The history of life assurance in South Africa dates back to the founding of two British offices in the Cape Colony in 1826.

3.3 Life Assurance in South Africa

3.3.1 Historical Development

Life assurance began in the Cape Colony shortly after the arrival of the 1820 Settlers. Two British offices, the United Empire and Continental Life Assurance Association' and the 'Alliance British and Foreign Fire and Life Assurance Company', began operations in the Cape Colony in 1826. Five years later the first local company, the 'South African Life Assurance Company', was established.[3]

The only local office established in this era and still in existence is the South African Mutual Life Assurance Society, a mutual society founded in 1845 by James Fairburn under the name of 'The Mutual Life Assurance Society of the Cape of Good Hope'. The company is generally known as 'The Old Mutual'.

The growth of the Old Mutual in its first fifty years was slow compared to the spectacular growth since then.

The funds of the Society first reached one million pounds in 1887 and interest income reached the one million pound level for the first time in 1930. From 1865 to 1955 the funds of the Society virtually doubled every

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1. Van Barneveld, op. cit., pp. 3-9.
2. Cox and Storr-Best, op. cit., p. 12.
3. R. van Selm, History of the South African Mutual Life Assurance Society, 1845-1915, Cape Town, (Private Publication), 1915, pp. 88-9.

ten years. The 110th year of existence of the Society was very eventful the following statement shows :

'... it saw the Society become the first South African life office to exceed £100 000 000 of new business in one financial year; it witnessed the attainment of the first £100 000 000 in its accumulated funds...'[1]

It can thus be noted that it took the Society from 1846 to 1887 to accumulate total assets of over one million pounds whereas by 1956 its total assets exceeded £100 million. It will be observed below, that by 1975 the total assets of the Society were well in excess of R1 300 million.

In 1975 the Old Mutual was the largest[2] life office in South Africa. As at June 30, 1975, its total net assets were equal to R1 340,8 million and, for the financial year ended on this date, the total premium and investment income of the Society was R318,3 million of which income from investments was R102,1 million.[3] This shows the remarkable standing of this Society since its modest beginnings in 1845.

The second oldest South African Life Office still in existence is the Southern Life Association, founded in 1891 by William Elliot, a Scotsman. Elliot was sent to South Africa to start a branch for the Gresham Life Assurance Society of England. Soon after his arrival in South Africa he resigned and founded the Southern Life Association, a mutual society. The Memorandum of Agreement of this society was signed on November 21, 1890 and the first inaugural meeting of foundation policyholders was held on January 26, 1891.[4] As at April 30, 1975 the total net assets of The Southern Life had grown to R288,7 million, making it the fifth largest life assurance company in South Africa at the time of writing.[5]

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1. Insurance City, Cape Town,(Private Publication), 1956, p. 3.
2. The criterion for measuring the size of life offices in South Africa has been taken as the size of their total assets held in South Africa.
3. 1975 Accounts, Old Mutual.
4. T.V. Bulpin, The Southern, 75 Years of Service, Cape Town,(Private Publication), 1966, pp. 3-4.
5. 1975 Accounts, Southern Life Association.

The African Life Assurance Society Limited, a proprietary company, was founded in 1964 by I.W. Schlesinger. In 1972 it merged with the South African Eagle Insurance Company Limited and changed its name to the African Eagle Life Assurance Society Limited. As at September 30, 1975, Guarantee Life Assurance Company Limited and the Southampton Assurance Company of Rhodesia Limited were wholly owned subsidiaries of the African Eagle. This company, as at that date, was a member of the Anglo American Corporation group of companies. As at September 30, 1975, the total net assets of the African Eagle group had reached R317,8 million.[1] As well as life business, the African Eagle also writes industrial business.

The African Eagle and the Liberty Life Association of Africa Limited were the third and fourth largest life assurance companies respectively in South African in 1975. The total assets of the African Eagle group were R317,8 million as at September 30, 1975 and those of the Liberty Life Group were R258 million as at December 31, 1975.[2]

In 1975 the second largest life assurance company in South African was Sanlam. Sanlam was founded in 1918 as the Nasionale Assuransie-Maatskappy Beperk. Sanlam was registered as a company on June 8, 1918 and was wholly owned by Santam, a general insurer. On January 28, 1957 the shareholders of Sanlam adopted a resolution to the effect that Sanlam should be converted into a company without share capital i.e. a mutual company.[3] That is, it was decided that the financial interests of the shareholders were inappropriate and it was considered that control of the company should rather be in the hands of the policyholders.

Despite the relatively late start, Sanlam has grown very rapidly over the years and, as at 1975, it was second in size to the Old Mutual. By September 30, 1975, Sanlam's total net assets had grown to R773 million. In that financial year its total premium income was R188 million and investment income was R[illegible] million.[4]

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1. 1975 Annual Report, African Eagle Life Assurance Society.

2. 1975 Annual Reports, African Eagle Life and Liberty Life.

3. Select Committee on the South African National Life Assurance Company (Mutual) Incorporation (Private) Bill, S.C. 3-'59, February 17, 1961.

4. 'Sanlam reaches R[illegible]', Sunday Times, Johannesburg Edition, November 30, 1975, p. 1.

In 1972 the operations of the Liberty Life Association and the Manufacturers Life Insurance Company of Canada were merged and in 1974 the Sun Life Assurance Company was merged with the Liberty group. Thus, by the end of 1974, Liberty Life Association, which had been founded in 1958, was one of the four largest life assurance companies in South Africa. In terms of total assets, this company had been insignificant within the total South African life assurance market until then.

From 1945 until 1974, the four largest insurers in South Africa were the Old Mutual, Sanlam, African Eagle (formerly the African Life) and the Southern Life. An analysis of the growth of these four companies at quinquennial intervals is of interest. To ensure a consistent approach of considering assets and premium income, the tables that follow have been derived from returns lodged with the Registrar of Insurance.

3.3.2 Comparison of the Growth in Assets of the Four Largest Life Offices in South Africa

Table 3.1 below shows the total assets of the Old Mutual, Sanlam, Southern Life and African Life (later African Eagle Life) at quinquennial intervals from 1925 to 1970, as well as for 1973.[1, 2]

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1. For years prior to 1961 all figures in pounds were converted to rands at the rate of £1=R2. This has been done in all the ensuing tables in this Chapter.

2. The sources of data for Table 3.1 were as follows : 1925-1940: Summaries of Returns Deposited with the Treasury by Insurance Companies.
1945 onwards : Annual Reports of the Registrar of Insurance, Government Printer, Pretoria.
For brevity, future references to both the above sources are given as Annual Reports of the Registrar of Insurance.

The following facts should be noted :
(i) Financial Year Versus Year of Publication :
'The Summaries of Returns Deposited with the Treasury' in a particular year referred to returns deposited in that particular year and did not necessarily refer to the financial year of the life office. For example, statistics from the Returns for 1940 referred to the financial year ending December 31, 1939 for African Life and Southern Life, the year ending September 30, 1939 for Sanlam, and the year ending June 30, 1940 for the Old Mutual.

'The Annual Report of the Registrar of Insurance' for 1960, for

example, referred to the financial year of companies ending within the calendar year 1960. This was true for all 'year references' from the Registrar's Report except for the figures for 1960 and 1965 in the table which have however been taken from the Registrar's report for the year ending June 30, 1961 and June 30, 1966 respectively, as these reports were deemed to be more relevant to the calendar years 1960 and 1965 respectively. At the time of writing (October 1975) the latest report of the Registrar of Insurance that was available was for the year ending December 31, 1973.

(ii) Valuation of Assets:

The figures for total assets of the various life offices do not necessarily agree with the published balance sheets of the individual companies as the assets are shown in the table on the basis returned to the Registrar of Insurance. The values of assets are returned in terms of Section 15 of the Insurance Act, No. 27 of 1943 as amended.

In general the balance sheets of long-term insurers reflect the book value or approximately the original cost of their assets. The asset values as reflected in the Registrar's Returns are a summary of the asset values returned under Statement N of the Regulations to the 1943 Insurance Act. In Statement N, assets which are quoted on the Johannesburg Stock Exchange, are generally given at their market value as at the particular company's year end. Due to the very large increase in stock exchange prices in 1968 and early 1969 the market value of quoted securities belonging to long-term insurers were considerably higher than their book value at that time. For example, at September 30, 1969, Sanlam's total assets were shown in the Registrar's Report for the year December 31, 1969 as R344 million whereas Sanlam's balance sheet as at September 30, 1969, disclosed gross assets of R421 million.

A change in the Insurance Act introduced in 1965 should be noted. Prior to that date many offices showed as assets deferred premiums i.e. premiums payable between the financial year end and the following policy anniversaries. From 1965 onwards these deferred premiums were treated as a deduction from the actuarial liability of the assurer and hence not reflected as an asset. The value of the deferred premiums would generally not exceed three per cent of the total assets and the change in the Act did not alter the trend reflected in Table 3.1 and subsequent tables of assets.

Table 3.1 Growth in Total Assets of the Four Life Offices

Year	African Life	Old Mutual	Southern Life	Sanlam	Total of all four offices
	R'000	R'000	R'000	R'000	R'000
1925	6 640	27 786	6 903	407	41 736
1930	10 827	40 179	10 289	1 551	62 846
1935	13 902	52 075	12 873	3 217	82 067
1940	17 926	71 740	16 640	7 165	113 471
1945	25 907	99 862	22 850	19 215	167 834
1950	37 590	138 536	32 302	40 965	249 393
1955	53 755	216 024	47 554	86 788	404 121
1960	71 963	333 639	74 028	163 092	642 722
1965	92 548	493 068	107 447	285 186	978 239
1970	147 282	759 729	176 444	484 628	1 568 083
197	269 406	1 283 903	244 357	743 726	2 541 392

From Table 3.1 the following can be noted :

(i) The Old Mutual has always been a dominant force in the life assurance industry in this country and it can be observed that the value of its assets were greater than the value of the assets of the other three life offices combined in the years prior to 1973. In 1925 the assets of the Old Mutual were sixty six per cent of the value of the assets of all four offices, but this percentage had reduced to fifty one by 1973.

(ii) The main reason for the decrease in the relative importance of the assets of the Old Mutual has been the phenomenal growth of Sanlam. Between 1945 and 1950 the value of the assets of Sanlam surpassed those of African Life and Southern Life making Sanlam the second largest domestic life office in 1950 compared to being the fourth largest in 1945. By 1973 the value of Sanlam's assets had grown to approximately treble those of African Life and Southern Life taken separately and were, in fact, equal to 57,9 per cent of the assets of the Old Mutual.

(iii) In 1925 the Southern Life, then the second largest life office, held assets of greater value than African Life, but by 1930 this position had been

reversed. Between 1955 and 1960 the assets of the Southern Life increased more rapidly than those of African Life, making the Southern the third largest life assurer in South Africa at the time. As a result of the merger with the South African Eagle which took place in 1973, the assets of the African Eagle Life were once again greater than those of the Southern Life. It is of interest to note that, as at December 31, 1973, the total assets of the Liberty Life Association were R173,2 million.[1]

3.3.3 Growth in the Number of Life Offices Operating in South Africa

The number of life offices registered to transact life business in South Africa over the years is given in Table 3.2. The insurers have been split between domestic and foreign insurers and the list excludes professional reinsurers.

3.2 Number of Life Offices Registered to Transact Life Business in South Africa.[2]

Year	Domestic Insurers	Foreign Insurers	Total
1926	9	25	34
1935	10	26	36
1945	12	18	30
1955	25	22	47
1965	30	20	50
1970	42	14	56
1974	34	10	44

Table 3.3 illustrates how the number of domestic insurers steadily increased until 1970 and then decreased, whereas the number of foreign insurers registered to transact life business has declined substantially, with the greatest relative decrease occurring from 1965 onwards.

1. RP 91/1974, Registrar of Insurance, Thirtieth Annual Report, Year Ended 31 December 1973, p. 25.

2. Annual Reports of the Registrar of Insurance. These figures are generally more up-to-date than the year to which the appropriate Registrar's Report refers. For example, the Twenty-sixth Annual Report refers to the year ending December 31, 1969 but provides details of the classes of business for which insurers were registered as at December 31, 1970.

The registrations of foreign insurers to transact life business were cancelled over the years after they had either discontinued their business in the Republic or had transferred it to South African insurers. In many instances the registrations were cancelled due to the latter reason.[1] Mergers of life companies are discussed below.

3.3.4 Mergers

Since 1926 the number of domestic life offices operating in South Africa has increased substantially whereas the reverse has been true for foreign insurers. Inflation and rapid expansion by companies have led to very large increases in the administrative and managerial expenses of life assurance companies,and a life assurance company has to reach a certain minimum level of premium income to make it viable economically.

As is true for other economic activities, there may also be economies to scale for insurance companies. If this happens, there will be an incentive for some companies to merge for economic reasons. If two companies could merge and maintain their sales of new policies, but rationalize their head office and branch structures, then, as a combined group, they should be able to attract the same premium income but at a lower overall cost, and hence the merged companies would prove to be more profitable than the two individual companies. It may happen, however, that the shareholders of a company may not be willing to surrender their independence by merging with another company.

In 1972 three mergers were announced. Whereas it might have seemed logical that smaller offices would be most amenable to mergers, only one of these three mergers included small companies. The other two involved three medium sized companies and the African Life Assurance Society Limited, the fourth largest life assurance company in the country at that stage.

One of the mergers announced in 1972 stated that the Liberty Life

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1. Ibid.

Association of Africa Limited (Liberty Life) had acquired the South African operations of the Manufacturers Life Insurance Company of Toronto, Canada (Manufacturers Life).

As at December 31, 1971 the Manufacturers Life had South Africa. assets exceeding fifty million rand and an annual income of approximately ten million rand inclusive of three million rand of investment income, and the joint company would then have had over R120 million in capital and policyholders' reserves and the consolidated income for 1972 was estimated to be approximately thirty-five million rand.[1] Liberty Life effectively absorbed Manufacturers Life. The economic motives for this merger were clearly illustrated when it was reported that Liberty Life had estimated that they could decrease the costs of running the South African business of Manufacturers Life by R650 000, for the year 1972.[2]

At the time the merger was announced one South African newspaper stated the following :

'The merger has added significance in that it could well be the forerunner of a major rationalisation in the South African industry, principally involving foreign-controlled companies.'[3]

The second merger announced in 1972 was between Afrikaanse Verbond Lewensversekeringsgenootskap (A.V.L.) and the Monument Assurance Corporation (Monument), both domestic companies.

Following amalgamation, the new group would have had more than 32 000 policyholders and combined assets exceeding twelve million rand with premium and investment income exceeding three million rand.[4] The combined company was renamed Momentum Lewensversekeraars Bepark.

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1. Guardian Assurance Holdings (South Africa) Limited, Liberty Life Association of Africa Limited and The Manufacturers Life Insurance Company of Toronto, Canada, 'Joint Statement', The Star March 28, 1972, p. 28.

2. Sunday Times, Business Times, October 29, 1972, p. 22.

3. 'Liberty's Major Coup. Manufacturers Life Merger one of the Biggest', Rand Daily Mail, March 29, 1972, p. 23.

4. 'Another Insurance Merger', Rand Daily Mail, April 22, 1972, p. 11.

In October 1972, the merger of the African Life Assurance Society Limited and the life assurance business of the South African Eagle Insurance Company Limited came about. The new group was to operate as the African Eagle Group. The African Life incorporated the life assurance business then conducted by South African Eagle and also acquired the financial controlling interest in Guarantee Life Assurance Company Limited (Guarantee Life) and obtained approximately twenty five per cent of the South African Eagle which continued as a fire and general insurer. In addition, South African Eagle obtained a twenty five per cent interest in African Eagle Life.[1]

The total assets of the life operation of the new group in 1972 were approximately R260 million and the annual premium and investment income was about R70 million.[2] The new group in 1972 was the third largest life assurance group in South Africa and by far the largest proprietary life assurance group in the country at that stage.

In 1973 the merger was announced between another two domestic companies, the Netherlands Insurance Company of South Africa Limited and the Equity Life Assurance Company Limited to form Ned-Equity Insurance Company Limited. The combined assets of the two companies were approximately twenty million rand by the end of 1973.[3]

In January 1974, Liberty Life started negotiations to acquire the South African business of the Sun Life Assurance Company of Canada. This second large take-over by Liberty Life in only two years was expected to boost its total assets to over R300 million.[4] The approval of a number of

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1. Schlesinger Insurance and Institutional Holdings Limited and South African Eagle Insurance Company Limited, Preliminary Joint Announcement, Rand Daily Mail, October 6, 1972, p. 20.

2. Ibid.

3. 'Nicsa and Equity Life Talk', Rand Daily Mail, October 30, 1973, p. 21.

4. 'Liberty out to take over Sun Life in S.A.', Rand Daily Mail, January 18, 1974, p. 16.

different parties have to be obtained before a merger is finalised and the Liberty-Sun Life merger only became unconditional in November 1974 after being confirmed by the Rand Supreme Court.[1] If, for 1973, assets of the Sun Life of Canada were added to the assets of Liberty Life, they would have totalled R258 million.[2]

3.3.5 The Relative Importance of Domestic and Foreign Insurers in South Africa

The numbers of domestic and foreign life assurers have been reported above in Table 3.2. It was then observed that the number of domestic insurers increased substantially until 1970 and has only recently started to decline. The decrease in the relative importance of foreign insurers in South Africa is illustrated in Table 3.3, which shows total premium income in respect of business carried out in South Africa, separately for domestic and foreign insurers.

From 1927 to 1940 the foreign insurers in fact increased their market share of total South African premium income. After 1950 however this trend was reversed, and from 1965 onwards their share of total premium income decreased very substantially from 29,6 per cent in 1965 to only 16,3 per cent in 1973 i.e. their percentage of total premium income in 1973 was only fifty five per cent of their market share in 1965. This is attributable mainly to the greater growth of the domestic offices as well as to the merging of companies such as Manufacturers Life with Liberty Life, so that premium income generated by the former company are now reflected as domestic premium income. The above trends are clearly shown in Table 3.3 below.

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1. 'Merger is Approved', Rand Daily Mail, November 30, 1974, p. 10.

2. RP 91/1974, Registrar of Insurance, Thirtieth Annual Report, Year Ended 31 December 1973, p. 35.

Table 3.3 Premium Income in respect of Business Transacted in South Africa[1]

Year	Premium Income		Total Premium Income	Percentage of Total Premium Income	
	Domestic Insurers	Foreign Insurers		Domestic Insurers	Foreign Insurers
	R'000	R'000	R'000	Per Cent	Per Cent
1927	5 424	2 884	8 308	65,3	34,7
1930	6 437	3 617	10 054	64,0	36,0
1935	7 513	4 758	12 271	61,2	38,8
1940	10 577	6 941	17 518	60,4	39,6
1945	16 653	10 456	27 109	61,4	38,6
1950	31 177	15 643	46 820	66,6	33,4
1955	56 711	24 678	81 389	69,7	30,3
1960	89 357	35 469	124 826	71,6	28,4
1965	138 504	58 284	196 788	70,4	29,6
1970	270 842	80 592	351 434	77,1	22,9
1973	499 157	97 014	596 171	83,7	16,3

It seems probable that the Government will accept certain recommendations of the Franzsen Commission to convert the existing branches of foreign insurers into local subsidiaries within a given period and that foreign mutual companies will also be required to operate under similar conditions through local companies.[2] This trend of 'South-Africanization' is likely to accelerate in the future.

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1. Source: Annual Reports of the Registrar of Insurance. Premium income is shown net of reinsurance but includes considerations for annuities. The total premium income includes that applicable to domestic and foreign reinsurers in respect of their South African business. Prior to 1927 premium income was not split between domestic and foreign insurers.

2. R.P. 87/1970, Franzsen, D.G. (Chairman), Fiscal and Monetary Policy in South Africa. Third Report of the Commission of Enquiry into Fiscal and Monetary Policy in South Africa, Pretoria, para. 650, p. 220.

3.3.6 The Four Largest Life Offices Reconsidered

The four largest life offices, from 1945 until 1974 (i.e. these were the Old Mutual, Sanlam, Southern Life and African Eagle Life) held together over sixty per cent of the total assets of all insurers operating in South Africa. For this reason it seems appropriate to discuss these four domestic insurers separately. Table 3.4 shows the size of the total assets controlled by these four offices in relation to the assets controlled by all domestic insurers and reinsurers and also in relation to the assets controlled by all long-term insurers and reinsurers.

Table 3.4 Comparison of Total Assets of Domestic Insurers, the Four Largest Insurers and the South African Assets of Foreign Insurers[1]

Year	Assets Controlled by			Assets Controlled by the Four Largest Offices as a Percentage of Assets held by	
	Domestic Insurers	All Insurers	Four Largest Insurers	Domestic Insurers	All Insurers
	R'000	R'000	R'000	Per Cent	Per Cent
1945	174 770	247 604	167 854	96,0	67,8
1950	265 376	391 862	249 393	94,0	63,6
1955	443 560	618 578	401 121	91,1	65,3
1960	712 461	963 186	642 722	90,2	66,7
1965	1 121 214	1 309 676	978 209	87,2	64,8
1970	1 946 468	2 530 814	1 568 083	80,6	62,0
1973	3 206 400	3 933 214	2 541 392	79,3	64,6

1. Source: Annual Reports of the Registrar of Insurance. All figures refer to the Registrar's Report of the respective years except the 1960 and 1965 figures which were taken from the Registrar's Reports for the years ending June 30, 1961 and 1966 respectively.

   Prior to 1944, assets were not shown separately for assets held in respect of life business in the Summary of Returns deposited with the Treasury by Insurance Companies. Nevertheless it is interesting to note that as far back as 1930 the assets of the four offices concerned were 92,4 per cent of the assets of all domestic insurance companies and 68,3 per cent of the assets of all insurers whether long-term or short-term.

The four companies control by far the bulk of the assets of the industry and in relation to domestic insurers, it was only during the early 1960s that their share of the total assets controlled by domestic insurers fell below ninety per cent. As a percentage of total assets controlled by the industry, their share has, over the last twenty five years, remained consistently above sixty per cent. It is clear, however, that their share of total assets is slowly decreasing, both in relation to the assets of domestic insurers and to those of all long-term insurers. This decline in concentration is due to the increase in the size of other domestic offices that have operated in South Africa over the last twenty five years.

Due to the dominant position of the four largest life offices in relation to all insurers, and particularly in relation to domestic insurers, previous analyses of the investments made by South African life offices have centred on the investments of these four offices.[1] The investment policies of these four life offices have then been deemed to be representative of the investment policies of all domestic long-term insurers. In view of the size of the four largest offices, this has not been an unreasonable assumption.

In 1927 the total South African premium income of the same four companies was 95,9 per cent of the premium income of all domestic insurers and 62,6 per cent of the total for all companies, domestic and foreign. By 1973, their total premium income had declined to 72,1 per cent of the total for all domestic insurers, but as a percentage of the total for all companies the decline was small, their share at that stage being 59,4 per cent of the total.[2]

In summary, it can be concluded that the South African life assurance market is highly concentrated but that the degree of concentration has slightly declined during recent years.

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1. Analyses have been done by :
   (i) Boltman, op. cit.
   (ii) de Villiers de Vos, op. cit.

2. Source: Annual Reports of the Registrar of Insurance. Premium income is in respect of business transacted in South Africa and is net of re-insurance but includes considerations for annuities. The total premium income includes that applicable to domestic and foreign reinsurers in respect of their South African business.

CHAPTER 4

LEGISLATION GOVERNING LIFE ASSURERS IN SOUTH AFRICA

4.1 History and Evaluation of South African Insurance Legislation[1]

4.1.1 Insurance Act, No. 37 of 1923

The first major insurance legislation passed in the Union of South Africa was the Insurance Act, No. 37 of 1923. This Act was passed to consolidate and amend the laws in force in the provinces of the Union relating to insurance and repealed several such laws that were still in force in 1923.[2]

The 1923 Act provided that no company could transact insurance business in the Union:

'... unless it has been registered in accordance with the regulations, is licenced as provided by law, has made the deposit required by this Act, and, in the case of life insurance, bond investment and industrial companies, has furnished to the Treasury a certificate by an actuary that the conditions on which business is proposed to be effected are actuarially sound.'[3]

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1. In this section the history of South African insurance legislation is analysed. The purpose of this section was to describe the legislation affecting life assurers so that its influence on their corporate behaviour could be studied. It was not the intention to suggest a more suitable form of legislation or controls that could be imposed on life assurance companies.

2. The laws repealed included laws that had first been introduced as far back as 1891. Amongst these were The Life Assurance Act, No. 13 of 1891 and The Insurance and Loan Companies Act, No. 30 of 1908, both of which had been passed in the Cape of Good Hope. Acts repealed of Natal were the Lodging of Securities by Assurance and Insurance Companies Act, No. 47 of 1904 and various amending Acts thereto and also the Life Insurance Protection Act, No. 36 of 1908. The 1923 Act also repealed Transvaal Law No. 8 of 1898, For the Regulations of Business of Assurance Companies in the South African Republic, as well as the Orange Free State Law No. 12 of 1894, To Regulate Rights under Policies of Life Insurance, and Chapter C.111 of the Law Book which dealt with regulating the admission of insurance companies.

3. Insurance Act, No. 37 of 1923, S.3.

In terms of the 1923 Act, companies had to deposit cash or securities with the Treasury for each class of business for which they were registered and these deposits were security for the payment of the value of the policies.[1] At the end of each financial year, companies were required to prepare various prescribed accounts which had to be lodged with the Treasury. Company accounts were to be subject to an annual audit.[2]

All new life insurance companies were required to furnish the Treasury annually, for a period of four years, with an actuarial report on the actuarial soundness of any alteration of, or addition to the original conditions as certified to in terms of Section 2 of the Act.[3] In terms of Section 18, an actuary was required to investigate the financial condition of every life company at least once in every five years and an actuarial report and statement of the company's life insurance business had to be presented. Under Section 19, a statement of new and discontinued policies had to be provided.

All documents deposited with the Treasury were to be available for public inspection (Section 46) and the Treasury was required to publish these returns or a summary thereof (Section 55). The Act also dealt with the amalgamation and transfer of insurance business (Section 33), the winding up of companies in the case of insolvency, but only on policyholder petition (Section 35) and the Regulation of Industrial Business (Sections 36 to 40).

4.1.2 Deficiencies in the 1923 Insurance Act

Many of the deficiencies in the 1923 Insurance Act were stressed in two important publications by Professor E.H.D. Arndt,[4] who stated that :

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1. Ibid., S.5 and S.7.
2. Ibid., S.13 to S.15.
3. Ibid., S.17.
4. E.H.D. Arndt, An Analysis of Investment Policies of Life Insurance Companies in the Union of South Africa. The need for more Constructive Legislation, 4th ed., rev., Pretoria, J.H. de Bussy, 1938. E.H.D. Arndt, Assuransiewese in die Unie. 'n Ontleding van die Jongste Gegewens, Pretoria, J.H. de Bussy, 1938.

'An insurance contract is a mere piece of paper unless not only the actuarially determined funds are being held, but also unless such funds have been wisely and safely invested.'[1]

He believed that the 1923 Act was deficient in that it did not lay down a desirable distribution of insurers' funds between the various types of assets or minimum safety margins to be maintained in granting loans or mortgages.[2] He also argued that the fixed deposit of £10 000 (R20 000), which was required to transact life business under the Act, irrespective of the size of the company was an inadequate safeguard and the deposit should be adjusted according to the size of the company. In addition, sound management and solvency had to be assumed by prescribing desirable and sound investment policies.[3]

He criticized the fact that the Treasury merely published the annual returns deposited with it by insurance companies without any comments at all and deplored that under the 1923 Act there could be no investigations into the affairs of insurance companies nor could further information be required.[4]

Several of the recommendations published in Arndt's booklet entitled 'Insuring our Insurance' (1941)[5] were incorporated in the 1943 Insurance Act. In this latter publication Arndt had given an analysis of insurance legislation in the United Kingdom, the United States of America, Australia, Canada, Eire, India and the Union of South Africa and concluded from this comparison that clearly '... the Union legislation was most superficial and hopelessly out of date'.[6] He deplored the fact that the Treasury had no powers of any kind to safeguard the interests of policyholders and it did

1. Arndt, An Analysis of Investment Policies, op. cit., p. 48.
2. Ibid.
3. Ibid., p. 50.
4. Arndt, Assuransiewese in die Unie. op. cit., p. 17.
5. E.H.D. Arndt, Insuring our Insurance, A Survey of Insurance Legislation with Recommendations for the Union, Pretoria, Union Booksellers, 1941.
6. Ibid., p. 79.

not even have the power to examine the returns lodged with it and call for further information. In his opinion the Union policy of virtually 'no interference' with insurance companies whatever, was fundamentally wrong. To quote Arndt :

'As long as new insurance legislation does no more than lay down generally accepted principles and standards of safety, no well managed company should object to public certification that it complies with such standards, since such public approval can only be of direct benefit to the companies concerned.'[1]

4.1.3 Insurance Act, No. 27 of 1943

No major amendments had been made to the 1923 Insurance Act by the time it was repealed and replaced by the 1943 Insurance Act. The original 1943 Act has been amended on several occasions and a summary is given below of the more important provisions of the Act covering statutory control over the operations of insurers, regulations regarding their assets and liabilities and factors influencing their investment procedures.[2]

(i) Registrar of Insurance: Section 2 made provision for the Minister of Finance to appoint a Registrar of Insurance to exercise all such powers and perform such duties as are assigned to him under the Act, under the control of and subject to appeal to the Minister. The Registrar was authorized to demand from a registered insurer information relating to any matter connected with its business or transactions, and it was the duty of the insurer to comply promptly in writing (S.28).

Section 29 conferred upon the Registrar the power to inspect or investigate companies. Furthermore if any registered insurer failed to comply within a period of thirty days after having been called upon in writing by the Registrar to do so, with any requirement of his in terms of certain specified sections of the Act, then with the consent of the Minister of Finance, the Registrar could, by notice in writing, prohibit such an

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1. Ibid., p. 88.

2. All references to the 1943 Insurance Act, unless stated specifically to the contrary, are to the Act as amended.

insurer from issuing any further new policies (S.29 bis). In terms of Section 69, the Registrar had to submit to the Minister an annual report on his activities. In respect of long-term business, these reports include information on investment and premium income of insurers, benefits paid to policyholders, expenses and commission as well as details of new business, surrenders and lapses. Summaries of the assets and liabilities of long-term insurers are also given, the former including an analysis of the types of assets held. Many of the documents, including all statutory, annual and triennial returns, submitted to the Registrar of Insurance by insurers are available for inspection by the public (S.71).

(ii) Deposits and Assets: Registered insurers had to deposit with the Treasury money and/or approved securities having an aggregate value of not less than R20 000 if the insurer did not carry on any long-term insurance business other than funeral business, or R100 000 if it carried on any one or more classes of long-term insurance business other than or in addition to funeral business (S.4).

Every insurer was required to furnish the Registrar within six months of its financial year end with a statement of all assets in respect of its insurance business at the close of each financial year (S.14).

Section 15 specified the values that could be placed on various types of assets required and the valuation of assets is discussed in Section 4.4 below. Insurers who carried on long-term insurance business were compelled, in respect of such business, to hold in the Republic assets of one or more of the kinds mentioned in the Third Schedule to this Act, having an aggregate value not less than the amount of their net liabilities in respect of such business carried on by them in the Republic. They were also required to hold assets having an aggregate value not less than the amount of their net liabilities in respect of such business. For this purpose money or approved securities deposited with the Treasury were not deemed to be assets held by the insurer.

Sections 17 and 18 stipulated that portion of the assets referred to above had to be invested in assets of the type stated in Part One of the Third Schedule to the Act. These 'Part One Asset' requirements as they are often

referred to are discussed in more detail in Section 4.2 below. Assets held by an insurer could not be pledged or encumbered except in special specified circumstances and an insurer was not permitted to borrow money except with the consent of and only to the extent permitted by the Registrar (S.20).

(iii) Appointment of Auditors made by Registered Insurers: Every registered insurer was required to maintain a principal office and appoint a public officer (S.10). It had to have an auditor for all its business as a whole, and foreign insurers were required to also have an auditor in the Republic and any such appointment was subject to the approval of the Registrar. The auditor did not have to certify any statement of liabilities that had been attested by the valuator of the insurer. Within a period of six months from the financial year end an insurer was obliged to furnish the Registrar with a revenue account, a profit and loss account and a balance sheet as at the financial year end. (S.11).

Every insurer carrying on long-term business in the Republic was required to have a valuator for that business and,for domestic insurers,the valuator had to be resident in the Republic. The valuator had to be an actuary, but in special circumstances the Registrar could approve a person who, in his opinion, had sufficient knowledge. The valuator had to satisfy himself that the statement of the insurer's liabilities in respect of long-term business was correct insofar as it related to liabilities under unmatured policies.

Every three years long-term insurers were obliged to furnish the Registrar, within six months of the financial year end, with a statement of its liabilities as at the close of the financial year. The Registrar was entitled to call on any insurer to furnish such liability statements at more frequent intervals, but not more frequently than annually (S.12).

(iv) Amalgamations or Transfers of Business: Amalgamations or transfers of business could not be of any force or effect unless they had been confirmed by the court or by the Registrar depending on the circumstances (S.25). The consent of the Registrar was also effectively required wherever twenty five per cent or more of the shares of an insurer was transferred from one party to another (S.27).

(v) Soundness of Premium Rates: No long-term insurer was permitted to use any table of premium rates for insuring the lives of individuals in normal health, unless it had been reported to the insurer as 'actuarially sound' by its valuator. The insurer must also have previously informed the Registrar of its intention to use such table of rates and furnished him with a copy of these rates and the certificate from the valuator of the company that the rates were actuarially sound (S. 34). The insurer was generally not allowed to discriminate as between one policy and another in regard to the rate of premium charged where such policies were of the same kind and the policyholders had similar expectations of life (S. 51).

(vi) Non-Forfeiture Provisions: To protect policyholders the Act laid down rules governing days of grace during which policyholders could pay their premiums and still be fully assured. It also defined non-forfeiture provisions to conserve the life cover on life policies, under which at least three years' premiums had been paid, if a premium was subsequently not paid (S. 62).

(vii) Schedules and Regulations: There were three Schedules to the Act. The First Schedule dealt with provisions relating to deposits made with the Treasury. The Second Schedule laid down the valuation basis for calculating the minimum value of liabilities which the Act permitted for the various classes of long-term, short-term and compulsory third-party business. The Third Schedule laid down the kind of assets to be held by insurers in terms of Section 17 and 18 of the Act.

4.1.4 Observations on the 1943 Insurance Act

The appointment of a Registrar of Insurance and the powers granted to him, were an important step forward in bringing the insurance industry under the scrutiny of the authorities. The annual reports of the Registrar continued the precedent of disclosure that had been established under the 1923 Act which required a summary of returns deposited with the Treasury to be published. While the reports were still generally published without comment, the wide powers granted to the Registrar have tightened controls considerably. It is of interest to note that the first Registrar of Insurance

was Mr. G.H. Beak, an actuary, who later became secretary of the Life Offices' Association of South Africa.

The increase in the size of statutory deposits required went part of the way to meeting Arndt's objections that the deposits required under the 1923 Act were totally inadequate. However, the deposit of R100 000 required under the 1943 Act also did not vary according to the size of the insurer. When viewed in relation to the total assets of most life assurers, the size of this deposit was virtually meaningless. In 1934 Arndt had already demanded that :

'Protection must accordingly be sought elsewhere, viz., in the nature of the assets held by the institutions.'[1]

It therefore seems that the security of policyholders can be better safeguarded by laying down minimum capital requirements for proprietary companies and adequate standards of solvency in relation to an insurer's assets and liabilities.

In laying down minimum bases for the valuation of liabilities and assets, and requiring insurers to hold assets of an aggregate value of not less than the amount of its net liabilities in respect of this insurance business, the Act automatically ensured certain minimum standards of solvency.

The minimum valuation basis for liabilities in force in November 1975 was not as stringent as the basis originally laid down in the 1943 Insurance Act. This relaxation was made possible due to improvements in mortality and increases in interest yields since 1913. From a control point of view, the fact that statutory valuations were now required at least once every three years instead of every five years was a great improvement. In practice most insurers value their liabilities every year for internal purposes.

The basis of the valuation of assets in terms of Section 15 of the Act

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1. E.H.D. Arndt, 'Safety for Savings', South African Journal of Economics, 2, 273-97, 1934, p. 278.

was a reasonable one and prevented insurers from setting artificially high values on their assets in order to ensure solvency. In practice there should, of course, be an identity between the valuation of assets and liabilities. It does not seem reasonable to the writer that, in periods of high prices on the Stock Exchange, quoted securities should be valued at these high values which might, for example, be based on an underlying two per cent dividend yield basis whilst, at the same time, the net liabilities might be based on the minimum values as laid down in the Act.

It is important therefore that, in these circumstances, a higher value should be placed on the liabilities. The reverse should hold if asset values were unduly depressed due to prevailing higher rates of interest. The above principle has been recognized by the Registrar in relation to linked insurance business in that the assets to which policies are linked are to be valued on the same basis in the valuation of the assets and liabilities.[1]

This basis is also recognized in general in the United Kingdom as the following statement illustrates :

'This method of valuation safeguards insurance companies from short-term financial crises. The funds' assets are valued, quite correctly, from the income they are likely to produce and not according to what they would fetch if sold immediately on the market'[2].

A strong plea for a reform of the method of valuing assets and liabilities under South African conditions was made by Beak[3] who stated the following :

'A further requirement of any financial standard is a correct relationship between the rate of interest used in the actuarial valuation of liabilities and the rate of interest (more accurately, the yield) used or implied in the

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1. Registrar of Insurance, Circular R.V. 10, November 18, 1969.

2. 'A Survey of Britain's Savings Institutions', The Economist, November 29, 1975, p. 15.

3. G.H. Beak, 'South African Legislation and the Interests of Policyholders', Paper presented to the Actuarial Society of South Africa, Cape Town, March 27, 1973.

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1. Registrar of Insurance, Circular R.V. 10, November 18, 1969.

2. 'A Survey of Britain's Savings Institutions', The Economist, November 29, 1975, p. 15.

3. G.H. Beak, 'South African Legislation and the Interests of Policyholders', Paper presented to the Actuarial Society of South Africa, Cape Town, March 27, 1973.

valuation of assets. Without such a relationship the financial standard is mathematically meaningless.[1]

The present provisions of the South African Insurance Act were not based on a satisfactory relationship of this kind. On the one hand the prescribed minimum basis for valuing liabilities incorporated fixed rates of interest, whilst the valuation of assets, other than Part One assets and policy loans, was related to market values which fluctuated and thus implied a fluctuating yield on the assets. There was therefore no built-in assurance that on any particular date there would be a proper relationship between the value of the liabilities and the value of the assets.

If the methods of valuing assets and liabilities were reformed, Beak believed that the result would be a basis for valuing liabilities which would be neither constant in time, nor uniform amongst insurers, but it would be for all insurers, at all times correctly related to the valuation of assets.[2] In a paper presented by Beak and de Villiers, the authors stated that it was wrong in principle that there was no link between the maximum valuation of the investments and the minimum valuation of the liabilities under unmatured policies.[3]

To value assets at market value was considered to be unrealistic for two reasons. Firstly, the use of market prices envisaged either willingness or compulsion to sell, whereas in fact the insurer had no need to sell and would only do so if it could reinvest the proceeds to greater advantage. Secondly, the use of market prices implied that, if the insurer were to sell, it would obtain approximately the market price, and this would not be possible in the case of a large insurer selling a large part of its assets.

The valuation should reflect the income that the insurer could expect to receive over an indefinitely long period or, in the case of a redeemable

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1. Ibid., p. 4.
2. Ibid., p. 5.
3. G.H. Beak and J. de Villiers, 'Life Assurance Finances and Public Reporting', Paper presented to the Actuarial Society of South Africa, Johannesburg, January 30, 1976, p. 5.

security, until redemption plus the value of the redemption proceeds. Changes in the valuation basis should thus not be made unless some change occurred in the quantum of these expected future receipts.[1]

The 1943 Insurance Act, as amended over the years, has greatly increased the statutory controls on life offices and has improved the security to policyholders. The Act does not however require the Registrar to be satisfied as to the reinsurance arrangements made by companies. Notwithstanding all the safeguards imposed by the Act on a company as to minimum asset requirements and valuation of liabilities, a company could go insolvent if its reinsurance arrangements were inadequate. It is suggested that the Act should require a certificate from the valuator of the company that he is satisfied with the reinsurance arrangements made by the company. In addition, whenever the company increased its retention limit (i.e. the amount it retains on any one life before reinsuring the sum at risk in excess thereof), the valuator should be required to send a fresh certificate to the Registrar detailing his company's new retention and stating that he was satisfied that the new retention was within the company's *capacity to absorb mortality risks*.

The Act also did not attempt to control expense levels at which companies operate. The valuation basis of the liabilities must however have regard to the actual expenses and commission costs involved in the conduct of the business.[2] The provisions of the Act are also not infallible if investments prove to be unprofitable.

Viewed from the political, foreign exchange and currency fluctuations problems of investing outside South Africa, the fact that insurers were required to hold assets in the Republic having an aggregate value not less than the amount of its net liabilities in the Republic, was a positive factor in regard to the security of policyholders.

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1. Beak, op. cit., p. 5
2. Insurance Act No. 27 of 1943, Second Schedule, Part 7, para. 2.

4.2 Prescribed Securities

The principle of obliging the insurance industry to invest a certain minimum portion of its assets in prescribed securities has been a subject of much contention and the reasons for this are discussed in Section 4.2.1 below.

As at November 1976, assets held by an insurer[1] had to include Part One Assets having an aggregate of not less than .

(i) Fifty per cent of the amount of its net South African liabilities in respect of long-term insurance business transacted with pension and retirement annuity funds, and

(ii) Thirty per cent of the amount of its net South African liabilities but excluding such net liabilities referred to in (i) above.

These are generally termed the 'Part One Asset Requirements' of long-term insurers, and within these total requirements must be included bills, bonds or securities issued by the Government, of an aggregate value of not less than twenty per cent of the said net liabilities referred to in (i) above, and fifteen per cent of the said net liabilities referred to in (ii) above.

The above Part One asset requirements were introduced in 1972,[2] increasing the requirements from the previous position which was that insurers had to hold Part One assets to the value of thirty per cent of their net liabilities in respect of all domestic business including Government Securities to the value of at least ten per cent of these net liabilities. The Financial Institutions Amendment Act for the first time established, for long-term insurers, different Part One asset requirements for pension and retirement fund business and other long-term insurance business.

The Third Schedule of the 1943 Insurance Act listed the kinds of assets to be held by insurers in terms of Section 17 and 18. The assets detailed in Part One of the Third Schedule are of the gilt-edged type. They include various types of deposits as well as bills, bonds or securities issued by the

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1. Section 17(1) stipulated the minimum total value of these assets and the types of assets in aggregate that could be held.

2. Financial Institutions Amendment Act, No. 91 of 1972, S.2 and S.3.

Government and several other public bodies.

Besides the compulsory Part One assets required, an insurer could hold the balance of its assets in policy loans, mortgage bonds, loans, debentures, shares and similar investments.

From the aforegoing it can be observed that besides the prescribed investments, long-term insurers are free to invest in virtually any type of investment in the Republic. The only other restriction is effectively that in respect of its domestic liabilities an insurer may not invest outside the Republic.

The original requirements on prescribed securities have been changed on numerous occasions since 1943 and the investment policies of companies have always had to be altered to make allowance for these changes.[1]

4.2.1 Comments on Prescribed Investments

The original purpose of Part One Asset requirements was to provide security to policyholders as these assets were regarded as being safer than other investments. The Part One asset requirements have been set as a percentage of the value of the insurer's liabilities in respect of its business carried on in the Republic. Pijper has noted that :

It is now generally accepted that the percentages set are fixed not because the need or the extent of security for the policyholders is deemed to be changing, but that they are fixed in accordance with the State's and Local Authorities' needs for funds. The latter aspect is fully covered in the correspondence between the Registrar and the Life Offices' Association in connection with the changes in percentages introduced by the Minister of Finance in the second half of 1971.[2]

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1. These requirements to hold prescribed investments were first laid down in Section 18 of the 1943 Insurance Act. Section 46 of the Insurance Amendment Act, No. 73 of 1951 inserted the Third Schedule to the 1943 Act. This Third Schedule was subsequently amended by Section 24 of Act No. 79 of 1955, Section 36 of Act No. 10 of 1963, Section 40 of Act No. 41 of 1966, Section 27 of Act No. 39 of 1969 and Section 1 of Act No. 23 of 1970.

2. J.C. Pijper, 'The Role of Government in the Control of Life Assurance. Minimum Interference with Full Disclosure or Restrictive Legislation', Paper delivered to the Actuarial Society of South Africa, Cape Town, October, 1972, p. 12.

It has been clearly stated by the Registrar that the object of the increased Part One asset requirements was to facilitate and finance the Government's loan programme.[1]

The Life Offices' Association of South Africa considered that the provisions of the Insurance Act, requiring life offices to invest a large portion of their funds in the Public Sector has placed an unfair burden on the long-term insurance industry and hence on policyholders of life offices. This has been pointed out to the Authorities on numerous occasions in the past.

Life offices have endeavoured to earn, on the savings entrusted to them by policyholders, the highest return in real terms commensurate with security. As the yield on Part One assets was generally lower than that which could be obtained on other investments, the compulsory investment requirements of the Act have lowered the returns earned by life offices. In turn this has decreased the benefits that life offices have been able to offer their policyholders. The Life Offices' Association commented :

"The life assurance industry has always accepted that it has responsibilities in regard to the financing of the Public Sector but it cannot agree to the way it has been selected (with a few others) to bear an excessive share of the burden as it has done in the past and which is now being substantially increased. It is accepted that the Government may be temporarily short of loan funds but it is felt that this could have been remedied by either raising loans through offering a competitive return and thus spreading the burden more equitably over all the tax payers, or by special appeal to the life assurance industry and pension funds, rather than by permanently increasing the compulsory investment requirements over the long-term. The latter situation has the further danger that in time to come it may result in too much loan money becoming available thus further depressing interest rates on public sector securities

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1. Registrar of Insurance, Circular R.V.12, September 23, 1971.

to the even greater detriment of policyholders and pensioners.[1]

The writer agrees with the views expressed above and believes that if the Public Sector require more funds they should raise loans at competitive rates of interest or it could be done by means of increased taxes, and loan levies i.e. spread the burden over all tax payers. Alternatively, it would be more equitable to impose compulsory investments in Government securities on a more general scale and not inflict such a heavy burden specifically on life offices.

The Registrar refuted these arguments and he stated that to raise public authority loans through offering a competitive return was not desirable, as it would spark off a further spiralling of interest rates and, furthermore, specials to financial institutions in the past had failed to elicit the required response.[2]

The enforcement of prescribed investments on the insurance industry is a constraint on profit maximization. It is considered that the differential in yields obtainable between prescribed investments and other investments, such as debentures, are far greater than they would be in a free competitive market and thus the yields earned by insurers on their funds were not as high as they could have been had no investment restrictions been imposed on them.[3]

It is of interest to note that the legislation covering prescribed investments had no effect on insurers' investment policies until the 1966 amendment to the Insurance Act.[4] This amendment restored the prescribed investment requirements from twenty five per cent of total net liabilities incurred in South Africa and South West Africa to the old level of thirty per cent that had existed prior to 1966. At the time insurers held

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1. Life Offices' Association, Circular 2058, December 22, 1971.
2. Registrar of Insurance, Circular R.V. 517/5, February 25, 1972.
3. Life Offices' Association, Circular 2103, May 1, 1972.
4. Insurance Amendment Act, No. 41 of 1966.

Many offices (and most of the newer life offices) have changed to the newer valuation basis and this resulted in a special release of surplus. Some offices used this release to pay special reversionary bonuses to policyholders and dividends to shareholders whereas other offices transferred these releases to special reserve funds.

By the very nature of contemporary life assurance operations the initial expenses and commission costs incurred in writing new business are extremely high and the initial expense allowances permitted by the new valuation basis are inadequate as the comments of the Life Offices' Association indicate.

'This adjustment is, however, not nearly large enough t · the whole of the necessary and unavoidable initial expenses, ' · ult that the reserves required by the Act to be set up in the early years of each policy are far more than is really necessary. In other words, the fund which an insurer (conducting his business in a sound and conservative way) is actually able to accumulate out of the premiums he receives, is much less, in the early years, than the reserve he is required by law to hold. The difference constitutes a strain on the insurer's capital or free reserves.'[1]

In comparing the initial expense (or Zillmer) allowance under the South African Act to international standards, it has been found that local legislation is exceptionally stringent in this regard, and a Zillmer adjustment twice as great as that allowed by our local legislation would comply with widely accepted international standards which must be presumed to be at least moderately conservative and be higher than a bare solvency standard.[2]

The present minimum valuation basis is still a conservative one particularly in regard to the rates of interest that can be used, and also to a lesser extent, in the initial expense allowances permitted. It seems

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1. Life Offices' Association, Circular 2095, op.cit.
2. Ibid.

likely that the basis will be further relaxed in 1976 in regard to rates of interest that may be used.[1]

There is the argument that it is not reasonable to apply a single minimum valuation basis to be applicable to all life offices. Investment yields of offices vary, their expenses differ as do the basis of their premium rates and the rates of bonus they declare and, whilst the minimum basis may be reasonable for some life offices, for others it may result in the setting up of unnecessarily high reserves and hence cause an undue withholding of surplus from policyholders. This could affect the competitive position of these offices by reducing the levels of bonus they are able to declare. Therefore it would seem more equitable from the point of view of release of surpluses to policyholders to permit offices to choose a valuation basis that was deemed reasonable by their valuator.

4.4 Valuation of Assets

Jones once made the following authoritative claim in regard to the valuation of assets :

'For protection of the policyholder, therefore, the state insurance supervisory authorities have declared that asset valuation is not to be left to the discretion of management but to be considered within an established set of procedures.'[2]

The above comment in regard to the United States is as relevant in South Africa. Section 15 of the Insurance Act lays down the provisions relating to the Statement of Assets. In life assurance it is considered that any method of valuing assets must be on the basis of valuing them as long-term investments to cover long-term liabilities. Whilst the market value of securities is important in relation to the liquidation of any assets, it is not necessarily the correct basis of valuation of assets that are being held as long-term investments. This principle is partly recognized by the 1943 Insurance Act.

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1. Life Offices' Association, Circular 2382, January 6, 1975.
2. Jones, op. cit., p. 135.

Section 15(f) lays down the basis of valuation of bills, bonds or securities that may be held as Part One assets. These securities must be shown at an amount that does not exceed the lesser of the cost to the insurer of the asset or the amount of capital payable on redemption. In calculating the cost, any interest due or accrued in the cost price must be deducted and adjustments (if any) may be made in respect of brokerage, stamp duty and underwriting commission as may be required by the insurer's usual accounting methods. If the cost price is different from the redemption price then the insurer may show the asset at an amount which has been arrived at by a method of annual adjustments to the redemption price at redemption date on a basis approved by the Registrar. In addition, any interest due or accrued at the valuation date may be allowed for.

Except for the securities mentioned above, any security which was quoted on the Johannesburg Stock Exchange within a period of three months immediately preceding the valuation date, must be shown at a value not exceeding that based on the lowest quoted price at the valuation date. Allowance may also be made in the case of fixed interest securities for interest due or accrued and, on shares, for specified dividend adjustments in respect of dividends that have been declared. It is interesting to note that if the values of such securities as determined above are in the aggregate unduly low or unduly high, so that they do not reflect the real aggregate value of the assets, the Registrar has the power in terms of Section 15(c) of the Act, with the consent of the Minister of Finance, to authorise or direct the insurers to show such assets at such other values as shall in the opinion of the Registrar represent their real values.

Policy loans must be shown at the lesser of the surrender value of the policy and the amount of the loan or advance, (including interest due or accrued), less any commissions owed by the insurer or any premiums included in such loan or advance.

Any other type of asset is to be valued at a price not exceeding the price that would be obtained the Republic between a 'willing' seller and a 'willing' purchaser (each of whom must be unconnected with the other) as estimated by the insurer and as approved by the Registrar. This amounts to the use of an estimated market value.

In November 1975, Part One assets, issued when yields on such assets were below the current yield of ten per cent, had a market value below the cost price to the insurer. The principle of departure from market prices is clearly observed in that insurers may value these assets in terms of Section 15(f) as long-term investments i.e. at above their market price.

For balance sheet purposes and for statements of assets, many insurers value the bulk of their assets at cost price or book value. In valuing assets that are held as backing for linked policies, offices value linked assets and linked liabilities on the same basis i.e. generally at market value although sometimes cost price or book value is used. Such a basis keeps the valuation of assets and liabilities in sympathy with each other and the writer would like to have the Act permit that similar principles of valuation be applied to non-linked assets.

4.3 Taxation of Life Assurers in South Africa

The taxation of life companies in South Africa dates back to 1904 in the Cape Colony, when insurance offices transacting business were requested to pay income tax on the proportionate amount of interest applicable to the premiums collected in the Colony.[1] The basis of taxation imposed fluctuated over the years until the principles underlying the current basis of taxation were first introduced in 1959.[2]

The taxable income of a long-term insurer is deemed to be an amount equivalent to thirty per cent of the sum of the gross amounts, which have been derived from the investment (including the letting of any property) of so much of its funds as are invested within or outside the Republic in respect of any long-term insurance business carried on in the Republic, and of so much of its funds as are invested within the Republic in respect of any long-term insurance business carried on by the insurer outside the Republic, and the gross amounts of any remuneration it received for managerial and secretarial or other services from subsidiary companies.[3]

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1. Bulpin, op. cit., p. 32
2. Income Tax Act, No. 78 of 1959, S.18.
3. Income Tax Act, No. 58 of 1962, as amended, S.28(1).

Investment income attributable to long-term business carried on in the Republic with any pension fund or retirement annuity fund, as well as investment income attributable to individual annuity contracts under which annuities are being paid, are exempt from tax. Interest on the loan portion of the normal tax imposed under any Income Tax Act is also exempt.

When the above system of being taxed on thirty per cent of 'non-approved'[1] investment income was first introduced in 1959, dividend income was also originally entirely exempted from taxation In 1961[2] this was modified such that only one-third of 'non-approved' dividend income was exempted from tax and this was further altered in 1971[3] when the preferential taxation treatment of dividend income of life assurers was abolished,and since then dividend and interest income have been treated in the same manner for taxation purposes.

Life assurers are subject to the normal rate of company taxation on their taxable income. In November 1975, the basic rate of normal tax for companies was forty per cent. In addition to this normal tax, a surcharge of two and a half per cent is added to the rate of normal tax for companies, making the total rate forty one per cent.[4] Being taxed on thirty per cent of their non-approved income, life assurers were taxed, as at November 1975, at 12,3 per cent on such investment income and on remuneration for managerial or secretarial services. Life assurers are not subject to taxation on capital appreciation whether realized or not. This is not the position for example, in Rhodesia where realized capital gains and losses are included in the computation of taxable income.

The Life Offices' Association has however pointed out that, quite apart from the provisions of the Income Tax Act, life offices effectively suffer an indirect tax by virtue of the requirement in the Insurance Act that they are obliged to invest substantial amounts in Part One assets. As these assets

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1. 'Non-Approved' income is investment income not exempted from income tax.
2. Income Tax Act, No. 80 of 1961, S.12.
3. Income Tax Amendment Act, No. 88 of 1971, S.21(1)(a).
4. Income Tax Act, No. 90 of 1972, Third Schedule, para. 1(b).

yield less than first-class debentures,and the expected yield on other investments in which life offices place funds,there is an indirect tax on long-term insurers to the extent of interest income foregone by being obliged to invest in Part One assets.[1]

4.6 Future Prospects of the Life Assurance Industry as seen by the Franzsen Commission

Amongst its three reports,[2] the Franzsen Commission made several recommendations affecting long-term insurance companies. Some of these recommendations have already been accepted and made law while many of the others are being studied by the Commission of Inquiry into the Circumstances and Matters relating to the Long-Term Insurance Industry currently sitting and investigating a wide variety of subjects affecting the industry such as new registrations, capital requirements, taxation, domestication of foreign insurers and many other matters.[3]

A summary is given below of the more important recommendations of the Franzsen Commission that have a bearing on the long-term insurance industry.

4.6.1 Determination of the Taxable Income of Long-Term Insurers

The Franzsen Commission considered that the formula then current for ascertaining the taxable income of long-term insurers should be adhered to in principle but that the exemption of one-third of dividends received from taxable investment income should be abolished; management and secretarial fees, received from *subsidiaries and other companies in which* a long-term insurer held ten per cent or more of the equity should be included in adjusted gross income, and the current rate of thirty per cent of investment income deemed to be the justified taxable portion should be

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1. Life Offices' Association, Circular 2097, April 18, 1972.
2. Franzsen D.G. (Chairman), Fiscal and Monetary Policy in South Africa, First, Second and Third Reports of the Commission of Enquiry into Fiscal and Monetary Policy in South Africa, Government Printers, Pretoria, RP24/1969, RP86/1970, RP87/1970.
3. Commission of Inquiry into the Circumstances and Matters concerning the Long-Term Assurance Industry. 'Circular letter to all Long-Term Assurers',January 7, 1972.

tested periodically against the surplus revealed by actuarial valuations.[1]

The Commission recommended that the one-third dividend exemption be abolished as its exclusion from the tax base, in the Commission's view, undoubtedly tended to stimulate investment in equities as against investment in fixed interest bearing loans.[2] As certain companies placed a material portion of their equity investments in subsidiaries or other companies so as to at least obtain a seat on the board of directors, the inclusion of management fees in the tax base was recommended to counter possible tax avoidance.[3] Both the above recommendations of the Commission were made law by the Income Tax Amendment Act, No. 88 of 1971.

The Commission also believed that there were good reasons why the taxable income base of thirty per cent should be increased, but in view of the two additions to taxable income stated above, this matter should be kept in abeyance while the effect of the broadening of the tax base could be ascertained in the light of surpluses revealed by actuarial valuations one year after the introduction of the broadened tax base, and the rate be similarly tested by actuarial valuations at five yearly intervals thereafter.[4]

4.6.2 The Size and Structure of the Insurance Industry

The Commission considered that the number of companies active in the insurance field in South Africa was very large and that there was a desirability of rationalization within the industry. They therefore recommended that no new registrations of insurers should be allowed for the time being except in cases where the registration was clearly in the public interest.[5] Furthermore, it was recommended that a short-term insurer should not be permitted to extend its business to include long-term insurance

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1. Franzsen Commission, Second Report, op. cit., para. 463., p. 111.
2. Ibid., para. 459(i), p. 110.
3. Ibid., para. 459(ii), p. 110.
4. Ibid., para. 461, p. 111.
5. Franzsen Commission, Third Report, op. cit., para. 740, p. 190.

other than by the take-over of an existing insurer.[1]

To ensure that new insurers would be better able to cope with initial risks, the Commission recommended that in the case of a new registration in respect of both short-term and long-term business, a minimum paid-up capital of one million rand should be required and this should be fixed at two million rand if an insurer intended transacting both short-term and long-term business.[2] Furthermore, it was recommended that these capital requirements should also be made applicable to existing insurers who should be granted a five year period from a given date in which to comply.[3]

The Life Offices' Association stated that there was no objection to an increase in the share capital for new registrations, but the amount of capital required should be left to the discretion of the Registrar as was the position then under the Act. Furthermore, for existing insurers the position was more complicated and there were better ways of ensuring adequacy of reserves than a minimum share capital.[4]

The Commission believed that only during the initial years was the share capital of long-term insurers significant as cover against unforeseen risks, but as reserves were accumulated the importance of share capital decreased as did the risk run by shareholders. It was therefore recommended that the yield on the capital of non-mutual long-term insurers should be limited to a percentage of the capital or profits of the company and the matter be investigated by the Technical Committee on Insurance.[5] If this recommendation were accepted, it would severely curtail a company's ability to maximize profits.

It was considered that competition in any event ensured that a major

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1. Ibid., para. 742, p. 190.
2. Ibid., para. 744, p. 191.
3. Ibid., para. 745, p. 191.
4. Life Offices' Association, Circular 2911, October 20, 1971.
5. Franzsen Commission, Third Report, op. cit., paras. 746-7, p. 191.

share of profits went to policyholders, but if limitations on profits to shareholders were to be necessary, the Life Offices' Association believed that they should not be applied to the yield on capital, but instead to the proportion of surplus allocated to shareholders. This is also the writer's view.

4.6.3 Prescribed Securities

The Commission considered that the State could not abolish the captive market for approved securities. If it were abolished there would be a danger of inflation since, if institutions sold their Government stock, the only residual buyer would be the Reserve Bank which also had to support new issues. This would create a considerable expansion of credit. The Commission did believe, however, that the interest rate paid on loans by the public sector should take account of market conditions.[1] They recommended that the required minimum investment by insurers in approved securities should not be regarded as an additional source of funds to the authorities. The Commission came up with the salutary recommendation that, should the Government require increased forced savings, it should do this in the form of loan levies imposed on all taxpayers.[2]

The intervention by the Government into the free play of market forces, though heavily criticised by the Franzsen Commission, has unfortunately not been abandoned. The following three factors are evidence that the Franzsen view has not been accepted:

Firstly, in 1972, the Part One asset requirements imposed on long-term assurers were substantially increased.[3] Secondly, in December 1975, life assurers were requested to increase their investments in the State sector by the end of 1976, by not less than two per cent of their liabilities.[4] Thirdly, the rates of interest paid on approved securities have still not sufficiently been increased and are still lower than market forces would dictate.

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1. Ibid., para. 683, pp. 168-9.
2. Ibid., para. 231, p. 57.
3. Financial Institutions Amendment Act, No. 91 of 1972, S.2 and S.3.
4. Registrar of Insurance, Circular RV 617/5 and PF 22/4, December 5, 1975.

prescribed investments well in excess of the minimum percentages stipulated by law. This excess holding only disappeared in 1966. In fact, between 1956 and 1965, life assurers only invested 1,4 per cent of their total increase in net assets in Government securities. Compulsion seems to have been necessary to force long-term insurers to maintain a minimum percentage of their total assets in Government stock as, between 1944 and 1965, life assurers decreased their holdings of Government securities from 36,8 per cent to the legally prescribed minimum level. In absolute terms their holdings of Government stock grew from R78-million in 1944 to R87-million in 1965, although they sold large quantities of Government stock after the Second World War and only started to increase their holdings around the mid 1950s. The 1965 amendment reversed this trend and in 1966, 1967, 1968 and 1969, the percentage of their total net increases in assets used to purchase Government stock were 17,0, 21,2, 13,7 and 14,3 respectively.[1] It can be noted from Table 5.1 in the next Chapter that, by March 1976, Government stock holdings of long-term insurers represented 12,6 per cent of their total assets.[2]

4.3 Statutory Minimum Valuation Basis of Liabilities

The Insurance Act requires a life assurer to hold assets having an aggregate value of not less than the amount of its net liabilities in respect of such business and thus the minimum asset requirements of an assurer depend on the valuation basis of its liabilities under unmatured policies. A discussion of the fundamental principles of the statutory minimum basis is of relevance at this stage. The minimum valuation basis for valuing a life office's liabilities was defined in the Second Schedule to the 1943 Insurance Act and has been amended on three subsequent occasions.

The object of laying down by law a minimum valuation basis is, of course, to ensure that an assurer does not value its liabilities at less than a certain minimum figure. Life offices may however adopt a valuation basis they deem appropriate, having regard to their mortality experience, interest earned and expense and commission structure,

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1. Munro, op. cit., pp. 63, 66, 265.

2. Refer to p.46 for details of the minimum level of Government securities that insurers have to hold.

provided the liabilities as determined on the basis chosen are not lower than they would have been had they been calculated on the minimum basis.

A minimum valuation basis can be either a minimum solvency basis or something considerably more conservative. It is considered that in the present decade the statutory minimum basis necessitates the creation of reserves far greater than a minimum solvency standard. The Life Offices' Association commented on the valuation basis as follows :

'In this way the Act sets a standard which is far higher than a solvency standard, and the necessity to comply with this very high standard constitutes, in the case of a new insurer, the most powerful safeguard against financial unsoundness.'[1]

Over the years it became clear that the minimum valuation basis was imposing a great strain on life offices, especially newer offices, by causing them to create very high reserves and hence adversely affecting their profitability. Moreover, during the same period, the mortality rates of insured persons have improved and the yield they have earned on new funds has increased. Therefore, it became appropriate to considerably lighten the minimum basis and this was done in 1969.[2] Thereafter offices were entitled to use the South African mortality tables 'S.A. 1956-62 for Assured Lives'. These tables show lighter mortality rates than the British tables A. 1924-29, which had previously served as the valuation basis. The South African tables are based on the actual mortality experience of a wide cross-section of life offices in the Republic.

The rates of interest that could be used in a valuation were increased to five per cent per annum in respect of annuities in the course of payment at the date of calculation, four and a half per cent per annum in respect of untaxed business (i.e. pension and retirement annuity fund business) and four per cent in respect of other business.

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1. Life Offices' Association, Circular 2095, April 12, 1972.
2. Insurance Amendment Act, No. 39 of 1969, S.26.

4.6.4 Foreign Insurers

In spite of its generally favourable attitude towards the operation of multinational enterprises on the South African market,[1] the Commission recommended that, as from a date to be fixed, only insurers that were incorporated in the Republic and registered under the Insurance Act should be permitted to carry on insurance business in the Republic. Where necessary the existing branches of foreign insurers should be converted into local subsidiaries within three years and foreign mutual companies should also be required to operate under the same conditions through local companies.[2]

The Commission recommended the above due to the desirability of obtaining local jurisdiction over all insurers. Furthermore, the practice of carrying on insurance business via branches registered in South Africa could be undesirable, since it made the evasion of exchange control and taxes possible. In addition, they believed that claims and commissions could be manipulated at the expense of the branch office and hence reduce the local office's profitability and hence its tax, and thus there could be an outflow of foreign exchange in the form of high premiums and claims.[3]

The Commission also believed that, with regard to foreign-controlled insurance companies, a more extensive distribution of shares among South African shareholders was desirable.[4] It was further recommended that no further insurance companies, in which foreigners have a controlling interest of more than ten per cent, should be registered.[5]

The writer strongly disagrees with the view that the domestication of long-term foreign insurers should be made compulsory. The multinational enterprise can bring considerable benefits to a country by its worldwide knowledge and experience. Furthermore, there is the danger that other countries would retaliate with similar legislation i.e. South

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1. Franzsen Commission, Third Report, op. cit., para. 963, p. 249.
2. Ibid., para. 850, p. 220.
3. Ibid., para. 847, p. 219.
4. Ibid., para. 851, p. 220.
5. Ibid., para. 852, pp. 220-1.

African insurers would not be able to extend their activities to other countries. The writer believes that the authorities should rather introduce legislation that may be deemed necessary to curb the various malpractices, tax and exchange control problems that may exist. It seems likely, however, that the authorities will accept the views of the Franzsen Commission to force foreign insurers to domesticate, and draft amendments to the Insurance Act would then be introduced in due course. Negotiations have already taken place on this subject between the authorities and the Life Offices' Association.[1]

4.6.5 Ownership of Insurers by Banks and Vice Versa

Whilst the Commission considered that there were no valid objections to insurers diversifying into appropriately related financial services such as the management of unit trusts or the provisions of computer services, they did, however, believe that, to promote the spreading of investments, consideration should be given to imposing a limit on the percentage of an insurer's assets that could be invested in an individual non-insurance undertaking. They did have objections to associations between banks and insurance companies in that competition between financial institutions would be reduced if banks were allowed to administer insurers or vice versa.[2] There could also be a tendency towards 'conditional selling' whereby a bank pressurised its clients to buy from its 'captive' insurance company. Furthermore, in an association between a bank and insurance company, policyholders' and depositors' funds might be less widely spread than normal, as they would be used in the interests of the group.

The Commission stated that the most important argument against the merging of banking and insurance under a single management was that it might reduce the effectiveness of monetary policy. Bank deposits were of a relatively short-term nature, whereas insurance funds (except for short-term business) were long-term contractual savings not sensitive to

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1. Life Offices' Association, Circular 2285, January 25, 1974.
2. Franzsen Commission, Third Report, op. cit., paras. 870-7, pp. 224-5.

monetary control measures. They commented in the following terms:

'The joint control over a bank and insurer leads to the gaining of access to two streams of funds, allowing switching from the stable contractual stream to the irregular short-term stream to be effected if control is exercised by the authorities on the creation of credit and money. A bank controlling an insurer therefore gains access to a guaranteed stream of premium receipts and thereby enjoys an unjustified advantage in the competition for funds and consequently becomes less sensitive to monetary measures.'[1]

The Commission therefore recommended that a bank and its associates should not be allowed to hold more than ten per cent of an insurer's shares and vice versa,and any shareholding in excess of ten per cent should be reduced over a reasonable period to ten per cent.

The writer disagrees with the Franzsen Commission's view on this subject. The ten per cent criterion laid down is an arbitrarily chosen one, and the remedy should be the prohibition by law of practices deemed undesirable rather than a forced separation of control of insurers and banks.

4.7 The Life Offices' Association of South Africa

Matters affecting the life assurance industry as a whole are entrusted to the Life Offices' Association of South Africa which was formed in 1935. The main purpose of the Association, as stated in its Constitution, is :

'... the advancement of the business and the protection of the interest of Life Assurance by consultation and combined action upon questions appertaining to the interests common to Life Assurance Companies and by co-operation or federation with any Association having similar objects;'[2]

Membership of the Association is open to any company authorized by law to carry on life assurance business in the Republic of South Africa, Rhodesia or Malawi. In November, 1975, the total number of members was forty four i.e. all the life offices then writing ordinary life business in South Africa.[3]

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1. Ibid., para. 873, p. 225.
2. Life Offices' Association, Circular 2049, November 19, 1971.
3. Life Offices' Association, Circular 2467, November 13, 1975.

The Association strives to maintain high standards of conduct among its members and has always been willing to assist the authorities to draft appropriate legislation and, where necessary, to ensure the good conduct of its members and of the industry as a whole. The Association does not, however, have any disciplinary powers over its members other than, in the event of misdemeanours by a member office, the Association has the ultimate sanction of expelling the offending office.

Member offices have entered into several agreements on matters affecting the life assurance industry. These agreements have invariably laid down codes of conduct for the benefit of the industry with the ultimate object of benefiting the public in general. The Association has usually been successful in ensuring that its members conduct business in the public interest, and on several matters have mutually agreed to high standards of conduct, so as not to make it necessary for legislation to be passed to ensure these standards.

4.8 Financial Soundness of Life Assurers

From the aforegoing it can be noted that the control over life offices has improved considerably over the past fifty years. Furthermore, several recommendations of the Franzsen Commission are being considered, and the Commission of Inquiry into the Long-Term Insurance Industry[1] can be expected to report in the near future and will undoubtedly recommend additional amendments to the Act to further enhance the financial soundness of life offices and give added protection to policyholders and shareholders.

Minimum standards of solvency and financial soundness in South Africa are basically ensured by th ing provisions of the 1943 Act :

(i) insurers are to have a covered assets position i.e. to hold South African asse.. cover South African liabilities and total assets to cover total liabilities;

(ii) a relatively strong minimum valuation basis of liabilities has been prescribed;

(iii) the methods of valuation of assets are laid down;

(iv) Part One asset requirements are prescribed;

(v) deposits have to be made with the Treasury - the importance of this in today's conditions is, however, relatively insignificant;

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1. Details of the appointment of this Commission were promulgated in Government Gazette, No. 3254, September 17, 1971, p. 9.

(vi) minimum capital requirements for new insurers are defined - at present the amount is at the discretion of the Registrar, but the Franzsen Commission has recommended considerable increases in acceptable levels of paid-up capital;

(vii) a Registrar of Insurance has been appointed with wide powers, including the making of regulations and the investigation of insurers. Furthermore, returns made to the Registrar are made public in his annual report.

In addition, a considerable amount of self-control is imposed by life offices through the medium of the Life Offices' Association.

Any solvency standards that may be laid down by law for a life assurance company should, according to Skerman, satisfy the following three criteria :

'(a) It can be applied in practice without undue difficulty or delay.

(b) If an office can satisfy it at regular intervals in the varying conditions which apply from time to time, there need be no doubt that it will be able to fulfil its obligations.

(c) If an office fails to satisfy it on any occasion, there will be ample time for the controlling authority to make further inquiries as to its financial position and to ensure that any necessary remedial action is taken before the point is reached at which it fails to meet its obligations'[1].

Legislation is necessary to establish principles and standards and to protect the policyholders and shareholders against departures from these standards and fraud. Legislation cannot however ensure the competence of a company, management or directors, nor can it improve their competence. Insurance legislation should, in addition to what it does at present, aim to seek maximum disclosure of what is being done by companies. All disclosures should be published and made available on a wide basis to insurers and public alike, and this would be a powerful deterrent to insurers to depart from generally accepted standards.

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1. R.S. Skerman, 'A Solvency Standard for Life Assurance Business', Journal of the Institute of Actuaries, 92 Part 2, 75-84, 1966, p. 76.

4.9 Constraints on Objectives

For the insurance industry, South African legislation imposes severe constraints on corporate objectives. The compulsion to invest in prescribed securities is a constraint on the objective of companies to maximize their investment return, as the yields obtainable on these securities are lower than on other securities in which the insurer might choose to invest were it free to do so. The minimum valuation basis of liabilities necessitates the establishment of large reserves and causes substantial strains in the marketing of new business. An insurer has to thus carefully consider its sales philosophy in the light of the strains that new business will create and the financial capacity of the company to absorb these strains. A less stringent valuation basis would enable companies, and proprietary companies in particular, to contemplate higher new business sales for a given level of capital and/or reserves.

Life assurers are taxed on thirty per cent of their non-approved investment income without relief being given for expenses they incur. There is therefore an incentive for insurers to own properties and hold these through subsidiary companies which obtain tax relief on expenses that are considerably heavier on this type of investment than on equities or debentures for example. The subsidiaries are normally financed with loan capital such that the interest payable by the subsidiary is equal to or greater than its net profits. The net result is that the subsidiary is not taxed, as it does not make profits, and the insurer only pays tax on the interest it receives from its subsidiary and hence effectively obtains tax relief on its property expenses.

The fact that relief on property expenses is not allowed when properties are held directly by a life assurer, leads to the creation of these subsidiary companies, hence increasing total costs. It would be more economical and equitable if the tax payable were not affected by the manner in which the investment was held.[1]

The Life Offices' Association have recommended that property investments

1. Life Offices' Association, Circular 2473, December 2, 1975.

held directly by life assurers should be taxed on net rental income, irrespective of the method of holding these investments.[1]

1. Ibid.

CHAPTER 5

INVESTMENTS AVAILABLE AND PRINCIPLES OF INVESTMENT OF LIFE ASSURANCE FUNDS

5.1 INTRODUCTION

It has been shown how the accumulation of sizeable funds is essential to the fulfilment of the assurer's obligations under various life assurance contracts. These funds must be wisely invested in accordance with the investment philosophy of the various life offices and it will be observed in Chapter 8 how the maximization of investment yields is a basic objective of most life assurers. It is thus of importance to study the investments available to life assurance companies and the principles underlying the manner in which they invest these funds.

While investment outlets in the 1970s are numerous and varied this was not the case at the beginning of the twentieth century as the following statement illustrates:

'Investments suitable for life assurance offices obtainable in this colony are not so varied in nature as those dealt with by British offices, being confined principally to the following :-

Mortgages on Landed Property

House Property

Loans on Cape Government Stock

Loans on Municipal Stock

Loans on Life Policies

Other suitable investments to be obtained are so few in number that, for our present purpose, they may be passed over'[1].

A brief description of the investments available and generally to be found in the balance sheets of life assurance companies is given below.

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1. J. Robb, 'Notes on Investments', Journal of the Federation of Insurance Institutes of Great Britain and Ireland, 7, 343-52, 1904, pp. 343-4. This paper was presented to the Insurance Institute of South Africa in December 1903.

5.2 Investments Available

5.2.1 Securities Issued by the Government of the Republic of South Africa

This is an important class of investments for life offices due to the fact that they are legally obliged to invest a substantial portion of their total assets in Government securities.[1]

Government securities are normally issued at par (i.e. R100 per cent) and bear a fixed rate of interest paid half-yearly in arrear and are usually redeemable at par at the end of a given period but may sometimes be redeemable at the Government's option at any time, or between two specified dates.

The main advantages to a life office of investing in Government securities are as follows :

(i) Absolute security - There can be no investment with less risk of default than securities issued by the Government and securities issued by the Government and local authorities are generally classified as 'gilt-edged' and 'semi-gilt' investments respectively, descriptions that imply strength and safety.

(ii) Marketability - There is generally a good market for short dated Government stocks as banks are large holders of these and long dated stocks are relatively easily traded amongst the insurance companies and pension funds. The market for medium dated stocks is more difficult. Insurance companies generally invest in the longest possible dated stock and this almost invariably in the form of new issues.

There is a variety of securities (by term to maturity and coupon rate) from which to choose and in absolute terms the total Government debt in respect of marketable securities is very large indeed. As at the end of September 1975, the total Government debt was R9 601 million, of which R7 717 million was outstanding in respect of marketable securities.[2]

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1. Prescribed securities (or Part One assets) were discussed in detail in Sections 4.2 and 4.2.1 of Chapter 4.

2. South African Reserve Bank, Quarterly Bulletin, December, 1975, No. 118, p. S-16.

(iii) The cost of dealing in Government securities is low. For insurance companies buying Government securities on the Johannesburg Stock Exchange, brokerage rates (as at June 1975) were 1/4 per cent up to the first R20 000 purchase or sale price, 1/8 per cent on the excess over R20 000 and up to R100 000, and 1/16 per cent on any balance in excess of R100 000.[1] Brokerage rates are half of the above mentioned when transactions are with the Government, the South African Reserve Bank, the Land and Agricultural Bank of South Africa, the National Finance Corporation and with certain commercial banks for their own account.

The main disadvantage of investing in Government securities is the lower yield that is obtainable on them compared to fixed interest securities of local authorities and debentures. For example, in November 1975, the yield on long-term Government stock (terms of twenty years or longer) was 10 per cent compared to 13,376 per cent on first class long-term secured debentures.

Coutts recommended that, as the yield on this type of investment in England was artificially reduced by the fact that large bodies of investors were confined to them, life offices should rather use their financial knowledge and experience in seeking other good quality investments which could provide a higher yield.[2] In South Africa, however, life offices must invest a given percentage of the value of their liabilities in this category of investments. Due to the low yields available it is unusual for long-term investors to invest significantly greater amounts in Government stock than they are legally obliged, unless they anticipate a fall in the yield on future issues.

The yield available on Government stock increases as the term of the stock lengthens. For example, as at November 28, 1975 the yield to maturity varied from 6,73 to 7,35 per cent for stock of less than three years to 10,0 per cent for stock of longer than twenty years.[3]

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1. The Stock Exchange Handbook, 1, 1975, p. 30.
2. C.R.V. Coutts, 'Notes on Life Assurance Investment Policy', Journal of the Institute of Actuaries, LVI, 121-32, 1925, p. 125.
3. 'Gilts and Semi Gilts' Prepared by Fred. E. Levy, Imre and Co. Inc., November 28, 1975.

The market value of any fixed interest security basically depends on the current rate of interest, the coupon rate of the stock, the life of the stock and the security offered by it. If rates of interest increase, the market value of stocks bearing a coupon rate less than the current rate will decrease and the reverse will occur if the rate of interest decreases. The longer the term of the stock, generally the more volatile it is to a change in the rate of interest i.e. the longer the term of a stock,the greater will be the percentage fluctuation in its market value on a uniform change in the rate of interest for different terms to redemption. A low coupon stock is generally more volatile than a high coupon stock for the same outstanding term. Their market value would be determined on the basis of a yield to redemption. This point is of particular importance to life offices who generally prefer to invest in the longest dated Government stock available to match their long-term liabilities.

Nothwithstanding the fact that all Republic of South Africa stocks are quoted on the Johannesburg Stock Exchange, in the past the marketability of Government stocks was rather limited in that institutions generally purchased stock and held these to maturity. In the last few years a far more active market has been created in Government and local authority stocks by banks, merchant banks and discount houses who have generally established departments to trade in these securities. In fact, the bulk of transactions are concluded by direct negotiations between buyer and seller and do not pass through the Stock Exchange.

As at the end of September, 1975 the domestic marketable stock debt of the Central Government was R6 836 million. Of this amount R5 092 million was long-term debt and by far the bulk of this was owned by the Public Debt Commissioners (the P.D.C.) who owned R3 274 million, insurers owned R668 million of which the vast majority was owned in respect of long-term insurance business and private pension funds which owned R583 million. Of the short-term debt of R1 744 million,R1 475 million was owned by the

banking sector.[1]

In this regard the main source of funds of the P.D.C. are the Government Pension Funds including the pension fund of the South African Railways. Other important sources of funds of the P.D.C. are the Social Security Funds and the Post Office Savings Banks.[2]

Long-term insurers have generally been able to buy Government stock either by subscribing to a new issue or by purchasing on the Stock Exchange or from other institutions. However, when the Government stock requirements of insurers were increased in 1971, insurers were instructed as follows :

'As the object of the increased requirements is to facilitate the financing of the Government's loan programme, insurers will be required to augment their holdings by subscriptions towards new issues of loan stock or by purchase from the Public Debt Commissioner'[3].

Insurers were thus restricted as to the source from which they could acquire Government stock and this restriction continued until the latter part of 1972.

5.2.2 Securities Issued or Guaranteed by Local Authorities in the Republic

Bills, bonds or securities issued or guaranteed by any local authority in the Republic are a second important category of prescribed investments and long-term insurers have invested substantial amounts in these securities.

Local authority stocks are fixed interest securities with interest payments usually made half-yearly in arrear. They are redeemable at par, at a given maturity date or within a specified band of maturity dates. A recent innovation is the introduction of early redemption options. Stocks are often issued at a discount on par value and the borrower is usually given the

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1. South African Reserve Bank, Quarterly Bulletin, December 1975, No. 118, pp. S-50, S-51.
2. Ibid., p. S-55.
3. Registrar of Insurance, Circular R.V.12, September 23, 1971.

choice of investing in a stock at par with a given coupon rate or investing in one with a lower coupon rate but issued at a discount.

For example application lists opened on December 2, 1975 for an issue of ten million rand City of Johannesburg Local Registered Stock maturing in 1994. Investors were offered the choice of investing in Loan No. 82 issued at R100 per cent and bearing an interest rate of 11,20 per cent per annum or of investing in Loan No. 83 issued at R96,52 per cent and bearing an interest rate of 10,75 per cent per annum. Some investors would prefer the higher running yield but others, such as life assurers, would, mainly for tax reasons, prefer Loan No. 83 which offered a tax free capital appreciation to par at maturity. The yield to redemption on both loans was 11,20 per cent at issue price.[1]

A possible drawback of the lower coupon loan is that, if rates of interest subsequently increased, this stock may decline in price by more than the 11,20 per cent stock. Similarly in the event of a decline in rates of interest, the 11,20 per cent stock would show a greater capital appreciation. A life assurer normally holds stock to redemption and so these factors are not really material to life companies.

The yield on local authority stock is very closely related to the yield on long-term Government stock and is generally about one per cent higher than on the latter, but the actual difference fluctuates from time to time and would also depend on the market rating of the local authority concerned. The main reasons for this difference are that they are considered less secure and they are less marketable. The advantage of the higher yield more than adequately compensates the investor for the minor disadvantages of this class of investment compared to Government stock. In practice it is doubtful whether the stocks of local authorities offer much less security than Government stock, as the following statement referring to the United Kingdom implies:

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1. Prospectus, City of Johannesburg R10 000 000 Local Registered Stock, 1994, November 1975.

'Speaking of the local authorities, Radcliffe says the Central Government has such responsibility for the people in any part of the country that there is in practice no ultimate risk of default and the credit worthiness of local authorities is therefore virtually as high as that of the Central Government. The yields obtainable are accordingly only slightly higher, the extra yield compensating for the somewhat inferior marketability'[1].

The position is very similar in South Africa in that any local authority loan must be issued in terms of Local Government ordinances and have Provincial approval. The Provinces effectively have the financial backing of the Government and, if a local authority were ever to become insolvent, it is likely that, if necessary, in the long run the Government would honour the authority's debt. The stock of most of the major local authorities are listed on the Stock Exchange although those of the smaller municipalities are usually not quoted. Some of the smaller authorities have however obtained a listing for their stocks in the belief that this would improve their marketability and hence decrease the rate of interest they would have to pay to borrow funds.

The costs of dealing in local authority stocks via the Stock Exchange are very low and are the same as those for Government stock and these stocks are also exempt from stamp duty and marketable securities taxes. In practice most transactions of existing stock are not concluded through the Stock Exchange but are by direct negotiation and this avoids incurring brokerage costs.

In recent years the marketability of local authority stocks has improved through banks and discount houses actively creating a market in these stocks by registering with potential buyers and sellers and even trading on their own account. A recent innovation has been that certain municipalities have traded in their own stocks as for example Durban and Cape Town have done. At times when the cities have had excess funds they have used these to buy

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1. J.D. Binns, Institutional Investment, Institute and Faculty of Actuaries, 1965, p. 63.

their own stocks and sometimes resold them at a later date when short of funds. Effectively this enabled them to earn a better yield on their short-term surplus funds than they would have done by leaving them on fixed deposit or on call at an institution. Local authorities can also buy in anticipation of trends in rates of interest and later sell the stock at a profit if they have anticipated rate patterns correctly.

When a particular stock is about to mature the local authority usually circularises registered holders and offers them the right to convert to a new or existing stock of the same authority. This also applies to Government stock issues.

5.2.3 Securities Issued or Guaranteed by Public Corporations

This is another important category of Part One Assets and includes bills, bonds or securities issued or guaranteed by the Rand Water Board, the Electricity Supply Commission (Escom) or the Land and Agricultural Bank of South Africa. These are also fixed interest securities with interest payable half-yearly in arrear and are usually redeemable at par at a given date or within a specified band of redemption dates. Yields on these securities are similar to those offered on the securities of the larger local authorities and their underlying security and marketability is also similar. For example, Escom was established under the Electricity Act 1922 and Local Registered Stock issued by Escom is issued under the provisions of the Electricity Act and in the long run effectively has the security backing of the Government.

Most of these stocks are listed on the Johannesburg Stock Exchange but Escom offers by far the widest variety and volume of stocks in this class. In December, 1975, there was approximately R1 600 million of Escom stock still outstanding i.e. stock that had not yet been redeemed.[1] The costs of dealing in these stocks on the Stock Exchange is the same as for Government and Local Authority stocks.

As with the other Part One assets discussed so far, most transactions are completed outside the Stock Exchange. The bulk of the stock that is

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1. The Stock Exchange Handbook, 2, 1975, pp. 383-4.

supplied to the market consists of new issues. Institutions do, however, deal in existing securities which can also be purchased from the P.D.C. An interesting development is the extent to which Escom has been prepared to create a market in its own stock by being an active buyer and seller of its own stocks. Escom produces weekly lists of the prices at which it is prepared to trade.

It is also usual for Public Corporations to issue two different stocks simultaneously and in many cases both stocks are issued at a discount on par which is the redemption price. The yield to maturity on longer term Escom loans, in November 1975, was 11,20 per cent per annum.[1]

5.2.4 Loans to Local Authorities

In some instances a local authority may decide not to borrow money by means of issuing a local registered stock, but would do so by raising a loan under which equal instalments of capital and interest are paid at regular intervals, hence liquidating the loan over a fixed period at a given rate of interest. The loan is normally covered by means of a note or loan agreement. These loans are often put out to tender i.e. institutions are invited to tender as to the rate of interest and conditions on which they would grant such loans.

The main disadvantages of such an investment to a life assurer is that it is not marketable. The borrower pays back level instalments of capital and interest and the investor is thus also faced with the problem of reinvesting both capital and interest,whereas he may prefer to rather invest for a longer period and receive interest only until the capital is finally repaid. This is generally not an important class of investments to long-term insurers.

5.2.5 Mortgages

Mortgages have been an important investment channel for life offices for many years and whereas in the past few decades their relative importance has decreased, at some stage in their history each of the four largest domestic life offices in South Africa have, at a particular point of time, had

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1. 'Gilts and Semi-Gilts', op. cit.

more than fifty per cent of their investments in mortgages.[1] The African Life Assurance Society for example, had over two-thirds of its assets invested in mortgages between 1936 and 1941 and during 1938 and 1939 this amount was approximately seventy five per cent[2] but these percentages were generally well in excess of the amounts held by the other three offices since the turn of the twentieth century. In the United Kingdom mortgages constituted the main assets of life assurance offices in the nineteenth century[3] and as far as modern experience is concerned, Whyte noted the following :

'The essential feature of a mortgage is that the borrower pledges as security for the loan certain physical assets, usually in the form of land or property; he, so to speak, places them in the pawn of the lender. The borrower enjoys the use of the pledged land or property or the rents or profits therefrom so long as he performs the covenants under the deed, but the lender has the right in the event of default to seize what is pledged for the purpose of obtaining payment of sums due, subject under certain conditions to the consent of the Court'[4].

A disadvantage of investing in mortgages is that they are a specialized form of investment and require experience and expertise in their handling. They are therefore relatively expensive to administer and part of the yield on such investments should be regarded as an amount to be written off against expenses.[5] Many of the expenses are, however, incurred initially and, provided there is no default on repayment, the expenses of investigating a new bond may not prove to be greater than the costs of dealing in shares, for example. Another disadvantage is that sometimes several weeks may elapse between the original firm offer to lend and the date the money is actually

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1. Annual Accounts of the four companies considered.
2. Annual Accounts, African Life Assurance Society Limited.
3. Binns, op. cit., p. 143.
4. L.G. Whyte, Principles of Finance and Investments, II, Cambridge University Press, 1950, p. 119.
5. H.E. Raynes, Insurance Companies' Investments, London, Pitman and Sons, 1935, p. 38.

required. This creates uncertainty as to when the money will be called for, as it may in fact be required at a time not really suitable to the lender, for example, at a moment when the lender is overdrawn or would prefer to invest elsewhere.[1] Borrowers often pay a commitment fee during the period that the money is reserved for them, but not taken.

The advantages on the other hand are :

(i) If the properties on which mortgages are secured and carefully selected and the value of each property is considerably in excess of the amount of the mortgage, the security of the investment is very good indeed. It is also important that the loan is well covered with regard to income payments.

(ii) To compensate for the lack of marketability of a mortgage investment and the relatively heavy administrative expenses, the rates of interest obtainable are usually very satisfactory and in excess of those obtainable on other fixed interest investments. In November, 1975, new mortgage loans were being granted at a yield of approximately fourteen per cent per annum, as this was the maximum permitted by law.[2]

(iii) If rates of interest should rise, the investor is sometimes in a position to increase the rate of interest on existing mortgages or in the event of the borrower wishing to repay, the investor will be able to re-invest the proceeds on more favourable terms.

(iv) The granting of a mortgage may often be accompanied by the conclusion of sizeable life assurance business on the lives of the principal persons involved, e.g. the directors of the company borrowing the money.

Great caution must be exercised in granting a mortgage,since if default occurs, the lender may become involved in considerable expenses in trying to recover his investment and notwithstanding the value of the property being well in excess of the loan granted, the marketability of the property may be very limited.

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1. Binns, op. cit., p. 143.

2. Limitation and Disclosure of Finance Charges Act, No. 73 of 1968, S. 2(1)C.

Mortgages are normally for a long period such as fifteen to twenty years and are usually repayable by means of level instalments of capital and interest. The exact terms and conditions of the loan would be negotiated between the borrower and the lender. A life office generally prefers long-term investments and would try and ensure that the mortgage is in fact for a long-term. One way to discourage the borrower from repaying the loan prematurely is to invoke a penalty on repayments within a fixed period.

A relatively recent innovation is that some life offices insist upon purchasing a share in the equity of a project before they will grant a mortgage. For example they may grant a mortgage of two-thirds of the value of the property subject to the borrower agreeing to sell to the office a twenty five per cent share of the equity. The advantage to the life office is that, in addition to the mortgage, it can participate in the equity of a successful venture, whereas the advantage to the borrower is that he may be able to negotiate more favourable terms for the mortgage if he is prepared to accept the life office as an equity partner.

5.2.3 Debentures and Loan Stocks

Debenture stocks are generally an attractive investment for life assurers. Riegel and Miller, referring to the position in the United States in the early 1960s, stated the following :

'Bonds form 46 per cent of the total assets of the life insurance companies. They are the most desirable of all investments because of their fixed maturity, safety through prior liens and regular and constant returns'[1].

Debentures form part of a company's loan capital and a debenture stock is normally secured, inter alia, by a floating charge on all the company's assets remaining after any prior claims have been met. The contract between the company and the debenture holder is usually set out in a trust deed and a trustee is normally appointed to act on behalf of all debenture stockholders.

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1. R. Riegel and J.S. Miller, Insurance Principles and Practices, 5th ed., Englewood Cliffs, N.J., Prentice Hall Inc., 1966, p. 267. In the United States the term bond is used in lieu of the term debenture stock.

Besides issuing debentures secured with a floating charge over the entire assets of the company not otherwise pledged, a company may issue debentures secured against particular assets on which a mortgage bond is taken. These are normally known as mortgage debentures.

A company may also issue unsecured loan stock or 'naked debentures' as they are sometimes called. These stockholders are in effect unsecured creditors and in the event of the bankruptcy of the company would be in the same position as ordinary creditors. Because of the greater risks involved in unsecured loan stocks a company would not generally be able to borrow funds in this manner unless it was in a sound financial position and its credit rating was very good.

Companies sometimes issue convertible debenture stock i.e. the stock is convertible at some future date on specified terms into the ordinary share capital of the company. The debentures may not always be fully convertible and sometimes only part of the debentures may be convertible. The attraction for the company of issuing convertible debentures is that they can usually offer a lower rate of interest than on non-convertible debentures and the attraction to the investor is that, in addition to the fixed return he obtains on his debenture, he has the opportunity to convert into ordinary shares on specified terms and if,on the date of conversion,the ordinary shares have a market value higher than the price at which he can convert, he is assured of immediate capital appreciation. The price at which conversion is allowed normally increases the later the conversion option is exercised.

An example of a partly convertible stock is the Carlton Centre Limited, 8,125 per cent first mortgage convertible debentures, convertible R36 for every R100 held, into fifty cent shares on July 1, 1976 at 240 cents, on July 1, 1977 at 277 cents, and on July 1, 1978 at 300 cents. The stock is redeemable at par by drawings commencing on June 30, 1979 and closing on June 30, 1996.[1]

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1. The Stock Exchange Handbook, 2, 1975, p. 397.

Besides issuing debentures secured with a floating charge over the entire assets of the company not otherwise pledged, a company may issue debentures secured against particular assets on which a mortgage bond is taken. These are normally known as mortgage debentures.

A company may also issue unsecured loan stock or 'naked debentures' as they are sometimes called. These stockholders are in effect unsecured creditors and in the event of the bankruptcy of the company would be in the same position as ordinary creditors. Because of the greater risks involved in unsecured loan stocks a company would not generally be able to borrow funds in this manner unless it was in a sound financial position and its credit rating was very good.

Companies sometimes issue convertible debenture stock i.e. the stock is convertible at some future date on specified terms into the ordinary share capital of the company. The debentures may not always be fully convertible and sometimes only part of the debentures may be convertible. The attraction for the company of issuing convertible debentures is that they can usually offer a lower rate of interest than on non-convertible debentures and the attraction to the investor is that, in addition to the fixed return he obtains on his debenture, he has the opportunity to convert into ordinary shares on specified terms and if,on the date of conversion,the ordinary shares have a market value higher than the price at which he can convert, he is assured of immediate capital appreciation. The price at which conversion is allowed normally increases the later the conversion option is exercised.

An example of a partly convertible stock is the Carlton Centre Limited, 8,125 per cent first mortgage convertible debentures, convertible R36 for every R100 held, into fifty cent shares on July 1, 1976 at 240 cents, on July 1, 1977 at 277 cents, and on July 1, 1978 at 300 cents. The stock is redeemable at par by drawings commencing on June 30, 1979 and closing on June 30, 1986.[1]

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1. The Stock Exchange Handbook, 2, 1975, p. 397.

The advantage to a life office of investing some of its funds in debentures are as follows :

(i) The rate of interest (usually paid half-yearly) offered on debentures is usually very satisfactory. In November 1975, the yield on first class secured long-term debentures was approximately 13,38 per cent per annum.

(ii) The security offered by carefully selected debentures in sound companies is very good and in the event of default the debenture holder has legal recourse to recover his investments from the proceeds of the sale of mortgaged assets over which debentures are secured.

(iii) Several debenture stocks are quoted on the Johannesburg Stock Exchange and they are thus usually readily marketable.

(iv) In the case of convertible debentures, the investor has the opportunity to participate in the equity of the company at various conversion dates.

Debentures are usually reasonably long-term investments and thus meet life offices' long-term requirements but the exact term of the investment may not always be known. For example, in the case of the Carlton Centre debentures mentioned previously, they are redeemable by annual drawings and, depending on when a particular debenture note is drawn, it may be redeemed any time between June 1979 and June 1986.

As a life assurer generally prefers long-term investments, it would favour debentures where the range of redemption dates is as narrow as possible and where the first date is many years after commencement.

5.2.7 Preference Shares

Whereas debenture stocks and other forms of loan capital are contractual obligations, preference shares are part of a proprietor's capital and whilst the payment of interest on debentures is contractual whether a company makes profits or not, preference dividends are payable out of taxed profits. If the company does not make profits, it is not under an obligation to declare a dividend on its preference capital. Currently new issues of preference shares are generally cumulative i.e. if a preference dividend has not been paid in the past all arrear preference dividends must be paid before any dividend can be paid to ordinary shareholders.

The rights of the preference shareholder are carefully set out in the company's Articles of Association. These rights include : the preferential rate of dividend to which he is entitled; if there is more than one class of preference capital, the precise order of rating for dividends; the share (and order of rating) in the distribution of assets in the events of winding-up the company or reduction of capital, and his voice in the conduct of the company and voting rights.[1]

There are different types of preference shares. Preference shares could be either non-cumulative or cumulative but under current conditions a new preference issue would be unlikely to succeed unless it was cumulative. Preference shares may be part of the permanent capital of the company or they may be redeemable. In some cases the preference shareholder may have the option to convert into the ordinary capital of the company. It is also possible for a company to issue participating preference shares. For example, if the preference dividend is six per cent it may be stipulated, that once the dividend to ordinary shareholders exceeds ten per cent, then for each additional two per cent dividend paid to ordinary shareholders, an additional one per cent will be paid to preference shareholders subject to the total preference dividend not exceeding say twelve per cent.

New issues of preference shares are rare today since preference dividends must be paid out of taxed profits and it is thus more expensive for a company to pay a given preference dividend than a similar rate of interest out of pre-taxed profits on a debenture. Currently life assurers are taxed at the rate applicable to companies on a portion of their investment income. Prior to 1971 they were only taxed on two-thirds of their appropriate dividend income. Since this concession was abolished and they are taxed similarly on interest and dividend income, there is no reason for them to invest in a non-convertible preference share unless it offers a higher yield than a debenture. The latter generally offers more security.

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1. Whyte, op. cit., p. 73.

In addition to the above, preference shares are not attractive investments to life offices, mainly for the following reasons :

(i) They have neither the security of debentures nor the growth potential of ordinary shares.

(ii) Irredeemable preference shares are particularly unattractive in that their value can fluctuate widely according to changes in underlying rates of interest.

(iii) The remedies available to preference shareholders in the event of default are meagre. They do not, for example, have the same legal remedies that are open to debenture holders whose rights are contractual.

(iv) There are relatively few preference shares which are quoted on the Johannesburg Stock Exchange and their marketability is thus rather limited. Even if quoted, preference shares can seldom be dealt in without difficulty.

A convertible preference share, however, may offer the investor a reasonably attractive dividend yield together with the right to convert into ordinary share capital at specified dates. If the market price of the ordinary shares is in excess of the price at which the preference shares can be converted, then it will be profitable to convert.

5.2.8 Ordinary Shares

Over the last twenty years the investments of life offices in ordinary shares have increased substantially and the main features of such equity investments are as follows :

(i) The security of income is less than that on fixed interest securities. Dividend payments depend on the company making profits and the company is not compelled to declare a dividend if profits are inadequate or if losses are made. Therefore the investor is not only concerned with the expected amount of future dividends but must also face the possibility that in a particular year or number of years, the company may not pay any dividends at all.

(ii) Ordinary shareholders also bear risks as to the security of their capital. Ordinary shares are irredeemable securities and an investor has no right to repayment of his investment at a fixed price at some future date. In the event of the liquidation of the company the ordinary shareholder

is merely a residual claimant and could in fact lose his entire investment if the assets of the company were only sufficient to settle the claims of some or all of its creditors. These two serious disadvantages of investment in ordinary shares may be minimized by careful selection of the shares in which a company invests. The shares of large financially sound companies with a good dividend, earnings and profits record are less risky than for example, those of a small company whose business is of a speculative nature.

(iii) There are a large number of companies whose ordinary shares are quoted on the Johannesburg Stock Exchange and these shares are more marketable than unquoted shares. The marketability of shares is generally good and this enhances the liquidity attractions of such an investment as it can usually be readily converted into cash if required. In this regard the market stability of a share depends on the size of the company *and the tightness* of the holding of its shares. The shares of a large company are generally more marketable than those of a small one and the more widely held a share is the more marketable it will be. More often than not it is, however, *difficult to sell a very large amount of shares of any one* company on the Johannesburg Stock Exchange. To obtain a reasonable price, a company wishing to sell a substantial amount of a particular share may be forced to sell the shares over a period of time and, depending on the reaction of buyers, might not be able to sell all the shares it wanted to anyway, unless it could negotiate a sale outside the Stock Exchange. As at the end of September 1975 the total number of shares, listed on the Johannesburg Stock Exchange (i.e. the entire issued capital of those classes of shares of all companies listed on this exchange) was just under 7 000 million and the market value of these shares at that date was approximately R20 300 million[1].

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1. The Johannesburg Stock Exchange.

The cost of buying and selling shares on the Stock Exchange is relatively high. There is a brokerage fee of 0,85 per cent of the consideration as well as a basic charge of half a cent per share limited to a maximum of twenty five rand. In addition there is a marketable securities tax of one per cent on all purchases and sales.[1] Thus in order to cover costs shares bought at a particular price must appreciate by approximately 3,7 per cent before they can be sold without loss on the purchase price.

(iv) In theory, since ordinary shares involve the investor in greater risks than fixed interest securities such as secured debentures, Government and municipal stock, one would expect the dividend yield on shares to be higher than the rate of interest payable on fixed interest securities. During inflationary times the demand for shares usually increases and for years we have had the 'Reverse Yield Gap' i.e. the dividend yield on shares has been lower than that on fixed interest securities.

Investors have been prepared to accept lower dividends at inception, in anticipation of increasing dividends over the years as the profits of the company and hence earnings per share, increase. The greater the expected increase in future dividends, the lower will be the dividend yield the investor will currently accept. Investments have thus often been made in shares as a hedge against inflation i.e. on the assumption that shares offer a means of offsetting the effects of inflation through growth in dividend income and hence ultimately growth in capital values. An investment in shares at a lower yield than on fixed interest securities is justified on the basis that over the period of the investment the investor believes he will receive a greater yield from the net income and capital appreciation combined.

Of great importance to the expectation of the investor is the prospects of capital appreciation on his investment. He hopes that, over the years, shares in selected companies will show substantial capital appreciation as a result of considerable increases in the earnings per share of the company over a

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1. The Stock Exchange Handbook, 2, 1975, pp. 30, 34.

period. The investor cannot consider his yield on a share to be only the dividend yield but the effective yield is dependent on the dividends paid and any capital appreciation that may have been enjoyed. Capital appreciation is an important source of surplus that a life assurer can use to increase the benefits paid to policyholders and improve the competitiveness of its policies. It was during the 1960s that any general attempt was first made by life offices to declare bonuses from profits augmented from this source. The total amount of capital appreciation enjoyed by South African life offices has been substantial but this figure is seldom published. As an example however, at June 30, 1972, the Old Mutual reported that its total assets at that stage were R913 million at balance sheet value and that they had an estimated market value of R1 100 million.[1] The bulk of this capital appreciation was attributable to equity type investments such as shares and properties. Nevertheless it is debatable whether these optimistic expectations will always be realized in the short run. For example, the RDM 100 share index fell from 287,6 at the end of December 1968 to 169,4 by the end of December 1970 i.e. a decrease of 41,1 per cent. At the end of June 1972, the RDM 100 share index was 214,8 and at this level was still 25,3 per cent below its level at the end of December 1968. Thus, while a life assurer may invest in equities for its prospects of capital appreciation in the long run, the possibility of capital depreciation in the short-term must be considered.

Investment in shares requires specialized knowledge and, before investing in a particular share, a life assurer would consider factors such as the precise nature of the business of the company and factors that affect the company, such as the industry in which it operates, the company's earnings record, its dividend record, the percentage of earnings that have been distributed as dividends, the company's capital structure, the calibre of its management, the marketability of its shares and the price of the share.

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1. 'Old Mutual's Year. Congrats', Financial Mail, October 20, 1972, p. 355.

In October 1975, the average dividend yield obtainable on all classes of shares was 8,56 per cent.[1]

5.2.9 Mutual Fund Units

The first mutual fund in South Africa, the South African Growth Equities fund (SAGE), was formed in 1965, and by December 1975, there were eleven mutual funds operating in the Republic. Mutual funds invest the bulk of their assets in shares quoted on the Johannesburg Stock Exchange and they are basically an investment medium for the small investor, and not for institutions with their own investment expertise and diversification.

In 1965 the first linked assurances in South Africa were introduced by life offices. In these policies a portion of each premium was used to buy units in a mutual fund. The units purchased by the assured in this regard did not become the property of the policyholder but belonged to the life office. The introduction of these mutual fund linked policies led to life offices purchasing a considerable number of mutual fund units since 1965. Whereas some of these units may have been bought purely as an investment of the life office, the bulk were purchased to fulfil the assurer's obligations under its linked contracts. It is interesting to note that the Old Mutual, Sanlam and Guardian/Liberty Life established mutual funds of their own.

5.2.10 Property Investments

Much of the appeal of property investment lies in its tangibility and permanence.[2] Whilst there are specialized problems in property investments, life offices have made substantial investments in this sphere in the last few decades.

The investing of money on a satisfactory basis in property requires specialized knowledge and skills and there is often the need to call on professional advisers. Life offices usually set up special departments to handle their property investments, which are thus done on a large enough scale to justify the relatively heavy expenses involved.

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1. South African Reserve Bank, Quarterly Bulletin, December 1975, No. 118, p. S-45.

2. H.E. Dougall, Investments, 8th ed., Englewood Cliffs, N.J., Prentice-Hall Inc., 1968, p. 189.

To obtain a diversified property portfolio involves considerable sums of money and it is generally only the larger life offices that have made substantial investments in this medium. Properties are illiquid investments with poor marketability and it is an investment medium vulnerable to Government action. For example, rent controls imposed on residential flats could substantially alter the future prospects for profitability of such an investment.

Nevertheless, there are several advantages of investing in property, both from the point of view of yield and prospects for capital appreciation.

The investor obtains a return on direct property investments from rental income net of maintenance expenses, rates and taxes. Over the years rentals have increased. In spite of general increases in costs this has enabled investors to obtain an increasing return on their initial investment, consequently leading to an appreciation in the capital value of their properties. Moreover, as land cannot be augmented, land values usually tend to increase as the population grows.

In addition to investing in buildings to provide accommodation for their own use, there are several types of property investments available to life offices. As mentioned previously, for tax reasons, life assurers usually form subsidiary companies to own their properties as these subsidiaries can claim the costs of maintaining the property as an expense to be offset against rental income whereas a life office is taxed on gross rental income and cannot offset such expenses.

Life assurers tend to prefer investments in central city properties such as office blocks, shops and shopping centres. Generally properties in the central business district (CBD) have over the years shown the greatest capital appreciation. Life offices generally do not favour investments in residential flats due to the dangers inherent in rent control which can and have often been imposed by the Government and they have virtually avoided investment in residential housing due to the small size of the investment and the relatively high expenses involved. Some life offices however have recently invested in township developments but it seems unlikely that assurers will involve themselves on a large scale in this sphere.

Assurers are generally reluctant to invest in very 'specific purpose' properties such as hotels and factories unless they can obtain a suitable tenant on a long lease. In this regard offices do however invest in factories on a 'sale and lease back' basis as discussed later.

The return on different properties vary according to the type of property and the locality. The return would differ on a CBD project to one in the suburbs, and would differ for example, as between Johannesburg, Cape Town, or a smaller town. Generally the smaller the town and the less central the property, the higher the return required by the investor would be.

The initial return, expected by an investor on a property, would thus depend on a number of factors such as the nature of the property, its exact locality, the quality of the tenants and the nature of their leases. An investor would usually accept a lower initial return on a prime office building than on apartments. Depending on these factors, in November 1975, the acceptable initial yield to a prospective investor varied between approximately 8,5 and 12,0 per cent per annum.

Leases usually have rent escalation clauses built into them and these could be either on a fixed increase basis or, in the case of tenants such as chain stores, for example, rents are usually linked to turnover. In other cases rentals could be linked to the consumer price index. The terms and conditions of a lease are negotiated and if there was a surplus of office accommodation as existed for example in November, 1972, the lessee might even be able to negotiate a lease without the right to a review of rent. When office accommodation is scarce the lessor would generally be able to obtain the conditions he wished to impose.

Rentals are usually inclusive of all services such as rates, maintenance and cleaning, the only additional expense borne by the tenant being electricity, refuse removal and any increase in rates.[1]

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1. Sorec Limited. A Review prepared for private circulation in conjunction with W.I. Carr Sons and Co., London, 1972, p. 4.

An increasingly popular property investment with life offices is the 'sale and lease back' whereby a company sells its property to an investor and immediately leases it back on long lease. This system has been successfully used in the case of factories and chain stores amongst others. An advantage of the lease-back to the seller is that it can release funds for self-financing of expansion. It improves liquidity, unfreezes fixed assets and converts them into working capital and allows the company to secure a further loan which might be impossible if a conventional bond were obtained. From a taxation viewpoint, rent is an allowable expense. Lease-backs sometimes contain a 'buy back' clause which gives the seller an option to buy the property back after twenty five years, for example. The 'sale and lease back' is a very attractive investment to the purchaser in that he obtains an attractive initial return on his investment, generally automatic increases in future rents, the security of a long lease with a single tenant and hence no letting problems. In addition all maintenance costs, rates and taxes are the responsibility of the tenant.

The yield to the investor depends on the financial standing of the tenant and the type of investment. The covenant of the tenant is vitally important to the investor who will usually not accept a lease-back for less than twenty years. Lease-backs are usually on 'specific purpose' properties and if the tenant breaks his covenant it may be difficult to obtain another tenant on suitable terms. Regarding the type of property, an investor would require a considerably higher return on a factory situated out of town than, for example, on an office block occupied as an administrative head office of a large chain store. Many permutations of the lease-back arrangement are possible and the negotiated lease would depend on supply and demand.

In some instances a developer may negotiate with a prospective tenant and develop a project specifically for him and lease it out on a long lease. Whilst this is a direct property investment, the mechanism is similar to a sale and lease-back. This is very attractive to the developer as there are virtually no entrepreneurial risks involved in that the whole project is let at an agreed upon rental on a long lease before any building is commenced.

Compared to a direct investment in property, the sale and lease-back

generally provides a higher initial yield, better tenant security and negligible administrative costs. The only disadvantage could be in the event of default of the tenant and thus an investor must be thoroughly satisfied as to his covenant, financial standing and security. Whilst the terms and conditions of a sale and lease-back are negotiable, in November 1975, a reasonable initial yield on an industrial lease-back was 11,5 to 12,0 per cent per annum with the rent escalating by five per cent per annum.

5.2.11 Policy Loans

Policy loans are an involuntary investment of life offices in that companies have little control over the volume of such loans. Policy loans are particularly popular when money is difficult to borrow. Life assurers, as a condition of their policies, usually grant loans up to eighty or ninety per cent of the surrender value of a policy. The surrender value is excellent security for the loan and there is no risk of default. If for any reason the loan value plus any other indebtedness of the policyholder to the company increased to the surrender value, the company can surrender the policy and extinguish the debt. In terms of safety the policy loan is a very attractive investment, particularly as the surrender value increases as more premiums are paid. Life offices do not encourage policy loans as the following statement illustrates :

'Yet insurance companies discourage policy loans. They do so for two reasons. First policy loans are small in amount and are therefore very costly to administer. Their net yield is far below the interest rate charged and is not particularly attractive relative to alternative investment media. Second, and far more important, a policy loan is frequently the prelude to a lapse of the policy, and insurance companies are interested in keeping policies in force'[1].

To the borrower, a policy loan is a very attractive form of borrowing in that no collateral security is required other than the policy itself and a loan is usually quickly and easily obtained. A repayment date is not usually

1. Cohen and Zinborg, op. cit., p. 703.

specified (other than when the proceeds of the policy fall due) and the rate of interest payable on the loan is usually lower than that payable elsewhere.[1]

The rate of interest charged on policy loans has generally been lower than the rate charged on loans by other institutions. This is partly attributable to the fact that offices grant policy loans as a benefit which has traditionally been available (i.e. its nature can be described as that of a marketing instrument) and is also partly due to the office wishing to conserve business in that it would rather offer the policyholder a loan on reasonable terms than have him surrender his policy.

In recent years the attitude of life offices seems to have changed for the very reasons stated by Cohen and Zinborg above. Offices have also believed that it was inequitable to their policyholders in general to lend money to policyholders at rates lower than these funds could be invested elsewhere since, the more they maximized investment income, the greater would be the bonuses they could pay to their policyholders. Thus by November 1976, the rate of interest charged by many companies on policy loans was as high as eleven per cent per annum.

Life assurers are obliged to provide non-forfeiture benefits on certain types of life policies under which at least three years premiums have been paid.[2] The usual form of such non-forfeiture benefits is that if premiums are unpaid, then the life assurer advances them to maintain the policy in full force and continues to advance future premiums, if not paid, for as long as the total indebtedness under the policy is less than the surrender value of the contract. Such premium advances and interest thereon are commonly referred to as automatic non-forfeiture loans and life assurers have very little control over these loans. In aggregate, they can, however, build up to a considerable sum of money and the rate of interest charged on these loans is generally similar to that charged on ordinary policy loans.

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1. Riegel and Miller, op. cit., p. 266.
2. Insurance Act, No. 27 of 1943, S. 62(2).

5.2.12 Cash on Call and Deposit

There are occasions when a life office temporarily has spare funds which cannot immediately be invested long-term. Rather than leave these funds idle, an office would place these funds on call until they are required i.e. these are essentially short-term investments. The rate of interest earned will depend on the length of time for which the money is placed and on the rates generally paid at the time for call money. Such funds can be placed on call or deposit with various institutions such as banks and finance houses and other financial institutions. An office would generally also keep moderate balances in its current account with commercial banks.

A life office may also deposit funds with banks or building societies. These investments are not always made on the basis of investment returns but may be part of a business agreement whereby the assurer agrees to invest moderate sums in this manner in return for which the deposit receiving institutions supply the assurer with 'leads' for insurance. For example, a building society may pass on to the assurer names of people to whom they have granted mortgages and the agents of the assurer could then try to sell these people life policies to cover the indebtedness under their bonds.

5.2.13 Other Investments

The types of investments enumerated above are the most important avenues for investment of assurers' funds. In the balance sheets of life assurers will be found other assets such as outstanding premiums, sundry debtors and furniture and equipment (for the company's own use). Some of these assets become available for long-term investment as soon as the moneys are received and they are assets over which they have little control.

A possible investment alternative is in foreign securities including foreign government securities. As stated previously, these assets would not be permitted to rank as assets held against domestic liabilities in terms of the Third Schedule to the 1943 Insurance Act. In addition there are the problems of obtaining Exchange Control permission, currency risks, risks of political interference and taxation problems. Such investments are only practicable as a backing to a company's foreign liabilities. For example, South African life offices transacting business in Rhodesia would certainly hold investments in Rhodesian securities.

Some offices also hold assets in Zambia, Malawi and the United Kingdom. As an example of political interference in the insurance industry it is of interest to note that the insurance industry in Zambia was nationalised in 1970, and South African offices transacting business there had to hand over both assets and liabilities to the Zambian State Insurance Corporation.

Edmunds suggested the use of life insurance funds for the promotion of new enterprises.[1] He discussed the problems inherent in such a venture as well as the benefits that could be derived by the offices concerned and the community as a whole. In South Africa a few life offices have created subsidiary companies as new enterprises or have taken a substantial share in such companies. Generally the tendency of life offices to utilize their funds as venture capital in this manner has been small. Life assurers are specialized in pure financial investment rather than in the promotion of new ventures and it does not seem likely that there will be any major moves in the direction suggested by Edmunds.

5.3 Actual Investment of Funds

It is of interest to briefly analyse the actual investments held by life assurance companies as at the end of March 1975. Table 5.1 illustrates the investments held at that date as well as at the end of December, 1968.

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1. S. Edmunds, 'Outlets for Life Insurance Investments', Harvard Business Review, XXV, No. 4, 1947, pp. 409-31.

Table 5.1 Assets of Long-Term Insurers[1]

Type of Asset	December 1968		March 1975	
	Amount	Percentage of Total	Amount	Percentage of Total
	R millions		R millions	
Coins, Banknotes and Deposits	35	1,8	163	3,8
Government Stock	158	7,9	532	12,6
Local Authority Stock	131	6,5	253	6,0
Public Corporation Stock	151	7,5	247	5,9
Other Fixed Interest Securities	161	8,0	390	9,2
Units in Unit and Property Trusts	15	0,8	73	1,7
Ordinary Shares	324	16,2	798	18,8
Mortgages	400	20,0	373	8,8
Policy Loans	133	6,6	191	4,5
Other Loans	173	8,6	419	9,9
Fixed Property	184	9,2	587	13,9
Other Assets	139	6,9	210*	4,9
Total Assets	2 004	100,0	4 237	100,0

The main features of Table 5.1 are :

(i) the substantial increase in total assets of life assurers of 111 per cent in just over six years;

1. South African Reserve Bank, Quarterly Bulletin, December 1975, No. 118, p. S-38.

* Estimated from Life Offices' Association, Circular 2461, October 24, 1975.

(ii) the considerable increase of total assets invested in Government stock. This was mainly due to the increased statutory requirements to invest in this medium and was partly at the expense of smaller percentage investments in local authority and public corporation stock;

(iii) the greater importance of fixed property investments which increased from 9,2 per cent of total investments at the end of 1968 to 13,9 per cent at the end of March 1975;

(iv) the substantial decline in mortgage investments which decreased from 20,0 per cent of the total to only 8,8 per cent at the end of March 1975. In absolute terms the life assurance industry disinvested in mortgages. This relative decrease in mortgage investments is even more marked when considered against the fact that, in 1959, mortgages represented 33,3 per cent of the total assets of all long-term insurers[1] and, at some stage in their history, each of the four largest domestic life offices had more than fifty per cent of their investments in mortgages;

(v) the percentage of total investments held in shares increased from 16,2 per cent to 18,8 per cent. In Table 5.1 ordinary shares were valued at balance sheet values which were usually equal to the original cost price of these shares, except where shares were held as backing for linked life assurance policies, in which case the market values of these shares were normally used for balance sheet purposes. Whilst exact figures are not available, substantial volumes of linked assurance were sold in South Africa between 1968 and 1975, and much of this business was linked to companies' internal investment portfolios. It is normal practice for companies to transfer equities from their ordinary portfolios to these linked portfolios at market values, and if the latter figure were greater, this effectively implied writing up the balance sheet values of quoted equities to market values. An

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1. Munro, op. cit., p. 92

example of how the Old Mutual has treated this problem is illustrated by the following statement :

'An item that appears for the first time in the Financial Statements is the adjustment of the book values of certain investments to market values, where the latter are used to determine Old Mutual's liability under certain classes of policies[1]. Furthermore, life assurers have also transferred a portion of the unrealized appreciation of investments to their life fund. This appreciation would mainly arise from their property and equity investments. For example, for the triennium ending June 30, 1973, Old Mutual transferred ten million rand to their life fund, this being a portion of the unrealized appreciation of their investments.

Thus part of the 'increase' in investments of life assurers in ordinary shares would be attributable to these factors.

In the Reports of the Registrar the value of ordinary shares is shown at market values and it is instructive to compare, in Table 5.2, the values of ordinary shares held by life assurers at market value compared to balance sheet value. The latter figures were taken from the December 1975 issue of the Quarterly Bulletin of Statistics of the South African Reserve Bank, which showed values at the end of each calendar year compared to the end of each financial year as in the Registrar's Report. Whilst not strictly comparable the two sets of figures indicate the considerable differences between the balance sheet and market values of the ordinary shares held by life assurers.

Table 5.2. Market Value of Ordinary Shares held by Life Assurers compared to their Balance Sheet Values

Year Ending December 31	Ordinary Shares		Market value x 100 Balance Sheet Value
	Market Value	Balance Sheet Value	
	R Millions	R Millions	Per Cent
1968	592	324	182,7
1969	695	389	178,7
1970	568	437	130,0
1971	621	521	119,2
1972	798	555	143,8
1973	1 156	718	161,0

1. The Old Mutual, Chairman's Statement for the year ending June 30, 1974.

The extent of the excess of market values of life assurers' ordinary shares over their balance sheet values can be observed from Table 5.2

It will be noted that the ratio of the market value of the ordinary shares of life assurers to their balance sheet value decreased substantially from the end of 1968 to the end of 1970 and fell even further in 1971. In this regard it must be noted that the RDM 100 share index fell by 41,1 per cent from the end of December 1968 to the end of December 1970, although it increased by 13,1 per cent from the end of 1970 to the end of 1971. The fact that the market value of the ordinary shares of insurers was still well above their balance sheet values at the end of 1970 and 1971, indicates that these shares were generally purchased several years previously, otherwise the substantial decrease in share prices between 1968 and 1970 would have decreased their market value to below balance sheet values.

It can be concluded that by reflecting part of their ordinary share holdings at market value instead of balance sheet values, there resulted an increase in the percentage of their total assets held in ordinary shares when doing this analysis by balance sheet values. Over the period December 1968 to March 1975, it thus seems that the percentage of the total assets held by life assurers in ordinary shares increased only marginally, if at all. This trend is in marked contrast to the post-war years up to 1968. During this period, the holdings by long-term insurers of ordinary shares at market values increased from 8.4 per cent of their total assets in 1944 to 27,0 per cent in 1968.[1] This latter figure compares to a percentage of 10,2 when ordinary shares are valued at their balance sheet values as given in Table 5.1.

De Vos analysed the assets of the Old Mutual, Sanlam, Southern Life and African Life, whose combined assets over the period 1945 to 1963 represented more than ninety per cent of the total assets of all domestic insurers and more than sixty five per cent of the combined assets of the domestic and foreign insurers transacting life business in the Republic. The investments of these

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1. Annual Reports, Registrar of Insurance.

four companies could thus be regarded as representative of all domestic insurers and reasonably typical of those of all life insurers writing life business in South Africa.[1]

He suggested the distinction between inflation-compensating investments and deflation-compensating investments. The first category comprised ordinary shares and immovable properties, whereas the second category consisted of securities of the South African Government, foreign governments, local authorities and other public bodies, debentures and preference shares.[2]

The substantial shift by the four South African life assurance companies towards inflation-compensating investments and the change in emphasis away from deflation-compensating investments is shown in Table 5.3 below.[3]

Table 5.3. Ratio between Inflation-Compensating and Deflation-Compensating Investments of the Four Large Life Insurance Companies expressed as a Percentage of their Combined Total Interest-Bearing Assets

Year	Inflation-Compensating Investments	Deflation-Compensating Investments
	Per Cent	Per Cent
1927	3,6	46,2
1932	3,9	39,2
1945	5,1	69,1
1955	10,7	37,9
1963	23,8	32,1
1968	28,0	36,2
1975	32,2	35,3

1. T.J. de Vos, 'A Review of the Investment Policies of South African Life Insurance Companies', Volkskas Limited, Finance and Trade Review, VI, Nos. 5 and 6, 185-215, 1965, pp. 187-9.

2. Ibid., pp. 190, 196.

3. Ibid., p. 199. The figures for 1968 and 1975 related to December 1968 and March 1975 and were calculated from Table 5.1. These latter figures relate to all insurers, and not only to the four life offices considered.

After analysing the investment policies of South African life assurers over this period, de Vos concluded that the most important characteristic of the development of the investment policies of the South African life insurance companies since 1927 was their active attempt to counteract the influence of the inflation which followed from the Second World War. To achieve this objective there was an acceptance of ordinary shares as an investment medium, an increase in immovable property investments and the development of lease-back agreements and a general decline in the proportional investment in fixed interest-bearing securities.[1]

It can be noted from Table 5.3 that life offices continued to substantially increase their holdings of inflation-compensating investments after 1963 and by March 1975 these investments represented 22,2 per cent of interest-bearing investments compared to only 3,6 per cent in 1927.

5.4 Investment Principles of Life Assurance Companies

The investment principles of life assurance that have emerged over the years can be placed in the following broad categories :

(i) Security of Capital : The early writers on the subject believed that this was the most important factor to consider in the investment of life assurance funds.

(ii) Maximization of Income : Later writers believed that life assurers should attempt to maximize the expected yield on their funds.

(iii) Matching and Immunization : Special principles were developed in the 1950s to enable life assurance companies to protect themselves from fluctuations in rates of interest by ensuring that the value of their assets and liabilities would alter in a similar manner when they were affected by changes in rates of interest.

5.4.1 Investment Principles Concentrating on the Security of Capital

Principles for the investment of life assurance funds were first laid down by the British actuary, Bailey, in 1862 and his five principles became known as Bailey's canons and for many years these canons were accepted as

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1. Ibid., p. 202.

correct.[1]

Bailey's five canons may be stated as follows :[2]

(i) That the first consideration should invariably be the security of capital.

(ii) That the highest practicable rate of interest should be obtained, but that this principle should always be subordinate to the security of the capital.

(iii) That a small proportion of the total funds (the amount varying according to the circumstances of each individual case), should be held in readily convertible securities for the payment of current claims and for such loan transactions as might be considered desirable.

(iv) That the larger proportion of funds remaining should be safely invested in securities that are not readily convertible. It was desirable, according to the second principle, that they should be so invested, because such securities, being unsuited for private individuals and trustees in consequence commanded a higher rate of interest.

(v) That, as far as practicable, the capital should be employed to aid the business of life assurance.

As security of capital was of paramount importance to Bailey he did not recommend stock exchange securities or irredeemable or long dated Government securities as suitable investments. At the time Government securities consisted almost entirely of undated Consols and their capital value fluctuated as prevailing rates of interest changed. Furthermore at the time there were considerable risks in investing in equities. Instead of these investments Bailey recommended securities such as mortgages, loans and bank deposits. He believed that mortgages were ideal as the capital was free from fluctuations in market value and that there was also the

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1. A. H. Bailey, 'On the Principles on which the Funds of Life Assurance Societies should be Invested', Journal of the Institute of Actuaries, X, 142-7, 1862.

2. Ibid., pp. 143-4.

borrowers ownstakein the venture as security.[1]

Later on Bailey relaxed his views and wrote :

'... it being now hardly possible as in former times to obtain investments in which the principal is secure with a reasonable rate of interest, insurance companies must act as private investors would. Namely, they must go on to the Stock Exchange and not have all their eggs in one basket but they must be prepared to run risks of fluctuations in market values'[2].

In 1912, May, also a British actuary, found himself in agreement with Bailey with minor qualifications. On the first canon he believed that :

'It is absolutely impossible to assure oneself of the safety of the capital of any single investment, and it is only in regard to the safety of the capital as a whole that one has a reasonable chance of success.[3]

He also believed that the third canon was automatically achieved if the investments were spread over a large area as it was then obvious that there would always be a considerable number capable of favourable realization.[4] May added the following investment principle to those laid down by Bailey.

'That in order to minimize the result of temporary fluctuations and to secure the safety of the capital in the best way it is desirable to spread these investments over as large an area as possible'[5].

Portfolio diversification was thus recommended as a specific investment principle.

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1. Ibid., pp. 144-6.
2. Bailey in the discussion on the paper by A.G. Mackenzie, 'On the Practice and Powers of Assurance Companies in regard to the Investment of their Life Assurance Funds', Journal of the Institute of Actuaries, XXIX, Part III, 185-232, 1891, p. 229.
3. G.E. May, 'The Investment of Life Assurance Funds', Journal of the Institute of Actuaries, XLVI, Part II, 134-68, 1912.
4. Ibid., pp. 152-3.
5. Ibid.

A different commentator, Penman, stated in 1933 that, whilst the precise application of Bailey's canons had varied considerably over the years, they remained as applicable to the investment of life assurance funds at that time as they had been in 1862.[1]

He believed that the avoidance of capital loss or depreciation was more important, when considering new investments, than the rate of interest obtained and Bailey's theories were thus still valid in respect of irredeemable assets and long dated stock.[2]

Penman stressed the following important investment principle :

'... as a general rule, the currency of the securities in which the reserve is invested should be the same as that of the Life Assurance Contracts which it covers, unless the latter are expressed in the currency of a country where investment conditions are impossible. To the extent that departure is made from the general rule, the currency selected should be as stable as practicable'[3].

The principle that companies should normally invest their assets in securities of the same currency as that in which their liabilities are, is generally accepted. Recent examples illustrating the importance of this principle occurred when the South African rand was devalued relative to the Rhodesian dollar in December 1971 and again in September 1975. South African offices with liabilities in Rhodesia in excess of assets at the time experienced a devaluation loss as the value of their liabilities in rands increased by more than the rand value of their assets. By contrast companies over-invested in Rhodesia at the time experienced a devaluation profit. This is not necessarily meaningful if the relative strength of the Rhodesian dollar was of a temporary nature. It could possibly more than adequately compensate this by investing to earn higher returns outside Rhodesia than inside.

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1. W. Penman, 'A Review of Investment Principles and Practices', Journal of the Institute of Actuaries, LXIV, Part II, 387-427, 1933, p. 388.
2. Ibid., p. 389.
3. Ibid., p. 397.

As late as 1937 there were writers such as Murray who believed that Bailey's canons were still fundamentally valid. Murray stated that the avoidance of capital loss or depreciation was far more important than the rate of interest earned.[1] Murray concluded that :

'(1) The intrinsic security of the investment is always a more important consideration than the rate of interest.

(2) Maintenance of market value is usually a more important consideration than the rate of interest.

(3) In certain circumstances the rate of interest may take precedence over considerations of minor market fluctuations.

The exceptions however, do not seem, ... to be of sufficient importance to cause us to qualify Bailey's first and second canons, and I think we may say that they still hold good'[2].

Murray listed a number of investment principles that incorporated Bailey's first three canons amongst others. An interesting principle of Murray's was that companies should follow an active investment policy i.e. a policy involving a willingness to vary, in relation to the then existing economic conditions, individual investments and the proportion of different classes of investments if deemed necessary.[3]

Bailey's principles had already been seriously challenged in 1933, when in the discussion of Penman's paper, Swift and Coutts disagreed with what was then the majority view.[4]

In this discussion Swift stated that as life office funds were continuously increasing, companies were always investors and required long-dated securities and consequently the security of interest income was more important than were day-to-day capital values.[5]

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1. A.C. Murray, 'The Investment Policy of Life Assurance Offices', Transactions of the Faculty of Actuaries, XVI, Part VII, 247-84, 1937, p. 255

2. Ibid., p. 256.

3. Ibid., p. 261.

4. Clayton and Osborn, op. cit., p. 61.

5. Penman, op. cit., p. 422.

Coutts believed that Bailey's principles hardly touched the fringe of investment problems at that time and that Bailey's first two principles were little more than platitudes. He also maintained that, on a strict interpretation of those conditions at the time, all funds should have been invested in short-term Treasury Bills, and offices would then have been insolvent in a matter of a few weeks.[1]

Coutts disagreed with the thesis that the avoidance of capital loss or depreciation was more important than the rate of interest obtained, as the latter was the vital element in an office's business and, unless a minimum rate of interest was earned the office would be insolvent. He also stated that it was necessary to distinguish between depreciation which was due merely to fluctuations in market values and depreciation where there was a real loss of capital owing to failure of the borrowers' credit. If a fund were invested in securities with a definite redemption date and if there had been no change either in the intrinsic value or in the ability of the borrowers to meet their obligations he believed that temporary falls in market values should cause no anxiety.[2] Whilst at the time Coutts' views were not generally shared by his colleagues they were accepted later.

In 1928 Raynes had already made a strong case for investing a proportion of life office funds in ordinary shares.[3] He considered nine groups of equity investments and equivalent investments in debentures over the fifteen year period from March 31, 1912 to March 31, 1927. In terms of total income and market value as at March 31, 1927, the ordinary shares proved to be the better investment. As a result of this theoretical exercise, Raynes concluded :

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1. Ibid.

2. Ibid., p. 424.

3. H.E. Raynes, 'The Place of Ordinary Shares (as distinct from Fixed Interest Bearing Securities) in the Investment of Life Assurance Funds', Journal of the Institute of Actuaries, LIX, Part 1, 21-50, 1928.

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1. Ibid.

2. Ibid., p. 424.

3. H. E. Raynes, 'The Place of Ordinary Shares (as distinct from Fixed Interest Bearing Securities) in the Investment of Life Assurance Funds', Journal of the Institute of Actuaries, LIX, Part 1, 21-60, 1928.

'But I would go a step further and say that from the point of view of safety, the figures indicate that a well-spread investment in ordinary shares is a better proposition for the ordinary long-term investor than an investment in the debenture issues of the same group of companies'[1].

He was not prepared to commit himself as to the actual proportion of the funds of an office which should be invested in ordinary shares but he believed that for an investment in shares to be of real benefit it had to represent a significant fraction of the whole.

Soon after Raynes' first paper was written, the Great Depression commenced, and at that stage money investments were better than any investment in shares. Raynes' papers should, however, be regarded as the first literature presenting a firm view that ordinary shares should be used as life assurance investments despite the uncertainty of their capital values. Taking the longer term view, however, Raynes' view turned out to be correct and, when he investigated the period 1927 to 1937, the results of his previous theoretical experiment were further strengthened.[2]

5.4.2 Investment Principles that Consider Income Maximization of Primary Importance

A life office must earn at least the rate of interest assumed in its premium calculations in order to remain solvent. Normally, the premium and investment income of a life assurance company far exceeds its outgo and life offices thus have little need for liquidity and should not be concerned with temporary fluctuations in the market value of their investments. Pegler, who wrote one of the early major papers to stress the income aspects of investment policy as opposed to the maintenance of capital values, commented as follows :

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1. Ibid., p. 29

2. H.E. Raynes, 'Equities and Fixed Interest Stocks during Twenty-Five Years', Journal of the Institute of Actuaries, LXVIII, Part IV, 483-507, 1937.

'In these circumstances it is submitted that it is not, as Bailey has stated, security of capital which is the primary consideration, but security of income, and that the achievement of the latter will, of itself, ensure that the capital value is maintained'[1].

Pegler's principles thus revolved around maximalzing yields where, to an actuary, the yield of an investment could have only one meaning :

'It is the net rate of interest (or its gross equivalent) at which the sums invested are exactly equal to the present value of all future net interest or dividend payments plus that of all capital returned, whether this takes place by drawings or repayment in a lump sum, by return of part or all the capital on liquidation, by sale or transfer of the investment, or in any other way. In this calculation allowance is made for expenses, and for the tax on income or capital increments borne by the fund or funds for which the investment is made'[2].

By using the term 'expected yield' Pegler's intention was to avoid the implication that investments should all be placed at the highest possible yields as those were associated with the highest risks. The expected yield took account of the probability of receiving future payments and maintaining interest or dividend payments.

Pegler's first principle was that it should be the aim of life office investment policy to invest its funds to earn the maximum expected yield.[3] This could be accomplished by combining the concepts of yield and security of capital. Pegler made no distinction between capital and income, but recognized that contributions to investment yield were frequently received from both. At the time it was an unorthodox view that the two were interdependent and in general inseparable until after the investment had been realized.

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1. J.B.H. Pegler, 'The Actuarial Principles of Investment', Journal of the Institute of Actuaries, LXXIV, Part II, 179-211, 1948, p. 181.
2. Ibid.
3. Ibid.

In a noteworthy paper published some years after Pegler's contribution had appeared in print, H.G.Clarke put forward a review and criticism of the former's work. In what follows, the views of these two writers will be compared.

Clarke stated that the simple aim of investment policy was to secure the maximum realized yield, but as this was a platitude it could have no place as an investment principle and thus the expected yield had to be maximized but with the minimum error.[1] Clarke believed that Pegler's first principle could be better described as :

'The aim of investment should be to secure the maximum "expected" yield with the minimum error having due regard to the nature and incidence of the liabilities'[2].

Clarke stated that Pegler had erred in believing it possible to reconcile the conflict between yield and security and he disagreed with Bailey who had stated that capital security should take precedence over yield. Clarke expressed the view that any investment proposition involved a compromise between these two opposing factors and the weight to be given to each factor had to be a matter of personal judgment.

Both Clarke and Pegler thus stressed that the basic aim of investment policy was the maximization of expected yields, but they had a different emphasis on the weights to be placed on capital security and yield. Clarke's criticism of Pegler's first principle does not seem to be completely justified as Pegler took account of the capital value of an investment in his concept of expected yield.

Pegler's second investment principle was that :

'Investments should be spread over the widest possible range in order to secure the advantages of favourable, and minimize the disadvantages of

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1. H.G. Clarke, 'A Broad Analysis of the Problem of the Investment of Life Funds', Journal of the Institute of Actuaries, 80, Part III, 335-89, 1954, p. 338.

2. Ibid.

unfavourable, political and economic trends'[1].

Pegler thus put forward a plea for portfolio diversification within the framework mentioned above but Clarke did not agree that the wide spreading of investments should be given priority over their selection in accordance with industrial, economic and political risks and trends and Clarke gave as his other investment principle that companies should attempt :

"To select investments according to "expected" yield, having regard to assessments of the effect of industrial, economic and political factors and future trends in these factors, spreading the investments widely, particularly where the degree of reliability attached to the assessment of investment risks is low; and as far as practicable investing in assets appropriate to the currency and duration of the liabilities and the basis of taxation"[2].

Clarke's second principle thus involved both diversification and the matching of assets and liabilities by currency and by duration. Pegler believed that within the limits of his second principle, offices should vary their investment portfolios and select new investments in accordance with their view of future trends.[3] In this regard Huebner, an American writer, analysed the main considerations influencing American life offices in the components of their investment portfolios. One of these considerations was the selection of investments to meet the needs of the time and he gave the examples of United States life companies having had 18,7 per cent of their assets in farm mortgages in 1924 but only 1,6 per cent in 1947 and having had 35,0 per cent of their assets in railroad bonds in 1906 but only 6,1 per cent in 1947.[4]

Pegler's last investment principle was that offices should endeavour to

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1. Pegler, op cit., p. 183.
2. Clarke, op cit., p. 339.
3. Pegler, op. cit., p. 185.
4. S.S. Huebner, Life Insurance, 4th ed. rev. and enl., New York, Appleton - Century - Crofts Inc., 1950, p. 471.

orientate their investment policy towards socially and economically desirable ends.[1] His reasons for advocating the above were that, with the steady increase in state interference in economic affairs, he believed that it was obvious that enterprises which were regarded as being contrary to the public interest would be discouraged, whereas those that promoted it would be encouraged. Interference could take the form of prohibitions, restrictions and discriminatory taxation. Pegler also believed that a policy tending to increase social and economic welfare would not only benefit the company's policyholders and shareholders, but in the long run would promote the prosperity of the country as a whole and this would react favourably on the prosperity of the office.

In addition . previous discussion, it has also been noted in the literature that a ‘‘ation should be made between the objectives of a life office and ethods by which these objectives could be achieved In this regard Whyte believed that there was widespread agreement that the primary objective of a life assurance company was to invest its funds in such a way as to ensure the due fulfilment of all contractual obligations and that the secondary objective was to employ all resources of skill, energy, wisdom, foresight, prudence and business judgment, in order to achieve the highest level of profit, whether it be obtained by way of income or capital, but always without prejudice to the attainment of the primary objective.[2]

In this regard it is of interest to note that one of the reasons why, since the Second World War, long-term insurers in South Africa shifted their emphasis from purchasing public sector securities (other than the amounts they were required to hold by law) to the purchase of private sector securities such as equities and properties, was the profit motive. Insurers considered that the interest rates paid on Government stock were unrealistically low and,

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1. Pegler, op. cit., p. 186.
2. Whyte, op. cit., p. 138.

in addition, the threat of erosion of capital by inflation made the holding of .ed interest bearing securities unattractive.[1] This is a further indication that life assurers have as a major objective the desire to maximize the overall yield earned on their investments.

5.4.3 Matching and Immunization

Since life offices have to earn not less than the rate of interest underlying the calculations in their premium rates, the post-war 'cheap money policy' was of much concern to British life offices. In the Second World War, the Treasury Bill rate was kept at one per cent, and long-term rates of interest were brought down to three per cent.[2]

The low investment yields then prevailing were a grave concern to investment managers of life assurance companies and they had to seek ways to protect their funds against the effects of declines in interest yields. Arising from this, some important papers were delivered to the Faculty and Institute of Actuaries on 'matching' and 'immunization'.

The contents of this section rely heavily on the following papers :

(i) Haynes and Kirton, 1953.[3]

(ii) Redington, 1952.[4]

(iii) Bayley and Perks, 1953.[5]

(iv) Anderson and Binns, 1957.[6]

(v) Wallas, 1959.[7]

As well as providing cover against risks of death or survival, life offices provided an investment service involving guarantees of future capital

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1. Munro, op. cit., p. 79.

2. H.B. Rose, The Economic Background to Investment, Cambridge, Cambridge University Press, 1960, p. 638.

3. A.J. Haynes and R.J. Kirton, 'The Financial Structure of a Life Office', Transactions of the Faculty of Actuaries, 21, Part 2, 141-218, 1953.

4. F.M. Redington, 'Review of the Principles of Life-Office Valuations', Journal of the Institute of Actuaries, LXXVIII Part III, 286-340, 1952.

5. G.V. Bayley and W. Perks, 'A Consistent System of Investment and Bonus Distribution for a Life Office', Journal of the Institute of Actuaries, LXXIX, Part I, 14-73, 1953.

6. J.L. Anderson and J.D. Binns, 'The Actuarial Management of a Life Office', Journal of the Institute of Actuaries, 83, Part II, 112-32, 1957.

7. G.E. Wallas, 'Immunization', Journal of the Institute of Actuaries Student Society, 15, Part 5, 345-57, 1959.

security and minimum interest yields. These guarantees could only be provided if the office were backed by holding 'matched assets' providing an equivalent guarantee of capital and interest, or by holding sufficient free reserves to cover possible adverse effects of departures from the 'matched assets' position.[1] Cash outgo has been defined as the excess of claims and annuity payments over premiums (this item could be negative in certain years). A matched investment situation would occur in the following situation :

'... so long as the sum of the interest income and of the proceeds of maturing investments is equated to the cash outgo, year by year, throughout the future existence of all assets and liabilities at present extant, the assets will in all circumstances exactly meet the liabilities and the fund is in fact secure against all future fluctuations in rates of interest'[2].

A 'date distribution' of assets which satisfied the above has been defined as the 'standard asset distribution'. If it were possible to invest precisely as described, fluctuations in the rate of interest could not affect the company, as each year the cash income would be exactly equal to the cash outgo.

Life offices might wish to profit from variations in interest rates by investing longer or shorter than the standard asset distribution according to their view of likely changes in interest yields. If the actual asset position were shorter than the standard, the proceeds of maturing investments would have to be reinvested for the balance of the standard term, and if rates of interest had risen by then, a profit would arise. If the asset position were longer than the standard then, when money was needed to pay for the cash outgo, investments would have to be sold and, if rates of interest had increased in the meantime, investments would be sold for less than their cost and a loss would arise. If rates of interest had decreased, bonds would realize more than

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1. Haynes and Kirton, op. cit., p. 141.
2. Ibid., p. 142.

par and a profit would arise.[1]

It was not believed that the standard asset distribution had to be rigidly adhered to, but in deciding to invest longer or shorter than this standard, investment managers should be aware of the consequences thereof. Where a fund was increasing, the greatest importance should be attached to protection against the adverse effects of falling interest rates, since if rates decreased life offices might not be able to invest future moneys at the rate assumed in the premium rates for business already sold. Thus the view has been held that offices should have a very long-dated asset distribution and should probably hold no investments whatever maturing within twenty years.[2]

The word 'matching' implied the distribution of assets to make them, as far as possible, equally as vulnerable as the liabilities to those influences which affect both.[3] In its widest sense, this included the matching of assets and liabilities in currencies and 'immunization' was defined as follows :

' ... I use the word "immunization" to signify the investment of the assets in such a way that the existing business is immune to a general change in the rate of interest ... On the basis of this definition immunization is to be regarded as a particular form of matching'[4].

There were serious difficulties in giving practical effect to the immunization theory and, in addition, the extent to which immunization was implemented in practice was a matter for consideration, as it had to be remembered that immunization prevented profit as well as loss.

The main difficulty of implementing a matched investment policy was that, by hypothesis, the standard asset distribution consisted entirely of gilt-edged bonds redeemable at fixed dates, whereas the practical asset distribution of

1. Ibid., p. 153.
2. Ibid., p. 190.
3. Redington, op. cit., p. 288.
4. Ibid., p. 289.

a company would consist of many different types of securities, including irredeemable ones. For example, ordinary shares, which were irredeemable, strictly had no place in this asset distribution. Likewise there were problems with mortgages, repayable at short notice, as they could not be regarded as 'dead-short' investments. In practice allowance had to be made for both types of security. A further problem was that, instead of having a fixed redemption date, redeemable stocks were often repayable at the borrower's option at any time within a stated period of years.[1]

In regard to the liabilities, there were often options to policyholders, such as, for example, guaranteed minimum surrender values, loan values, conversion options and guaranteed minimum annuity options at maturity. In practice these options were more widely available in the United States than either in the United Kingdom or South Africa. Nevertheless no asset distribution could provide for more than one set of contractual benefits. It can be said that the safest course was to match assets against the option involving the shortest liability when interest rates were rising and against the option involving the longest liabil y when interest rates were falling, and that, in practice, offices should attempt to keep option benefits as low as possible and hold free reserves to cover possible losses that might arise from these options. The writer believes that, in these circumstances, offices should invest on the assumption that the options did not exist, as it would be unreasonable to invest all assets in a highly liquid form in case, for example, policyholders all surrendered their policies. The loss in investment yield would be too great and could seriously endanger the solvency of the office if most policyholders continued their policies (as was likely), since the office might not be able to earn the minimum yield required to meet its obligations at maturity of the policies.

Under conditions of imperfect financial markets there is, in all likelihood,

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1. Haynes and Kirton, op. cit., pp. 177-80.

not only one single rate of interest and uniform changes in this rate. By contrast, rates will differ according to the term of the investment and changes in the pattern of rates of interest will not necessarily be uniform. Under certain circumstances it will also be quite conceivable for short-term rates to fall and for long-term rates to remain the same or even increase.

In matching and immunization theory, there were problems with regard to equities, mortgages and properties because the income, as well as the term, might be indeterminate. Offices would be reluctant, and properly so, to invest heavily in long-term securities at a time of very low interest rates, especially if they believed that rates would increase in the near future. It has been recommended that investment policy had to be flexible to take advantage of special opportunities. In general, where offices have substantial surplus assets, these could be regarded as falling outside the scope of immunization principles, as these surplus assets gave the offices considerable scope for investment flexibility.

The most far reaching consequence of immunization following a change in the rate of interest was that the bonus rate on existing with-profit business was immunized at the level existing before the change in the rate of interest.

This has been criticized and an alternative form of immunization was put forward, based on the following two principles :

'(1) New business should not be required to support the benefits of existing business.

(2) Future premiums on existing policies should secure at least as favourable benefits as new business'[1].

The benefits secured under a policy were analysed in two parts i.e. that part secured by past premium payments and that to be secured by future premium payments. The former part was associated with the theoretical paid-up policy value. From this has been developed the concept of 'paid-up immunization' where the mean term of investment is considerably shorter than total immunization.

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1. Bayley and Perks, op. cit., p. 17.

By 1957 there seemed to be fairly general agreement that the normal asset distribution for a purely non-profit fund was total immunization and that departure from this position would be dangerous unless the office had adequate free reserves.[1]

It has been argued that, if total immunization is necessary for a non-profit fund, it should also be regarded as normal for a with-profit fund consisting of policies with only a small bonus loading. As the size of the bonus loadings increases, the argument loses much of its validity and the loadings give the office scope for departure from the immunized position.

While total immunization provided greater stability of bonus rates, paid-up immunization made for greater consistency in the bonus-earning power of new and existing business.[2] Yet another system of immunization was presented and was called current bonus immunization.[3] This system implied investing in such a manner that, if rates of interest changed, the fund would be able to support bonuses on the existing policies at the rate appropriate to new policies. This might lead to a comparatively short average term of investment.

It must be noted that not one of the immunization methods can be claimed as a unique solution, but were to be regarded as a standard from which a company could depart, the extent of the departure being governed by the size of the office's free reserves. Total immunization gave the most stable bonus, but changes in experience only emerged gradually. Current bonus immunization might be regarded as the most equitable, as a new policyholder would obtain the bonus his premiums could support, but bonus rates would be liable to fluctuate more than offices might be ready to allow. Paid-up immunization could be regarded as a compromise between the two, although its advocates claimed it was valid in its own right.

In practice, both paid-up and current bonus immunization might lead to an office holding assets of a shorter mean term than it would otherwise regard

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1. Anderson and Binns, op. cit., pp. 120-1.
2. Ibid., pp. 122-3.
3. Wallan, op. cit., p. 350.

as normal. Often these shorter dated securities would not carry as high a yield as longer dated stocks and this would conflict with offices' desire to maximize the 'expected yield' on their funds. It would also lead to reinvestment problems at the maturity of these investments.

Modern theory propounds that the primary consideration in investing funds is that the purpose of the investment should be considered, i.e. in life office investment assets suitable to the liabilities should be selected. The degree of risk that could be afforded then had to be ascertained and this should be viewed in relation to the size of the office's free reserves. In a non-profit fund with no free reserves (an unlikely situation), the office would be forced to adopt a position of exact matching and, in this case, the scope for judgment in maximizing yields would be severely limited. A typical contributor is J.G. Day, who argued as follows :

The larger the reserves, the greater the freedom one has in determining policy, the more adventurous one can be over the risks one takes and the more opportunity and scope there is for personal judgment. The aim in all cases should be to maximize yield subject to the restrictions on one's policy; so that normally the larger one's reserves, the larger would be the maximized yield at which one could aim because the reserves would enable one to hold securities which one would otherwise not consider appropriate[1].

5.4.4 Investment Principles in Practice

There are no compelling reasons why capital certainty and marketability should be considered as the prime factors of the investment policy of life assurance companies. The only exceptions would be the case of a life office which had ceased to write new business and was in a position where its outgo each year exceeded its income or the situation where a company had an exceptionally high level of maturities occurring in a particular year. The general position of life offices in South Africa and overseas is that premium

1. J.G. Day, 'Developments in Investment Policy During the Last Decade', Journal of the Institute of Actuaries, 85, Part II, 123-61, 1959, p. 126.

and investment income substantially exceeds outgo in the form of expenses, commissions, death and maturity claims, surrender and loan payments and in these circumstances any unexpected liquidity demands can generally be met out of current income.

Life offices did not generally have liquidity needs in order to meet expenses or commissions as both of these were reasonably predictable and the latter was a function of premium income. Death claims could be reasonably accurately forecast while maturity claims could of course be planned for exactly. There were possible liquidity demands on a life office by virtue of its policy provisions where by the policyholder could effect a loan or surrender his policy at his option without prior notice. Where an office offered guaranteed surrender values the position was more complex since, if no guaranteed values were given, the office could invent its own surrender values if it found a sudden and substantial demand by policyholders to surrender their policies. In Canada and the United States of America guaranteed surrender values are a feature of the insurance market, whereas in South Africa and the United Kingdom they are not as widely available.

Liquidity might be needed as a contingency reserve to provide for sudden increases in claims or surrender demands and extreme cases quoted in Clayton and Osborn are given below.[1]

The first example was the effect on insurance mortality that occurred in the United States during the influenza epidemic of 1918 and 1919. Despite the gravity of the problem, premiums rather more than covered each outgo for each company, notwithstanding a sharp increase in claims. A different type of emergency was the economic crisis of the Great Depression, when there was a sharp increase in surrenders and demands for loans against policies. They produced statistics showing how, despite the sharp increase in surrenders and loans in both the United Kingdom and the United States of America, the net cash inflow of resources remained positive.[2] The

1. Clayton and Osborn, op. cit., p. 63.

2. Ibid., pp. 66-7.

conclusion is that life offices have a very weak precautionary motive for liquidity.

There is also a speculative motive for liquidity whereby offices may prefer to remain liquid in order to take advantage of purchases at a lower price at a later stage, or to be able to switch investments.

They found that investment managers were loath to borrow from other financial institutions to take advantage of expected changes in the level of interest rates.[1] It was also observed that the sheer weight of investible income made it very difficult to delay investment decisions more than a few weeks. The larger British offices could not even delay a few weeks without accumulating extremely large funds which they would then be pressed to invest on the most advantageous terms. It can thus be concluded that for life offices the speculative motive is as weak as the precautionary motive.

In recent years, life assurance companies in South Africa and the United Kingdom have sold large volumes of single premium business. Where these single premium policies represented a significant percentage of a company's total assets, the observations made by Clayton and Osborn on liquidity would have to be modified. In these cases companies would retain some measure of liquidity to protect themselves against sudden surrenders, loans and death claims. Furthermore, liquidity would also be necessary to enable the life company to meet its obligations on maturity of these contracts.

The conclusion was reached that life companies generally had little need for liquidity and that they tried to keep fully invested at all time. They were also generally not dealers in securities, but true long-term investors who purchased securities to hold for income purposes and they did not withhold funds in anticipation of increases in rates of interest, nor did they borrow for current investment in anticipation of falls in the rate of interest.[2]

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1. Ibid., p. 68.
2. Ibid., p. 69.

In South Africa life assurers are not permitted to borrow money.[1] To be sure, life assurers are generally not traders in securities, but hold long-term investments for income. This is not purely a matter of choice, as the size of their holdings of corporate securities made it difficult to dispose of them. In addition life assurers owned many securities that had been privately placed and were thus not quoted on any stock exchange.[2] Clayton and Osborn thus concluded that life offices in the United Kingdom were income-conscious investors and that the maintenance of capital values was of secondary importance. Temporary fluctuations in market values were generally not of importance to these life offices, but permanent decreases in capital values obviously were important.

There is not much evidence in the United Kingdom to support the view that portfolio diversification is deliberately aimed at as an investment objective. For most offices the size of funds accruing to be invested, together with the desire to be fully invested at all times, ensured that reasonable diversification was obtained virtually automatically.

Professor Jones, in a study of the investments of insurance companies in the United States, stated that any life office had to determine its specific portfolio objectives in the light of its desire to fulfil two ultimate objectives i.e. to maintain its solvency and to be competitive.[3]

It has been observed how investment thought in the United Kingdom was originally concentrated on capital certainty being of prime importance and how, after the Second World War, it shifted to the primary objective of maximizing investment yields. The objectives of capital and income certainty might render implausible the hypothesis that life offices sought to maximize their portfolio returns by selecting, from the available opportunities, assets

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1. Insurance Act, No. 27 of 1943, S.26(2).

2. O'Leary, 'The Institutional Saving-Investment Process and Current Economic Theory', American Economic Review, XLIV, 456-70, 1954, p. 468.

3. Jones, op.cit., p. 16.

with the highest expected yields. Protection against insolvency seemed to necessitate concern with characteristics of assets and portfolios such as liquidity, marketability, credit quality, diversification and maturity composition.[1] In the United States the solvency objective has had a profound effect upon the composition of life insurance company portfolio decisions. Jones commented :

'The main thrust of this effect, however, has been to restrict the set of investment opportunities which life company investment departments seriously consider as potential portfolio additions. Within this restriction set, it does not appear that there are significant marginal decisions involving trade-off of expected returns against the various non-return asset characteristics. Thus, within the eligible opportunity set, the assumption that portfolio choices are made so as to maximize the expected discounted portfolio rate of return may be an acceptable working hypothesis'[2].

The desire for income-certainty induced offices to invest mainly in intermediate and long-term securities and it can probably be said that diversification was obtained by the larger life companies at little, if any, cost in expected return.[3]

The diversification process could afford added safety only to the extent that it provided insurance against unknown or incalculable risks since, if the risks were known, the investment could be avoided, or the risk could be discounted in the price to be paid for the investment.[4]

In a synthesis of life office investment objectives, Clayton and Osborn concluded that the capital value risk was of secondary importance to offices

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1. Ibid., p. 32.
2. Ibid., p. 60.
3. Ibid., p. 61.
4. J.W. Meader, 'Diversification . A Sound Principle often carried to Unwarranted Extremes', The Annalist, 44,No. 1125, 195-6, 1934, p. 195.

and that the liquidity attributes of possible assets were barely considered.[1] As premium calculations assumed an underlying rate of interest, life offices have been very concerned with minimizing income risks and actuaries have devised methods of matching and immunization to deal with the problem. Nevertheless, there were serious practical difficulties in implementing these theories, especially in the case of a growing fund. They believed that, in practice, offices had not been as concerned with the achievement of income-certainty as the protagonists of matching and immunization would have had people believe. In support of this argument was the substantial investments British life offices had made in mortgages since the war, notwithstanding the fact that these investments had an average life of between ten and fifteen years, which was much shorter than the average maturities dictated by the matching and immunization theory.

The bonus loading element in premium rates provided additional buffers for companies and, in addition, life offices had further leeways by virtue of the free reserves they had built up over the years and these enabled them to survive periods of falls in interest rates.

Companies took some income risk for two reasons. Firstly, income security can be achieved only at some price in rate of return, capital certainty and other company objectives. Secondly, significant stock and flow cushions exist which insulate life companies from the effects of considerable declines in levels of interest rates.[2]

To the extent that companies had a capacity to absorb income risks to a large degree, there were limits to which they were willing to pay for income security. Given that immunization of capital-value and income risks are not important objectives of investment [illegible], life assurance companies can thus be regarded as adopting a particular investment pattern by following the

1. Clayton and Osborn, op. cit., pp. 79-83.

2. Jones, op. cit., p. 55.

simple objective of maximizing expected yields.[1]

Clayton and Osborn were of the view that there was little reason to believe the simple maximization rule was modified to any great extent in order to achieve portfolio diversification to reduce default risk. The maximization rule was qualified however to the extent that a company had liabilities in several currencies as precedence would often be given to cover liabilities with assets in the same currency in order to avoid exchange rate risks. There was often no choice in the matter as legislation made it compulsory to invest funds locally. They summarized their views as follows :

'To sum up, the needs of life assurance companies in relation to their liabilities are such that they respond in the following manner. They follow a policy of keeping fully invested at all times. They are income-conscious investors who purchase assets to hold for income and do not normally behave as traders in securities. Subject to the constraints imposed upon them by their liability to taxation and currency risks, they choose their investments with the aim of maximizing expected yields although this objective is modified in practice by the desire for some portfolio diversification within their equity holdings'[2].

In South Africa statutory bases of the valuation of assets and liabilities are laid down.[3] The principles of immunization and matching assume that, as the rate of interest changes, the value of assets and liabilities changes accordingly. This would not be true in South Africa due to the statutory minimum valuation bases of assets and liabilities. If for example rates of interest increased substantially, depressing the values of assets such as equities, companies would not be able to fully adjust the value of their liabilities if the corresponding adjustments resulted in a valuation of liabilities below the *minimum* permissible.

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1. Clayton and Osborn, op. cit., p. 81.
2. Ibid., p. 82.
3. These were discussed in detail in Section 4.3 and 4.4 of Chapter 4.

Due to the statutory basis of valuation of assets, South African companies would, however, be concerned even with temporary fluctuations in capital values. In terms of the Insurance Act, quoted equities may not be valued at a price exceeding that quoted on the Johannesburg Stock Exchange.[1] Therefore, if equity prices fell substantially, even only temporarily, companies could find themselves technically insolvent, as they might not be able to decrease their liabilities correspondingly. A South African life assurer would thus have to be more concerned than its British counterpart with security of capital.

Most of the principles of matching and immunization were developed for *non-profit* and *with-profit business*. The popularity of linked assurance business has altered the validity of many of these principles. Where linked business is transacted without the office providing investment guarantees, the principles of matching and immunization are less important, since the company's liabilities equal the value of its linked assets, whatever they might be. When minimum investment guarantees are provided on linked assurance contracts, matching is of importance insofar as the value of the linked assets at maturity must not be less than the guaranteed minimum maturity values. Some South African companies have transacted substantial volumes of single premium endowment business that provided guaranteed minimum maturity values. Matching is important for this type of business so that the company can ensure both that it will have the necessary liquidity to meet these substantial maturities, but also that the value of its assets at the time will be at least equal to the minimum maturity values guaranteed.

The maximizing of expected yields refer to the yield net of tax. South African companies are taxed on a portion of their investment income, but not on capital appreciation.[2] Thus, if two alternative investments offered the *same gross expected yield and all other factors such as risk were equal for* both investments, a South African company would generally choose the one offering the greater capital appreciation.

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1. Insurance Act, No. 27 of 1943, S. 15.
2. Taxation of Life Assurers was analysed in Section 4.5 of Chapter 4.

CHAPTER 6

MATHEMATICAL MODEL OF A LIFE ASSURANCE COMPANY

6.1 INTRODUCTION

In the previous chapters all major factors which institutionalize life assurance business in South Africa have found consideration. It is, however, necessary to systematize the inter-play of the many courses which determine the profitability of life assurance operations on a general level. This objective can best be accomplished through mathematical modelling. This will now be done. The arrangement of this chapter is as follows. Firstly, a brief review is given of the characteristics of mathematical modelling and simulation. After this brief introduction, mathematical models of life assurance operations are presented to examine the effect on profitability of variations in expense levels as well as in the rate of interest earned on funds. The impact on profitability of variations in the level of new business written each year, as well as the type of product sold, is also studied. The influence of these factors on the objectives of mutual and proprietary companies is analysed.

Any mathematical model is, of course, only as meaningful as the closeness to reality of the fundamental assumptions underlying the model and theoretical assumptions are seldom identical to actual experience. The importance of using a mathematical model is, firstly, that it quantifies the financial effect of the variations described above and, secondly that it can provide a more tangible and meaningful guide to reality than any method of general reasoning or deduction. Furthermore, it can help to confirm or negate what in theory one believed the theoretical situation would be under differing circumstances. The writer's purpose in designing the particular models described in this chapter was to illustrate principles and to attempt to quantify the relative differences in expected experience of a company under differing assumptions.

6.2 Simulation and Actuarial Models

Economists have generally reserved the term 'simulation' for processes using a physical or mathematical analogue and requiring a modern high-speed computer for the execution of the experiments. In its more general context

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simulation has been described as follows :

"Simulation" of an economic system means the performance of experiments upon an analogue of the economic system and the drawing of inferences concerning the properties of the economic system from the behaviour of its analogue. The analogue is an idealization of a generally more complex real system, the essential properties of which are retained in the analogue[1].

After a mathematical model has been translated into instructions acceptable to a computer, the behaviour of the model, as given by the computer output, is intended to represent the behaviour of the economic system being simulated."[2]

Due to the ability of the computer to handle very large numbers of calculations and complex calculations rapidly, solutions can be found to systems that are several orders of magnitude larger and more complicated than those that could be handled by the more conventional techniques.[3] The mathematical flexibility of simulation enables an insight to be gained into many phenomena whose intrinsic nature is not at all obvious.[4]

The earliest applications of simulation approaches to economics employed physical analogues of a hydraulic or electrical variety. As early as 1892 Irving Fisher recommended the use of hydraulic analogues to study the interdependence of the many elements in the structuring of prices,[5] but it was not until 1950 that the first hydraulic analogues of economic systems were constructed.[6] In 1953 electrical analogues were being used to study business

1. International Encyclopedia of the Social Sciences, 2nd.ed., V. 14, The MacMillan Co. and Free Press, 1968, p. 268.
2. Ibid., p. 269.
3. Ibid.
4. Ibid., p. 270.
5. I. Fisher (1892), Mathematical Investigations in the Theory of Prices, New Haven, Yale University Press, 1961.
6. A.W. Phillips, 'Mechanical Models in Economic Dynamics', Economics New Series, 17, 283-305, 1950.

cycle models[1] and the shift to the use of digital computers began in the late 1950 s when Adelman and Adelman[2] in a simulation study on an IBM 650 computer, investigated the dynamic properties of the Klein-Goldberger model of the American economy.

In regard to actuarial models, the following has been stated :

'Actuarial science, the mathematical management of insurance, can be viewed as the oldest form of operations research. *It is apparently the first* profession to be based on the application of mathematical principles to a business enterprise. By one measure of success - time - the basic actuarial model is matched by the historic models of science itself'[3].

A number of technical life assurance terms have inevitably been used in this chapter and, where necessary, reference should be made to the glossary of life assurance terminology in Appendix 3 for a full explanation of these terms.

6.3 Literature on Life Assurance Models

6.3.1 Investment Models

There *is little actuarial literature on the subject of model office theory and*, of the literature that exists, a considerable amount was directed towards investment theory: particularly at investment immunization theory, which was discussed in Chapter 5. Three important papers on investment immunization were published in 1952 and 1953 by Redington,[4] Haynes and Kirton,[5] and by Bayley and Perks.[6] These papers were specifically concerned with investment theory and the 'matching' of assets and liabilities in such a manner that the assets were as vulnerable as the liabilities to factors that affected both: in particular to changes in rates of interest.[7] The three papers

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1. O. J. M. Smith and H. F. Erdly, 'An Electrical Analogue for the Economic System', Electrical Engineering, 71, 362-6, 1952.
2. I. Adelman and F. L. Adelman (1959), 'The Dynamic Properties of the Klein-Kindelberger Model', American Economic Association. Readings in Business Cycles. Homewood, Illinois, Irwin, 1965.
3. D. G. Halmstead, 'Actuarial Techniques and their Relations to Non-Insurance Models', Operations Research, 22, No. 5, 942-53, 1974, p. 942.
4. Redington, op. cit., pp. 286-315.
5. Haynes and Kirton, op. cit., pp. 141-218.
6. Bayley and Perks, op. cit., pp. 14-73.
7. Redington, op. cit., p. 288.

discussed different types of matching, including 'immunization' which was described by Redington as the investment of assets in such a way as to make them immune to a general change in the rate of interest.[1] The three papers analysed in detail the effect of different investment policies on the value of assets and liabilities at different rates of interest and also the bonus rate policy that could be followed in differing circumstances. However, the purpose of the model described in this chapter is completely different.

6.3.2 General Actuarial Models

Important work previously done on insurance company modelling is as follows :

(i) Mallett, 1960 on Formation of a New Overseas Portfolio.[2]

(ii) Kimber and Salmon, 1963 on New Life Offices in Australia.[3]

(iii) Crook, 1963 on Problems of a New Life Office.[4]

(iv) Earle, 1972 on the Capital Requirements of a New Life Office.[5]

(v) Stretton, 1972 on Profitability of Life Assurance.[6]

(vi) Papers presented to the International Actuarial Congress in 1972.

These contributions will now be discussed briefly.

6.3.2.1 Mallett on Formation of a New Overseas Portfolio

Mallett examined the problems of the formation of a new portfolio in an overseas territory[7] and was concerned with general considerations for expansion,

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1. Ibid., p. 289.

2. R.G. Mallett, 'The Problems in the Formation of a New Overseas Portfolio', Transactions of the Faculty of Actuaries, 26, Part 8, 547-604, 1960.

3. D.J. Kimber and I.L. Salmon, 'New Life Offices in Australia', Journal of the Institute of Actuaries Student Society, 17, Part 5, 422-51, 1965.

4. G.C. Crook, 'The Problems of a New Life Office', Journal of the Institute of Actuaries, 89, Part III, 226-66, 1963.

5. J.W.P. Earle, 'The Capital Requirements of a New Life Office', a Paper presented to the Institute of Actuaries Student Society, March 10, 1972, and to the Faculty of Actuaries Student Society, November 27, 1972, and distributed as a roneod note.

6. A.N.J. Stretton, 'Profitability of Life Assurance', Transactions of the Actuarial Society of South Africa, 1, Part III, 94-135, 1972.

7. Mallett, op. cit.

actuarial and management planning and financial aspects. His models primarily involved development costs and total expenses. He analysed two possible levels of new business and tried to estimate the expenditure that would have to be incurred to service this business over a period of fifteen years. The parameters of his models were intended to follow the premium basis of the company for mortality and interest, and he attempted to virtually eliminate surrender profits or losses. In this way his model was chiefly concerned with development costs and expenses and new business valuation strain.

6.3.2.3 Kimber and Salmon on New Life offices in Australia

An important paper that employed the model office technique to examine the progression of new business strain in a new life office and also to determine optimum new business levels in relation to a fixed amount of finance, was that by Kimber and Salmon.[1] They were particularly concerned with projections indicating the effective strain on a new life office in Australia and they reached three conclusions :[2]

(i) Substantially different profitability emerged for an office with premiums just sufficient to meet the mortality, interest and expenses actually experienced compared to an office with premiums large enough to ensure that profits were made on each of these factors. This is an obvious conclusion i.e. a company that experiences better mortality, lower expenses and earns a higher rate of interest than that taken into account in their premium rates, must be more profitable than one which experiences the same levels of mortality, expenses and interest as those anticipated in their premiums.

(ii) The statutory minimum valuation basis then prevailing in Australia led to an artificially high strain being placed on the finances of a new life office, and an alteration in the rate of interest from three and a half per cent to four per cent would have considerably reduced the finance necessary to establish a company.

(iii) A new office, due to the large new business strain it incurred, was placed in a difficult position in that it had to compete on bonus and premium

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1. Kimber and Salmon, op. cit.
2. Ibid., pp. 437-8.

rates with well-established organizations, whose terms were highly competitive. The latter were reaping the benefit of profits from previous generations of policyholders on whose business strain had been incurred by the life company many years previously.

Kimber and Salmon projected both revenue accounts and valuation reserves for with-profit and non-profit business. They fitted polynomial curves to the cumulative strain for level new business premiums of one million pounds per annum and also to new business, starting at one million pounds per annum and increasing in steps of one million pounds per annum. They illustrated the results of these two levels of new business graphically for the with-profit and non-profit business and this clearly showed the well-known fact that non-profit business was more profitable to a company than with-profit business, and that the increasing new business model produced greater strain than the level new business model.

6.3.2.3 Crook and Earle on the Problems of Capital Requirements of a New Life Office

Two papers covering similar ground were written by Crook[1] and Earle.[2] Earle's paper was an extension of Crook's work and both papers essentially dealt with the capital requirements of a new life office.

Crook dealt with both non-profit and with-profit business and the models he used embraced new business assumed to consist entirely of twenty five year endowment assurances for lives age thirty five years at inception. By assuming that only one type of policy was written, the number of calculations necessary to construct a model was considerably decreased and, in my opinion, the simplification does not materially affect the principles and results that emerge from model office theory.

Earle's paper was based on the same techniques used by Crook, but Earle restricted himself to non-profit business and justified this by stating that it was unlikely that a new office would introduce with-profit contracts in

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1. Crook, op. cit.
2. Earle, op. cit.

their traditional form in its early years, due to the heavy strain involved.[1] Linked business was not included, partly due to limitations of space, but also because it seemed likely to him that the capital requirements of traditional non-profit business would be similar.

Earle's models, however, included a few different types of policies in that he examined twenty five year endowment assurances for persons age thirty five at inception, and whole life assurances for persons age twenty five and fifty five at inception. He also studied single premium policies. The latter showed the least capital required, but in South Africa little conventional single premium business is sold. It is interesting to note that the capital requirements for the new business written, commencing at £100 000 sums assured per annum, and increasing on the basis given by Earle, was £163 214 for the endowment assurances, £205 739 for the whole life assurances at age twenty five at inception, and £164 583 for the whole life assurances at age fifty five at inception[2] i.e. two of the policies considered involved similar capital requirements, with the younger whole life plan requiring twenty five per cent more. It thus appears that to study one type of endowment assurance, for a reasonably representative average age at inception and average term, would illustrate principles clearly.

In the United Kingdom, at the date of Crook's and Earle's papers, there was no statutory minimum valuation basis, and they were therefore mainly concerned with development expenses and the tax relief disallowed on normal expenditure. In South Africa life companies are taxed differently to those in the United Kingdom and thus the methods of both their models are not appropriate to local conditions. Furthermore, Crook was not concerned with variations in expense levels, interest yields and levels of new business. *Consequently the models described later in this chapter cover substantially* different ground to that of both Crook and Earle.

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1. Ibid., p. 7.
2. Ibid., p. 9.

6.3.2.4 Stretton on Profitability of Life Assurance

In Stretton's paper[1] on profitability, he used a model office consisting of thirty per cent without-profit and seventy per cent with-profit business and, of the former class, two-thirds were assumed to be whole life assurances and the balance endowments, while six-sevenths of the with-profit business were assumed to be endowment assurances and the remainder whole life assurances. This distribution of business would be reasonably representative either of an office that did not transact linked assurance business (and few offices do not), or of a typical South African life company prior to the introduction of linked assurances. Stretton assumed that all new business was written at the beginning of a year and that annual premiums were R100 000. Business was sub-divided according to different ages at inception for whole life and endowment assurances, the latter all being assumed to mature at age sixty (a reasonable assumption for the purposes of his model).

He assumed that a six per cent per annum net rate of interest was earned on funds, that a compound reversionary bonus rate of 2,5 per cent per annum was declared on with-profit business and that office expenses were covered by the policy fee included in the premium. He constructed a table for each age at entry of the percentage dying and withdrawing and hence surviving in a year. By using the various parameters, he followed the progress of one year's business of R100 000 ... ual premiums for twenty years and, by comparing revenue accounts to actuarial reserves, a surplus or deficit was calculated each year. A model office was analysed in which level new business was written each year and finally where the level of new business increased by ten per cent per annum.

Stretton claimed that the model office technique was useful, as it *illustrated the probable results of a company more clearly than any other method.*[2]

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1. Stretton, op. cit., pp. 91-135.
2. Ibid., p. 94.

He examined the progression of shareholders' funds and the profit that would be earned on these and found that the bulk of the profitability arose from without-profit business and that the with-profit business was barely profitable. In the discussion on his paper, the writer pointed out that for the with-profit business this was not unexpected, as the interest, expense and mortality experienced and bonus rate declared were scarcely different from those inherent in the premium rates.[1] This conclusion concurs with that reached by Kimber and Salmon.

6.3.2.6 Papers presented to the 1972 International Congress of Actuaries

An International Congress of Actuaries takes place every four years and, at the time of writing, the most recent congress was held in U.S.A. One of the subjects then discussed was 'Method of Forecasting the Development of an Insurance Company during the next Ten Years' and a number of brief and mostly theoretical papers were presented to the Congress. One of the contributors stated that, whilst the model office was a simplification of the real office, it had several advantages. To quote Fine :

'The advantage of the model office is not that it enables us to predict precisely the state of the real office. This it rarely does with any accuracy, as can be shown by comparing actual states with forecast states. What it does is to enable us to study the behaviour of the real office by means of controlled experiments showing the effect of different assumptions, interactions in the system and the decision process'.[2]

In a different paper, Harsant and Trott[3] approached the projection of

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1. Ibid., p. 111.

2. A.E.M. Fine, 'A Discussion of Techniques for Forecasting the Development of a Life Insurance Company', Volume 2 of the 19th International Congress of Actuaries, Oslo, 87-100, 1972, p. 89.

3. J.D. Harsant and K.F. Trott, 'Measurement of Capital Requirements and Profitability of a New Life Office', Volume 2 of the 19th International Congress of Actuaries, Oslo, 109-21, 1972, p. 113.

profitability in another manner by analysing the constituent parts of the office premium into expenses, mortality and investment, and considered this month by month. The writer agrees with Hart that the model office technique has more to commend it than this approach.[1]

6.4 The Writer's Mathematical Models

6.4.1 Introduction

Since most of the calculations in the writer's model were done on a computer, it was not necessary to make many of the assumptions usually made in model office calculations which, whilst perhaps not very material, made a model rather unrealistic. For example, new business was assumed to be written evenly throughout the year and premiums paid monthly. This is a more realistic assumption than one in which all premiums are deemed paid annually at the beginning of the year. On the latter assumption no policy can lapse during the first year - an assumption contrary to reality. The models described in the remainder of this chapter thus employ more refined techniques than those of previous literature. Furthermore the models have been constructed to analyse various aspects of profitability, types of business and corporate objectives. New aspects have thus been examined and since there is no literature relevant to most of the work in the remainder of this chapter, few references were quoted.

The models were constructed so that the following points could be analysed :

(i) Profitability was examined for different expense levels and for different rates of interest earned on the company's funds. In this chapter the term profit was generally used to mean the surplus emerging. Surplus is a function of the valuation basis used by the company i.e. a valuation basis can affect the incidence of emergence of surplus but not total profit.[2] In South

1. A. Hart, commenting on Stretton's paper, op. cit., pp. 115-6.

2. P.R. Smith, 'More Information Disclosure of Life Office Affairs', Journal of the Institute of Actuaries, 99, Part III, 349-92, 1973, p. 355.

Africa companies are legally obliged to use statutory minimum valuation bases and thus have less flexibility than companies in the United Kingdom for example.

(ii) The effect which the writing of different new business levels had on profitability was examined in a variety of models. The effect of cessation of writing new business was also examined.

(iii) Linked assurance business deserved specific consideration because no comprehensive analysis does as yet exist. Yet at the same time this type of business is very common in South Africa.

(iv) Differences in the objectives of proprietary and mutual life assurance companies also featured prominently in the modelling process.

Models were therefore constructed both for conventional with-profit business and linked assurance business. Linked assurance business has become extremely important in the South African market in recent years; particularly in the marketing of life assurance by insurance brokers. Linked assurance contracts have also become very popular in the United Kingdom and most major life offices there market these contracts.[1]

An endowment type policy was used for the linked model, as the bulk of linked policies sold in South Africa are of this type. A whole life assurance plan was, however, used for the conventional model, as many such conventional assurance policies are sold. Furthermore, a new company offering a competitive linked endowment plan would be unlikely to attract much conventional business other than whole life assurances.

6.4.2 Creation of the Models and Parameter Choice.

The with-profit and linked models involved policies for one age at inception and one term in the case of endowments. As stated previously, it was considered that, to design a model office embodying a wide range of ages at entry and terms for endowment assurance, would merely increase the complexity, whilst not

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1. M. Bernstein, 'The Life Assurance Scene in the United Kingdom', South African Insurance Magazine, LXI, No. 8, 16-9, 1969, p. 17.

affecting the overall conclusions. The premium rates, commissions, expenses, lapse rates and surrender values that were assumed are representative of the South African market, but values have been taken to be in accordance with general market conditions rather than those of any particular company. The bonus rate assumed in the with-profit model is low by South African market conditions as the model office calculations assumed a new life company and the bonus rate for such a company has to be declared almost exclusively out of interest earnings whereas, in an established office, the bonus would be augmented by surplus from non-profit business (much of which was written in the past, but very little of which is written currently) and from miscellaneous sources of surplus, such as surrenders, alterations, paid-up policies and lapses.[1]

The assumptions inherent in the various model office calculations are given below. Whilst every attempt was made to make these assumptions close to reality, the analysis was more concerned with principles and trends than meticulous detail. A number of basic models were developed on different assumptions for one year's new business. When these models were further developed to allow for different levels of new business, models A to F were defined. Each of these models was calculated on the computer at two expense and two interest rate levels i.e. a total of twenty four linked assurance models were also developed. All in all the writer considered the results of forty four mathematical models. These models were analysed at different levels of new business and the impact of variations in interest and expense levels was studied separately.

The underlying assumptions of the various models were as follows :

(1) 4 200 policies were deemed to be written at the rate of 350 policies per month and the premium payable per policy was twenty five rand per month and this latter figure included a policy fee (expense charge) of one

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1. This concurs with the third conclusion of Kimber and Salmon given in Section 6.3.2.2.

rand per month. This was the assumption for the basic model and, after one year's new business was analysed, the more complicated models were consequently derived.

(2) The linked model assumed all business to be twenty five year endowment business for persons age thirty five at inception. The conventional with-profit model assumed all business to be whole life assurances with-profit for persons age thirty five at inception and the rate of annual compound reversionary bonus declared was assumed to be twenty three per thousand.

(3) Different models were constructed at interest yields net of taxation of 6,5 per cent per annum and 7,5 per cent per annum. These net rates would have been considered high a few years ago, but were not unreasonable in November 1975.[1] Neither realized nor unrealized capital appreciation was specifically taken into account in the models as the overall yield could be regarded as arising from either net income or capital appreciation, and in both the linked and with-profit models this net return could be treated similarly.

(4) Profitability was further examined on two different expense assumptions. The first was that expenses were seventy five rand per policy in the first year and fifteen rand per policy per annum thereafter. The other model was one of initial expenses of ninety rand per policy and renewal expenses of twenty rand per policy per annum. These assumptions were used throughout and, although it could be argued that renewal expenses per policy could decrease over the years due to economies of scale and computerization, this might not happen, primarily due to inflation. One twelfth of the renewal expenses per policy was assumed to be incurred each month. The difference between the initial and renewal expenses, being special first year expenses, was assumed to be incurred as each new policy was written.

(5) The commission rates assumed to be incurred on the policies written were as follows :

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1. In November 1975 long-term Government stock was trading at a yield of ten per cent per annum and first class long-term debentures were being issued at a yield of 13,38 per cent per annum.

(i) Initial Commission : Sixty five per cent of the premium.

(ii) Production Bonus : An average of 6,5 per thousand of the credit sum assured where the latter was equal to the total premiums payable for endowment assurances and half the sum assured for whole life assurances.

(iii) Renewal Commission : Five per cent of each premium for the second to tenth year inclusive.

(iv) Overriding Commission : 32,5 per cent of the initial and renewal commission.

(6) The mortality experienced was assumed to be the South African mortality table SA 1956-62 select. This is a mortality table published on the actual mortality experienced by assured lives in South Africa.

(7) Discontinuance rates were assumed to be the following percentages of the policies in force at the previous year-end.

Policy Year	Discontinuance Rate
	Per Cent
1	15
2	9
3	5
4 & over	2

Policies were assumed to acquire a surrender value after three years premiums had been paid i.e. no surrender value payments were made on discontinuance until the fourth calendar year. Prior to attaining a surrender value, a policy lapsed on discontinuance.

(8) Surrenders and death claims were assumed to occur, on average, half-way through a calendar year.

(9) The valuation basis used for the calculation of actuarial reserves at each year-end was the statutory minimum basis in force in 1975.[1] This basis was used without modification for the with-profit model, whereas in the linked model the statutory basis was applied to the guaranteed minimum

1. This basis is laid down in the Second Schedule of the Insurance Act, No. 27 of 1943.

maturity value, treating this as a pure endowment policy but, if the value of the linked investments standing to the policyholders' credit at any year-end were greater, this greater value was used as a reserve. In addition, a reserve of half the life cover premium was set up at each year-end for the life assurance cover.

(10) Development expenses were ignored so as not to complicate matters unnecessarily. For the purposes of the models they could be assumed to be covered by the office expenses.

(11) To start a new life assurance company today it would only be possible to establish a proprietary one. The models only involved shareholders' capital at the analysis stage, and they would thus be an appropriate to study the profitability and strain arising from new business written by a mutual office as for a new proprietary office. In the former case the benefits arising in the earlier years have to be covered by the reserves of the mutual company i.e. the margins between the value of its assets and liabilities, but shareholders' capital can be employed for this purpose in a proprietary company.

(12) Whole life assurances with-profit The three issues to be considered in this and the following Section are premium rates, surrender values and death benefits.

Premium rates :-

Commission rates as described above were loaded for, except that allowance was made for a seven per mille premium income. Initial expenses of eighteen per cent and renewal expenses of three per cent of the premium were taken into account. The SA 1956-62 ultimate mortality table was used and a rate of interest of 5,5 per cent was assumed. A compound reversionary bonus of 2,93 per cent per annum was loaded into the premium rates. The actual formula used to calculate the rate was :

$$\text{Premium Rate} \quad \frac{1\,000\,\bar{A}^{1}_{x} + 3{,}5}{0{,}97\ddot{a}_{x} - 0{,}15 - 1{,}325\,(0{,}65 + 0{,}05\,a_{x:\overline{9}|})}$$

where $\bar{A}^{1}_{x}$ is an assurance factor equal to the single premium required to purchase a whole life sum assured of units per person age x at inception; $\ddot{a}_{x}$ and $a_{x:\overline{9}|}$ are respectively annuity factors for the discounted value at 5,5 per cent per annum of one per annum for life, the first payment being

due immediately, and of the value of one per annum payable annually in arrear for nine years. Both these factors are calculated for a person age x. $\bar{A}^{1}_{x}$ was calculated at a rate of interest of 3,5 per cent per annum, thus loading the premium rate for the compound reversionary bonus rate of 1,93 per cent per annum. The final premium rate per thousand rand of sum assured was R22,09 per annum or, allowing for the usual five per cent loading to one twelfth of the annual rate, the monthly premium rate was R1,93 per mille. Allowing for a one rand policy fee, a monthly premium of twenty five rand would purchase an initial sum assured of R12 435. This is a reasonably typical premium rate for a 'low bonus rate' life company.

Surrender Values :-

Per 1 000 of sum assured the surrender value formula used was :

$$1\,000\ (1 - \frac{\ddot{a}^{n}_{x+t}}{\ddot{a}^{n}_{x}}) + (RB)\ (A^{1}_{x:\overline{t}|})$$

where the annuity and assurance factors are as described above and were calculated on the SA 1956-62 ultimate mortality tables at 5,5 per cent for the annuity factors and 4,5 per cent for the assurance factor; x is the age next birthday of the policyholder at inception of assurance (thirty five in all cases in this model) and t is the curtate duration of the policy in force at the date of surrender; RB is the reversionary bonus credited to the policy at the date of surrender. The basic surrender values and the cash value of bonuses thus calculated are in accordance with competitive market values.

Death benefits :- This is the value of the sum assured and reversionary bonuses as at the date of death.

(3) Linked assurance business : premium rates :-

This was a complex calculation and was derived as follows. A portion of each premium was called the allocation amount which was to be invested in the linked investment portfolio of the life company. To cover acquisition costs many companies have a lower allocation amount in the first year than in the second and subsequent years, and this was also assumed for the linked premium used in this model. The guaranteed maturity value was assumed to be the allocation amounts accumulated at 4,5 per cent per annum compound interest and the guaranteed minimum death benefit was taken to equal the

accumulation of these allocation amounts, plus six per cent per annum compound interest. This formula is representative of the linked contracts offered by several companies in South Africa.

The same commission and expense levels that were used in the with-profit model were allowed for in the premium rates, which were calculated on the SA 1956-62 mortality ultimate table at 4,5 per cent per annum interest. The initial allocation amount was taken to be 21,68 per cent of the annual premium (excluding policy fee) and the renewal allocation amount 74,10 per cent thereof. Calculations were made per hundred of renewal allocation amount and the life cover for the guaranteed maturity value was costed as a 4,5 per cent decreasing term assurance. The difference between this amount and the guaranteed minimum life cover was calculated as level term assurance cover.

Per hundred of renewal allocation amount, the gross total annual premium arrived at was 135,12 or, per 1 000 of initial life cover, this represented an annual premium rate of 24,44 or a 2,14 per mille monthly rate, allowing for the usual five per cent monthly loading to one twelfth of the annual rate. Allowing for the monthly policy fee of one rand, a twenty five rand monthly premium purchases a guaranteed initial life cover of R11 215, with a guaranteed minimum maturity value of R9 639. The resulting premium rate is similar to that of companies competitive in linked business in the South African market.

The linked policy was assumed to be typical of that offered by proprietary companies in South Africa in that not less than ninety per cent of the net income (i.e. interest after deduction of tax,and capital appreciation realised) is passed on to policyholders, and a management fee of 0,5 per cent per annum is applied to the fund i.e. yields of 6,5 per cent and 7,5 per cent net of tax to the company would mean net returns of 5,35 per cent $[(0,9)\ (6,5)\ -\ 0,5]$ and 6,25 per cent $[(0,9)\ (7,5)\ -\ 0,5]$ respectively attributed to the policyholder.

Surrender values :-

These were taken to be 0,975(V-K) where V was the value of units standing to the policyholder's credit at the date of surrender and K was a factor that varied according to the age of the policyholder at inception and the duration of the policy in force and allowed for unrecouped initial expenses plus a

small profit margin.

Of the balance 2,5 per cent was retained by the office as an additional profit. Resulting surrender values were similar to those quoted on the South African market for this type of policy.

Death benefits :-

These were calculated as being the value of the units standing to the policyholder's credit, plus the balance of the initial sum assured at the date of death, the latter being calculated as if the initial sum assured were to decrease to cover a six per cent mortgage bond where the outstanding balance decreased annually. The combined value was subject to the death benefit never being less than the guaranteed minimum which was the initial sum assured.

(14) Shareholders' capital :

The models were constructed on the assumption that in the first instance the company had no shareholders' capital. This enabled the profitability of the business to be analysed by itself. The shareholders' capital required, as well as the effect this would have on profitability, could be derived from the models. In the very early years when, without shareholders' capital, the fund was actually negative owing to office expenses, commission payments and mortality costs exceeding the premium income, the models assumed that the rate of interest payable on negative funds was the same as the 6,5 per cent or 7,5 per cent net earned on assets. This assumption was reasonable, since one of the purposes of the models was to investigate the level of shareholders' capital necessary as, once this was established, there would no longer be any negative funds and the shareholders' capital would earn the rates of interest assumed in the model. It should be noted that, in terms of the Insurance Act, insurance companies are not permitted to borrow money and hence may not have loan capital.[1]

(15) Survivorship table :

To proceed with the mathematical model, Table 6.1 was constructed for 4 200 policies entering in a given year and showed the number of policies in force

1. Insurance Act, No. 27 of 1943, S. 20.

at the end of each of the first twenty five years, the number of death claims each year, as well as the number of policies terminated by lapse or surrender. Table 6.1 was based on new policyholders age thirty five at inception and thus applied to the linked endowment and conventional with-profit model. The figures in the table include decimals to permit accuracy within the basic assumptions. The table was calculated on a computer allowing for monthly decremental rates of mortality and discontinuance which were the twelfth roots of the equivalent annual rate.

Table 6.1 Policy Survivorship Table

Year	Number of Policies in Force at Year End	Mean Number of Policies in Force During the Year	Deaths	Discontinuances
	Col. 1	Col. 2	Col. 3	Col. 4
1	3847,25	2165,62	3,5067	349,2390
2	3385,27	3610,22	6,2030	455,7770
3	3146,50	3263,81	6,2821	232,4890
4	3032,94	3086,25	6,9042	106,6560
5	2964,81	3001,64	7,6122	60,5155
6	2897,54	2933,91	8,1380	59,1417
7	2831,63	2867,00	8,7177	57,7913
8	2765,20	2800,81	9,3842	56,4502
9	2699,95	2735,25	10,1338	55,1153
10	2635,21	2670,34	10,5531	53,7878
11	2570,90	2605,70	11,8321	52,4775
12	2506,94	2541,56	12,7852	51,1739
13	2443,37	2477,74	13,8017	49,8733
14	2379,81	2414,17	14,8718	48,5816
15	2316,53	2350,80	15,9956	47,2892
16	2253,37	2287,87	17,1568	46,0030
17	2190,28	2224,45	18,3634	44,7196
18	2127,26	2161,39	19,6037	43,4278
19	2064,23	2098,37	20,8826	42,1457
20	2001,17	2035,33	22,2014	40,8566
21	1938,05	1972,34	23,5495	39,5698
22	1874,84	1906,68	24,9291	38,2789
23	1811,52	1845,83	26,3345	36,9871
24	1748,06	1782,44	27,7641	35,6964
25	1684,43	1718,91	29,2313	34,3993

Note:

$F_t = F_{t-1} - D_t - W_t$

Where F_t is the number of policies in force at end of year t;

D_t is the number of deaths in year t.

W_t is the number of discontinuances during year t;

These figures are shown in columns 1, 3 and 4 respectively.

Taking year five, for example, we have :

$F_5 = F_4 - D_5 - W_5$

$= 3\,032,94 - 7,6122 - 60,5155 = 2\,964,81.$

On the basis of the assumptions stated earlier in this chapter, the profitability of one year's new business was followed through from the first to the twenty-fifth year i.e. to the year before the policies matured. By using the policy survivorship table and applying each year the mean number of policies in force to expense and commission pay ents, the number of deaths to death benefits, the number of surrenders to surrender values, and hence calculating the mean investment earnings, a life fund was constructed as equalling the fund in the previous year plus income less outgo. By comparing these funds to the actuarial reserves, the total deficit or surplus each year was derived and, by comparing these totals, the surplus or deficit earned in the year concerned was determined.

Algebraically the above can be represented as follows :
Let F_0 and F_1 be the life funds at the beginning and end of the year respectively, and V_0 and V_1 be the actuarial liabilities at the beginning and end of the year respectively. The total surplus at a year-end is thus $F_1 - V_1$ and the surplus earned during the year $(F_1 - V_1) - (F_0 - V_0)$

6.5 Linked Assurance Model

6.5.1 Analysis of One Year's New Business

Using the methods described above, a hypothetical revenue account and surplus position was derived for one year's new business. Table 6.2 below shows the profitability year by year of one year's linked new business, followed through for twenty five years. This table was based on the company earning a net of tax yield of 6,5 per cent on its funds and incurring expense levels of seventy five rand per policy in the first year and fifteen rand per policy each year thereafter. All profits or losses were assumed to remain in the life fund and were not cleared to a profit and loss account.

All revenue accounts and liability calculations are those of a hypothetical life assurance company. This pertains throughout this analysis and to avoid unnecessary repetition the word 'hypothetical' has not been used to qualify the tables.

Table 6.2 Revenue Accounts, Total Funds, Actuarial Liabilities and Surpluses Generated by One Year's Linked Business
(Figures Rounded to Nearest R'000)

Year	Premium Income	Office Expenses	Commission	Claims	Surrenders	Interest Earned	Fund	Actuarial Liabilities	Surplus Earned for Year	Total Surplus in Fund
1	650	285	724	39	0	-13	-411	230	-641	-641
2	1083	54	485	70	0	-12	51	781	- 89	-730
3	979	49	65	71	0	29	874	1461	143	-587
4	926	46	61	78	11	80	1683	2145	125	-462
5	909	45	60	86	29	131	2495	2846	111	-351
6	886	44	58	92	43	183	3321	3513	129	-222
7	869	43	57	99	56	235	4162	4236	148	- 74
8	840	42	56	106	70	289	5017	4923	165	94
9	821	41	54	115	84	343	5887	5605	188	281
10	801	40	53	124	98	398	6772	6281	209	490
11	752	29	24	134	112	455	7699	6950	259	749
12	762	38	0	145	127	515	8667	7611	307	1056
13	743	37	0	156	142	576	9651	8262	333	1389
14	724	36	0	168	157	639	10653	8939	325	1714
15	705	35	0	180	172	703	11673	9648	312	2025
16	686	34	0	193	187	767	12712	10354	332	2358
17	667	33	0	206	202	833	13771	11058	356	2713
18	648	32	0	220	217	901	14851	11755	382	3096
19	630	31	0	234	232	970	15953	12446	411	3507
20	611	31	0	249	246	1039	17077	13126	444	3951
21	592	30	0	264	261	1111	18226	13794	480	4431
22	573	29	0	280	274	1154	19400	14447	521	4953
23	553	28	0	295	287	1259	20603	15082	568	5521
24	535	27	0	311	299	1336	21836	15695	620	6141
25	516	26	0	328	311	1415	23103	16282	679	6820

Deficits emerge over two years since policies were assumed written during each month of the year and thus the high initial commission for one year's new business was spread over two calendar years.

Table 6.3 compares the surplus earned each year on the two levels of interest rates and the two expense levels and it was derived from the equivalent to the second last column in Table 6.2. The total hypothetical surplus within the fund at the end of twenty five years was also shown in each case. This figure represented the difference between total assets and liabilities at the end of the twenty-fifth year.

Table 6.3 Surpluses Earned Each Year on Different Interest and Expense Assumptions

	Net Rate of Interest Earned			
	6,5%	7,5%	6,5%	7,5%
	Col. 1	Col. 2	Col. 3	Col. 4
Initial Expenses per Policy in Rand	75	75	90	90
Renewal Expenses per Policy in Rand	15	15	20	20
Surplus Earned in Year :				
1	-640 734	-643 312	-695 253	-698 084
2	- 88 968	- 90 277	-111 140	-113 101
3	142 758	146 806	120 938	124 072
4	124 773	136 746	102 445	113 221
5	110 915	131 158	87 572	106 308
6	129 170	158 309	104 659	131 946
7	148 165	* 186 833	122 407	158 840
8	167 616	216 477	140 525	186 727
9	187 795	239 486	159 241	207 845
10	208 885	199 494	178 852	165 817
15	311 562	365 875	272 238	309 452
20	443 868	542 587	391 920	477 841
25	678 744	876 426	609 430	785 380
Total Surplus Earned Over 25 Years	6 820 230	8 136 410	5 821 010	6 950 240
Year in which all previous Deficits are eliminated *	8	7	9	8

* This is the year in which all accumulated deficits in previous years have been eliminated by accumulated surpluses in later years.

A graphical illustration of Column 3 of Table 6.3 is given in Figure 6.1 below :

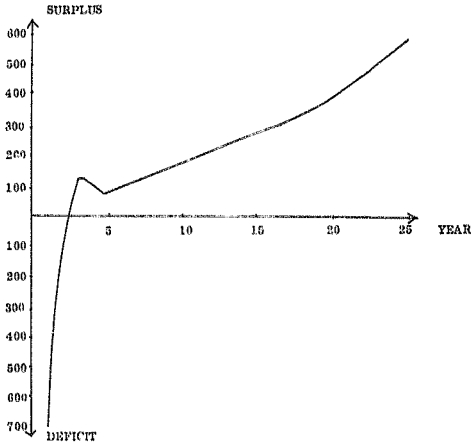


Fig. 6.1 Deficits/Surpluses Earned Each Year. (Figures in R'000)

With the exception of the period years three to five, surpluses generally increase each year. The drop in surpluses between years three and five is caused by the fact that when policies are discontinued in year three, no surrender values are paid and the company retains all the premiums paid. After a policy has been in force for three years a surrender value is paid on discontinuance. Hence a discontinuance in the fourth year is less profitable to the company than one in the third year. It can also be noted with clarity from Figure 6.1 that only in years one and two do real deficits have to be faced.

A graphical illustration of Column 3 of Table 6.3 is given in Figure 6.1 below :

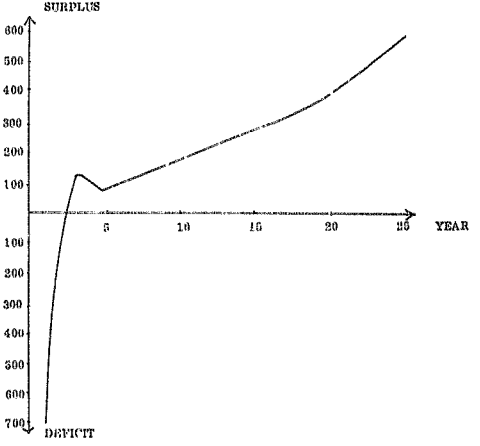


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An explanation is also required for the decrease in surplus which occurs in the tenth year on a 7,5 per cent interest yield as shown in Column 4 of Table 6.3. The reason for this peculiarity is that in this year the value of units standing to the policyholder's credit is greater than the statutory minimum valuation basis and this greater value was used as the actuarial liability. The reverse pertains in all previous years except the first. On the 6,5 per cent per annum interest yield basis the value of the units standing to the policyholder's credit exceeds the statutory minimum reserve basis only in the fourteenth year and decreases the emerging surplus in that year when compared to the thirteenth year.

The following facts emerge from Table 6.3:

(i) The higher the expenses of the company the lower are the profits made. The 'higher expense level' is defined as ninety rand per policy initial expenses and renewal expenses of twenty rand per policy per annum. Similarly, the 'lower expense level' is defined as seventy five rand per policy initial expenses and renewal expenses of fifteen rand per policy per annum. On both bases of net interest earnings it takes one year longer to eliminate past deficits on the higher expense level. At that level, total profitability over the twenty five years is 14,7 per cent less on a 6,5 per cent net interest yield and 14,6 per cent less on a 7,5 per cent net interest yield i.e. on both interest rate levels the decrease in profitability is similar if expense levels increase.

(ii) The higher the rate of interest the company earns the greater is its profitability. On the lower expense level the total profitability of the company over the twenty five years increases by 19,3 per cent if its net yield is increased from 6,5 per cent to 7,5 per cent. At the higher expense level, its profitability is increased by 19,4 per cent by the same one per cent increase in net yield i.e. on both expense levels the increase in profitability is similar for an increase of one per cent in its net yield.

(iii) Deficits result from the new business for the first two years but thereafter surpluses arise and on this linked business deficits are eliminated in a period that varies from eight to ten years, depending on the expense level at which the company operates and the investment yield it earns.

6.5.2 Projection of Different Levels of New Business written Each Year

The models of the previous Section considered the profitability of one year's new

business over a twenty five year time horizon. This assumption clearly conflicts with reality because a life assurance company would not write new business for only one year and then cease operations. Therefore six different levels of new business written each year will now be analysed.

In order to introduce this section, the information given in Table 6.3 above should be briefly recalled. In particular it was observed that one year's business produced deficits for the first two years but thereafter surpluses emerge. It was also observed that the business was profitable in total.

One can therefore deduce from Table 6.3 that :

(i) the more business the company writes, the more profits it will ultimately make, since in the long run, the business is profitable.

(ii) owing to the new business strain incurred when writing business, the more business that is written, the longer it will take for profits to emerge.

(iii) The shareholders' capital required to finance new business increases as the amount of new business written increases and therefore, even though over the long-term total profits may be greater for a higher level of new business sales, the profits earned per share may be less at a higher level of new business.

(iv) If the company ceased to write new business, the new business strain ceases immediately and in the short-run profits would increase.

At this juncture six new models, defined as Models A to F, will be introduced to test the above suppositions for the case, not so far considered, where new business is written each year. The parameters of the six models which were analysed over a twenty five year period were as follows :

Model A: The company writes 4 200 policies each year, each with a monthly premium of twenty five rand.

Model B: The company commences writing new business as in A in the first year and increases this by ten per cent per annum for fifteen years. Thereafter business remains at the level written in the fifteenth year.

Model C: The company commences writing new business as in A in the first year and increases this at twenty five per cent per annum for five years, ten per cent per annum for the next nine years and thereafter business remains at the level written in the fifteenth year.

Model D: The company commences writing new business as in A in the first year and increases this by ten per cent per annum each year.

Model E: This is as per model C for the first fifteen years, but thereafter the company is assumed to cease writing new business and have no further new business expenses.

Model F: This is as per Model C for the first fifteen years but thereafter the company is assumed to cease writing new business and have no further new business expenses.

Table 6.4 illustrates the profitability emerging from these six models on the basis of a 6,5 per cent per annum interest rate and the lower expense level. In choosing years ten, sixteen, twenty and twenty five to depict the emerging surplus, year sixteen was taken instead of year fifteen to illustrate how substantially surpluses increase if a company ceased to write new business in that year.

Table 6.4 Profitability of Writing Different Levels of Linked New Business (Figures in Rand)

	Model A	Model B	Model C	Model D	Model E	Model F
1. Total surpluses over twenty five years	48 223 100	75 952 700	124 369 000	62 951 900	84 312 300	140 210 000
2. Maximum total deficit arising from the business	3 066 820	5 113 510	10 552 600	5 113 510	5 113 510	10 552 600
3. Year in which this arises	7	10	11	10	10	11
4. Year in which surplus first arises	8	11	12	11	11	12
5. Year in which total deficits are eliminated	13	16	17	16	16	16
6. Minimum shareholders' capital required to write level of new business (Higher R1 000)	2 052 000	2 953 000	5 495 000	2 953 000	2 953 000	5 496 000
7. Surplus earned in year :						
10	490 332	-19 108	-629 521	-19 108	-19 108	-629 521
16	2 357 530	2 586 630	3 815 350	2 348 310	5 019 520	8 426 000
20	3 050 930	6 551 690	11 144 500	5 263 470	7 918 580	12 672 100
25	6 220 210	13 864 900	24 176 000	11 922 100	12 662 900	20 747 600
8. Surplus per R1 share capital in year :						
10	0,24	-0,01	-0,11	-0,01	-0,01	-0,11
16	1,15	0,88	0,69	0,79	1,70	1,53
20	1,93	2,23	2,03	1,73	2,68	2,49
25	3,32	4,70	4,42	4,04	4,06	3,78

The maximum deficit arising is defined as the maximum deficit that would arise if no shareholders' capital was subscribed i.e. it would be the greatest amount by which the actuarial liabilities in respect of the business written exceeded the value of the assets built up from the business on its own without capital.

An illustration of how the deficit arises is given for the case of Model B in Figure 6.2, below :

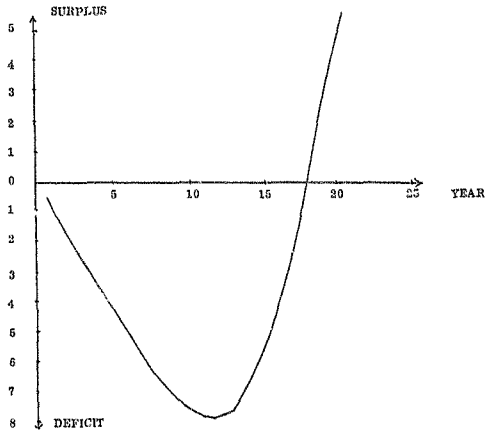


Fig. 6.2 Total Surplus for Model B (Figures in R'millions)

It can be noted how the deficit increases as new business strain accumulates over the years. The maximum total deficit is reached at the stage when surpluses emerging on renewal business equal the strain arising on new business. In

later years the surplus emerging on renewal business is consequently greater than the new business strain, resulting in a net surplus. This is the reason for a surplus first emerging the year after that in which the maximum deficit is reached.

In Table 6.4, the minimum shareholders' capital that is required to enable a company to write a given level of new business is generally that capital which, when accumulated with interest at 6,5 per cent per annum net exactly equals the maximum deficit in the year in which the latter is reached. This figure was, however, increased if in any previous year the accumulation with interest was not sufficient to meet the total deficit at that stage. For example, taking the maximum deficit in model A, the minimum shareholders' capital required would be R3 066 820 / $(1,065)^7$ = R1 274 000. In fact, if the sixth year deficit of R2 992 000 is discounted at 6,5 per cent per annum, the required shareholders' capital would be R3 052 000 and this higher figure has thus been taken. If the minimum level of shareholders' capital were injected, the total insurance funds and shareholders' capital would never be less than the total actuarial reserves. The shareholders' capital could, in fact, be injected into the company each year as it was needed but for practical purposes it was assumed to be subscribed at inception. The models are modified at a later stage to allow for the injection of shareholders' capital. In practice the above level of shareholders' capital would be inadequate, as it would not provide margins and reserves to act as a buffer in difficult times, such as during years when expense levels or mortality levels experienced were greater than anticipated or when interest yields fell below the minimum required to build up actuarial reserves. Buffers are mostly needed in years when capital values of assets fall substantially and, because of the statutory minimum valuation basis, the liabilities do not generally decrease by a similar amount or may even not decrease at all. A company must thus build up substantially greater capital reserves than the minimum level above. Beyond the year in which maximum strain levels are reached, the necessary additional reserves could be built up from emerging surpluses i.e. by the company retaining a portion of the surplus earned to strengthen its reserves.

Figure 6.3 below illustrates the profitability of the various models given in Table 6.4 over a twenty five year time horizon.

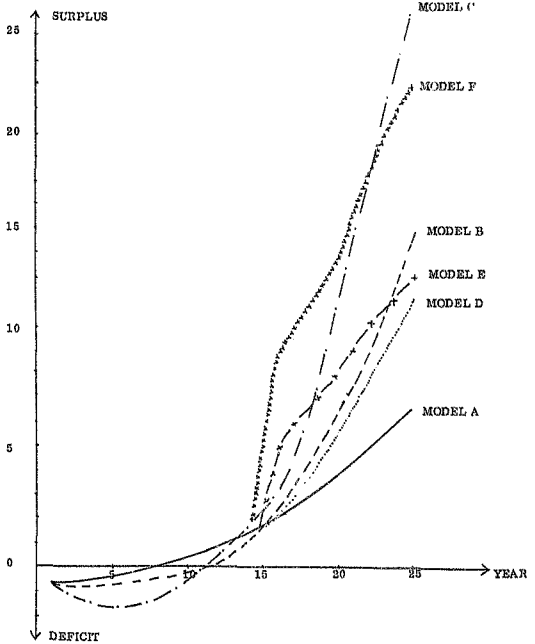


Fig. 6.3 Annual Surpluses of Different Models (Source Table 6.3)
(Figures in R'millions)

Figure 6.3 illustrates clearly how, at lower new business levels, surplus emerges sooner, but in the later years the emerging surplus is lower. There exists therefore a trade-off between the timing and the value of surpluses. The Figure also illustrates that, in the sixteenth year, when new business ceases under models E and F, the immediate surplus is substantially greater than the comparative models B and C respectively, but in the later years the surplus emerging is less than that generated by models B and C respectively. It shows the rapid increase in the emergence of profits in later years. For example, in model B, the total surplus earned in the twenty-fifth year is more than double the surplus earned in the twentieth year and in the fourth year there is a deficiency compared to a surplus of approximately R13,3-million in the twenty-fifth year.

In order to study the effect on surplus of the two different expense levels and the two different interest assumptions, model C from Table 6.4 was analysed on the four bases described in Table 6.5. Similar trends would emerge if any of the other five models were analysed on all four bases.

Table 6.5 Cumulative Surpluses Earned in Model C on Different Expense and Interest Assumptions (Figures in Rand)

		Net Rate of Interest Earned			
		6,5%	7,5%	6,5%	7,5%
		Col. 1	Col. 2	Col. 3	Col. 4
	Initial Expenses per Policy in Rand	75	75	90	90
	Renewal Expenses per Policy in Rand	15	13	2f	20
1.	Total surpluses over twenty five years	124 369 000	148 434 000	83 777 600	103 876 000
2.	Maximum total deficit arising from the business	10 552 600	9 181 720	16 146 600	13 929 200
3.	Year in which this arises	11	10	13	12
4.	Year in which surplus first arises	12	11	14	13
5.	Year in which total deficits are eliminated	17	16	19	18
6.	Minimum shareholders' capital required to write level of new business (Higher R1 000)	5 495 000	4 659 000	7 488 000	6 210 000
7.	Surplus earned in year :				
	10	-629 521	-251 153	-1 408 090	-1 066 090
	16	3 815 350	4 632 900	1 914 539	2 588 230
	20	11 144 503	12 830 700	8 274 820	9 667 190
	25	24 276 000	28 017 400	19 857 300	22 976 500
8.	Surplus per R1 share capital in year :				
	10	-0,11	-0,05	-0,19	-0,17
	16	0,69	0,99	0,26	0,42
	20	2,03	2,75	1,11	1,56
	25	4,42	6,01	2,65	3,70

Table 6.5 illustrates how the conclusions derived from Table 6.3 for one year's new business are also true when comparing new business written each year.

(i) The lower the expenses of the company the greater is its profitability. This can be clearly observed by comparing columns one and three or comparing columns two and four. If expenses are at the higher level compared to the lower, total surplus emerging over twenty five years decrease by 32,6 per cent and 30,0 per cent at net interest rates of 6,5 per cent and 7,5 per cent per annum respectively.

(ii) The greater the yield the company earns on its funds the higher is its profitability. If the interest yield earned increases by one per cent per annum, the total surplus earned over twenty five years increases by 19,3 per cent and 24,0 per cent at the lower and higher expense levels respectively.

6.5.3 Conclusions: Basic Linked Models

From Tables 6.4 and 6.5 the following conclusions can be derived.

(i) The more linked new business a company wishes to write the more capital it needs to do this and this is a direct result of the strain caused by writing new business. The minimum capital required to write the level of new business inherent in model C is 168 per cent greater than the amount of capital required to write the level of new business in model A.

(ii) In the models given in Table 6.4 it can be seen that surplus starts emerging from years eight to twelve, according to the level of new business which the company decides to write and all previous deficits have been eliminated between year thirteen and seventeen.

In Table 6.5 it can be noted that the year in which surplus first emerges is greatly affected by the expense level at which the company operates and the net yield which it earns. For example, on a 7,5 per cent per annum net yield and the lower expense level, surplus first emerges in year eleven and all previous deficits have been eliminated by year sixteen, whereas on a 6,5 per cent per annum net yield and the higher expense level, surplus first emerges only in year fourteen, and it takes till year nineteen before all previous deficits have been eliminated.

(iii) If we assume that shareholders required a gross yield of ten per cent per annum on their capital before they would invest in a particular venture, all the models in Tables 6.4 and 6.5 would be extremely profitable.

The models ignore shareholders' capital and, if the minimum capital as calculated in Table 6.4 were injected, it would also earn 6,5 per cent or 7,5 per cent per annum net of tax according to the model used.

The figures given in Table 6.4 need therefore to be modified to allow for the interest earned on the shareholders' capital subscribed. This is done in Table 6.6.

Table 6.6 Profitability of Models A to F*in Table 6.4 (Figures in R'000)

	Model A	Model B	Model C	Model D	Model E	Model F
1. Minimum shareholders' capital required	2 852	2 953	5 495	2 953	2 953	5 496
2. Above accumulated at ten per cent per annum for 25 years (i.e. at the yield shareholders would expect)	22 233	31 925	59 537	31 995	31 995	59 548
3. Total accumulated profits in the fund at the end of 25 years	45 223	75 953	121 393	63 952	84 312	140 210
4. 6,5 per cent net per annum for 25 years on the shareholders' capital in row 1 above	7 551	11 393	21 053	11 393	11 393	21 037
5. Sum of row 3 and row 4 above	56 677	87 256	145 402	75 255	95 615	161 247

Note:

Rows 1 and3 of this Table are reproduced from Rows 6 and 1 of Table 6.4.

* After allowance has been made for interest earned on shareholders capital.

it is obvious that the models A to F in Table 6.4 are all very profitable to shareholders. Even if the 6,5 per cent net yield assumption and the higher expense level were examined for Model A (i.e. the least profitable to the company), the total surpluses at the end of twenty five years decrease to R37 million and the minimum shareholders' capital necessary is R2,5 million. If this latter figure is accumulated with interest at ten per cent per annum compound, then at the end of twenty five years it amounts to R27 million, showing that the investment is still a very profitable one indeed when this figure is compared to R47 million, being the total accumulated surpluses plus accumulated net interest earnings of 6,5 per cent per annum on shareholders' capital.

(iv) From a study of models A to C it can be noted that the more business the company writes, the greater is the ultimate total profit it makes. Over a twenty five year period however the total profit earned on models E and F is greater than on models B and C respectively i.e. by ceasing to write new business after the fifteenth year the company increases its total profits over a twenty five year period.

6.5.4 The Consequences of Ceasing to Write New Business

Consider Models C and F which are identical for the first fifteen years but which diverge from the sixteenth year because Model C assumes new business to be written at the level of the fifteenth year, whereas model F assumes that no business is written.

If, for these models, shareholders were concerned with a time horizon of only twenty five years, the company should decide to cease writing business after the fifteenth year. It should be recalled in this regard that the more business the company writes, the greater will be its ultimate profitability but new business strain will defer this profitability.

It is thus instructive to study, from Table 6.4, the surpluses emerging in models C and F from year fifteen onwards.

The relevant data are collected in Table 6.7.

Table 6.7 Comparison of Surpluses Earned in Models C and F, Years Fifteen to Twenty Five

Value of Surplus (R'000)

Year	Model C	Model F	Difference
Col. 1		Col. 3	Col. 3 (-) Col. 2
	2 410	2 410	-
16	3 816	8 426	4 611 *
17	5 472	10 723	5 251
18	7 230	11 453	4 223
19	9 109	12 434	3 325
20	11 445	13 672	2 227
21	13 359	14 957	1 599
22	15 763	16 295	532
23	18 373	17 699	- 674
24	21 204	19 179	-2 025
25	24 276	20 748	-3 528

* This figure measures the release of the strain that would have been created from writing the same level of business as in the fifteenth year. This amount can be derived from the surplus figures in Table 6.2 and allows for the increase in levels of new business over the years. The value is (640 7%) $(1,25)^5$ $(1,10)^9$ = R4 610 650.
This shows the level of new business strain that can be present in a given year i.e. a surplus of R3,82 million arises in the sixteenth year, after allowing for new business strain of R1,61 million.

Table 6.7 clearly illustrates that even though over the twenty five year period model F is more profitable than model C, the surplus emerging each year in model C is greater than model F. Table 6.7 illustrates the considerable increase in surplus in the year in which new business ceases. In the sixteenth year the surplus produced in model F is R1 610 600 greater than in model C and the difference is even greater in year seventeen. In fact, model F produces 121 per cent more profit in year sixteen than model C. In year twenty three, however, the deferred profits inherent in the greater volume of business in model C overtake the surplus emerging in model F and thereafter model C produces more surplus than model F. From studying the trend of years twenty three to twenty five, it can be noted that the absolute difference in the surpluses emerging between models C and F increases until eventually the total surpluses emerging under model C will be greater than those emerging from model F.

The above argument can also be proved by the 'reductio ad absurdum' approach. For example, if it did not pay the office to write new business, it could cease to do so after the first year, in which case the surplus emerging in year twenty five would be R679 thousand compared to R24,276 million under model C. Of course, if business were written for one year only, the shareholders' capital that would be needed would be only R602 thousand[1] and, allowing for this, models F and C are relatively more profitable. Furthermore, if only one year's business were written, profits would cease in year twenty six but under model C the surpluses continue to increase beyond year twenty five.

Thus, where the business is profitable in itself, the more business the company writes, the greater will be its ultimate profitability. From a shareholder's viewpoint, the conclusion is thus that it cannot be a financial proposition for the company to cease writing new business. In year twenty five the earnings per share are R4,42 under model C but only R3,78 under model F i.e. greater in the former case.

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1. This is the first year deficit discounted for one year at 6,5 per cent.

New business creates new business strain and hence defers profits. The rate at which a company wishes to increase its new business production therefore depends on the availability of capital and the extent to which shareholders are prepared to defer profits. A proprietary company cannot simply wish to maximize sales irrespective of the strain that arises since, if the rate of increase of new business is too steep, then in the extreme case the company will never show profits and the strain will cause insolvency. The company must aim for some optimal solution.

For a proprietary company the conclusions to be derived are therefore clearly as follows :

(i) The level of new business it decides to write must be determined by the amount of the shareholders' capital and reserves it has available. It was observed that model C required eighty six per cent more capital than model B, even though the total surpluses earned under model C were greater than under model B, the equivalent earnings per share were less under model C than under model B throughout the twenty five years. The difference narrowed by the end of the twenty five year period, when earnings per share under model C were ninety four per cent of those under model B, compared to ninety one per cent and seventy eight per cent at the end of years twenty and sixteen respectively.

Thus it cannot be assumed that, if unlimited shareholders' capital and reserves were available to a company, it would aim for maximum possible new business levels. The level of new business premiums aimed at would depend on the time horizons of the shareholders. If it aimed to obtain reasonable dividends by the end of fifteen years, for example, it would aim for model B rather than model C. If the company considered that the first twenty five years were the most important, it would also prefer model B to model C. It can be observed that model A is more profitable in the short-term to shareholders than models B, C or D but over the long-term it is much less profitable. For example, model B requires forty four per cent more capital than model A, but over the twenty five year period surpluses fifty eight per cent greater are earned under model B. Several companies in South Africa seem to aim at maximum new business figures, irrespective of immediate profitability and, if their share capital and/or reserves were large enough,

they would aim at a model C type of level, rather than model B. In practice a company could only increase its new business levels to the extent that it had the human resources to achieve the desired level.

(ii) A company with shareholders should always aim to increase its profits over the long-term and should therefore never consider a course of action such as model E or F i.e. to consider ceasing to write new business to boost immediate profitability but to decrease long-term profitability. Table 6.7, and the analysis thereon, conclusively proved that in the long run a company with shareholders would earn more in total and more per share *if it continued to write new business rather than to cease at some stage* to increase immediate profitability.

The earnings per share are greater under model A than under model B up to year eighteen and in year nineteen the equivalent earnings per share would be R1,71 under model A compared to R1,85 under model B (plus any interest earned on shareholders' capital in both models).

Model A suffers from the deficiency that, due to inflation alone, a company would probably have some increase in new business premiums in most years. Furthermore, with escalations in expenses, a company would need to increase its new business to keep its expense levels per policy within reasonable limits. Companies would also have to consider factors such as motivation and staff morale. The staff of a company which year after year merely maintained its new business premium income may become demotivated, feeling that their company was in fact retrogressing relative to others. In general terms the company would have to choose whether it aimed to grow or not.

Table 6.4 illustrates the effect of new business strain on the emergence of surplus in a company i.e. a considerable increase in the rate a company writes new business will cause substantial strain and, *whilst it will lead to greater* profitability in the long run, it causes a decrease in immediate profitability and delays the emergence of surplus.

It is interesting to note what the profitability would have been on Model C in year sixteen if, instead of ceasing to write new business, the company decided in that year to write double the level of business of the previous year. In year sixteen, instead of a surplus emerging, there would in fact be a

deficiency of R795 thousand. If business in the sixteenth year had been at the same level of the previous year, the surplus in the sixteenth year would have been R3,8 million and, if business ceased in that year, the surplus would have been R8,4 million. It can be noted that these differences are substantial and illustrate how an office paying dividends to shareholders has to carefully consider its strategy concerning the flow of new business. The above explains the attitude of a certain life office, operating in South Africa, that stated that they did not aim to maximize profits, but rather aimed to ensure a sustainable growth of contributions to their profit and loss account.[1]

It can be noted from the above that the correlation between surpluses earned *in a given year to volume of sales is negative i.e. in a given year* the more business a company sells, the less surplus is generated in that year. Figure 6.4 illustrates the surplus and new business sales curves for the fifteenth year for the examples given above, whilst Figure 6.5 gives the surplus curve for model C in the fifth year.

It can be noted from both Figures 6.4 and 6.5 that the surplus curve is the opposite of the normal 'profit curve' of a manufacturing concern. Due to the new business strain involved in writing additional business, the greater the volume of new business production in a given year, the smaller is the surplus that is generated with the extreme case that the greatest surplus emerges when no new business is written at all. The surplus curve in the examples given decreases approximately linearly.

The exact position of the profit curve in relation to the surplus and sales axis depends on the year for which the graph is charted. It can be noted from Figure 6.5 that, if the surplus curve were calculated in the early years of a life company's existence (in this case the fifth year), the slope would be similar to that given in Figure 6.4 but, at all sales levels, profits are negative.

In virtually all cases in Figure 6.5 deficiencies emerge and this figure illustrates how large the deficiencies can be if high new business figures are written soon after an office commences business.

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1. This was in reply to the questionnaire sent out by the writer and analysed in Chapter 3 below.

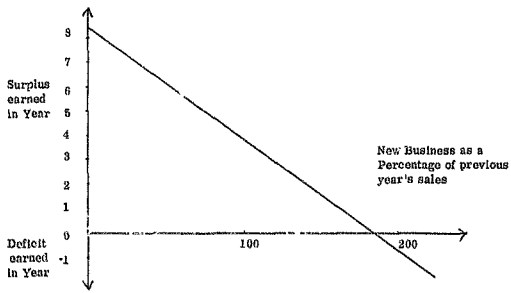


Fig. 6.4 : Surplus produced for Different Levels of New Business Production in Year Sixteen (Figures in R'million)

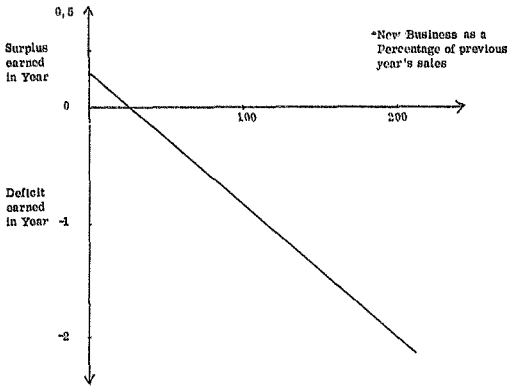


Fig. 6.5 Surplus produced for Different Levels of New Business Production in Year Five (Figures in R'million)

6.5.5 Mutual and Proprietary Companies Compared

The conclusions to be derived from the models for a mutual life assurer are next considered. It might be argued that a linked policies a mutual office would generally distribute to policyholders all the income net of tax and management fees and not only ninety per cent, as deflated in this model. This would not affect any arguments but simply alter the incidence of emergence of surplus. If all the net income were distributed to policyholders, surplus would take longer to emerge and, on the same interest yield and expense assumptions, total profitability to the office would be smaller but the principles analysed below would be the same.

On the assumption that a mutual office exists purely to benefit its existing policyholders and, in particular, its with-profit policyholders, the profits emerging belong to these policyholders and the office must attempt to maximize the benefits payable to these with-profit policyholders. In practice any prudent office keeps reserves for contingencies and to help finance future expansion and they are permitted to do so by law. All the profits of a mutual company belong to its with-profit policyholders but the management of the company can decide how much to distribute and how much to retain as reserves. An analysis was made to determine whether it is to the benefit of existing with-profit policyholders for a mutual company to continue to write new business.

Both mutual and proprietary companies would normally distribute to linked policyholders part of the profits arising from expenses, mortality, lapses and surrenders and thus, whilst in Tables 6.4 and 6.6 it was assumed that profits belong to the company and could be distributed in full to shareholders, the contracts of most companies usually enable policyholders to participate in these miscellaneous sources of surplus.

It was observed how new business strain defers profits in an expanding office but in the long run it would be profitable to shareholders for the company to expand continuously. This hypothesis was tested to ascertain whether it was also true for the existing with-profit policyholders of a mutual company.

Table 6.8 lists the number of policies in force at the end of various years for models A to F and shows the profits per policy in these years where the

total profits in the relevant years were derived from Table 6.4.

No company would merely take the total profits and distribute those equally between all the policies on its books. They would generally distribute them in relation to policy reserves or according to the duration that the policies had been in force. Table 6.8 is nevertheless instructive.

Table 6.8 Profits Per Policy on Models A to F (Figures in Rand)

Number of Policies at End of Year						
Year	Model A	Model B	Model C	Model D	Model E	Model F
10	30 206	49 569	81 773	49 569	49 569	84 723
16	44 677	105 698	191 338	106 559	90 485	163 554
20	53 060	143 389	291 654	165 774	81 195	146 799
25	62 116	186 756	349 988	378 113	71 650	128 631

Profits Per Policy in Year						
Year	Model A	Model B	Model C	Model D	Model E	Model F
10	16,23	- 0,39	- 7,43	- 0,39	- 0,39	- 7,43
16	52,77	24,61	19,95	31,99	55,47	51,62
20	74,46	45,92	42,11	31,75	97,62	93,13
25	109,80	74,61	70,16	42,87	168,24	161,30

It can be observed from Table 6.8 that, in relation to the individual policy, model E is the most profitable model of all. This means that of the models considered, the most profitable level of business per policy is one where the company ceases to write new business after the fifteenth year. A graphical illustration of the emerging profit per policy from the tenth year onwards is given in Figure 6.6 for models B, D and E which are exactly comparable in that they are identical for the first fifteen years and, in model B, business is level after fifteen years, whilst in model D it continues to increase at ten per cent per annum after fifteen years and in model E it ceases after the fifteenth year.

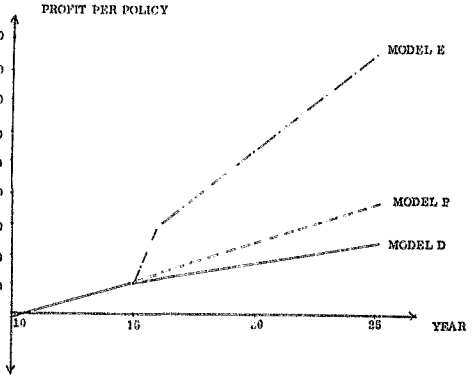


Fig. 6.6 Emerging Surpluses per Policy in Force

From Figure 6.6 the substantially greater profitability of model E can be noted. On the criterion of profit per policy, the less business that is written, the greater is the profitability per policy. On this basis model E is the most profitable per policy, followed by model B and lastly model D.

Models B and E were analysed in detail, and these being identical for the first fifteen years, the same number of policies are in force at each year end and the same profits per policy are earned each year during this period. After year fifteen, model E becomes more profitable to the policyholder: if they in fact receive the profits than model B. This happens for two reasons. Firstly, the fact that in model E the company ceases to write new business in year sixteen leads to an immediate increase in surplus as there is no new business strain in that year and, over the twenty five years model E generates more surplus in total than model B although, as was noted from Table 6.7, model B ultimately generates more profits

over the long-term. Secondly, under model E, because the company ceases to write new business, the total number of policies in force is much less than under model B and consequently the greater surplus generated each year in model E is divided among a smaller total number of policies, hence resulting in a greater profitability per policy. The variations can be observed from Table 6.9 below.

Table 6.9 Total Number of Policies and Surpluses for Models B and E

At End of Year	Number of Policies in Force		Col. 2 as Per Cent of Col. 3	Surplus Earned in Year Under		Col. 4 as Per Cent of Col. 3
	Model B	Model E		Model B	Model E	
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
1 - 15	Identical Values For All Years					
				R	R	
16	185 [illegible]	99 [illegible]	116%	2 [illegible]	5 819 [illegible]	52%
20	143 [illegible]	[illegible] 198	177%	6 [illegible]	7 918 [illegible]	83%
25	145 [illegible]	71 [illegible]	201%	10 [illegible]	12 [illegible]	116%

It can be observed that even when the surplus earned in a given year in model B is greater than in model E, this is more than compensated by the rapid increase in the differences in the number of policies in force.

The above analysis simply studies the total surplus per policy. However, the surplus earned each year from years sixteen to twenty two inclusive is greater in model E than in model B and this is divided by a much smaller number of policies with smaller total actuarial reserves. For example, at the end of year twenty two, model E has 77 116 policies in force, compared to 161 061 policies in model B i.e. model E has only forty eight per cent of the numbers of policies in force as model B. Therefore for these six years there can be no dispute that linked policyholders are better off under model E than under model B and any policy becoming a claim by death or surrender would receive greater benefits in these years under model E than under model B, provided these surpluses were in fact distributed to policyholders and paid to them on death and/or surrender.

A prudent company builds up reserves over the years for contingencies, investment fluctuations and expansion purposes and there are almost invariably margins in an established office between the value of their assets at balance sheet value and their true market value as well as margins in the conservative statutory valuation of their liabilities, compared to a bare minimum valuation for solvency alone. If an office were to cease writing new business, it could gradually release the reserves in both the value of assets and the value of liabilities and distribute these to policyholders. Furthermore, by ceasing to write new business, it would cease to have new business strain and could therefore, by having a 'closed fund', maximize the welfare of its existing with-profit policyholders who, in addition to the profit earned on their policies, would receive the benefit of accumulated reserves and releases of strains. In practice mutual companies do not do this and this will be analysed further below.

At the end of twenty five years, the actuarial reserves held under model B are R168 million, whereas under model E they are only R335 million and thus, if the surplus emerging in the twenty-fifth year is considered and expressed per rand of actuarial reserves held, these surpluses amount

to 2,96 cents for model B and 3,59 cents for model E i.e. 21,2 per cent greater in the latter case. Therefore, even though the total surplus emerging in year twenty five is greater in model B than in model E, the actuarial liabilities are so much less in model E that the smaller surplus in year twenty five represents a greater amount per rand of actuarial reserves than in model B.

Thus, for the full twenty five years considered, it would benefit existing linked policyholders for the company to cease writing new business if it were a mutual company and they shared in the profits. Policyholders whose policies become death or surrender claims in the twenty five years would receive greater benefits under model E and so would those policyholders whose policies mature in the subsequent years.

After the twenty-fifth year the surplus emerging each year would continue to increase and be greater in model B than in model E, but the difference in total actuarial reserves would continue to widen until, by the end of year forty one there would be no further actuarial reserves in model E, as all the policies written in the sixteenth year would have matured. If these figures are further reinforced by the distribution of existing reserves and surplus within a company to the remaining policyholders as the fund gradually decreases, there is no doubt that to a mutual company the interests of its existing policyholders are best satisfied if the company ceases to write new business. This argument is developed further in Section 6.6.4.

6.6 With-Profit Assurance Model

6.6.1 Analysis of One Year's New Business.

Similar methods to those employed for the linked assurance model were used to develop a hypothetical revenue account and surplus position for the with-profit or conventional model over a twenty five year period for one year's new business, and the results are shown in Table 6.10.[1] Table 6.10 is

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1. The reader should note that it would be of little benefit to produce graphical illustrations for with-profit business as was done for linked business, as the emerging trends were similar, although the total profitability was substantially different.

comparable to Table 6.2 for the linked model but is based on the company earning a net of tax yield of 7,5 per cent per annum on its funds and on the lower expense level. In the table all profits and losses were assumed to remain in the life fund, i.e. they are not transferred to a profit and loss account.

Deficits once again emerge over two years since policies were assumed written during each month of the year and thus the high initial commissions for one year's new business were in fact spread over two calendar years.

Table 6.11 compares the surplus earned each year on the two interest rates and the two expense levels. The table was derived from the equivalent to the second last column in Table 6.10. The total hypothetical surplus within the fund at the end of twenty five years was also shown in each case. This figure was the difference between total assets and total liabilities at the end of the twenty-fifth year.

It can be observed in all four examples that the surplus shown is smaller in year four than in year three and even less in year five. Thereafter the surplus produced each year increases. In fact, in the conventional with-profit model, this phenomenon is more pronounced than in the linked model, due to the lower overall profitability of the former. This feature in the emerging surplus is once again caused by the fact that no surrender values are paid by the company until a policy has been in force for three years. Thus, in the model, surrender values in respect of the first year's business are first paid in the fourth and fifth calendar years. In the fourth year, for example, R21 802 is hypothetically paid out in surrender values.

Table 6.10 Revenue Accounts, Total Funds, Actuarial Liabilities and Surpluses Generated by One Year's With-Profit Business
(Figures Rounded to Nearest R 000)

Year	Premium Income	Office Expenses	Commission	Claims	Surrenders	Interest Earned	Fund	Actuarial Liabilities	Surplus Earned for Year	Total Surplus in Fund
1	650	224	703	44	0	- 14	- 396	37	-433	-433
2	1053	54	485	79	0	- 13	56	835	-346	-779
3	979	49	65	82	0	33	572	1561	90	-689
4	926	46	61	92	22	91	1668	2299	58	-631
5	901	45	60	104	48	149	2461	3062	31	-601
6	880	44	58	113	69	207	3313	3828	46	-555
7	860	43	57	124	72	266	4103	4594	63	-492
8	840	42	56	137	85	327	4956	5360	82	-410
9	821	41	54	151	98	389	5815	6125	100	-310
10	801	40	53	167	111	452	6697	6886	121	-189
11	782	39	24	185	134	517	7625	7643	171	- 18
12	762	38	0	204	137	586	8595	8392	221	203
13	743	37	0	225	149	657	9553	9132	248	451
14	724	36	0	249	162	729	10559	9862	276	727
15	705	35	0	273	175	802	11613	10579	308	1034
16	686	34	0	300	188	877	12654	11280	340	1375
17	667	33	0	329	200	953	13713	11964	374	1749
18	648	32	0	359	212	1030	14788	12627	412	2161
19	630	31	0	391	224	1108	15879	13269	450	2611
20	611	31	0	425	236	1188	16987	13884	492	3103
21	592	30	0	461	247	1269	18109	14470	536	3639
22	573	29	0	500	257	1350	19246	15025	582	4221
23	554	28	0	540	268	1433	20398	15545	632	4853
24	535	27	0	582	277	1517	21563	16025	685	5538
25	516	26	0	627	286	1602	22742	16464	740	6278

Table 6.11 Surpluses Earned Each Year on Different Interest and Expense Assumptions

	Net Rate of Interest Earned Per Annum			
	6,5%	7,5%	6,5%	7,5%
	Col. 1	Col. 2	Col. 3	Col. 4
Initial Expenses per Policy in Rand	75	75	90	90
Renewal Expenses per Policy in Rand	15	15	20	20
Surplus Earned in Year :				
1	-431 497	-433 943	-486 014	-488 116
2	-344 098	-345 933	-366 270	-368 757
3	86 252	90 358	64 432	67 624
4	45 428	57 583	23 099	34 059
5	10 066	30 683	- 13 275	5 832
6	16 156	45 852	- 8 354	19 [illegible]
7	23 600	63 143	- 2 158	35 154
8	31 491	81 694	4 400	51 946
9	38 388	100 115	9 874	68 474
10	46 792	120 959	16 760	87 282
15	152 954	307 595	113 686	261 172
20	291 660	491 900	169 [illegible]12	427 246
25	307 041	740 159	237 [illegible]7	649 115
Total Surplus Earned Over 25 Years	2 467 503	6 278 000	1 [illegible] 270	5 091 840
Year in which all Previous Deficits are Eliminated*	15	12	18	13

* This is the year in which all accumulated deficits in previous years have been eliminated by accumulated surpluses in later years.

Similar trends emerge from Table 6.11 as did from Table 6.3 for linked business i.e. the lower the expense level at which the company operates the more profitable it is and the higher the rate of interest it earns, for a given rate of bonus declared, the greater is its profitability.

The profitability of with-profit business for a given rate of reversionary bonus is extremely sensitive to changes in rates of interest and it can be noted that at the lower expense level the profitability of the company is increased by 154 per cent if the rate of interest earned increases by one per cent from 6,5 per cent per annum net to 7,5 per cent per annum net and at the higher level of expenses the profitability is increased by 247 per cent for the same one per cent increase in earned net yield.

The expense level is also an important factor when determining profitability on this class of business. At a 6,5 per cent per annum net interest yield the profitability decreases by forty per cent if expenses increase from the lower to the higher level and at a 7,5 per cent net yield basis the decrease is nineteen per cent.

Table 6.12 below illustrates the relative changes in profitability of the linked and with-profit business to changes in rates of interest earned and also to changes in expense levels.

The reason that the profitability of the with-profit business is extremely sensitive to changes in rates of interest is that the bonus rate a new company can declare is dependent on the rate of interest it earns on its funds. If the mortality and expense levels experienced by the office were identical to the assumptions inherent in the with-profit premium rates, the company would need to earn a net yield of approximately six per cent per annum to support its bonus rate of twenty three per thousand. Therefore, if it earned 6,5 per cent per annum it would have an interest profit margin of 0,5 per cent net. If the net rate of interest it earned on its funds increased from 6,5 per cent per annum to 7,5 per cent per annum, the net interest profit margin would increase from 0,5 per cent to 1,5 per cent or 200 per cent i.e. a 15,4 per cent increase in the net rate of interest the company earned on its funds (from 6,5 per cent to 7,5 per cent per annum) would increase its interest profit margin by 200 per cent.

Table 6.12 Influence of Changes in Expense and Interest Levels on Profitability

	Linked Business	With-Profit Business	Col. 1 as Per Cent of Col. 2
	Col. 1	Col. 2	Col. 3
	Per Cent	Per Cent	Per Cent
Decrease in Profitability if Expenses Increase from the 'Lower'* Level to the 'Higher'* Level :			
(a) On a 6,5 per cent net yield	15	40	38
(b) On a 7,5 per cent net yield	15	19	79
Increase in Profitability if the Net Yield Earned by the Company Increases from 6,5 per cent to 7,5 per cent :			
(a) On the 'lower' expense level	19	154	12
(b) On the 'higher' expense level	19	247	8

* The 'lower' expense level is defined as seventy five rand per policy initial expenses and renewal expenses of fifteen rand per policy per annum. The 'higher' expense level is defined as ninety rand per policy initial expenses and renewal expenses of twenty rand per policy per annum. (see also p. 150.

The figures given in Table 6.12 clearly illustrate the sensitivity of profits in the with-profit model to the net yield the company earns. In practice, as the net yield it earns on its funds increased, the company would probably increase the bonus rate it declared to policyholders. Competition would also force it to do this.

In the linked model, however, the company has to earn 4,5 per cent per annum net to support its guaranteed minimum maturity values. If the company earns more than this minimum yield on its funds, the shareholders receive a management fee and ten per cent of the net of tax income i.e. as long as the company earns a yield greater than 4,3 per cent per annum, approximately ten per cent of any net increase in yield is for the benefit of shareholders and ninety per cent is distributed to policyholders. This contrasts strongly with the with-profit model where the policyholder effectively receives the benefit of all the interest earned until 6,0 per cent per annum and, if the bonus rate is not increased at higher interest levels, the company receives the benefit of all excess interest earnings.

It can also be noted that the absolute profitability of the linked business is much higher than the with-profit business and this will be analysed in greater detail after Table 6.14 below. By comparing Tables 6.3 and 6.11 it will be observed that, whilst the new business strain in the first two years is very similar for both linked and with-profit business,on the latter deficits are only eliminated after approximately twice the length of time to that required for linked business. This is due to the fact that, from the third year onwards, the profits emerging on linked business are far greater than on with-profit business.

6.6.2 Projection of Different Levels of New Business written Each Year

Due to the smaller total surplus emerging on with-profit business and the slower emergence of this surplus, it could be anticipated that, when a model is constructed for new business written each year, the total new business strain emerging would be very large and surpluses would take far longer to come about than they would under linked business.

Table 6.13 is similar to Table 6.4 for linked business and the parameters of the models are the same as in Table 6.4 but, owing to the very slow emergence of surplus, it was considered that no purpose would be achieved by including

model D. Therefore only five models were analysed to show the comparable with-profit models i.e. models A, B, C, E and F.

The heavier strains of with-profit business are primarily caused by higher surrender values and death benefits being paid out than on linked policies, as well as a faster build-up of actuarial liabilities. At the 6,5 per cent interest level, the total surpluses on models B and C would still be negative at the end of twenty five years.

Table 6.13 was therefore based on the lower expense level and on a 7,5 per cent per annum net interest yield basis.

Once again the sixteenth year was chosen as one of the illustrative years to show the substantial effect the cessation of new business has on the surplus of the company.

All other definitions such as that of maximum deficit arising and the minimum shareholders' capital required are the same as for Table 6.4.

To study the effect of variations in expense levels and rates of interest earned on emerging surplus, model F was further analysed in Table 6.14. Similar variations would be observed if the other four models were studied on these differing interest and expense assumptions. Model F was specifically selected for Table 6.14 as model C was chosen for further analysis in Table 6.5 of the linked model and it can be noted that similar trends emerge.

Table 6.13 Profitability of Writing Different Levels of With-Profit New Business (Figures in Rand)

	Model A	Model B	Model C	Model E	Model F
1. Total surpluses over twenty five years	32 836 100	37 494 099	53 659 700	56 813 200	90 268 400
2. Maximum total deficit arising from the business	5 106 270	11 247 169	23 474 899	11 247 100	23 283 300
3. Year in which this arises	11	15	16	15	15
4. Year in which surplus first arises	12	16	17	16	16
5. Year in which total deficits are eliminated	17	21	22	19	19
6. Minimum shareholders' capital required to write level of new business (Higher R1 000)	2 574 000	4 299 000	8 138 000	4 299 000	8 138 000
7. Surplus earned in year :					
10	-188 890	-954 720	-2 111 740	-954 720	-2 111 740
16	1 374 760	414 616	- 191 514	2 060 240	2 926 770
20	3 102 770	3 792 650	5 743 960	6 073 630	10 066 200
25	6 277 980	10 872 609	18 397 400	11 559 900	19 756 600
8. Surplus per R1 share capital in year :					
10	-0,07	-0,22	-0,26	-0,22	-0,26
16	0,53	0,10	-0,02	0,48	0,36
20	1,21	0,88	0,71	1,41	1,24
25	2,44	2,53	2,26	2,70	2,43

Table 6.14 Cumulative Surpluses Earned in Model F on Different Expense and Interest Assumptions (Figures in Rand)

	Initial Expenses per Policy in Rand Renewal Expenses per Policy in Rand	75 15		90 20	
	Net Rate of Interest Earned	6,5%	7,5%	6,5%	7,5%
		Col. 1	Col. 2	Col. 3	Col. 4
1.	Total surpluses over twenty five years	21 963 500	90 263 400	-7 046 140	57 791 200
2.	Maximum total deficit arising from the business	30 932 800	23 282 300	41 951 300	33 707 700
3.	Year in which this arises	15	15	16	15
4.	Year in which surplus first arises	16	16	17	16
5.	Year in which total deficits are eliminated	23	19	26	21
6.	Minimum shareholders' capital required to write level of new business (Higher R1 000)	12 628 000	8 138 000	15 890 000	11 393 000
7.	Surplus earned in year :				
	10	-2 594 419	-2 111 740	-3 372 980	-2 926 680
	16	285 592	2 926 770	-1 112 930	1 276 250
	20	4 694 690	10 066 208	2 862 496	7 972 810
	25	9 358 520	19 756 600	6 955 590	16 861 000
8.	Surplus per R1 share capital in year :				
	10	-0,22	-0,26	-0,21	-0,26
	16	0,03	0,36	-0,07	0,11
	20	0,39	1,24	0,18	0,70
	25	0,78	2,43	0,44	1,48

In Table 6.14 the total surpluses vary substantially according to the interest yield and expense levels and they vary from a deficit in Column 3 to a surplus of R90 million in Column 2. In Table 6.14 it can be noted that, if expenses increase from the lower to the higher level, the total surplus emerging over the twenty five years is decreased by thirty six per cent if the interest yield earned is 7,5 per cent per annum but, if the interest yield earned is 6,5 per cent per annum, an increase in the expense level turns a total surplus of R22 million into a deficit of R7 million. If the rate of interest earned by the company on its funds increases by one per cent from 6,5 to 7,5 per cent per annum, then on the lower expense level the total surplus emerging over the twenty five years more than quadruples i.e. it increases from R22 million to R96 million. On the higher expense level, a one per cent per annum increase in yield turns a deficit of R7 million into a surplus of R58 million. These figures clearly illustrate the extreme sensitivity of the with-profit model to variations in interest yields and expense levels. This table also clearly shows the considerable effect the slow emergence of surplus has on the capital requirements.

In Table 6.15 the model which creates the heaviest strain is model C and, if a similar table were constructed on a 6,5 per cent per annum interest yield and the higher expense level, a surplus would only first emerge in the twenty-fourth year and previous deficits would probably not be eliminated until approximately the twentieth year. The profitability of conventional whole life with-profit policies is thus considerably less than under linked endowment assurance plans and the profits are deferred for a longer period. Whilst one year's new business is profitable over even a twenty five year period (and obviously more so for a longer period), the emergence of surplus is so small and deferred for so long that, when business is written each year, the strain on the new business more than compensates for the surpluses emerging on renewal business and therefore the emergence of surplus in total is postponed for many years.

6.6.3 Conclusions: Basic With-Profit Models

Similarly to linked business, the more with-profit new business premiums the company wishes to write, the more capital it requires owing to the new business

strain created. Despite the fact that the new business strain for with-profit business in the first two years is only slightly heavier than under linked business, the emerging surpluses for a given year's new business are so much smaller from the third year onwards that the effective new business strain on successive years' with-profit new business is much higher than on linked business. It can be observed that it requires far more capital to enable a company to write the same level of whole life with-profit premium income compared to linked endowment premium income. For example, even assuming a 7,5 per cent per annum net yield on the with-profit business and a 6,5 per cent per annum net yield on the linked business, to write model A new business premium income requires twenty five per cent more capital for with-profit business than for linked business. If the company wishes to write the level of premium income of model C, total capital requirements for with-profit business are R8 million or 316 per cent of the level necessary to write model A with-profit premium income and 148 per cent of the capital to write model C level of premium income for linked business on a one per cent lower interest yield. In fact, at the 6,5 per cent interest level and the higher expense level, to write the model C level of with-profit whole life business, shareholders' capital of R17 million would be required i.e. 730 per cent more than the capital necessary to write the same level of linked endowment business on similar expense and interest yield assumptions.

Model C is by far the most unprofitable with-profit model but the maximum deficit is reached in the twenty-fourth year and the following years produce surpluses. The minimum shareholders' capital plus accumulated net interest is needed until the eighteenth year in this case i.e. at the end of the eighteenth year the full accumulated capital and interest of R53 million combined is required as the total deficit in the fund at that stage is R53 million. By the end of the twenty-fifth year, the total existing deficit (which started to decrease in the previous year) is R51 million, but the accumulation of shareholders' capital plus interest, assuming no dividends have been paid, at this stage is R83 million, making a total of R32 million available for distribution. It would be more likely, however, that as the deficit starts to increase at a slower pace than the interest on accumulated shareholders'

capital plus interest, the company would start to distribute some of the excess accumulated interest as and when it is earned. In fact, a dividend of R1,1 million could be paid in the twentieth year if required. It is instructive to observe from Table 6.15 what dividends could be paid if the company distributed the full surplus each year. These values are shown in Column 3 of Table 6.15.

Table 6.15 is based on the higher expense level and a 6,5 per cent per annum interest yield. The minimum capital required for this model is R17 million. The accumulation of shareholders' capital and net interest shown in Column 2 is based on the assumption that surpluses are distributed as they arise.

Table 6.15 Possible Dividend Policy Under Model C (Figures in R'000)

End of Year	Deficit	Accumulation of Shareholders' Capital, Net of Dividends at 6,5 Per Cent Interest	Possible Dividend
	Col. 1	Col. 2	Col. 3 = Col. 2 (-) Col. 1
19	56 720	56 898	178
20	59 456	60 407	951
21	61 644	63 331	1 777
22	62 889	65 544	2 655
23	63 394	66 977	3 583
24	62 950	67 514	4 564
25	61 445	67 042	5 597

It can be observed from Table 6.15 that, allowing for the injection of shareholders' capital and the net interest earned thereon, in practice dividend declarations are possible in the long-term on this model. A company would generally not declare such a small dividend as that distributable in the nineteenth year and this amount, plus interest, would be added to the dividend payable in the twentieth year. It can be noted that the company can start paying dividends from the twentieth year. If the total surplus is distributed as a dividend each year, the company will not be able to build up additional reserves for contingencies and to allow for fluctuations in asset values. Allowing for accumulated interest on shareholders' capital, these dividends are quite low and even over the twenty five year period the effective return on shareholders' capital is small. This indicates what a truly long-term business conventional life assurance can be, unless there are reasonable interest profits. The with-profit business in its own right produces no profits in this period and the dividends that are declared are merely the residual net interest earnings on shareholders' capital that are not required to finance deficits each year. In the example given, shareholders are not even able to receive over twenty five years the net interest yield earned on their capital. They have, however, financed the new business to build up future profitability.

It has been observed that, to write whole life with-profit business, far more capital is required than for linked endowment business. If the revenue accounts in Tables 6.2 and 6.13 are studied, the reason for the greater strain of with-profit business can be seen to be :

(i) the far greater surrender values payable on with-profit business in the early years. Following one year's new business at the 6,5 per cent interest level, the surrender values paid on the with-profit policies are higher than on the linked plans for the first sixteen years and in the fifth year, for example, surrender values payable on the with-profit policies are R47 551, compared to R29 008 on the linked plans i.e. the surrender value payments on with-profit business are 164 per cent greater at duration five.

(ii) the higher death benefits on the with-profit business. The claim values on the linked plan on the 6,5 per cent interest level are slightly higher than the guaranteed sum assured in the early years and equal to it in

later years, whereas under the with-profit plan the death benefit at inception is the initial sum assured and this increases with reversionary bonuses each year, resulting in total death benefit payments much higher than under the linked plan and, in fact, in the twenty-fifth year the death benefit payments under the with-profit plan are R627 135 or 91,4 per cent greater than under the linked plan.

(iii) The life fund under the with-profit plan consequently builds up far more slowly than under the linked plan. At a 6,5 per cent per annum net yield basis and the lower expense level, if one year's new business of 4 200 policies is analysed, at the end of twenty five years the fund is R19 million under with-profit business but a much larger R23 million under linked business. Nevertheless, the liabilities under with-profit business build up more rapidly than under linked business and, by the end of the twenty-fifth year, the liabilities under the with-profit new business are R16,5 million compared to R16,3 million under the linked plans which are within one year of maturity. Therefore, with the growth of funds being smaller and the growth of liabilities being larger under with-profit business, it is not surprising to find it being less profitable to the company than linked business.

Even where a larger interest surplus is earned on the with-profit business i.e. when a net yield of 7,5 per cent per annum net is earned and the lower expense level is experienced, the fund still increases at a lower rate than under linked business and at the end of twenty five years the comparative funds are R23 million for with-profit business and R27 million for linked business. In this example the linked liabilities at the end of twenty five years are greater than under the with-profit business but, nevertheless, at this stage the total accumulated surplus in the funds is R6 million for with-profit business and R3 million for linked business.

It should be borne in mind that, as discussed earlier, a bonus rate of twenty three per mille is low for the premium rate given when compared to similar policies marketed in South Africa. This was justified on the basis of surpluses not being available from non-profit business and past surpluses, as well as miscellaneous sources to supplement the bonus rate.

The above figures clearly illustrate why a new life office usually does not offer with-profit assurance business or, alternatively, if it offers it, it will usually find it very difficult to compete with the old established offices who have borne new business strain over many years in the past and are now deriving

the benefits thereof. In addition, these established offices have usually written large volumes of non-profit business in the past, although they are not currently doing so and the substantial surpluses derived from this business, as well as the reserves built-up in the past, enable them to supplement their bonus rate from sources other than interest surplus and put them in an advantageous competitive position. A substantial amount of business written in South Africa is linked assurance and this type of business does not confront companies with this handicap. Thus almost invariably the newer offices that have entered the life assurance industry in the last fifteen years have specialized in linked business and the bulk of their premium income on ordinary life business (i.e. non-pension business) has come from this source.

It can be noted from Table 6.13 that the surpluses under with-profit business emerge far more slowly than under linked business. It takes from twelve to seventeen years for surpluses to emerge under the with-profit business compared to eight to twelve years under linked business at a one per cent lower net rate of interest and from seventeen to twenty two years for previous deficits to be eliminated compared to thirteen to seventeen years under the linked business on a lower interest yield. The profitability of with-profit business is thus much more long-term than under linked business.

Table 6.4 illustrates the importance of expense levels and interest yields in determining the timing and quantum of emergence of surplus. For example, the total surplus emerging on model F at a 7,5 per cent per annum net yield and the lower expense level is R90 million compared to a deficit of R7 million on a 6,5 per cent net yield basis and the higher expense level.

It has been shown that the total profitability to shareholders of with-profit business is much less than under linked business and, as was noted in some cases, the former would not be profitable at all in the first twenty five years. A new company would thus have to carefully contemplate the level of with-profit business it wished to write, the bonus rate it intended declaring and the

profitability of the business as a whole.

The most profitable model analysed in Table 6.13 i.e. the one with the greatest ratio of total surplus at the end of twenty five years to the minimum shareholders' capital necessary, is model E with a ratio of 13,22. On the basis of a ten per cent per annum minimum acceptable return to shareholders at the end of twenty five years, the accumulated capital (assuming no dividends payments have been made) would need to be R47 million. Total surpluses within the fund are R57 million and the accumulation of 7,5 per cent per annum net on shareholders' capital would be R22 million, making a combined total of R69 million i.e. forty seven per cent above the total minimum required. By contrast the least profitable linked model shown in Table 6.6 was model D and this generated profits 132 per cent greater than the minimum requirement and this at only 6,5 per cent net. On a 6,5 per cent net yield none of the conventional models produces a ten per cent per annum return on capital invested in the time period considered.

This is a major reason why a proprietary office would carefully consider the level of conventional business they wished to write. This would, however, not be as important to a mutual office.

It has also been noted that the net interest yield earned by the company is of vital importance in determining the profitability of with-profit business.

In practice part of this interest surplus would usually be distributed to the policyholder in the form of a higher rate of reversionary bonus. It is quite clear from the above that, unless a reasonable interest surplus is made, the profitability of with-profit business to a proprietary company is negligible.

Owing to the heavy new business strains on with-profit business and the subsequent slow emergence of surplus, even though the business may be profitable over the long-term, it cannot simply be stated that the more business a company writes, the more profit it will make. The reason for this is that the emergence of these profits may be so far delayed that it would not be reasonable to take such a long-term view, or the company may not have sufficient finance. Each company would have to decide on the time horizons over which it wishes to consider profitability.

It can be noted from Table 6.4 for linked business that model F was in

total more profitable than model C over the twenty five year period but, by the end of that period, the surplus emerging each year in model C was much greater than in model F and it was noted that within a few years model C would become more profitable in total. For with-profit business it can be observed from Table 6.13 that under model F the total surplus emerging over the twenty five years is R90 million or 16% per cent of the total surplus emerging under model C and even in the twenty-fifth year the surplus emerging under model F is considerably greater than under model C, although the gap is narrowing considerably. Model C in fact takes many years to become more profitable in total than model F. Many companies would find it unacceptable to wait this long for profits.

To write model A new business needs less than one-third of the total capital of that in model C and this to earn sixty one per cent of the profits over the twenty five years. Thus, on the 7,5 per cent per annum net yield basis, model A is more attractive to a company than model C. At a 6,5 per cent per annum net interest yield and lower expense level model C in total is still unprofitable at the end of twenty five years, whereas model A produces a surplus in aggregate in the twenty-third year.

In determining the level of with-profit business at which a company intends aiming, it must be guided by the net interest yield it can hope to earn and the bonus rate it would have to declare. It has been shown above that the decision whether a company should choose model C or model A level of new business would be completely different for a given bonus rate, if a 6,5 per cent per annum or 7,5 per cent per annum net yield were earned on its funds.

6.6.4 Mutual and Proprietary Companies Compared

In the with-profit model it is simpler to determine whether the cessation of writing new business would be in the interests of the existing with-profit policyholders of a mutual life assurer. It is not necessary to repeat the arguments presented in Section 6.5.5 but, to ascertain whether the cessation of writing new business would be profitable to existing with-profit policyholders, models C and F from Table 6.13 were further analysed in Table 6.16 below.

Table 6.16 Models C and F : Comparison of Profitability to Policyholders (Figures in Rand)

	Model C	Model F
Total Surpluses Emerging over 25 years	53 650 700	90 268 400
Surplus Emerging in		
(i) Year 16	-191 514	2 926 770
(ii) Year 25	18 397 400	19 756 600
Surpluses Per Policy in		
(i) Year 16	-1,90	17,89
(ii) Year 20	21,70	68,57
(iii) Year 25	53,17	153,59

It can be observed from Table 6.16 that over the twenty five year period model F is far more profitable than model C. The surpluses emerging in the first fifteen years are identical on both models but thereafter the surplus emerging each year under model F is greater than under model C. The profits per policy are far greater under model F than under model C but in practice, profits would be distributed in relation to actuarial reserves. Since there are far fewer policies in force under model F than under model C, as no new business is assumed written in the former model after the sixteenth year, the surplus per rand of actuarial reserves (which are much smaller under model F than under model C) must be greater for model F than for model C throughout the period i.e. the argument in favour of ceasing to write new business is far stronger for with-profit business than for linked business.

If cognisance is also taken of the fact that an existing mutual company would have built up large reserves over the years and if the company were to wind down over the years, these reserves could gradually be released and distributed to policyholders. Thus, taking account of these reserves in assets and liabilities, as well as of the facts shown above, the existing with-profit policyholders would be substantially better off if the company ceased

to write new business, and their eventual benefits on death or surrender would be much larger on this basis.

The question then arises as to the reason why mutual offices do not in fact cease writing new business to maximize the benefits to their existing with-profit policyholders. The answer must be that mutual offices can not therefore exist purely for the benefit of these policyholders and evidence to support this hypothesis is given in Chapters 7 and 8. One of the objectives of a company which operates in South Africa, the National Mutual, is to bring outstanding life insurance to the public and to promote the benefit of their services to as many people as practicable.[1] These objectives are also mentioned by other companies and clearly indicate that, whilst mutual companies obviously try to provide good benefits to their existing with-profit policyholders, they do not aim to maximize their welfare by ceasing to write new business.

Another argument mutual companies put forward against ceasing to write new business to maximize the benefits to existing with-profit policyholders is that the large surpluses they have accumulated in the past have been contributed by policyholders no longer with the company and there is no reason why existing policyholders should claim the rewards of past prudence and accumulation to the 'estate' of the office. The existence of this attitude is strongly reinforced by the following view :

'Actuarial opinion, too, would not support Augustus de Morgan's argument that the funds of a mutual society belong exclusively to the members of the fund at the particular point of time. A mutual life assurance society is a continuing business. Ample funds are necessary for the credit and stability of the office and each generation of members comes into a heritage from the past; so in its turn, each generation should endeavour to pass on that heritage unimpaired to the generations that succeed it. William Morgan understood this and modern opinion would support him'[2].

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1. Source, a pamphlet entitled 'The National Mutual, Who are They'. The reader should note that this pamphlet makes no mention of their existing with-profit policyholders.

2. Ogborn, op. cit., p. 207.

The above statement clearly indicates that mutual companies regard themselves as continuing organisations and thus do not have an objective to maximize the welfare of existing with-profit policyholders if it means ceasing to write new business.

Confirmation that mutual life assurers have objectives wider than those of serving their existing with-profit policyholders was given by the Chairman of the largest life assurer in South Africa, the Old Mutual, when he stated the following :

'Being a mutual life assurance society our aim is twofold, firstly to make available, on as wide a basis as is practicable, the benefits of mutual life assurance, being cover and savings. Secondly, to provide service of the highest quality to our members in terms of security, adequate market coverage, efficient administration and profitable return on premiums invested'[1].

The reference to offering life assurance on 'as wide a basis as is practicable' certainly extends the objectives of mutual life assurers beyond their existing with-profit policyholders.

It has been observed that policyholders would receive greater benefits if no new business were written. As stated previously, if cognisance were taken of the large estates companies have accumulated and if these were distributed to policyholders as the funds declined, the existing policyholders would definitely improve their positions if mutual companies ceased to write new business. This is particularly true for with-profit business and, on the basis of the models alone, far less obvious for linked business. The liabilities in respect of the existing business of the large mutual offices in South Africa are mainly related to life assurance (including substantial amounts of non-profit business) and pension fund business and therefore those policyholders cannot benefit from the greater surpluses they would receive if the companies ceased writing new business and released their past reserves.

This course of action would not be an acceptable objective to any mutual

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1. Chairman's Statement, The Old Mutual, The Star, December 4, 1975, p. 34.

company and it has been noted that their objectives are far larger than merely maximizing the benefits to their existing with-profit policyholders. It should be stated however, that by continuing to write new business and to expand, mutual life offices are not doing their policyholders a disservice as many of them offer competitive contracts. Some mutual offices have declared high reversionary bonuses on their with-profit policies becoming death or maturity claims. In fact, the two largest companies in South Africa, which are both mutual companies i.e. the Old Mutual and Sanlam, have a fine record over the years for excellent payment of benefits to their with-profit policyholders.

6.7 Investment Yield

Both the linked and the conventional model have shown that the most important factor affecting the profitability to the shareholders and policyholders of a life assurer is the investment yield the company obtains on its fund. This is the reason why companies attempt to maximize these yields within their requirements of safety of capital. The desire to maximize yields on funds will be clearly seen from Chapter 8 to be a major corporate objective of life assurers. The legal and investment constraints to achieving this have been described in previous chapters.

CHAPTER 7

CORPORATE OBJECTIVES

7.1 Introduction

In order for a company to plan meaningfully for the future, it should be clear as to what its corporate objectives are. In recent years many companies have tried to clearly establish their corporate objectives and have devised suitable business strategies to achieve them. Some companies have laid down these objectives in writing and committed their management to their attainment. These objectives then tended to dominate their business behaviour, as current and possible future activities were always regarded in the light of company goals. Other companies, however, have not formulated and set out in writing a comprehensive statement of their objectives, as they have seldom tended to take planning this far. In the opinion of the writer, this could only be to their detriment, as clarification of company objectives and goals would help management plan for the present as well as for the future.

An analysis has been made in this chapter of company objectives in general i.e. their purpose, nature and influence on business behaviour. A detailed analysis has also been given of the objectives of life assurance companies in particular and of the specific problems of this industry. In order to obtain evidence on life companies' objectives, a questionnaire was sent to the chief executives of thirty life assurance companies and their replies will be analysed in Chapter 8.

To obtain additional information on the corporate objectives of life assurance companies, the annual reports and chairman's and directors' reports of a number of companies were studied. It was found that corporate objectives were often stated in the chairman's statements accompanying company reports.

7.2 Profit Maximization

The fundamental objective of many companies has been to maximize profits, and this has also been the traditional assumption in the theory of the firm. During recent years, however, the 'profit maximization' hypothesis has come under severe attack from economists and businessmen. The main point of criticism has been that the firm was not governed by just one objective but

by a pluristic system of objectives. Consequently the concept of long-term profit maximization was generally too vague, particularly so in specific decision situations and, even if it were applicable to the smaller enterprise, it would not explain the goal behaviour of larger corporations.[1] This does not imply that the hypothesis has been abandoned altogether by contemporary economists. There has been a considerable amount of literature on the subject covering the whole spectrum of views from those who have supported the traditional theory to those who have negated it entirely, even as an element of a multiple goal system. Some of these differing views will be given below. In the writer's opinion, the profit maximization hypothesis still holds an important place in the theory of corporate objectives but it is seldom, if ever, the only objective. It usually has to be considered alongside other major and minor objectives.

One contributor to the discussion stated that the assertion that the only true purpose of business was profit was no substitute for a more detailed programme. To have an objective to make 'as much profit as possible' left unanswered questions about how it was to be made and whether any restraints were to be observed in the quest. The extent to which present profits would be foregone in anticipation of larger profits in the future was unspecified. The desirability of profit on its own did not make it a magnetic pole establishing a preferred course among many alternatives.[2]

Baldwin agreed that not all corporate decisions could be made exclusively on the basis of maximization of profit.[3] However, he contended that, if one wanted a theory of management behaviour with a single organizational objective subject to maximization or minimization, profit seemed to be the most realistic of the alternatives considered. He conceded that, even though profit maximization

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1. F.E. Rädel, 'Profit Maximization - Can it be Justified?', South African Journal of Economics, Vol. 37, No. 1, 1969, pp. 32-41, 1969, p. 32.

2. G.R. Christie, P.H. Andrews and J.L. Bower, Business Policy, Text and Cases, Homewood, Illinois, Richard D. Irwin, 1973, p. 109.

3. W.L. Baldwin, 'The Motives of Managers, Environmental Restraints and the Theory of Managerial Enterprise', Quarterly Journal of Economics, LXXVI, 1962, pp. 238-256, 1961, pp. 253-4.

might be the most accurate single motivational assumption explaining management behaviour, in some cases it might be useless in determining the best single solution to particular problems.[1]

Another contribution to the topic has been made by Penrose, who suggested that financial decisions of firms were controlled by a desire to increase long-term profits. She also stated that, as a policy recommendation, an investment should not be made in expansion for the sake of growth if the return on the investment were negative. Therefore, it follows that to increase the total long-run profits of the enterprise was to increase the long-run rate of growth. It was therefore immaterial whether one referred to 'growth' or 'profit' as the goal of a firm's investment activities.[2]

Baumol analysed the hypothesis that no firm could be earning maximum profits unless its marginal cost of production and marginal revenue arising therefrom were (at least approximately) equal i.e. unless an additional unit of production could be sold for at least as much as it cost to produce. The additional unit produced would have a marginal profit of zero.[3]

He proved this hypothesis both diagramatically and by general reasoning. He gave the example of a firm that produced 200 000 units of a product 'x' and, at that level of output, the marginal revenue from production was $1.10, whereas its marginal cost was only 96 cents. Additional units of 'x' would therefore have realized 110 - 96 = 14 cents more than they had cost to produce and consequently the firm could not have been maximizing profits by keeping production at the 200 000 unit level. Similarly, if the marginal revenue received from an additional unit of 'x' were less than its marginal cost of production, the firm could not have been maximizing its profits as, by reducing its output, it would have reduced its income but would have reduced its costs by an even

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1. Ibid., p. 254.
2. Edith T. Penrose, The Theory of the Growth of the Firm, Oxford, Blackwell, 1968, pp. 29-30.
3. W.J. Baumol, Economic Theory and Operations Analysis, 3rd ed., Prentice-Hall, Englewood Cliffs, N.J., 1972, p. 321.

great a amount.[1]

It is of interest to reproduce, with slight modification, Baumol's illustration of the above.[2] This is done in Figure 7.1 below. Baumol assumed a falling demand function, i.e. :

$p = p(x)$, where p is the price and x is the output and $\frac{dp}{dx} < 0$.

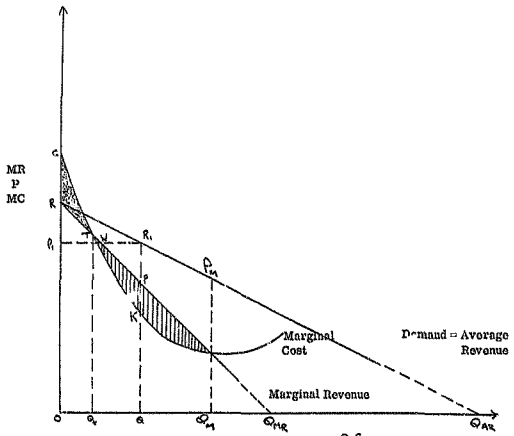


Fig. 7.1 Illustration of Hypothesis that Profits are Maximized when Marginal Cost Equals Marginal Revenue

1. Ibid.
2. Ibid., pp. 321-2.

In Figure 7.1 MR, P,MC, O and S represent marginal revenue, price, marginal cost, output and sales respectively. Total revenue is price multiplied by quantity sold or, at a level of output OQ, it becomes the area OQPR under the marginal revenue curve.[1]

Similarly, total costs of production of OQ are represented by the area OQKC. Total profit is the difference between these two areas, i.e. total profits are given by the striped area TPK, less the initial area where losses are made, the dotted area RTC. It is clear that, as point Q is moved to the

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1. This can be proved as follows. If we assume that the marginal and average revenue curves in Figure 7.1 above are straight lines, P will equal a-bx. Revenue equals price P multiplied by output x i.e.

$$R = Px = ax - bx^2.$$

To obtain the marginal revenue curve, we have :

$$\frac{dR}{dx} = a - 2bx;$$

i.e. the gradient of the marginal revenue curve is twice as steep as that of the average revenue curve.

Total revenue equals quantity sold multiplied by the price per unit of sales. Output OQ is assumed to be sold at price OP_1; hence at this output level total revenue is :

$$(OQ)\ (OP_1)$$

or the rectangle: OQR_1P_1

inscribed under the average revenue curve. Now the area under the marginal revenue curve : OQPR

and the rectangle: OQR_1P_1

have the area: $OQPWP_1$

in common. Furthermore, the triangles: RWP_1 and R_1WP are congruent and thus of equal size. (They are congruent as opposite angles of a vertex, RWP_1 and R_1WP are equal; angles RP_1W and WR_1P are right angles, and, as proved above, P_1W equals WR).

Therefore, the total area under the marginal revenue curve OQPR equals the area of the rectangle OQR_1P_1 as required.

right, i.e. as sales expand, total profits increase until output reaches the OQ_m level, and at this stage maximum profits will be reached. If output expanded to the level $OQ_{m'}$, marginal costs of any extra units of production would exceed marginal revenues and hence total profits would decrease. We have therefore illustrated that the point of maximum profits occurs where marginal cost equals marginal revenue.

One should note that the converse of the above is invalid. It is not generally true that any output level at which marginal cost and marginal revenue happen to be equal (i.e. when marginal profit is zero) will be a profit maximizing level. There may be several levels of production at which marginal cost and marginal revenue are equal and some of these output quantities might be far from advantageous to the company. In Figure 7.1 the condition is satisfied at both output levels OQ_t and OQ_m. We have seen that, at output level OQ_m, profit is maximized but, at output level OQ_t, the firm obtains only the net loss (negative profit) represented by the dotted area RTC. The necessary condition for profit maximization is that the second derivative of the profit function is negative.

The normal sales situation is one in which revenue and costs are functions of output. In this case : $Z(x) = R(x) - C(x)$, where z equals profits. In order to maximize profits,

$$\frac{dZ(x)}{dx} = \frac{dR(x)}{dx} - \frac{dC(x)}{dx} = 0$$

$$\therefore \quad \frac{dR(x)}{dx} = \frac{dC(x)}{dx}$$

i.e. marginal revenue equals marginal cost.[1]

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1. In the theoretical case of perfect competition output (or sales) is not a function of price but is a constant, i.e. average revenue equals marginal revenue equals price in this case. Mathematically we have:
   $Z(x) = (P)(x) - C(x)$
   and to maximize profits :
   $$\frac{dZ(x)}{dx} = P - \frac{dC(x)}{dx} = 0$$
   $$\therefore \quad \frac{dC(x)}{dx} = P$$
   Profits are thus maximized when the marginal cost of production equals the selling price of the output.

The revenue function R(x) equals price multiplied by output, i.e. $R(x) = P(x)x$. We have proved that, in order to maximize profits, we need :

$$\frac{dR(x)}{dx} = \frac{dC(x)}{dx}$$

or, by expansion

$$\frac{dP(x)}{dx} x + P(x) = \frac{dC(x)}{dx}$$

where the left hand side of the equation represents marginal revenue. This consists of two terms i.e. $\frac{dP(x)}{dx} x$ which is always negative and which constitutes the loss in revenue that must be forgone to sell one additional unit and P(x) which is the price received from the one additional unit sold.

Revenue, cost and profit curves can also be shown graphically. In Figure 7.2 the horizontal axis denotes output level or sales x, whereas the vertical axis denotes total revenue R and total cost C. The graph gives the total revenue and total cost functions. Whilst the total revenue function is a second degree curve, the total cost curve is of the classical type and is represented by a third degree polynomial. In Figure 7.3 the corresponding profit function is shown.

In Figures 7.2 and 7.3 it can be observed that at output levels OX_1 and OX_5 profits are zero. Between these two levels of output profits are positive and profits are maximized at output level OX_3. However, if a company wished to maximize sales subject only to the constraint of not making a loss, it should sell at ouput level OX_5. Companies may have as their objective to make at least a minimum profit, say, at level P_{MIN}. If level P_{MIN} is greater than the maximum profit possible at level P_{Max}, the firm will produce OX_3 to obtain profit P_{MAX}. If, however, P_{MIN} is less than P_{max}, then there is more than one solution to the problem and, as illustrated in Figures 7.2 and 7.3, the company could produce the same profit P_{MIN} either at output level OX_2 or OX_4.

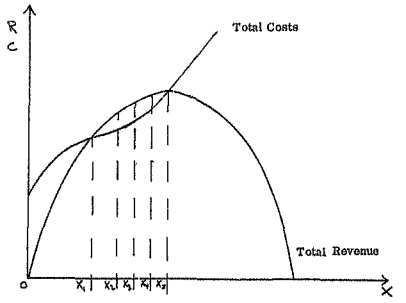


Fig. 7.2 : Total Cost and Total Revenue Functions

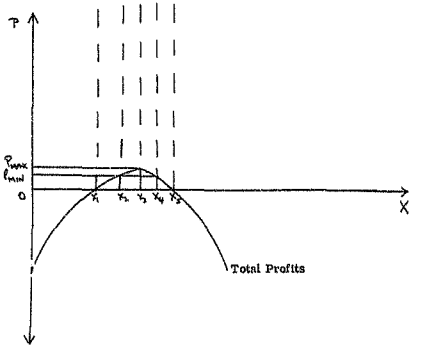


Fig. 7.3 : Total Profit Function Derived from Figure 7.2.

7.3 Simon's Satisficing Behaviour

A prominent critic of the profit maximization hypothesis was Simon who gave the following objections :[1]

(i) The hypothesis does not clarify whether short-term or long-term profits are to be maximized.

(ii) The entrepeneur might obtain all kinds of 'psychic income' from the firm, apart from monetary rewards. He might wish to maximize his utility and be prepared to forego profits in order to obtain an increase in 'psychic income'.

(iii) The entrepeneur might simply wish to obtain a rate of return which he regarded as satisfactory, rather than to maximize profits.

(iv) Where there exists an oligopolistic relationship among firms, maximizing becomes an ambiguous goal, for what action is optimal for one firm depends on the actions of other firms.

Simon commented that the notion of satiation, whilst it was important in the treatment of motivation in psychology, did not play a role in classical economic theory. In most psychological theories the motive to act stemmed from drives and action terminated when these drives were satisfied. Furthermore, the conditions for satisfying a drive were not fixed but might be specified by an aspiration level that adjusted itself upwards or downwards on the basis of experience.

Therefore, if one sought to explain business behaviour in terms of this theory, one could expect the firm's goal to be to attain a certain level of profit, a particular share of the market or a certain level of sales, rather than the maximizing of profit. Firms would therefore try to satisfice rather than maximize.[2]

Simon stated that models of satisficing behaviour were richer than those of maximizing behaviour, since they analysed not only the equilibrium level but the method of reaching it as well.

He supported his 'satisficing hypothesis' by quoting empirical studies;

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1. H.A. Simon, 'Theories of Decision-Making in Economics and Behavioural Science', American Economic Review, XLIX No. 3, 253-83, June 1959, p. 262.

2. Ibid., pp. 262-3.

firstly, the series of studies stemming from the pioneering studies by Hall and Hitch that indicated that businessmen often set prices by applying a standard mark-up to costs to give them the return they desired. There was a further series of studies derived from the debate over the Keynesian hypothesis that the amount of investment was insensitive to changes in the rate of interest. The general finding of these studies was that the rate of interest was not an important factor in investment decisions.[1]

Simon agreed that, in many cases, management recognized the complexity of the calculations and the imperfections of the data which had to be employed in any optimality calculations. Therefore, firms frequently gave up the attempt to maximize sales or profits and set themselves some minimal standards of achievement which they hoped would assure the firm's viability and an acceptable level of profit. Firms that were satisfied with achieving such limited objectives were said to 'satisfice'[2].

Marris explained the 'satisficing' concept as being a form of behaviour in which the subject, faced with a difficult problem to solve, preferred to sacrifice some of the rewards of the optimum solution in order to reduce the pains incurred in searching for it, i.e. accepted a solution that was sufficiently satisfactory in relation to various criteria such as survival and aspiration.[3] It has been pointed out that no person or organization could in fact satisfice at a utility level higher than would be theoretically attainable from a maximizing position. By contrast, the drive of satisficing theory stemmed from the possibility that, in many cases, the maximizing solution is unknown and is therefore of academic interest only.[4]

7.4 The Separation of Ownership and Management

The lifetime of a company is not limited to the existence of the owner or entrepeneur and therefore the whole machine of company enterprise has enhanced the desire for continuity. Over the last few decades a clear distinction of identity between the managers and the shareholders has emerged.

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1. Ibid., p. 264.
2. W.J. Baumol, Economic Theory and Operations Analysis, op. cit., p. 332.
3. R. Marris, The Economic Theory of 'Managerial' Capitalism, London, MacMillan & Co., 1964, p. 106.
4. Ibid., p. 266.

This distinction was clear-cut insofar as the difference between management and majority shareholders existed. Minority shareholders were, however, seldom in a position to influence company policy and to actively direct the course of the business. It could be argued that, as long as management satisfied shareholders, their main preoccupation would be :

(i) to ensure continuity of the firm (and hence perpetuate employment of management);

(ii) to ensure growth of the assets of the firm; and

(iii) to increase the power and prestige of management.

Rédel maintained that this desire for the continuity of the firm could not be defended as an autonomous objective since, while it explained the desire for continuity of an existing firm, it did not explain why a firm had initially been established.[1]

A different commentator, A. Alchian, has stated that the observations of behaviour that refute the profit or wealth maximizing theory are the 'facts' that some managers incurred expenditure greater than that necessary to maximize the wealth or profits of owners of the firm. Furthermore, managerial actions not conducive to the greater wealth of stockholders were taken to be well-established facts.[2] In this regard Hindley noted that it had become traditional to treat the separation of ownership and control as raising two connected issues; firstly, whether management had considerable latitude in the attention they paid to the owner's interest and, secondly, to what use they put this freedom.[3]

Hindley also believed that it had generally been accepted that managements have had considerable latitude and most literature had concentrated on how they could have used this.

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1. Rédel, op. cit., p. 36.

2. A.A. Alchian, 'The Basis of Some Recent Advances in the Theory of Management of the Firm', Journal of Industrial Economics, XIV, No. 1, 30-41, November 1965, p. 30.

3. B. Hindley, 'Separation of Ownership and Control in the Modern Corporation', Journal of Law and Economy, XIII(1), 185-221, April 1970, p. 220.

Strong empirical evidence to suggest that the behaviour of many types of firms deviated from the profit maximizing ideal was given by Furobotn and Pejovich. Part of this empirical evidence has been given above. The authors maintained that what was required was that the concept of income or wealth maximization should be replaced by one of utility maximization and that the analysis should take into account the effects of changes in property rights in resources on the actions of decision makers. Managers could, at some cost, engage in discretionary behaviour and divert a portion of the organization's pecuniary and non-pecuniary benefits for themselves. They necessarily infringed upon the interests of the owners who might react thereto.[1]

It is of course true that emoluments and staff preference were two ways managers could spend funds beyond the profit maximizing rate. This issue was discussed by Williamson, who stated that the preference for larger staffs existed as managers' salaries were correlated to the size of the staff employed. His hypothesis can be expressed as the maximizing of managers' utility. It was in the interest of the owners to maximize profits but managers tended to maximize their own utility. There were costs of policing managers' actions to ensure that they maximized the welfare of owners but, if the profits saved would be less than the costs of such action, it would be better to avoid the former. Williamson analysed the above by different mathematical models[2] and a simplified graphical representation of one of these models was given by Furobotn and Pejovich and is reproduced below.[3]

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1. E.G. Furobotn and J. Pejovich, 'Property Rights and Economic Theory. A Survey of Recent Literature', Journal of Economic Literature, X, No. 4, 1137-62, December 1972, pp. 1146-7.

2. O.E. Williamson, The Economics of Discretionary Behaviour : Managerial Objectives as a Theory of the Firm, Englewood Cliffs, N.J., Prentice-Hall 1964, pp. 38-65.

3. Furobotn and Pejovich, op. cit., pp. 1151-2.

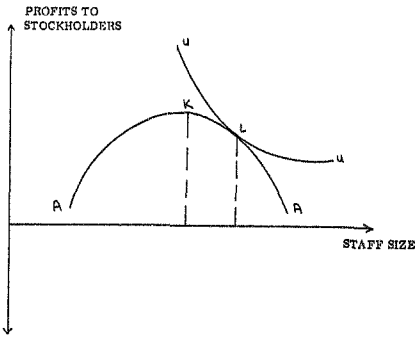


Fig. 7.4 The Relationship between Stockholders' Profit and Staff Size as Sources of Utility or Pecuniary Income to the Manager

In Figure 7.4 the vertical axis measures profit to the owners (stockholders), and the horizontal axis measures staff (or emoluments).

Curve AA is the feasibility curve portraying the opportunity set of combinations of profits and numbers of staff employed open to the manager. The initial positively shaped position indicates that as the number of staff members employed increases, so do profits. Moving across to the right it can be noted that beyond point K, an increase in staff decreases profits.

From the manager's point of view, indifference curve UU reflects a possible subjective evaluation of different combinations of staff and profits. Both profits and staff numbers enter the manager's utility function as larger profits or larger numbers of staff employed imply greater salaries for managers.

Indifference curve UU shows how, to the manager, his marginal utility

from an additional unit of staff is initially greater than his marginal utility from an additional unit of profit but as staff size continues to increase the marginal utility of an extra unit of profit is eventually greater to the manager than the marginal utility of an extra unit of staff.

In maximizing his own utility, the manager will thus opt for more staff as long as his marginal utility from an extra unit of staff is greater than his marginal utility from an extra unit of profit.

From the above it can be seen that the best attainable operating position for the manager is at L where he maximizes his utility function subject to the constraint of the opportunity set AA. The vertical distance between L and K thus represents the transfer of wealth from stockholders that is made possible through the attenuation of the manager's property rights in the firm. The transfer has to be equal to or less than the cost to stockholders of enforcing a return to K as otherwise they would do so.

Marris developed the thesis that corporations have developed financial incentives which, when applied together with certain functional requirements, have tended to stimulate managers to promote organizational growth. Furthermore, when an executive took a decision leading to successful expansion, he not only created new openings but he recommended his colleagues and himself as particularly suitable candidates to fill them. He suggested that the best short description of the motivation induced by social existence in a managerial group was that of a drive towards efficient, well-organized expansion associated with a persistent search for new opportunities. These expansion drives would not necessarily coincide with maximization of wealth to the owners of the firm.[1]

A noteworthy hypothesis about the goal conflict between the owners and management in modern capitalism was put forward by Monson and Downes. In reference to the difference between risks and rewards, their argument was that the self-interest of managers in a managerially controlled firm lay in maximizing the manager's lifetime income. This income included both

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1. Marris, op. cit., pp. 53, 61, 102.

monetary elements such as salaries, bonuses and capital gains from stock options and non-monetary elements such as leisure prestige and power.[1] Due to the separation of ownership and managers, owners have tended to become satisficers and have encouraged firms to provide a steady income from dividends and gradual appreciation of the market price of its stock. In fact, their remoteness from the firm's actual affairs have made it impossible for them to press for profit maximizing behaviour.

Two reasons have been given by Monsen and Downes as to why the behaviour of large firms that were managerially controlled deviated from the profit maximization hypothesis.[2]

Firstly, the large size of such firms required them to develop bureaucratic management structures that could not be perfectly controlled by the men in charge of them. In particular these structures tended to provide top management with biased information that reflected too strongly the desires of those controlling the structure and only partially carried out the orders issued by top managers. These problems existed due to the sheer size of firms and would therefore exist in large owner-managed firms as well as large managerial firms.

Secondly, as stated above, the separation of ownership and management has limited owners to being satisficers rather than maximizers and hence managers have aimed at achieving a steady growth of earnings plus gradually rising stock prices instead of maximizing profits. Thus they believed that large managerial firms have tended to be more cautious and have spent less money on 'crash' research programmes, have experienced less variability in profits, have larger expense accounts and have probably grown more slowly than they would have done had they sought to maximize profits.

If the above reasoning is correct, it should be possible to demonstrate it empirically. A difference in the profitability of owner-controlled and manager-controlled firms was observed in an empirical survey done by Monsen, Chiu and Cooley. They defined owner-controlled firms as those where

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1. R.J. Monsen and A. Downes, 'A Theory of Large Managerial Firms', Journal of Political Economy, LXXIII, No. 3, 221-36, June 1965, pp. 226-7.
2. Ibid., p. 236.

one party owned at least ten per cent of the voting stock and was represented on the board or in management, or was otherwise known to stockholders, or a situation where one party owned twenty per cent of the stock or more. In this context 'party' meant an individual family or family-holding company. A management-controlled company was one where no single block controlled greater than five per cent of the voting stock and there had been no evidence of recent owner-control.

Twelve industries were analysed and three firms of each control type were selected from Fortune's list of the five hundred largest industrial firms in the United States by sales in 1963. This sample provided data for thirty six firms of each control type taken over the twelve-year period from 1952 through to 1963. Thus four hundred and thirty two observations for each control type were analysed.[1]

The most important statistic they analysed was the ratio of net income to net worth as this measured the return on the owner's investments. The mean ratio values expressed as a percentage were 12,8 per cent for owner-controlled companies and 7,3 per cent for manager-controlled companies i.e. the return earned by owner-controlled companies was seventy five per cent higher than for manager-controlled companies. This indicated that the owner-controlled firms provided a much better return on the original investment and this suggested a better managed capital structure and a more efficient allocation of the owner's resources. The net income to net worth ratio varied by type of industry but by only one third of the amount of the control type effect. No other effect, including the size of the industry or the interaction of control plus industry, was significant. The owner- or management-control type affected all industries very strongly.[2]

Hindley also undertook empirical research by investigating the ratio of the balance sheet value of assets compared to the stock market price. The results

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1. R.J. Monsen, J.S. Chiu and D.E. Cooley, 'The Effect of Separation of Ownership and Control on the Performance of the Large Firm', Quarterly Journal of Economy, 3, 82, 435-51, 1968, pp. 438-40.

2. Ibid., pp. 441-2.

of these experiments only produced weak support for the hypothesis that this ratio and the dispersion of ownership were related. However, he stated that the hypothesis could not be refuted on the basis of the results.[1]

7.5 The Legal View of the Firm and Socio-Ethical Considerations Governing its Behaviour

An interesting legal view of the 'raison d'être' of companies has been given by R.C. Beuthin, who wrote as follows :

'The law, it would seem, is content to recognise that a company is in fact an association simply of shareholders who have joined together for their own personal gain. Their target is profit, and it is on that target that the directors must constantly set their sights'[2].

Whilst the above might be the legal view, in many cases it was clearly not the practice of companies and many company directors have openly stated that they did not support the above view. Beuthin argued that many directors felt that it was their duty not only to satisfy the interests of shareholders but also the interests of employees, customers, trade connections, the local community and the nation, bearing in mind that the relative priorities of each would vary from time to time.[3] There was little doubt that, in pursuing their daily activities, many companies did not consider purely the interests of their shareholders but also considered the various sections of the community.

Beuthin examined the legal rationale of a company spending funds on donations to charities and universities.[4] In the long run the motivation must be to ultimately benefit the shareholders. For example, sponsorship of sporting activities and charitable donations must be for the purpose of advertising the company's products and creating or preserving goodwill to the ultimate benefit of shareholders

1. Hindley, on. cit., p. 230.
2. R.C. Beuthin, 'The Range of a Company's Interests', South African Law Journal, LXXXVI, part ii, 1-24, May 1969, pp. 9-16.
3. Ibid., p. 10.
4. Ibid., pp. 12-14.

in a society which has come to expect such conduct, especially from the larger companies. Donations to universities and scholarships, he believed, found their justification in the fact that they were meant to bring direct advantages to the company and its shareholders in the long-term. Beuthin quoted court cases in which the view was adopted that gifts to employees were permissible if their purpose were to encourage long service rather than merely to reward it.[1] Beuthin therefore clearly believed that the legal view of the actions of companies was they should be undertaken primarily for their long-run profitability to the company.

Ethical and social motives have become increasingly important in influencing business behaviour, especially in recent years. A business cannot run itself exclusively on ethical and social objectives, or principally for the benefit of the community as a whole. Many companies have, however, come to the view that they have certain basic social responsibilities and, other things being equal, they should embark on actions that would be to the good of the community in general. Some companies which have made vast profits have believed that, if they spent some of these profits for the benefit of the community or state, they would be less likely to be interfered with by the authorities. The philosophy was that the state would be more likely to encourage those enterprises that could be observed to act for the benefit of the community. A typical account of the attitudes of companies towards their social responsibility is available from interviews held with twenty five large British companies (twenty of which were in the top hundred companies in the United Kingdom when ranked by capital employed).[2] Randomly selected from a variety of industries, all the company representatives interviewed accepted the general objective

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1. Ibid., p. 13. See Wimbledon and Putney Commons Conservators v. Tuely (1931)1, Ch. 190; Hampson v. Price's Patent Candle Company (1876), 45 L.J., Ch. 437; Henderson v. Bank of Australasia (1888) 40, Ch.D. 170; Hutton v. West Cork Railway Co. (1883), 23 Ch.D. 654.

2. B. Shenfield, Company Boards. Their Responsibilities to Shareholders, Employees and the Community, London, George, Allen and Unwin, 1971, pp. 23-4.

that companies should act in a socially responsible manner. None of the companies doubted that their primary responsibility was to be efficient and profitable and that being socially responsible would not serve a useful purpose if it hindered these overall company goals. They did recognize that some activities which were to the benefit of the community and were apparently non-profit seeking in the short-run, might be a necessary part of longer-term business success and would therefore in no way conflict with the continuous prosperity of the company and its ability to serve the best interests of its shareholders.[1]

It has been claimed that the salaried manager was more likely than the owner-entrepreneur to consider the claims of groups other than those of the owner. It was unlikely, however, that the pursuit of socio-ethical responsibilities was a fundamental corporate objective but it would rather be a secondary guideline in the light of which various primary actions would have to be viewed. In many instances funds used for donations could have been used by companies more profitably in other directions but companies have believed that the goodwill obtained from the community as a whole more than offset this.

It is informative to study the attitude of South African companies in this regard and as an outstanding example of a major company that has involved itself heavily with the community, the South African Breweries can be quoted. In their 1975 annual report the chairman devoted almost a full page to their role as a corporate citizen and in this respect he had the following to say :

'It is our belief that a Group such as ours cannot stand apart from the community, and we are committed to shouldering our share of social responsibilities and obligations. In the future, in addition to supporting sport, university education and charitable causes, we will concentrate our efforts more forcefully, in the field of technical education'[2].

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1. Ibid., p. 161.

2. Statement by the Chairman of the South African Breweries Limited, Dr. F.J.C. Cronje, 1975 Annual Report, p. 12.

Kantzenbach, a German commentator, regarded the management of a firm, from this standpoint, more as co-ordinators of different interests and pleasure groups than as an autonomous ruler. Within the framework of this co-ordination the management would also consider the place of its socio-ethical responsibilities.

The managers of a firm could not think exclusively of shareholders. There were a number of groups whose interest had to be considered:

'Therefore in laying down the firm's objective functions, they must give more or less due consideration to the interests of all who fulfil a role - employees, owners of capital, suppliers, customers, etc'[1].

Whereas a firm must consider the various groups that could affect its survival and progress, the problem was that actions designed to increase the satisfaction of one group (such as employees) might diminish the satisfaction of another group (such as shareholders). The management of the company must therefore continuously make decisions within its framework of constraints.[2]

7.6 Special Hypotheses

7.6.1 Sales Maximization

Some economists have put forward the thesis that the prime motivator of business behaviour was to maximize sales rather than profits. To quote Baumol :

'The evidence for my hypothesis that sales volume ranks ahead of profits as the main object of the oligopolist's concern is ... highly impressionistic, but I believe it is quite strong'[3]. From their actions it appears that a number of firms have believed that the maximization of profits and sales were closely related to each other and that, on the assumption that all sales were profitable,

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1. E. Kantzenbach, 'Social Co-ordination of Individual Economic Activities. Thoughts on Basic Economic Policy Decisions', German Economic Review, 7, No. 3, 185-98, 1969, p. 189.

2. P. Kotler, Marketing Decision Making. A Model Building Approach, London, Holt, Rinehart and Winston 1974, pp. 237-8.

3. W.J. Baumol, 'Business Behaviour, Value & Growth', rev. ed., New York, Harcourt Brace & World, 1967, p. 47.

to maximize sales was to maximize profits. This is, however, not always correct, as will be proved below. Nevertheless, it is not uncommon to find businesses which have attempted to maximize sales of all their products, despite the fact that some of their sales areas could be proved to be highly unprofitable. Baumol argued that, in cases where the sales of certain products were unprofitable, businessmen would tend to listen to proposals to make them profitable.[1] He found that in many cases, however, businessmen were so concerned to maintain a high volume of sales, that they were reluctant to improve profitability if it meant explicitly decreasing sales volumes.

If a firm's objective were to maximize sales, there had to be some compromise between sales and profit objectives. Naturally, if the maximization of sales involved disregarding profit altogether, bankruptcy could lie ahead, for sales could possibly be maximized at a price so low that not even variable costs would be covered. The compromise between sales and profits was generally a vague one and seldom laid down in detail. Firms in general seemed to set prices at a fixed mark-up on average cost prices.

This led Baumol to the conclusion :

'I am prepared to generalise from these observations and assert that the typical oligopolist's objectives can usefully be characterised, approximately, as sales maximization subject to a minimum profit constraint'[2].

In another publication Baumol modified his maximization theory of sales and stated that maximization of the rate of growth of sales revenue might be a better approximation to the objectives of the management of many firms rather than the maximization of the current level of sales[3]. To support his argument, he pointed out how the publicity material of many firms showed their percentage increase in sales each year rather than merely stating their absolute amount.

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1. Ibid.
2. Ibid., p. 49.
3. W.J. Baumol, 'On the Theory of the Expansion of the Firm', American Economic Review, 52, No. 5, 1078-87, December 1962, p. 1085.

A number of firms have had multiple goals, but these are not always capable of being realized. Kotler examined the case of a firm that wished to maximize both sales and profits. This was seldom possible. He gave examples of cost and demand equations and, in solving these, it emerged that different prices were required to maximize sales revenue and profits respectively.

Kotler's reasoning is briefly reproduced as follows :

The demand equation is :

$Q = 1\ 000 - 4P$

and the cost equation is :

$C = 6\ 000 + 50Q$

From the above two equations :

$Z = PQ - C$

$\therefore\ Z = -56\ 000 + 1\ 200P - 4P^2$

$\frac{dZ}{dP} = 1\ 200 - 8P = 0$

$\therefore\ P = 150$

The profit maximizing price is thus $P = 150$.

Total revenue is given by QP:

$QP = 1\ 000P - 4P^2$

$\frac{d(QP)}{dP} = 1\ 000 - 8P = 0$

$\therefore\ P = 125$

The sales revenue maximizing price is thus $P = 125$, which is 16,7 per cent lower than the profit maximizing price. In both the above cases second derivatives are negative proving that the solutions reached are in fact profit and sales revenue maximizing prices respectively.[1]

Baumol also speculated that the goal of the large business firm could be represented by sales maximization subject to a minimum profit constraint. He maintained that an oligopolistic firm was in equilibrium at a price where profits were equal to a minimal acceptable profit level.

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1. The exact exposition is given in Kotler, op. cit., pp. 238-9.

Baumol developed his sales maximization model to include advertising costs and assumed that, unlike a price reduction, increased advertising would always increase total revenue. Therefore it would always pay the sales maximizer to increase his advertising outlay until he was finally constrained by his profit objective. This meant that sales maximizers would normally advertise no less than, and usually more than, profit maximizers. Unless the maximum profit level were no greater than the minimum profit required, it would be possible for a firm to increase advertising beyond the profit maximizing level without violating the profit constraint.[1]

7.6.2 Multiple Objectives

In some recent hypotheses the firm has been considered as seeking to satisfy multiple objectives. These objectives would be called the firm's goal variables and include such things as profit, sales, market shares and employee and community welfare.[2]

It has been observed that a firm with multiple objectives cannot simultaneously maximize all of them and thus it has to place a utility function over its objectives and seek to maximize this function. In general, the firm must attempt to find a way to convert its multiple objectives into a utility formulation that allows the decision-maker to evaluate the total effect of alternative policies on its long-run goal-formulation.[3]

Kotler summarized the position of a firm with multiple goals that wished to find an optimum marketing programme. The firm would first have to clarify its goal variables and then formulate a utility function. It would also have to

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1. W. J. Baumol, Business Behaviour, Value and Growth, op. cit., p. 60.
2. Kotler, op. cit., p. 17.
3. Ibid.

clarify the marketing decision variables under its control both in the short- and long-run and ascertain their effects on the goal variables. It should then project the likely levels and effects of the environmental variables on the goal variables and clarify the constraints that would have to be observed with respect to the decision and goal variables. It would then arrive at a decision that would maximize the firm's utility function.[1]

7.6.3. Other Hypotheses

The entire corporate philosophy of a company can very seldom, if ever, be summarized by a single objective such as maximization of sales or profits. Companies usually have to consider a wide range of interests and views, besides a set of main objectives, and they usually have a number of minor objectives. Thus companies generally have one or more major objectives, but these are usually subject to constraints, some of which are in fact minor objectives. A number of these other corporate objectives are considered in this section. A firm could in fact set its main objectives subject to certain constraints and within each main objective it could have a set of subsidiary objectives.

Rädel listed a number of alternative objectives of the firm,[2] nine of which were chosen from three empirical studies by Heinen.[3] The ten objectives were:

(i) Profit maximization,
(ii) Sales maximization,
(iii) Principle of rationality,
(iv) Safeguarding of the firm's potential,
(v) Safeguarding the firm's liquidity,
(vi) Safeguarding the firm's independence,
(vii) Prestige,
(viii) Power,
(ix) Ethical and social objectives,
(x) Continuity of the firm.

The first two objectives have already been discussed in detail earlier in this

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1. Ibid., p. 19.
2. Rädel, op. cit., p. 36.
3. E. Heinen, 'Das Zielsystem der Unternehmung', Wiesbaden, 1966, quoted from Rädel, op. cit.

chapter and will not be discussed further here. The fourth and tenth objectives could be dealt with together and were discussed in Section 7.5.

The principle of rationality was concerned with the maximization of the difference between input and ouput values, irrespective of the aim for which this surplus is sought. The principle had a formal character and was indifferent to the economic system in which it operated. It was not a primary objective, but rather a formal secondary one.[1]

Similarly, the desire to safeguard liquidity could not really be described as a principal objective, but rather a pre-requisite for the survival of the firm and hence a necessity to ensure continuity.

Rädel stated that the objective of independence could have different meanings - it could mean the desire to avoid a controlling influence in the company by creditors, clients or suppliers, or it could mean an opposition to mergers in which the identity of one party was usually lost. Whilst independence was essential to the functioning of a competitive system, it could hardly be considered the 'raison d'être' of a firm. Therefore, once again, the desire for independence could not be described to be a primary objective of business but rather a secondary one.

Power and prestige could be dealt with together as power was essentially only a stronger form of the desire for prestige. The power motive was undoubtedly one of the fundamental motivating forces of man, and in some cases economic empires were built up by great entrepreneurs, more for the sake of the satisfaction which the exercise of power gave than for profits. The influence of power could be used to increase profits. The power motive had all the properties of an autonomous objective but was inter-related to the profit motive.

7.6.4 Pricing Policy

Pricing policy is inextricably linked up with corporate objectives. A company (unless it has an absolute monopoly) cannot formulate its pricing policy without considering its competitors or possible substitutes for its products.

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1. Rädel, op. cit., pp. 33-7.

The most typical pricing objectives have been described by Lanzilotti as :[1]

(i) Pricing to achieve a target return on investment;

(ii) Stabilization of price and margin;

(iii) Pricing to realize a target market share; and

(iv) Pricing to meet or prevent competition.

Price-making in any one firm was not usually ruled by a single policy objective but the target rate of return has been the most frequently mentioned as a pricing goal, i.e. firms were explicit that their pricing policies were based mainly upon the objective of obtaining a particular rate of return on an investment in a given year or over a longer term.[2] In particular, the target rate of return approach was generally applicable to the marketing of new products (those that initially did not have close rivals). To quote Lanzilotti :

'It seems reasonable to conclude that the pricing policies are, in almost every case, equivalent to a company policy that represents an order of priorities and choice from among competing objectives rather than policies tested by any simple test of profit maximization'[3].

Under stabilization of price and margin Lanzilotti found that, in good times, firms refrained from increasing prices as high as the market would bear and different policies would, in any event, lead to the entry of new competitors anxious to participate in lucrative markets, and this could be to the existing firm's ultimate detriment.

The target market share was found by American researchers to be almost as important as the target rate of return as a pricing objective. In some industries, especially where there was a negligible difference in the products of a firm and those of its competitors, companies believed that their prices had to be similar to prices charged by their competitors. Pricing policy of 'meeting competition' was also tied up with a firm's aspirations of the market share it desired to

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1. R.F. Lanzilotti, 'Pricing Objectives in Large Companies', American Economic Review, XLVIII, No. 5, 921-40, December 1958, pp. 922-3.

2. Ibid., p. 923.

3. Ibid., p. 939.

capture. A firm had to charge reasonable prices to ensure that possible product substitutes did not become more attractive to the consumer.

In respect of the above Lanzilotti concluded :

'Hence the target share of the market as a guide to pricing tended to be used for those products in which the firm did not, at the outset, enjoy a patent or innovative monopoly'[1].

7.7 Corporate Strategies

The four factors that would determine corporate strategy may be summarized as follows :

(i) market opportunity:

(ii) corporate competence and resources;

(iii) personal values and aspirations; and

(iv) acknowledged obligations to segments of society other than the shareholders.[2]

The two important aspects of corporate strategy to consider were its formulation and its implementation. Each of the four components of corporate strategy, taken on its own, could lead to a completely different course of action. In practice the management of a company had to consider their corporate strategy bearing all four in mind and making whatever compromises were necessary.

Christensen, Andrews and Bower felt that it was worthwhile for a company to lay down strategy and this for four important reasons, namely :

(i) the inadequacy of setting goals only in terms of corporate profit;

(ii) the necessity of planning ahead in undertakings with long lead times;

(iii) the need of influencing rather than merely responding to environmental change; and

(iv) the utility of setting visible goals as an inspiration to organizational effort.[3]

There were, of course, limitations of planning strategy in too much detail. Firstly, it was difficult to make long-term plans with any degree of accuracy.

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1. Ibid., p. 953.
2. Christensen, Andrews and Bower, op. cit., pp. 109-10.
3. Ibid., p. 111.

Secondly, if one were over-dedicated to a corporate strategy, this might result in lost opportunity if a company were too inflexible. Moreover, there was the inevitability of conflict between the goals of departments within the firm and organizational and personal ones.[1]

Different goals might stand in different relations one to the other and, according to Shubik, this was measured in terms of logical consistency, completeness, generality, measurability and aggregation.[2]

7.8 Objectives of Life Assurance Companies

To ascertain the objectives established by life assurance companies, the writer studied the Annual Reports and Accounts, Chairman's Statements and other literature of a number of South African life assurers. In many of these documents corporate objectives were either explicitly or implicitly stated. The writer found that one company published a document giving its history, marketing strategies and a special statement of its corporate objectives and, what was of particular interest, how it intended to attain these objectives.[3] Presumably it had other major objectives which were guidelines for management and not published, but it was refreshing to find a company that clarified its thoughts on objectives and published these for public information.

The National Mutual's objectives were :[4]

To bring to the public outstanding life insurance, superannuation insurance and other financial services.

To meet the needs of people arising out of the financial risks associated with life and health.

To provide the benefit of our services to as many people as practicable.

To operate profitably for the benefit of our policyholders and, at the same time, to make our services attractive and competitive.

To promote the concept of insurance in all its forms and to enhance it in the

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1. Ibid., p. 113.

2. M. Shubik, 'Objective Functions and Models of Corporate Organisation', Quarterly Journal of Economics, LXXV, No. 3, 345-75, August 1961, p. 363.

3. A pamphlet entitled 'The National Mutual - Who are They?'

4. Ibid.

eyes of the public either alone or in conjunction with other insurance organisations.

To maintain our services at the highest practicable standard consistent with our other objectives'.

Most of the above objectives are neither original nor surprising but are fundamental to the objective of any life assurance company wanting to promote its product to as wide a market as possible, to provide a good service and to maintain the competitiveness of its product. In fact, most of the objectives are really subsidiary to the prime objective which seems to be that of 'providing the benefit of our services to as many people as practicable' i.e. to maximize sales. To provide a good service, operate profitably for policyholders and promote the concept of insurance would all be contributing factors to a company's overriding objective of achieving as wide a market penetration as possible.

It is often difficult for a company to set a single overriding objective, as it would be of little use in practice and one would virtually have to obtain a set of lower level objectives that would place constraints on the major objective. However, for a company to embark on a formal planning structure, matters would be facilitated by adopting a single overriding objective.[1]

There are three major interested parties in any proprietary company i.e. shareholders, policyholders and employees (and the latter two are the only interested parties in a mutual company). Market forces would tend to ensure that employees were adequately remunerated and, whilst companies ensured that *they cared for their staff*, they could not have a publicly stated single objective to place the interests of their employees above all other parties.

Non-profit policyholders have their interests satisfied, provided the company fulfilled its contractual commitments. Thus the parties whose interests should be maximized were the shareholders and the with-profit policyholders or only the latter in the case of a mutual company.

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1. R.C. Livesay, 'Corporate Planning in a Proprietary Insurance Company'. A mimeographed Paper presented to the Institute of Actuaries Student Society, London, on January 26, 1973, pp. 3-4.

7.9 Possible Objectives of Life Offices

It is of interest to compare what, in theory, the objectives of a life assurance company could be and what, in practice, they are and to observe what their published statements imply their corporate philosophy to be.

The writer listed what, in his opinion, the corporate objectives of a life company could be. A large number of major and minor objectives could be listed and most companies would have one or more of these objectives in their own corporate philosophy. Some objectives are peculiar to proprietary companies but the majority of these are applicable to both proprietary and mutual companies.

Included in the objectives of a life assurance company the following may be found :

(i) to maximize profits to shareholders;

(ii) to maximize assets i.e. strive to be larger than other companies;

(iii) to maximize sales i.e. each year to report higher new business figures;

(iv) to maximize the welfare of with-profit policyholders i.e. pay them as large benefits as possible;

(v) to be of service to the country as a whole by educating the public on the benefits of life assurance and selling this to them;

(vi) to maximize the welfare of its staff;

(vii) to keep expenses at a certain maximum level;

(viii) to increase shareholders' dividends at a certain rate each year;[1]

(ix) to remain an independent organization and hence free from control and interference;

(x) to provide employment opportunities;

(xi) to give an excellent service to both its policyholders and the persons who market its product;

(xii) to mobilize savings via life assurance and invest these for the benefit of the community as a whole;

(xiii) to train their staff as well as possible so that they can be more competent in their jobs and hence improve their services to policyholders and

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1. Objective (viii) is closely connected to Objective (i).

marketing officials, [1] and

(xiv) to further specific community, cultural, educational and sports or philanthropic causes.

The Life Office Management Association of America (L.O.M.A.) definition of 'objective' in regard to a life insurer is :

'Broad or general corporate missions or results to be achieved over a stated period of time (can be a long period), usually in conjunction with a formal plan, and directed toward such measurement factors as growth in sales, share of market, profitability, return on funds or other agreed-upon yardsticks of performance'[2].

A number of the above cannot really be described as objectives as such but are almost incidental to the very fact of being in the life assurance business in the first place. For example, if a company is a proprietary one, it is axiomatic that they wish to operate profitably. Any company must provide a certain level of service in order to operate in life assurance which is essentially a service industry; they must train their staff in order that they can carry out their jobs. It is logical that expenses must be kept within reasonable limits or else profits to policyholders and/or shareholders will be decreased. A company must treat its staff reasonably well, otherwise it will lose them to other companies.

In essence a company must therefore have certain major and minor objectives, and a number of so called 'objectives' of companies are nothing other than the means by which they intend achieving their objectives.

One could take the example of a company that markets its products only through independent intermediaries and has, as its major corporate objective, the desire to maximize its new business production. It would almost certainly wish to train its staff well and possibly have the most competent and motivated people to service these intermediaries.

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1. Objectives (xi) and (xiii) are inter-related.

2. An Introduction to Annual and Long Range Financial Planning, Financial Planning and Control Report No. 5, New York, Life Office Management Association, July 1966, p. 8.

It may wish to give an efficient and speedy service. The latter two cannot really be described as major corporate objectives but are the means by which the company wishes to attain its objective of maximizing new business production. Undoubtedly the company would set internal plans and goals in regard to staff training, standards of service and computerization, just as it would have to do in regard to the competitiveness of the product it offered and its image in the market.

'Objective' fourteen above cannot ever be regarded as a corporate objective, as a life company exists for its policyholders, shareholders and its employees and is not a philanthropic organization. It may donate money to educational and cultural causes to improve its image in the community as a whole, who could then see the 'good deeds' of the company and hence be more receptive to buying life assurance from them i.e. the donations should be regarded as a form of advertising.

An example of the differentiation between objectives and the means of attaining these is given in the statement below :

'As a mutual company our ultimate responsibility is to our policy owners. These reponsibilities start with the sale of insurance; they are sustained by continuing service to the special needs of each policy owner, by prudent investment of funds entrusted to us, and by maintaining efficient operations; they are discharged by payment of proceeds as benefits to our policy owners and beneficiaries'[1].

This statement referred to a hypothetical mutual life assurer whose objective and hence its responsibility was to its policy owners. Marketing, investment and servicing were the means by which they ensured the fulfilling of their responsibilities.

7.10 Some of the Objectives of Life Offices as disclosed in their Published Statements

7.10.1 General Objectives

This section deals with the objectives of life offices as actually disclosed in their

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1. Creating a Corporate Plan for a Life Insurance Company. A Case Study, Financial Planning and Control Report No. 17, New York, Life Office Management Association, July 1970, p. 9.

annual reports, chairman's and directors' statements. In terms of the Fourth Schedule to the 1973 Companies Act, as amended, a company registered under the Companies Act has to supply audited accounts to the Receiver of Revenue. Public companies must also lodge audited accounts with the Registrar of Companies. A directors' report, dealing with every fact and circumstance material to an appreciation of the company's affairs by members, must be produced unless the company is a wholly owned subsidiary.

Under the 1943 Insurance Act, as amended, every registered insurer has to produce audited accounts to the Registrar of Insurance within six months of its financial year end. Even though there is no legal requirement to produce a chairman's report, in practice most companies do so, and use this report as a promotional document. It was sometimes attached to their annual accounts and attached notes (often denoted annual report) although it was also frequently distributed separately. Some insurance companies issue very comprehensive directors' reports with their accounts and omit the chairman's report. The most explicit statement of corporate objectives was found in a pamphlet issued by the National Mutual and this was discussed previously.

The view of the three largest mutual companies in South Africa is clearly shown in the statements below :

'A prime objective of the Southern is to provide policyholders with the best possible return on their money and by judicious investment of their funds, the Southern generates profits solely for their benefit'[1].

The very reason for the existence of the Society is to pay the proceeds of policies to members or their beneficiaries when the need for which provision has been made materialises'[2].

'As a mutual life assurance company Sanlam belongs to its policyholders'[3].

'We are resolved to continue in our effort to secure for our policyholders the maximum profits ...'[4]

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1. Statement by the Chairman, Mr. Clive Corder, in an introduction in a booklet on Southern Life's New Quality Plans, November 1972.
2. The Old Mutual, Annual General Meeting 1970, Chairman's Address.
3. Sanlam, Chairman's Report, 1970.
4. Sanlam, Chairman's Report, 1967.

The message from the statements is clear. A mutual company belongs to its policyholders and the major objective of a mutual company is to maximize the benefits it can give to them. In trying to achieve this major objective, a mutual company will also have several minor objectives and probably have objectives in regard to the community as a whole.

In regard to the service it extends to policyholders, Sanlam has formulated an objective for its staff who serve its policyholders' interests. This objective is 'Grow by Serving'[1].

In the statement of Sanlam's Chairman, the above motto is elaborated upon as follows :

'The better our policy is designed and adapted to the needs of each policyholder, the more efficient our service, the better we invest, the better the resulting product we can offer our policyholder'[2].

This quotation illustrates quite clearly the inter-relationships between objectives, investments and marketing.

If reference is made to the objectives as disclosed by the National Mutual, it can be observed that they extended to the provision of benefits of their services to as many people as practicable i.e. far beyond the realms of their existing policyholders. Some mutual companies believe that it is their role to provide life assurance on as economic a basis as possible to the community as a whole. They believe that, with part of their funds, they can promote projects which are in the public interest such as road safety, education, universities, medical research and municipal and government finance. Companies believe that they have a duty to their staff to offer them security and long-term careers. The above are amongst the additional objectives that govern the behaviour of mutual life assurers and many of these factors are also very important to proprietary companies.

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1. Sanlam Chairman's Statement, Sunday Times, March 31, 1974, p. 30.
2. Ibid.

7.10.2 Social Responsibilities of Life Assurers

Companies are also becoming more aware of their social responsibilities and many embark on activities that are not in their short-term interest but should be to their long-run benefit. An example of the above can be quoted :

'We take the view that long-term growth is only possible for an organisation which is aware of and responsive to its total responsibilities. Growing side by side with the essential concentration on profitability must be an awareness of corporate social responsibility and a realisation of the need to reconcile these apparently conflicting ideas'[1].

To illustrate the above, the Chairman of the Legal and General pointed out that, as one of the largest shareholders in the Distillers Company in the United Kingdom, they were the first assurance company to publicly support a more generous settlement to the families of thalidomide children.[2] The increased offer which was accepted was obviously at the expense of short-term profits of the Distillers Company (and hence pro rata of Legal & General) but was believed to be in the long-term interests of the shareholders of the Distillers Company. There was, of course, also a legal issue involved in the Distillers Company offering compensation.

When life assurers made contributions towards projects such as medical research and road safety programmes, they were donating money for the benefit of the community as a whole and were showing their sense of social responsibility. In many cases, however, they were also acting in the long-term interests of the life assurance industry as a whole.

For example, in the Chairman's Report of Sanlam for the year ending September 30, 1971, the high motor accident mortality rate of young South Africans of around age twenty five was discussed, as was the high death rate of policyholders over age forty five from heart ailments and other diseases of the circulatory system. For this reason Sanlam had spent large sums of money promoting road safety and also agreed to sponsor the C.S.I.R. and the Medical

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1. 1972 Report and Accounts, Legal & General Assurance Society Limited, United Kingdom, 1972, Chairman's Statement, p. 14.

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1. 1972 Report and Accounts, Legal & General Assurance Society Limited, United Kingdom, 1972, Chairman's Statement, p. 14.

2. Ibid.

Research Council's joint research on coronory heart diseases. They also donated large sums to the medical research programmes of universities.

Of course, it is not only Sanlam that have made such donations. Several of the other large insurers have done similarly and, in particular, reference can be made to the contributions made by the Old Mutual, as the following statement illustrates

'Most important of all your contributions to the common welfare have been your grants for research and education, particularly to universities which have already received more than R1 000 000. All our savings can only be of value to the community if our people are properly equipped spiritually and in every other respect. The country thanks you'[1].

In the case of Sanlam they may also have originally had far broader objectives than simply the concept of life assurance. Sanlam's motto is :

'Uit die volk gebore om die volk te dien'[2]

Sanlam started to embody the ideal to help the 'Afrikaner Volk' gain a foothold in the commercial and industrial life of South Africa.

'Sanlam has now achieved its objective of setting Afrikaans business on its feet. In the process the whole economy has benefited'[3].

7.11 Mutual and Proprietary Companies Compared[4]

The behaviour of a mutual life assurer cannot, in the opinion of the writer, be explained exclusively on the grounds that it exists only to maximize the benefits of its existing policyholders. It was shown that, due to the technical nature of the business of life assurance and the reserves and surpluses that have been accumulated in the past, the existing policyholders of a mutual company would be better off if it ceased to write new business

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1. Mr. A.J. Basson, President of the South African Agricultural Union, in seconding the motion for the adoption of the Annual Report and Financial Statements of the Old Mutual for the year ending June 30, 1974.

2. 'Sanlam Survey', Supplement to Financial Mail, November 26, 1971, p. 4.

3. Ibid.

4. There is no authoritative literature on the comparison between mutual and proprietary companies. The subject is, however, examined from an empirical approach in Chapter 8 and from a mathematical approach in Chapter 6.

Most of the mutual companies have built up sizeable reserves over the years and the market value of their assets is usually substantially greater than that shown in their published balance sheets. Furthermore, their liabilities have been valued on the relatively stringent minimum valuation basis laid down by the Insurance Act. If these mutual companies were to cease writing new business, they could virtually eliminate all their new business expenses and probably close many offices and certainly substantially decrease their number of employees. Due to the nature of a closed fund, their total assets would still increase for several years in the future as income exceeds outgo. However, as policies mature, are surrendered or policyholders die, the funds would eventually start to decrease. Once a fund diminishes, the managers no longer need to keep substantial reserves for future contingencies and those already built up could be steadily released to those with-profit policyholders whose policies become claims. Furthermore, as policies terminate, the liability valuation strains would also gradually be released. Over the years it would be found that the with-profit policyholders in a reasonably managed closed fund would obtain better benefits than if the company continued to write new business.

With inflation at its high current levels, the new business figures being written by many companies are increasing substantially each year. The very nature of the statutory valuation system whereby income in the first year is substantially less than the combined total of expenses and commission paid, death claims and valuation reserves that have to be set up cause financial strains on the surplus of companies and hold back surplus for future generations. Furthermore, as a company grows, it needs larger reserves for contingencies and fluctuating asset values, and therefore an expanding fund has to adopt a more cautious and conservative policy than a fund that is winding down.

The above philosophy would, of course, not be accepted by the managers of mutual life assurers who would confirm that their objectives are wider than merely that of maximizing benefits for existing policyholders.[1]

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1. The argument developed above was analysed in greater detail in Chapter 6.

It has been observed that, in addition to wanting to serve the best interests of their existing policyholders, mutual companies also wish to bring life assurance within the reach of as wide a body of people as possible.

This also implies a corporate objective to maximize sales and hence as an automatic consequence to increase their assets. By attempting to improve their products, invest better, offer a superior service, by more intensive marketing and by decreasing costs they are effectively trying to attain a number of objectives.

The annual reports of virtually all life assurance companies have tended to highlight the increase in new business figures, growth in assets, increase in investment income, payments to policyholders and in the case of proprietary companies, dividends to shareholders. It therefore appears that growth in new business figures i.e. sales and assets are possibly major corporate objectives.

In a proprietary company one would certainly expect a corporate objective to be to steadily increase the earnings of shareholders or possibly even to maximize them. One would not, however, expect a proprietary company to publicly state that its major objective was to maximize the return to shareholders, as this could be interpreted by those who wish to do so, that this could be at the expense of with-profit policyholders. It would be more acceptable publicly to talk of an increase in both the return to shareholders and policyholders and to have the interests of both parties very much at heart as the following statement illustrates :

'The operating and surplus account reflects a substantially higher operating surplus which has enabled the company to continue its impressive record of consistently increasing rates of bonuses to participating policyholders, whilst at the same time increasing its dividend distribution to ordinary shareholders'[1].

A number of proprietary companies have stated that their philosophy was that of a profit partnership between policyholders and shareholders, and particularly so in relation to investment linked assurance policies. In these policies a special investment portfolio was usually formed and the premiums from 'linked policyholders' were invested therein. Usually ninety per cent of the investment income (net of income tax and a management fee of usually 0,5 per cent per

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1. Liberty Life Association of Africa Limited, Directors' Report for the Year ended December 31, 1972, p. 2.

annum) was transferred to the policyholders as well as ninety to one hundred per cent of the capital appreciation. The investment partnership was therefore apparent on the basis that the policyholders received nine rand for every one rand that went to shareholders and, furthermore, as shareholders obtained ten per cent of total net income, the higher the net income, the higher the return to policyholders and hence the higher the return to shareholders i.e. it was to the benefit of shareholders that the maximum possible return was earned for policyholders.

On non-linked policies a similar position prevailed, as it was usual to find in the articles of association of a proprietary company that at least ninety per cent of the surplus earned from that class of business must be allocated to its with-profit policyholders. The company must therefore aim to maximize total surplus and hence maximize the return to both policyholders and shareholders.

It appears that virtually all life assurance companies (both mutual and proprietary) have tried to increase their volume of sales each year as the following statement shows :

'Sustained good growth in volume of business is, of course, essential to any institution if it is to remain vigorous and retain the competitive urge that is vital to the goal of providing good value for money to its clients and members. However, growth to be justified in the interests of policyholders must not, through an excessive over-taxing of reserves, prevent the institution from maintaining its standards of profitability.

It is thus the aim of your Board of Management to maintain a rate of growth that will not impair profitability, and I am pleased to say that the results achieved over the past year once again demonstrate the success of this policy'[1].

The above statement by the Chairman of the Old Mutual clearly illustrates how profitability can be important to a mutual company as well as to a proprietary one. We have seen that the mutual company seems to have an objective to maximize the welfare of its with-profit policyholders to whom it belongs, whereas the proprietary company has to consider both the interests of its with-profit policyholders and its shareholders.

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1. Chairman's address by Brigadier G.C.G. Wordsmuller at the 1972 Annual General Meeting of The Old Mutual.

Theoretically one would consider that proprietary companies were more profit-motivated than mutual companies. There is, of course, the important factor that the management of proprietary companies were answerable to shareholders, and this tended to keep their management dynamic, cost- and more profit-conscious, whereas in a mutual company management was basically answerable to itself (although in theory it is responsible to a board of directors, elected by with-profit policyholders, who were generally not an organized body and hence, in fact, the directors tended to be elected by management who recommended them). In addition, the mutual companies in South Africa are generally the older companies that have built up substantial reserves over the years and the view has been held that this has made their management more complacent. By contrast the proprietary companies have generally operated for a far shorter period and have hence not built up such reserves and have therefore been forced to be more conscious of every aspect of managing their operations.

The mutual companies generally consider that they offer better value for potential policyholders as they do not have to service the capital of shareholders. The proprietary companies generally consider that they are more competitive in that they are tightly controlled in being responsible to shareholders, they are more dynamic innovators and the profit partnership concept ensures a good return to would-be policyholders.

Mutual companies have claimed that, as they were 'owned' by their with-profit policyholders, all their surpluses belonged to their policyholders. In practice, whilst this might be true, they have not distributed all these surpluses to with-profit policyholders but have retained a considerable amount of surplus to strengthen their overall reserves and help increase their financial stability. Prudent life companies must attempt to build up sizeable reserves over the years and the difference between the published value of assets and liabilities, together with the hidden reserves, are known as the 'estate' of the office. The established mutual companies all have large estates and these have been accumulated over a period of many years in the past. As a company expands, it needs a larger estate to allow for contingencies, variations in the market value in its assets and catastrophes. A mutual company can only increase the size of its estate by

adding to it from growth in its current estate and from surplus generated, whereas a proprietary company can add to its estate quite simply by increasing its shareholders' capital. Some proprietary companies have therefore argued that it was better for a policyholder to allow part of the surplus to be used to pay dividends on shareholders' capital rather than to have to provide all the capital in the first place, as would be necessary in the case of a mutual company. Furthermore, in the Articles of Association of proprietary companies, with-profit policyholders are normally guaranteed at least ninety per cent of the surplus that arose from their class of business, and in the case of contracts linked to managed investment portfolios (linked business) the policyholder usually had a contractual guarantee as to the percentage of investment income and capital appreciation that was distributed to him.

Proprietary companies have to produce profits for shareholders on a year-to-year basis and are constantly made profit-conscious because of this, whereas the profitability of mutual companies is manifested in the bonuses they are able to pay to their with-profit policyholders and, as substantial surpluses are kept in reserve, the profitability pressure should not be as great. This greater awareness of profitability by proprietary companies does not necessarily mean that they will offer a better contract to prospective policyholders than mutual companies.

The management of the company concerned is in many ways, more relevant in determining whether the company is dynamic, an innovator and profit-motivated. There are some proprietary companies that offer better prospective returns to policyholders than mutual companies and vice versa.

What has been demonstrated above is that profitability is important to both mutual and proprietary companies, although theory may have led us to believe that it would only be important to proprietary companies. It is the objective of both mutual and proprietary companies to offer attractive benefits to their policyholders, as this will enable them to successfully attract more new business in the future. It appears that competition in the desire to obtain more new business has forced the overall objectives of mutual and proprietary companies to be more similar than one may have assumed.

The effect of the influence of competition on corporate behaviour and objectives

also depends on the method by which companies marketed their products. If a company marketed its policies through independent brokers who were in a position to judge the competitiveness of that office, competition would be essential to the company in influencing their objectives, premium rates, target investment returns and profits distributed to policyholders. Competition would not be expected to play as important a role in influencing the objectives of an office that marketed its products exclusively through its agents who were employees. However, even in this case the company would try to have reasonably competitive products as otherwise they could find their agents in competition in many instances with other companies and losing new business sales to them.

The writer believes that proprietary companies, in being continuously answerable to their shareholders, are more motivated towards profitability for both their shareholders and their policyholders, and should therefore be more dynamic in their development. There are undoubtedly some very dynamic and well-managed proprietary companies in South Africa. However, despite the lack of the motivating feature of being answerable to shareholders in the case of mutual companies, there are some mutual companies that have performed very well indeed for their with-profit policyholders and have been managed efficiently and economically. Currently a large number of linked insurance policies are being marketed in South Africa and the most important factor in determining the ultimate maturity or death benefit to the policyholders is the investment expertise of the insurer. This depends on the company concerned, and could vary considerably from insurer to insurer in each category.

CHAPTER 8

CORPORATE OBJECTIVES OF SOUTH AFRICAN LIFE ASSURERS : AN EMPIRICAL INVESTIGATION

8.1 Introduction

To obtain evidence on life assurance companies' corporate objectives, a detailed questionnaire was sent to the executives of thirty life assurance companies operating in South Africa (a specimen of the covering letter is given in Appendix 1 and a copy of the questionnaire in Appendix 2). Copies of the questionnaire were posted to all companies whose total assets, as reflected in the report of the Registrar of Insurance for the year ending December 31, 1973, exceeded R5 000 000.[1] A total of fifty seven life companies was listed in the report[2] but since its publication, two of these had merged with other companies and thereby reduced the total to fifty five as at the date on which the questionnaire was distributed.[3] The total assets of these fifty five companies, as at December 31, 1973, were R3,882 billion, while the total assets of the thirty companies to whom the questionnaire was sent amounted to R3,848 billion as at the same date, or 99,12 per cent of the total assets of all life assurance companies.[4]

The questionnaire was sent out in November 1974 and the companies were requested to render their completed returns by January 31, 1975. Only eleven replies were received by that date and reminder letters were sent to the remaining

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1. Registrar of Insurance, Thirtieth Annual Report, year ended December 31, 1973, RP 91/1974.

2. This excludes the seven professional reinsurance companies listed as the questionnaire was confined to direct life assurers only. As at December 31, 1973, the total assets of the reinsurers were R49,86 million, or 1,27 per cent of total industry assets at that date.

3. Not all these companies were still actively writing life business and, as at June 30, 1974, there were only forty-four companies licensed to transact new life business.

4. Registrar of Insurance, Thirtieth Annual Report, op. cit., pp. 24-5.

nineteen companies requesting their early replies. Additional letters were sent to two of the larger companies as their views were considered to be of particular importance.

Completed questionnaires were finally received from nine companies: four mutual and five proprietary companies, three being South African-controlled and six foreign-controlled. Nine companies advised that they were not willing to complete the questionnaire for various reasons. Two of these believed that the information required was too confidential; a third company was being reorganized and therefore commented that there was little merit in replying and yet another company explained that, being a subsidiary of a British company which set objectives in the United Kingdom, they preferred not to participate locally. The remaining twelve companies did not reply to any of the correspondence addressed to them.

Even though replies were received from only nine companies, it was considered meaningful to analyse them, as they included the views of five of the seven largest life assurance groups in the country. In addition, the approximate combined assets of the companies that replies amounted to seventy four per cent of the total assets of the industry, while their total annual premium income represented sixty seven per cent of the total annual premium income of all life assurers.[1]

Therefore, in relation to total industry assets and annual premium income, the offices that replied represented a very important section and their views could be regarded as representative of the opinion of the industry as a whole.

Many of the offices requested that their replies be treated as confidential and although they permitted the information contained therein to be used for an analysis of life assurance corporate objectives in general, they wanted to ensure the anonymity of their companies in the analysis. The ensuing summary has been done in such a manner as to honour these requests, although the sources of information of statements appearing in documents available to the public have been given.

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1. Ibid., p. 12.

8.2 Replies to Questionnaire sent to Thirty Life Assurers

8.2.1 Statistical Information of the Companies Replying

The replies to the first section of the questionnaire dealing with statistical information are summarized below.

Completed replies were received from nine companies, four of which were mutual and five proprietary, three being South African and the balance foreign-controlled. Returns were received in respect of a variety of year-ends ranging from December 31, 1973, to December 31, 1974. Since one international company that replied only quoted its Group's world-wide assets and premium income, total assets and total premium income figures were quoted from the *Registrar's reports to ensure consistency and also to obtain comparable* total asset and total premium income for the life assurance industry as a whole from an official publication. The total assets of the nine companies as at the year ends given in the Registrar of Insurance's Thirtieth Annual Report were R2 847 million or seventy four per cent of the total assets of all life assurance companies. As at the same dates, the total annual premium income for the nine companies was R411 million or sixty seven per cent of the total premium income of all life assurance companies.[1]

8.2.2 Corporate Objectives

Having dealt with the statistical information supplied in the completed questionnaires, it was considered appropriate to deal with the rest of the questions on an individual basis :

Question 2.1

Has your company established clear corporate objectives?

Reply

All nine companies answered 'yes'.

Question 2.2

If they are documented, in what form are they? Are they, for example, in a leaflet form, given in annual reports or kept confidentially for information of top management only?

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1. Ibid., p. 12.

Reply

One company stated that their corporate objectives were well known but not published. All the other companies disclosed that their objectives were published, but the format in which they were available varied considerably. One company's objectives were laid down in their Memorandum of Association, whilst a few companies documented their objectives and circulated these to senior and middle managers. In one case this document was available to any member of staff who wished to see it. Two companies gave talks or handed a statement of their business philosophy to new members of staff i.e. they discussed their corporate objectives as part of a staff induction procedure. One company quantified their corporate objectives in top management reports that were reviewed monthly at general management level and quarterly at middle management level.

In a few companies, corporate objectives and philosophies were partially or more fully disclosed in annual reports and chairman's statements.

Question 2.3

If your corporate objectives have been established and can be disclosed, what are they?

Reply

This was the most comprehensively answered and the most searching question, as the answer embodied the fundamental reasons for a company's existence. The replies were quite varied, ranging from the desire to serve the community as a whole to maximizing profits for shareholders. A summary can be given as follows :

One company considered its objectives as being the assurance of lives, the granting of annuities and all other cognate business.

Another company's long-term objective was to strive for excellence in respect of growth in premium income, assets, payments of benefits to policy-holders, profitability in terms of value for money to policyholders and client satisfaction in regard to service and benefits received.

A few companies aimed at the maximization of premium income growth in the long-term and of the expected and actual return on their investments as well as to minimize expenses consistent with efficient services to policyholders. One

company stated that its long-term objectives were subject to giving their policyholders value for their premiums at least comparable to that offered by the industry, and also that they would avoid practices which might be advantageous in the short-term but would be detrimental to policyholders in the long-term.

One proprietary company clearly expressed its corporate objectives as :

'In general terms, to provide the best possible financial services to the community in the form of life assurance and general insurance contracts, having regard to the interests of shareholders and staff and the company's responsibility to the community.

In practical terms, our aims are to achieve :

(i) the maximum expected return on invested funds;

(ii) minimum expense ratios consistent with efficient policyholder service;

(iii) efficient underwriting risks;

(iv) expansion of our marketing activities to the extent that this can be satisfactorily reconciled with (i), (ii) and (iii)'.

One company had a general view that they should provide the best possible financial services to the community in the form of life assurance, having regard to the interests of shareholders, staff and the company's reponsibility to the community as a whole.

One of the proprietary companies' objectives was to maximize sustainable growth of contributions to their profit and loss account subject to keeping resources employed at an agreed upon level, fulfilling the reasonable expectation of policyholders, maintaining a good reputation as a public company and a good relationship with their staff.

An interesting view was that of one group whose objective was to supply an overall investment and savings service with a complete range of insurance services as its foundation. Their underlying principle was to ensure that each individual policyholder and investor enjoyed their rightful share of the benefits of the investment of his funds. By establishing a partnership principle of profits between shareholder and policyholder, they believed this would ensure the maximum return for both policyholders and shareholders.

Yet other views were to attempt to provide life assurance services to as

many people as possible, to operate profitably for policyholders, to make their services attractive and competitive, to offer a high standard of service and to promote the concept of life assurance in all its forms and to enhance it in the eyes of the public.

Question 2.4

What do you believe is the fundamental reason for your company's existence?

Reply

One reply given was the fulfilment of the basic need of man for security for himself and his dependants in the event of death, disability or old age.

Two companies considered that the fundamental reason for their existence was the provision of financial services with a profit motive, whilst another view was to provide the best value for money in life assurance and pensions, with special emphasis on value for money to profit-sharing policyholders.

One large proprietary company commented that the fundamental reason for their existence was more closely linked with the provision of investment services than purely to provide life assurance cover and they stated the following views :

'Our basic objective is to cater for South African public demand by supplying a greater and more discriminating overall investment and savings service with a full range of insurance services as its foundation. These services will be provided within the framework of the dynamic South African economy with its increasing need for more sophisticated investment and savings facilities and far more equitable participation on the part of the public in the full benefit of the dynamic investment potential of the country. These services will also be provided with the full backing of the accumulated assets and know-how of our world-wide associations and connections'.

8.2.3 Maximization Hypotheses

Question 3.1

Does your company aim to maximize profits as a corporate objective?

Reply

One mutual company replied in the negative, whilst another stated 'not exclusively'. A third mutual company aimed to maximize the return to their participating policyholders within certain constraints.

Four companies, including one mutual company, answered in the affirmative. One proprietary company aimed to maximize a sustainable growth of contribution to its profit and loss account, whereas another proprietary company did not intend to expand at the expense of profit but on the other hand did not aim to make an immediate profit out of lack of expansion.

Question 3.2

If so, is it short-term or long-term profits, and how do you separate the two?

Reply

In the light of their reply to 3.1 above, three companies found this question not applicable. The consensus of opinions was that, as the life assurance industry was essentially a long-term one, the attempt would be to maximize long-term profits. One company stated that they did, however, also set short-term targets, whereas another company did not specifically separate long and short-term profits. One proprietary company was quite clear that 'ours is a long-term business, so the objective is long-term profitability'.

Question 3.3

Is it a company objective to maximize assets?

Reply

It was interesting to note that only one company answered an unqualified 'yes' to this question. One view was that they would only attempt to maximize assets insofar as it was profitable to do so, whereas another was that the maximizing of assets was not an objective in itself but was rather a consequence of achieving success in the maximizing of profits and sales. The other companies either answered in the negative or stated that the maximizing of assets was not a specific objective.

Question 3.4

Is it a company objective to maximize sales?

Reply

Four companies answered either 'no' to this question or answered that they wished to optimize rather than to maximize sales. Of these one believed that both growth and sales were amongst their more important objectives, but that they had to be attained in conjunction with a number of other objectives and, as there could be a degree of conflict, they aimed at optimization rather than

maximization.

Five companies, however, basically answered 'yes' to this question generally with the proviso that the business should be of good quality, would result in profitability and was obtained on the basis of ethical procedures. One company stated that as an objective it ranked behind the maximizing of profits. One constraint was placed on the maximizing of sales by one group and that was that the 'new business strain' caused by the writing of the business did not exceed the invested shareholders' capital and reserves. To any company this is an automatic limitation to the maximizing of sales since, if the 'new business strain' exceeded the free reserves and shareholders' capital of the company, it would be technically insolvent. Another limitation to the maximizing of sales was the limit to which the human resources of the company could produce and administer the additional business.

Question 3.5

Which, if any, of the above is the chief objective of the company? In what order do they rate in priority?

Reply

As stated above, one company considered that optimization of growth and sales was more important than maximization, whilst another believed its objective was to maintain sustainable growth. A third company considered that all their objectives were equally important, although it is difficult to see how this could in fact be so, whereas another felt that sales, profits and assets maximization had to be achieved at compromise rates to reach the objective of efficient service.

In this regard one mutual company stated the following :

'Both growth (by whatever measure) and sales per se are naturally among our more important objectives, but they have to be attained in conjunction with a number of other objectives. As there is a degree of conflict between several of our primary key result areas, we are seeking optimization rather than maximization'.

However, of those that specified an order of priority, three considered that maximization of profits was the most important and next the maximization of sales, whilst one mutual company regarded the maximization of sales as more important than the maximizing of assets. One proprietary company stated that its chief objective was the maximizing of assets, then the maximizing of profits and lastly

the maximization of sales. This was an interesting reply to receive from a proprietary company, as it would have seemed more logical that their first priority should be the maximizing of profits.

Question 3.6

To what extent do the above influence your investments, marketing and cost at which your business is conducted?

Reply

Most replies to this question tended to reflect that the answers to the above questions interrelated directly with the manner in which the companies were conducted, and that companies invested to maximize the long-term yield on their investments. In addition, most companies attempted to contain expenses or to provide an efficient administrative service at reasonable cost. Some companies specifically mentioned that they set expense objectives or budgets and tried to keep within these as far as possible. Furthermore, one company stated that economy of operation was so important to them that the objective of maximizing sales was in fact to spread their overhead costs.

With regard to marketing, the general view was to concentrate efforts on those areas or on those products that were profitable, to attempt to obtain 'quality business'[1] in the process and to achieve this at an economical cost.

One company claimed that the factors mentioned in questions 3.1 to 3.4 completely influenced their conduct, whereas another summarized the situation by stating that in conducting their business the major consideration was profit. This proprietary company believed that shareholders were motivated by profits and therefore directors and management of a shareholder company were likely to be more diligent in trying to contain costs and invest better. Furthermore, their shareholders obtained a certain percentage of total profits and therefore the greater were total profits, the higher was the return for both policyholders and shareholders and this profit motivation ensured the greatest efforts to maximize profits to both policyholders and shareholders.

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1. 'Quality' business' is a description used for business on which premiums are paid regularly and which is very seldom discontinued by the policyholder i.e. business on which the lapse experience is very low.

In this context one mutual company held the following view in regard to their investment actions :

'We invest to achieve a high long-term return, including both interest or dividend yield, as well as capital growth, subject to the following constraints :

(a) The need for reasonable matching of corresponding long-term liabilities.

(b) Security for policyholders, including the long-term capital guarantees inherent in many life assurance products.

(c) Statutory requirements and the public interest. Specific objectives are set for investments'.

One mutual office believed that the whole situation was in fact reflected in their bonus rate declared on with-profit policies and in this regard they attempted to obtain a high investment yield at an acceptable risk, to expand their marketing activities at reasonable cost and to obtain economic unit costs in their administration.

Question 3.7

If a proprietary company, do you establish any minimum acceptable yields as a return on shareholders' capital? Before injecting new capital, do you set a minimum acceptable rate of return on this capital and, if so, what are your views on acceptable returns?

Reply

This question was not applicable to mutual companies but the range of answers received from the proprietary companies was rather interesting. One group did not establish any minimum acceptable yield as they considered it was not possible for a life assurance company to do so.

Another view was expressed by a company that was part of a large world-wide group which were normally able to generate funds internally for expansion. Their general comment, however, was that an acceptable return at any point of time depended very much on the state of the market and the purpose for which the capital was required.

Another proprietary company stated that it was not the minimum yield set by the company that was important but whether shareholders were prepared to subscribe the capital in the light of the company's past record and their expected future progress. In any event the net return expected over the long-term should, it was considered at least equal the returns obtainable by investors elsewhere

in the financial market.

One company was prepared to commit itself to stating that a ten per cent per annum return was acceptable, whereas another believed that, with the current variations in interest rates, any answer would have to be heavily qualified. It was however, considered that an eight per cent per annum return on the sum of shareholders' capital, plus free reserves, was defensible.

8.2.4 General Objectives

'Amongst life assurance companies' literature, the following objectives have been declared by some companies. To what extent do they fonture in your company's philosophy?'

Question 4.1

Does your company aim to maximize the welfare of its policyholders (including both benefits earned and service supplied) and, if so, how and to what extent?

Reply

All replies to this question were in the affirmative i.e. both from mutual and proprietary companies, and companies generally wished to achieve this by investing their funds for the highest expected long-term return and to provide an efficient but economic service. One proprietary company stated that they tried to fulfil the reasonable expectations of policyholders, whilst a large mutual company aimed to provide a competitive level of benefits to all policyholders but to maximize long-term benefits to participating policyholders.

Two proprietary companies had as their major objective the maximizing of profits and, as the with-profit policyholders tend to receive the greater percentage of total profits relating to their class of business,[1] the desire to maximize profits in total automatically ensured the desire to maximize the welfare of policyholders.

Question 4.2

Does your company aim to maximize the welfare of shareholders?

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1. Usually at least ninety per cent.

Reply

This question was not relevant to the mutual companies. The proprietary companies all answered in the affirmative but one was particularly concerned with maximizing sustainable growth of contributions to their profit and loss account. Two companies answered that their aim to maximize profits was to maximize it to both policyholders and shareholders.

Question 4.3

Does your company aim to maximize the welfare of your staff? If so, how and to what extent?

Reply

A few companies answered in the affirmative, whereas other replies were qualified. Where detailed replies were supplied, all companies stated their desire to provide competitive conditions of employment including fringe benefits, to provide staff welfare short of paternalism, to organize staff development programmes, to employ a smaller number of employees but to simultaneously obtain a better class and higher quality staff, to provide satisfying, rewarding and progressive careers for their employees.

One mutual company stated their view as follows :

'We aim to provide salaries, fringe benefits and facilities conformable with the market, subject to the cost restraints imposed by :

(a) the prices at which we sell our products, and

(b) our corporate plan

We aim to provide satisfying and challenging jobs with employee participation in decisions'.

Question 4.4

When considering the benefits due to policyholders, shareholders and staff, what is your order of priority?

Reply

The unanimous view of mutual offices on the order of priority was that policyholders were the most important. In their case the choice was simply between policyholders and staff, as they had no shareholders. One mutual office laid down its order of priority to policyholders as being firstly the fulfilment of contractual benefits to policyholders and secondly the provision of profits to with-profit policyholders and then adequate remuneration to staff.

Two proprietary companies considered that all three parties rated equally and one believed that they were inter-dependent. Another proprietary company's view was that the question was unanswerable, as the treatment to each class would depend on circumstances and their aim was in fact to achieve an equitable reconciliation of the interests of all parties.

One proprietary company commented that the major consideration was the viability of the business enterprise and in that context they believed that staff (human resources) was possibly the most important factor in any business enterprise and policyholder satisfaction was a close second.

Question 4.5

To what extent does your company wish to maximize the welfare of the country as a whole by mobilizing savings and investing in projects for the national good? What do you believe are your company's social responsibilities, and what is your attitude towards donations and investment in public institutions, universities and other educational institutions, welfare organizations, medical research, road safety, sport and charities?

Reply

The replies to this question varied considerably. Companies generally did not have specific objectives to invest for the national benefit or to make donations of any magnitude. However, one mutual office stated that they sought investments where their national responsibility and their responsibility to policyholders could both be discharged. In terms of their Articles of Association this company was not permitted to make donations except in the most limited way. Many of their staff members in fact contributed to a fund they operated to support charity and welfare organizations. One proprietary office was of the opinion that they could only prosper if the environment in which they existed also prospered and therefore they believed that they should do what they could to promote all the fields mentioned.

A large international proprietary company believed that it was their duty to maximize yields to policyholders, given only that investments made should not be contrary to the welfare of the community i.e. whilst not specifically investing in projects for the national interest, they would not invest in avenues that were contrary to the community's welfare. This company also commented that donations reduced policyholders' and shareholders' interests and therefore

should not be made, except to organisations which might directly assist the company. This view that donations should be made only to organizations which could offer some quid pro quo was shared by another company.

Another large proprietary office stated that they made major investments in public institutions and also in educational institutions at a slightly lower rate of return, as they believed this would be to the long-term benefit of the development of the economy.

Question 4.6.1

To what extent does the benefit of the community as a whole feature in your investment decisions?

Reply

Most companies considered that this was very important and three companies specifically stated that they would not consider any investment if it were detrimental to the interests of the community. One large mutual office commented that the above played only a very limited role in their investment decisions and that, in the long-run, they would best serve the community as a whole by making the most remunerative investments for their policyholders. A few companies stated that, whilst the above was important, business considerations and the safety of capital and investment returns were more important.

Question 4.6.2

Do you make donations to universities, charities and sports? If so, how does this relate to your philosophy on 4.1, 4.2 and 4.3 above?

Reply

Three companies considered that the answer to this question was given in their reply to question 4.6. Another three companies made only limited donations and one only made donations to sports events to obtain publicity. A fourth company stated that, in practice, they adopted a more charitable attitude than was theoretically justifiable. One mutual office answered in the affirmative to the question and stated :

'Our donations are mainly concerned with deserving causes and we rate these donations low as promotional instruments. Our assistance to these causes transcends more financial considerations and, furthermore, our donations are relatively limited compared with policyholders' receipts'.

Question 4.7

As a service industry, do you believe that an objective of yours should be to provide an excellent service to policyholders and, if so, how does this relate to your other objectives?

Reply

The answer to this was unanimously in the affirmative but three companies stressed that this service was expensive and effectively the aim should be to provide an excellent service, but at an economical rate, or at a cost that would be acceptable. Two proprietary companies qualified their affirmative reply, one by stating that it was subject to profitability of the company, and the other by remarking that, as the cost of this service was expensive, it had to be reconciled with the aim of providing contracts that were competitive in monetary terms.

Question 4.8

Have you set objectives in respect of your corporate image? If so, how would you wish to be regarded by the public and your competitors?

Reply

One company stated that they were in the process of setting such objectives, whereas another simply answered that they wished to be regarded as acting as a commercial company. One large proprietary company had a detailed statement of business philosophy which incorporated these objectives as corporate objectives. A large mutual office summarized their view by two phrases in regard to the company. These were to be regarded as 'your anchor in life' and also 'your friend for life'. Three companies stated that they wished to be regarded as trustworthy, honest and of undoubted integrity. Three wished to be known for their efficient service, whereas two offices specifically mentioned that they wished to be observed as eschewing gimmicks. Two large companies wanted to be regarded as sound, stable and of undoubted financial strength and to be seen to offer value for money to policyholders. Three other companies aimed to project themselves as either professional or as a sound, modern institution and to have enterprise that would challenge their competitors. One company wanted to establish a reputation as a good employer, whereas another office offered security of employment and opportunity for employees to maximize their contribution to the company.

Question 4.9

Does your company have any other objectives or philosophies?

Reply

Two companies had objectives of helping policyholders' families, especially on death. One large company wanted to have a general philosophy of cheerfulness and, with all humility, of corporate superiority. A large mutual company wished to remain receptive to modern developments and adaptive to change, which could advance their overall goals. Another mutual company had set objectives in regard to money management, technical management, manpower effectiveness, development and use of resources, innovation and management information techniques. One large proprietary company's basic philosophy was founded on the concept that life assurance should be a really worthwhile investment in its own right, as well as providing the essential life cover needed.

One company did not answer this question and two companies answered in the negative, with one specifically stating that they 'would not like to overdo in philosophies'.

Question 4.10

Do you set short, medium and long range plans? If so, in what respect and how do you monitor your performance against your plans?

Reply

All companies confirmed that plans were in fact set. No company set general plans for further than three years ahead and very few companies stated the periods for which they set plans. One company set both one and two year plans and stated that they preferred to set short-range plans as they were sceptical of long-range corporate planning due to the almost infinitely expanding funnel of doubt regarding the longer term. Their only exception was in regard to their computer project where they were in the process of completing a four year plan and developing a five year plan. Another company set one, two and three year plans, and this fitted in particularly well with their triennial declaration of bonuses out

of surplus. All companies stated that their plans were reviewed, monitored by budgetary control or by management information services. One company kept detailed records comparing performance to forecasts but did not state how often comparisons were made. Two companies monitored progress quarterly against the financial standards set by their plans, although in one of these senior management monitored the one and two year plans on a monthly basis.

Three companies specified the following areas in which plans were set: sales; personnel requirements; investments; administrative and technological requirements; profits; product range and product development; expenses (one company did this separately for new business and renewal business); discontinuances (lapses) and mortality experienced.

Question 4.11

Given the objectives above, how do you seek to achieve them? In particular, how have these objectives influenced the conduct of your business, the marketing of your products, the investment of your funds, the training of your staff and the service you provide?

Reply

Two companies stated that all their principles, objectives and philosophies set out in their replies were put to practice in their different fields. One company did not answer this question and another considered that it was not possible to give a definitive reply as actions inevitably involved a reconciliation of competing interests and viewpoints. Market considerations were the main factors they took into account in arriving at decisions.

One proprietary office stated that cognisance was taken of the above objectives in all decisions that were made and the motivation to achieve these objectives was profit, which in itself was a measure of success.

Three companies specified that in order to achieve their objectives, they made great efforts to ensure these objectives were communicated either to managers or, in two cases, to their staff as a whole. Once this had been achieved, energy could be directed by employees to achieving the objectives. Management of one of these three companies discussed and reviewed their various objectives regularly.

One company believed that they could assess the success of objectives through budgetary controls and management by exception. One company was implementing a management by objectives system in which, by agreeing upon objectives between individual managers and their superiors, they considered that they would obtain far greater staff participation in decision-making and greater commitment towards helping the company achieve its objectives.

The fullest answer to this question was given by a large mutual company that attempted to achieve its objectives,

' (i) by designing and pr'cing products suitable for the market sectors and distribution systems we have defined;

(ii) by marketing our products to achieve the targets set in our Corporate Plan;

(iii) by underwriting, issuing, maintaining and servicing the business on our books according to the service standards and cost objectives we have set;

(iv) by investing our funds according to the objectives set as regards distribution by type, geographical area, rate of return'.

8.3 Conclusions

It is instructive to analyse the replies to some of the questions given previously in some detail. Firstly, the general consistency of the replies to all the questions was analysed to ascertain whether they were logical and the answers to various questions compatible with one another. Secondly, the replies of all the companies to each of the more searching questions were analysed to ascertain what the general view of the companies were and also to study the differences in views where they emerged.

8.3.1 Systematization of Replies : The Objective Matrix

To study the consistency of the various companies' replies to some of the

questions, an 'objective matrix' was constructed. This matrix lists the nine companies by number, the first four being the mutual companies and the remainder the proprietary companies. Their replies were listed to questions 3.1, 3.3, 3.4 and 3.5 of maximization hypotheses and to questions 4.1, 4.2, 4.3 and 4.4 of general objectives. These eight questions have been listed as questions 1 to 8 respectively for purposes of the matrix. The replies to questions 1 to 4 were analysed as 'maximization of income hypotheses', i.e. to study whether companies aimed to maximize profits, assets and sales, and to determine the relative importance of each of these. The replies to questions 5 to 8 were analysed as 'maximization of benefits hypotheses', i.e. to study whether companies aimed to maximize the benefits to policyholders, shareholders and staff, and to determine the relative importance of each of these.

The following codes are defined in the matrix :

- C A compromise was necessary or answer varied according to circumstances.
- G Reasonably so or to treat them well or to give good benefits.
- I Indirectly yes or it was a consequence of other actions.
- N No
- N/A Not applicable
- N/E Not exclusively or not specifically.[1]
- O Optimization rather than maximization.
- P Only if profitable to do so.
- ? Answer not clear or question not fully answered.
- Y Yes

In some cases answers to questions did not exactly fit the above definitions and the letter (s) used in the matrix was the answer nearest to that actually given.

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1. In this context 'not exclusively' means that whilst, for example, the company aimed to maximize assets, this was not an exclusive objective but was considered alongside others.

Table 8.1 Objective Matrix of Maximization Hypotheses

Company	Maximization of Income Hypotheses				Maximization of Benefits Hypotheses			
	Profits	Assets	Sales	Order of Priority	Policy-holders	Share-holders	Staff	Order of Priority
	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8
Mutual:								
1	Y	I	Y	1 and 3	Y	N/A	G	5 then 7
2	N	I	Y	3 then 2	Y	N/A	Y	5 then 7
3	Y	O	O	3 and 2	Y	N/A	G	5 then 7
4	N/E	N/E	N/E	C	Y	N/A	G	5 then 7
Proprietary:								
5	Y	P	P	1 then 3 then 2	Y	Y	G	7 then 5
6	Y	N	O	1 then 2 then 3	Y	Y	G	C
7	O	N	N	O of 1	?	O	?	?
8	Y	Y	Y	2 then 1 then 3	Y	Y	Y	All equally important
9	O	O	O	All equally important	Y	Y	Y	All equally important

In analysing the consistency of replies, the answers of companies 4, 7, 8 and 9 have been considered below in more detail.

Company 4 answered 'not exclusively' to 1, 2 and 3 and felt that they had to be considered together at bompromise rates'. These replies were too vague to be meaningful and could in fact range from as far apart as 'to a minor extent' to 'yes, but not exclusively'. Their replies to questions 1 to 4 are therefore of little use.

The answers of company 7 to questions 5 to 8 were also of little value. Question marks were inserted in the matrix for these replies as this company did not reply to the questions but referred to their answer to question 2.3 of corporate objectives, in which they stated that they aimed at maximizing sustainable growth of contribution to their profit and loss account, subject to fulfilling the reasonable expectations of policyholders and maintaining good relations with the staff. It was not clear how the latter two would interlink with maximizing or optimizing of benefits to policyholders and staff.

The criticism levied against replies of company 9 was that they rated all the alternatives as equally important and the same criticism was applicable to the replies of company 8 to questions 1 to 4. A company should have some priorities or, if they did not, a fixed answer was not possible, as the order of preference varied according to circumstances or, alternatively, a compromise was necessary between the various objectives or the various groups.

The replies of the other companies to questions 1 to 8 were quite consistent and logical, and these replies have been analysed in more detail below.

8.3.2 Maximization Hypotheses

Question 1.

Does your company aim to maximize profits as a corporate objective?

Reply

Basically six companies aimed to maximize profits. One did not aim to do so exclusively, whilst two tried to optimize them and one company did not aim to maximize profits. It was of interest to note that two mutual companies aimed to maximize profits and this presumably for their policyholders, as was indicated by their reply to question 8. It could be concluded that maximization of profitability, whether to shareholders or policyholders, is a general corporate objective of life assurance companies.

Question 2

Is it a company objective to maximize assets?

Reply

Only one company specifically aimed at maximizing assets. One wished to do so, but not exclusively, whilst two wanted to optimize assets[1] and one only maximized them if it were profitable to do so. Two companies considered that asset growth arose indirectly from the success in maximizing sales or profits and two companies did not try to maximize assets.

It can thus be concluded from the above that maximization of assets is not a corporate objective of life assurers but that an increase in assets was generally an automatic consequence of the successful sales or profit maximization approach of the company.

Question 3

Is it a company objective to maximize sales?

Reply

Five companies aimed to maximize sales, and of these one would maximize only if it were profitable to do so. One company did not try to maximize sales and four others tried to optimize sales or, alternatively, did not attempt to maximize sale exclusively.

It was of interest to note that three of the mutual companies aimed to maximize sales, one not exclusively and the other mutual company aimed to optimize sales. Only one proprietary company aimed to maximize sales, two to optimize and one only to maximize if it were profitable to do so, whilst one company definitely did not attempt to maximize sales. Maximization of sales thus seems to be an objective of mutual companies, but proprietary companies are more concerned with their profit and loss account and would only aim to maximize sales if it were profitable to do so. From the mathematical models in Chapter 6 it was observed how rapidly increasing new business figures cause a short-term decrease

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1. By optimizing assets, these companies presumably meant increasing their assets taking account of their more important objective of maximizing profits.

in the profits of companies. It is therefore quite logical to expect that proprietary companies who wish to show reasonable profits each year would be more moderate in their desires for new business sales compared to mutual companies, who do not have to show surpluses each year but merely have to ensure that the value of their assets is greater than the value of their liabilities.

In view of the above, the reply of company 8 to this question was contradictory to its reply to question 1. It was proved mathematically in Chapter 6 that a life assurer cannot maximize sales and profitability simultaneously. Some compromise was therefore inevitable. This was also proved mathematically in Chapter 7 to be the general case for companies.

Question 4

Which, if any, of the above is the chief objective of the company?

In what order do they rate in priority?

Reply

As discussed previously, the replies of companies 8 and 9 to the above three questions were of little value. Even though the chief objective of company 8 was to maximize assets (and it was the only company which had this objective), their reply to question 4 conflicted with their reply to question 1, even though they rated profitability as more important.

To the other three proprietary companies, the maximizing and optimizing of profits were the most important. One mutual company had the same view, whereas to two others sales maximization was most important.

It can be concluded that to mutual companies sales maximization is their most important objective, although this was sometimes subject to the overall profitability of the business. Proprietary companies, on the other hand, considered the profitability of the business as their most important objective.

It must be considered that, in terms of Section 34 of the Insurance Act, No. 27 of 1943, the premium rates of a life assurer have to be certified by the valuator of the company to be actuarially sound.

Therefore the premium rates of all products sold by a life assurance company must be self-sufficient and, whilst sales might lead to new business strain, they should not lead to losses. It was thus not surprising that mutual companies generally had the maximization of sales as a basic objective i.e. as sales of each product were *self-supporting in the long-run they could aim for sales* maximizing.

In studying the answers given to question 3.7 of the questionnaire it was interesting to note that two companies were prepared to specify the acceptable return on investment to existing or would-be shareholders whereas the replies of other companies varied from as far afield as stating that it was not possible to do this to stating that, whilst not quantifiable over the long-term, the return should be at least equal to that obtainable by investors elsewhere in the financial market. To the writer it seems that this latter view is the correct one for a potential investor in the life assurance industry. In practice this is not always the case, and a would-be majority shareholder or founder may enter the industry *for other reasons, such as the desire for power, prestige and the uses to which* the cash flows generated by a life company could be placed.

8.3.3 General Objectives

Question 5

Does your company aim to maximize the welfare of its policyholders (including both benefits earned and service supplied) and, if so, how and to what extent?

Reply

One proprietary company tried to fulfil the reasonable expectations of policyholders, but all other companies aimed to maximize policyholders' benefits.

Question 6

Does your company aim to maximize the welfare of shareholders?

Reply

Mutual companies have no shareholders, but all the proprietary companies attempted to maximize or optimize shareholders' benefits.

Question 7

Does your company aim to maximize the welfare of your staff? If so, *how and to what extent?*

Reply

One proprietary company tried to optimize profits subject to maintaining good relations with their staff, whereas all other companies aimed either to treat them very well indeed or to maximize their welfare.

Question 8

When considering the benefits due to policyholders, shareholders and staff, what is your order of priority?

Reply

As discussed previously, the replies of proprietary companies 8 and 9 were of little value. All mutual companies had their policyholders as their chief concern whilst two of the proprietary companies stated they had to compromise between the three groups concerned. One proprietary group believed that their staff were the most important, as they made the business enterprise viable and without this there would be no reasonable return to either policyholders or shareholders.

The following conclusions emerge :

(i) all companies wish to maximize the welfare of their with-profit policyholders and to the mutual companies this is their chief objective;

(ii) all proprietary companies wish to maximize or optimize the rewards to their shareholders; and

(iii) all companies wish to treat their staff extremely well and in one proprietary company this was the most important priority, as it would enable them to achieve the other two objectives stated above.

8.3.4 Corporate Objectives

It can be seen from the answers to questions 2.1 and 2.2 of corporate objectives that, whilst all nine companies set corporate objectives, the formats in which these were available varied from being 'well-known but not published,' to 'documented' and being 'distributed to management', and in two cases their objectives were discussed with new staff members as part of their staff induction courses. It is obvious that if a company wishes to achieve its basic objectives, the more members of staff that know about them and are committed to them, the more likely the company as a whole is to achieve them.

The replies to questions 2.3 and 2.4 have been analysed separately for mutual and proprietary companies. The basic objectives of the mutual companies were to bring life assurance to the public and to operate profitably for their with-profit policyholders, to administer their business economically and to maximize or optimize investment yields. These objectives were similarly present in the replies of proprietary companies, where it was stated that their dominant objective was the desire to maximize long-term returns to shareholders or to maintain a sustainable growth to their profit and loss accounts. In two cases companies specifically stated that their overall objective was to provide the best possible

Reply

As discussed previously, the replies of proprietary companies 8 and 9 were of little value. All mutual companies had their policyholders as their chief concern whilst two of the proprietary companies stated they had to compromise between the three groups concerned. One proprietary group believed that their staff were the most important, as they made the business enterprise viable and without this there would be no reasonable return to either policyholders or shareholders.

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The replies to questions 2.3 and 2.4 have been analysed separately for mutual and proprietary companies. The basic objectives of the mutual companies were to bring life assurance to the public and to operate profitably for their with-profit policyholders, to administer their business economically and to maximize or optimize investment yields. These objectives were similarly present in the replies of proprietary companies, where it was stated that their dominant objective was the desire to maximize long-term returns to shareholders or to maintain a sustainable growth to their profit and loss accounts. In two cases companies specifically stated that their overall objective was to provide the best possible

financial services via insurance contracts and they effectively tried to maximize the interests of shareholders and policyholders jointly.

Mutual companies considered that the fundamental reason for their existence was to bring insurance to the public, as the fulfilment of the basic need of man for security for himself and his dependants, and usually within this framework they tried to do so as profitably as possible for their with-profit policyholders. Whilst the proprietary companies also aimed at bringing these insurance services to the public, they aimed to do so with a profit motive or aimed to maximize profit. One proprietary company summarized their view as the 'provision of financial services with a profit motive'.

To summarize, whilst all insurance companies aim to bring insurance and financial services to the public and try to maximize or to optimize investment yields and to run economically, the mutual companies aimed to maximize the rewards to their with-profit policyholders, subject to the constraint that they would not discontinue operations to maximize the benefits to present with-profit policyholders.[1] Proprietary companies aimed to maximize policyholder benefits with a profit motive for their shareholders although this was usually subject to fulfilling the reasonable expectation of policyholders or, with some companies, the interests of policyholders and shareholders were similar, as they participated in partnership in investment and other surpluses. Furthermore, competition ensured that proprietary companies kept the returns to their with-profit policyholders competitive, or it would be difficult for them to obtain a reasonable share of total new business sales.

8.3.5 Social Responsibilities

From the replies given to questions 4.5, 4.6.1 and 4.6.2 in particular, it could be concluded that there was in essence little difference between the answers of mutual and proprietary companies. In general, the view of the companies was not that they specifically sought investments that were for the national good (in fact, one company said this was for the Government to do), but that they would definitely not invest in anything which was clearly to the detriment of the community. Where the interests of policyholders and that of the community as a whole coincided these types of investments were favoured.

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1. See Chapter 6, pp. 194-5.

In general, companies usually made donations to charities and other organizations only when there could be some type of quid pro quo for the company i.e. when sponsorships were made they were often for more than pure financial reasons and sometimes solely for publicity, although one company did not rate them high in promotional value. One proprietary company specifically mentioned that no donations were made from policyholders' funds but sundry small donations were made on behalf of shareholders.

Some of the larger companies have contributed considerable sums for medical research, universities and road safety and this for the benefit of the community as a whole.[1] In fact, some companies have in practice been more generous, as endorsed by statements in their annual reports or chairman's reports than their replies to the questionnaire actually indicated.

In his 1972 Annual Statement, the Chairman of the Old Mutual wrote :

'Your Board has always been aware of the importance of ensuring that the Old Mutual does even more than be financially successful, pay bonuses, provide employment and pay taxes. We accept that the *Society's responsibility extends* beyond the provision of basic financial security for its members and their families. Your Directors thus seek to identify the Society closely with the sectors of the community in which it operates and to act in the interest of these communities as a whole, and thus, they believe, in the interests of the members of the Old Mutual. Consequently, enterprises of undisputed social benefit such as the provision of housing, the development of education and the supply of municipal amenities are placed high on the list of priorities for investments'.

From the above it can be observed that donations made by life companies generally were only a very small percentage of their annual revenue, although some of the larger companies have made substantial donations to universities and medical research and to road safety in particular. Companies did not invest in outlets that were to the detriment of the community but usually did not specifically seek those that were to communal benefit. They sometimes gave

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1. See Chapter 7, pp. 231-2.

preference, at slightly lower yields, to investing in public and municipal institutions, as this would be to the long-term benefit of the community. In terms of Section 17 and 18 of the Insurance Act, 27 of 1943, insurance companies have to invest a considerable portion of their investments in certain approved securities and the non-Government stock portion of these include bills, bonds and securities issued by municipalities, as well as some public institutions such as Escom and the Rand Water Board as well as other institutions approved the the Registrar of Insurance.[1] Therefore companies would sometimes fulfil their social obligations and simultaneously meet their commitments to purchase approved securities.

8.3.6 Corporate Image

In studying the replies to question 4.8, the way the life assurance industry wished to regard itself can be summarized by the following words and phrases 'Sound, stable and of undoubted financial strength'; 'trustworthy and of undoubted integrity'; 'professional'; 'providing good value for money'; 'efficient and commercial'; 'your friend and anchor in life'; 'a good employer offering security'.

It can be observed that the industry wishes to portray a solid institutional image, with greatest emphasis being placed on financial strength, stability and integrity, but companies also wished to be regarded as efficient, commercial and modern in outlook.

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1. These securities are specified in the Third Schedule to the Insurance Act, No. 27 of 1943, as amended.

CHAPTER 9

LINKAGE BETWEEN THE THEORETICAL AND EMPIRICAL ANALYSES OF CORPORATE OBJECTIVES

9.1 Introduction

In Chapter 6 a mathematical model of a life office was analysed. A study was made to observe the effect on profitability of variations in the investment yield a company earned, alterations in the levels of new business it was assumed to write and differences in the type of product marketed. The effect on profitability of the cessation of writing new business was also analysed. The importance to the company of maximizing its investment yield and the severe strains imposed by the statutory minimum valuation basis were clearly observed from these analyses.

The theoretical objectives of companies in general, and of life assurance companies in particular, were discussed in Chapter 7. A number of different possible objectives was stipulated, including hypotheses that companies aimed to maximize profits, to maximize sales and to satisfice rather than to maximize. The socio-ethical considerations influencing the behaviour of companies were also discussed. As well as a theoretical approach to the possible objectives of life assurers, their actual objectives as revealed by their published statements, were analysed.

However, there was little literature on the subject of the corporate objectives of life assurance companies and hence the questionnaire was sent out to a number of companies in November 1974.

This questionnaire was analysed in Chapter 8 and the replies rendered by the companies provided empirical evidence of their actual objectives and their attitudes towards a wide range of aspects of the life assurance business.

In all three chapters mentioned above the difference in objectives of mutual and proprietary companies was analysed whenever possible. In particular, the hypothesis that mutual companies aimed to maximize the benefits of their existing with-profit policyholders was tested empirically and mathematically, as well as from a theoretical approach.

It is of interest to study the links between these theoretical, mathematical and empirical analyses of the corporate objectives of life assurance companies. From the analysis of the replies to the questionnaire it was evident that life assurers have in fact established clear corporate objectives.

9.2 Profit Maximization

It was observed[1] that the higher the yield a company earned on its funds and the lower the expense level at which it operated, the greater would be the surplus that it earned. It was also noted[2] that, in the short-run, the more new business a company wrote, the less the emerging surplus would be. It was illustrated how, in a given year, there was an inverse relationship between the level of new business sales and the surplus that emerged in that year i.e. the higher the level of new business in a given year, the lower the emerging surplus would be.[3] In the extreme case the greatest profit emerged in a given year if the company ceased to write new business and was able to eliminate all its new business expenses in that year.

However, it was shown how each 'generation' of new business was profitable to the company in its own right.[4] The writing of successive 'generations' of new business led to severe new business strain, due to the statutory minimum valuation basis, and hence caused the deferment of profitability. Furthermore, it was observed how a substantial increase in the levels of new business written required a considerable increase in the capital requirements of a company.[5]

From the above conclusions derived from the mathematical models it can be deduced that it would be unlikely for life offices to aim at maximizing profits in the short-term, as the way to achieve this would be to cease writing new business and eliminate all their new business expenses. However, it was observed that

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1. From Tables 6.3, 6.5, 6.12 and 6.14.
2. From Tables 6.4 and 6.13.
3. From Figures 6.4 and 6.5.
4. From Tables 6.2 and 6.10.
5. From Tables 6.4, 6.5, 6.13 and 6.14.

this action would be at the expense of long-term profitability[1] and for a proprietary company with a given share capital, this course of action would be unacceptable since, if the company ceased writing new business, at some stage profits would cease completely i.e. when all the policies were finally terminated.

In practice mutual companies also would not accept such an objective.[2] Thus, if companies aimed to maximize profits, it can be concluded that they would only try to maximize profits over the long-term.

Furthermore, since an increase in the yield a company earned on its funds substantially improved its profitability, it could be anticipated that companies would attempt to maximize their anticipated investment yields. It was shown how the requirement for companies to invest a substantial percentage of their assets in prescribed securities was a constraint to maximizing investment yields since the yields on these securities are generally lower than a company could obtain elsewhere.[3] The level of new business a company wished to write would, due to the statutory minimum valuation basis, be limited by the size of its capital and reserves and also be limited by the capacity of its human resources.

From the replies received to the questionnaire it was observed that basically six of the nine companies aimed to maximize profits, whereas two tried to optimize them. Only one company did not have profit maximization or optimization as an objective. One of the two companies that aimed to optimize profits tried to maximize a sustainable growth of earnings to its profit and loss account. This company could be stated to have objectives of satisficing rather than maximizing.[4]

Considering the problems of new business strain, it was of interest to note that one proprietary company did not intend to expand at the expense of profit but also did not try to increase short-term profits by lack of expansion.

Whilst two mutual companies tried to maximize profits and this presumably for their with-profit policyholders, this was not to be achieved by the cessation

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1. From Table 6.7.
2. This was shown in Sections 6.5.5 and 6.6.4 of Chapter 6.
3. Refer to Chapter 4, S.4.2 and S.4.2.1.
4. Refer to Chapter 7, S.7.3.

of writing new business to do so.' From their published statements mutual companies definitely considered themselves as continuing organizations. Within the context of organizational continuity, it could be concluded that maximization of profitability was generally a corporate objective of life assurance companies. The fact that mutual companies aim to maximize profits for their policyholders is given support by a number of published statements issued by them.[1]

One proprietary company, replying to the questionnaire, aimed to fulfil the reasonable expectations of policyholders. All other companies (both proprietary and mutual) tried however to maximize the benefits paid to their with-profit policyholders. In some of the proprietary companies there was an identity of interest between shareholders and policyholders, in that shareholders usually received a fixed percentage of the profits distributed to policyholders and thus, by maximizing the benefits paid to policyholders, shareholders' benefits would be enhanced. All proprietary companies aimed to maximize or optimize the benefits received by their shareholders.

It can be concluded that, subject to the constraint that shareholders receive a certain percentage of the surplus distributed to policyholders, proprietary companies can attempt to maximize the benefits distributed to both policyholders and shareholders. If the constraint did not exist, policyholders would obviously receive greater benefits if shareholders received a smaller proportion of total profits or if they received nothing i.e. but for the constraint any distribution of profits to shareholders would be at the expense of benefits payable to policyholders.

Thus, both in theory and in practical terms, proprietary life assurance companies have aimed to maximize or optimize long-term profitability. Some mutual companies have also tried to maximize long-term profitability to their policyholders. In practice there is, however, an element of conflict in that the behaviour of mutual companies seems to be that of 'sales maximizers' rather than that of 'profit maximizers' and it has been shown that sales and profits cannot be maximized simultaneously.

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1. Ibid., S.7.10.1.

9.2 Maximization of Investment Yield

Companies generally aimed to maximize profits by investing their funds to achieve the highest expected long-term return and by administering their companies efficiently and economically. Thus maximizing of the anticipated investment yield on their funds is a major objective of companies to enable them to maximize profits. The following typical statements support the hypothesis that companies aim to maximize investment yields.

'It is of the utmost importance to us to earn the maximum yield on our policyholder savings'[1].

'As a result of its investment policies, Liberty Life has achieved a record return on its Life Fund which substantially exceeds the interest assumptions on which the calculation of the actuarial liability is based. This rate of return, a factor which is fundamental to the success of a life assurance operation, compares most favourably with the yields secured by other leading South African life assurance offices'[2].

'I have already mentioned the substantial increase in our investment income, and this has led to the gross yield on our life assurance fund going up from 7,44% to 7,82%, yet another record year'[3].

Further evidence that, in practice, life companies try to maximize their investment income was received in the replies to the questionnaire. Replies included statements that companies aimed to achieve the maximum expected return on invested funds and this return included capital growth. It can thus be concluded that life assurance companies do, as Pegler stated, attempt to invest their funds to earn the maximum expected yield.[4]

9.4 Sales Maximization

The results of the mathematical models developed in Chapter 6 proved conclusively that, in a given year, an increase in sales would lead to a decrease in surplus emerging in the short-term due to the heavy new business strain caused. The reverse

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1. Sanlam Review, 1973.
2. Liberty Life Association, Directors' Report for the year ending December 31, 1974, p. 11
3. Southern Life Association, Chairman's Statement for the year ending April 30, 1973.
4. Pegler, op. cit., p. 181.

would generally hold true in the long-term, provided that the rate of increase of sales of new business was not so great as to defer the emergence of surplus indefinitely.

It has been proved that generally companies and life assurers in particular, cannot simultaneously maximize their sales and immediate profits. It is of interest to study what their attitudes, in practical terms, have been to the maximization of sales.

Thus, in theory, it would be anticipated that proprietary companies would not aim to maximize new business sales in the short-term whilst, over the long-term, they would be concerned with the emergence of surplus. The same does not hold true for a mutual company and there is no reason to expect that they would not attempt to maximize sales, both in the short- and in the long-term, subject only to the capacity of their human resources to do so and of the size of their free reserves to absorb the resulting new business strain.

In analysing the replies to the questionnaire, it was observed that three of the four mutual companies replying aimed to maximize sales, whereas the other mutual assurer tried to optimize new business sales.[1] Only one proprietary company aimed to maximize sales, two to optimize, one only aimed to maximize if it were profitable to do so and one proprietary company definitely did not try to maximize sales. These empirical results support the hypothesis that mutual life offices are generally sales maximizers, whereas proprietary companies are more concerned with the emergence of profit and would generally aim at sales levels that met their profit objectives. This is the reason why one company to which both profitability and sales were important, believed that there was a degree of conflict in obtaining both simultaneously and hence they aimed to optimize each instead of to maximize.

It was noted that at least one mutual company, the Old Mutual, whilst concerned with growth, believed it could only be justified in the interests of policyholders if it did not prevent the company from maintaining its standards of profitability[2]. It was, however, observed that mutual assurers seem to have an objective of bringing

1. Refer to Chapter 8, S. 8.3.2.
2. Refer to Chapter 7, p. 235.

life assurance to as many people as possible i.e. they have an objective to *maximize sales.*[1]

The greater the sales of new business, the larger the total premium income of a company would be. The fact that the total premium income received in a given year by a company is regarded as very important is evidenced by the following statements :

'Some of the new levels of achievements were :

1. OLD MUTUAL became the first South African life assurance office to exceed the R200-million mark in gross premiums and annuity considerations received. The R100-million mark was reached only three years ago in the 126th year of the Society's existence'[2].

'The support which you and your fellow policy-holders have continued to give your company has made Sanlam the life assurance company which in its latest financial year had the highest premium income within the Republic and South-West Africa. It is with particular pride therefore, and in gratitude to all our policy holders, that we present this report of the past year's activities to you'[3].

These statements support the hypothesis that mutual life offices aim to *maximize sales.*

9.6 Assets Maximization

It is obvious that the greater the level of new business a company writes each year, the larger the total assets of a company would eventually be i.e. in certain respects an objective of maximizing sales is implicitly a desire to maximize assets. In theory it would be expected that the objective to maximize sales would take precedence over the aim to maximize assets. There is, however, an element of prestige and power that accompanies the growth of a company. When life offices are classified by size, the yardstick for measuring size is the value of its assets.

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1. Ibid., pp. 230, 231.
2. Old Mutual, Chairman's Statement for the year ending June 30, 1975.
3. Sanlam Review 1971, Chairman's Statement.

From this viewpoint life assurers may have aspirations to maximize their assets irrespective of the profitability of doing so. They may not, however, attempt to achieve this my marketing products that are actuarially unsound, as their premium rates have to be certified to the Registrar.[1] The importance to a life assurer of the growth in its assets is illustrated by the following statement :

'The company first reported assets of R100-million in 1972 and it is indicative of its continuing rapid growth that two years later the consolidated assets of Liberty Life were already well past the R300-million mark, having attained a level of R335-million at the end of the 1974 year'[2].

Only one respondent to the questionnaire stated that it was a specific corporate objective to maximize assets. Some companies believed that the maximization of assets was not an objective in itself but arose indirectly from the success of their objectives of maximization of sales or of profits. Other companies either did not attempt to maximize assets, or they attempted to optimize the increase in the growth of their assets or to maximize them only if it were profitable to do so. All these latter views basically reflect that the maximization of assets was not a specific corporate objective but a result of other courses of action.

9.6 Social and National Responsibilities

An early authoritative view recommending that life assurers should endeavour to orientate their investment policy towards socially and economically desirable ends was put forward by Pegler.[3] His logic for this recommendation was that, with the steady increase in the state interference in economic affairs, it could be anticipated that the state would discourage those enterprises that were believed to be contrary to the public interest and encourage those that promoted the good of the community as a whole.

Whilst a company could not attempt to operate purely for the benefit of the community in which it operated, in recent years many companies have adopted the view that they have certain basic social and national responsibilities as a 'corporate citizen'.

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1. Insurance Act, No. 27 of 1943, S. 34.
2. Liberty Life Association, Directors' Report for the year ending December 31, 1974, p. 6.
3. Pegler, op. cit., p. 185.

In South Africa life assurers have been forced to accept a certain minimum level of national responsibility by being obliged to invest a substantial percentage of their investments in approved securities.[1] It has, however, been shown that they have accepted a far wider social and national responsibility than that imposed on them by legislation.[2] Considerable sums of money have been donated to outlets such as education institutions, medical research and road safety programmes.

Companies have also regarded themselves as having other national responsibilities as the following statement illustrates :

'Moreover, OLD MUTUAL, as a leading life assurance office in South Africa, has certain national responsibilities. These relate to the provision of finance where shortages in the supply of capital in the economy arise that cannot be satisfied by other types of financial institutions that concentrate on specific sectors or types of investments'[3].

Most companies that replied to the questionnaire stated that they did not specifically seek investments that were for the national good but, if this purpose coincided with the interests of policyholders, then such investments were favoured. In some cases companies regarded their national responsibility from a different viewpoint i.e. instead of specifically investing in projects that were to the national benefit, they refrained from directing their resources to those avenues that were contrary to it. Owing to their compulsory investments in approved securities, some companies believed that they were simultaneously fulfilling their social obligations in regard to these investments.

Life assurance companies have, however, in practice shown a considerable degree of social responsibility and in this regard the Old Mutual and Sanlam in particular have donated considerable sums of money to road safety programmes, medical research and education institutions.[4] One major proprietary company stated that despite the fact that, in a private enterprise economy, it could be argued that investments of a life office should be made with the objective of maximizing the expected return thereon, the interests of the community as a whole did feature significantly in their making of investment decisions.

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1. Refer to Chapter 4, S.4.2 and S.4.2.1.
2. Refer to Chapter 7, S.7.10.2.
3. Old Mutual, Chairman's Statement for the year ending June 30, 1975.
4. Refer to Chapter 7, S.7.10.1.

9.7 Mutual and Proprietary Companies Compared

The attitude of the three largest mutual life assurers in South Africa clearly indicated that they regarded the objective of maximizing the benefits of their with-profit policyholders as being of primary importance.[1] Furthermore, since a mutual company belongs to its policyholders, the above objective implies that mutual companies aim to maximize the benefits paid to their existing with-profit policyholders. It was argued in theoretical terms that the above hypothesis could not be true for mutual companies as they are currently known.[2] It was further argued that, if mutual companies aimed to maximize the benefits of their existing with-profit policyholders, they should cease to write new business and dispense with the expense of their new business operations. The consequent increase in distributable surplus in future years, which could be increased by the gradual elimination of reserves built up in the past, would substantially increase the benefits payable to existing with-profit policyholders.

The hypothesis that the existing with-profit policyholders of a mutual life assurer would be better off if the company were converted to a *closed fund* was proved mathematically.[3] Mathematical models E and F illustrated how the emerging surplus increased substantially when no further new business was written. When this higher total surplus was distributed in proportion to the liabilities of these policies still in force (bearing in mind that no new business was being written), the distribution of surplus to existing with-profit policyholders was considerably increased.

In practice mutual companies have not ceased operations in order to maximize the benefits to their existing with-profit policyholders. Thus the hypothesis that mutual companies aimed to maximize the benefits of these policyholders was rejected. It was observed that amongst the disclosed objectives of at least two mutual companies, the Old Mutual and the National Mutual, was the aim of

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1. Ibid., S.7.10.1.
2. Ibid., S.7.11.
3. Refer to Chapter 6, S.6.5.5 and S.6 6.4.

providing the benefits of mutual life assurance on as wide a basis as possible.[1] Furthermore, Ogborn has stated that contemporary actuarial opinion would not support the view that the funds of a mutual life assurer belonged exclusively to its members at a given point of time. A mutual life assurance society was a continuing business.[2]

The writer has also stated that, whilst all the profits of a mutual life assurer belonged to its with-profit policyholders, not all these profits have been distributed to these policyholders. This is by no means unreasonable and the following statement adds weight to the views expressed above.

'For this reason we make a practice of retaining a portion of our surplus which is not distributed immediately in the form of bonuses, but is kept as a security margin to ensure that Sanlam will always be able to meet all its obligations to all policy-holders, even if there should be a slump such as the drop in share prices experienced on the stock exchange over the past two years. Indeed, it is this practice which ensures the security of assurance with a company like Sanlam.

On the other hand, we take into account that the policyholders who bought a policy years ago which must be paid out this year, has also contributed to the security margin and is entitled to a fair share of it'[3].

Since mutual companies consider themselves to be continuing organizations they must face similar problems and have similar attitudes to proprietary offices. Whilst mutual companies do not have to service shareholders' capital, they can only build up additional reserves (i.e. working capital) from surplus, whereas a proprietary company can and does partly use shareholders' capital for this purpose and will only have to use surplus to service this capital. Mutual companies do not, however, have to publicly report on profitability whereas a quoted proprietary company would have to. It was observed that a difference in objectives between mutual and proprietary companies was that generally the former seem to be 'sales maximizers', whereas proprietary companies generally aim to be 'profit maximizers'.

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1. Refer to pp. 230, 234.
2. Ogborn, op. cit., p. 307.
3. Sanlam, Chairman's Report, 1970.

9.8 The Future

It is of interest to speculate on the future of the life assurance industry in South Africa and of the relative importance of mutual and proprietary companies. We have seen in Chapter 3 that, until the end of 1974, three of the four largest life assurers in South Africa were mutual companies, i.e. Old Mutual, Sanlam and Southern Life. By the end of 1975, however, the picture had changed, and the four largest life assurers in South Africa consisted of two mutual companies, Old Mutual and Sanlam, and two proprietary companies, African Eagle and Liberty Life. This does not mean that the proprietary companies are becoming relatively more important in terms of the total assets they control. In fact, it can be shown from Tables 3.1 and 3.4, that in 1945 the three large mutual companies referred to above controlled 57,3 per cent of the total assets of all life assurers and, by the end of 1973, this percentage was virtually unchanged at 57,8 per cent.

Thus, no clear trend has yet emerged in regard to the relative importance of proprietary and mutual companies. It was also shown in Table 3.2 that the number of foreign insurers has decreased substantially over the years and, from 1970 onwards the trend for the number of domestic life offices to increase, was reversed. In view of the recommendations of the Franzsen Commission in regard to the desirability for insurers to domesticate and that, other than in exceptional circumstances, no further licenses should be issued to prospective new life assurers,[1] and the probability of further mergers, it seems probable that the trend for the total number of life assurers operating in South Africa to decrease, will continue.

It can be speculated that this possible process of concentration in the South African life assurance industry will enhance the productivity of this important sector by rationalization of human and other resources.

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1. Refer to Chapter 4, S.4.6.2 and S.4.6.4.

COVERING LETTER THAT WAS ATTACHED TO THE QUESTIONNAIRE SENT TO THE EXECUTIVES OF THIRTY LIFE ASSURERS IN SOUTH AFRICA

Dear Sir

CORPORATE OBJECTIVES

In recent years more companies are concentrating on defining their goals and clarifying their corporate objectives. In many cases companies have clear objectives but have never committed these to paper and established them as clear corporate objectives and informed their senior management accordingly.

In many instances the objectives of companies are clearly laid down in the Chairman's and Directors' report accompanying their annual accounts, and at least one company has distributed a leaflet specifically outlining their corporate objectives. There has been considerable literature on the subject, especially in recent years. Currently the Department of Business Economics of the University of the Witwatersrand is conducting a survey on the corporate objectives of Life Assurance Companies i.e. to what extent Life Companies have clarified their objectives and how they differ between different types of Life Companies.

We are sending questionnaires to the Chief Executives of all the leading Life Assurance Companies in South Africa and we would greatly appreciate your co-operation by completing and returning this questionnaire to us by January 31, 1975. We feel that a survey of this kind can provide particularly useful information, and a copy of the results of the questionnaire will be circulated to all companies that have completed it.

We would appreciate it if all questions are answered as fully and meaningfully as possible.

QUESTIONNAIRE SENT TO EXECUTIVES OF THIRTY LIFE ASSURERS IN SOUTH AFRICA

1. STATISTICAL INFORMATION
   - 1.1 Name of company.
   - 1.2 Is your company a mutual or proprietary company?
   - 1.3 Is your company South African- or foreign-controlled?
   - 1.4 Date of last published accounts.
   - 1.5 Total assets as at date of last published accounts.
   - 1.6 Gross premium income (excluding single premiums) for the above financial year.
   - 1.7 Single premiums received in the above financial year.
2. CORPORATE OBJECTIVES
   - 2.1 Has your company established clear corporate objectives?
   - 2.2 If they are documented, in what form are they? Are they, for example, in a leaflet form, given in annual reports or kept confidentially for information of top management only?
   - 2.3 If your corporate objectives have been established and can be disclosed, what are they?
   - 2.4 What do you believe is the fundamental reason for your company's existence?
3. MAXIMIZATION HYPOTHESES
   - 3.1 Does your company aim to maximize profits as a corporate objective?
   - 3.2 If so, is it short-term or long-term profits, and how do you separate the two?
   - 3.3 Is it a company objective to maximize assets?
   - 3.4 Is it a company objective to maximize sales?
   - 3.5 Which, if any, of the above is the chief objective of the company? In what order do they rate in priority?
   - 3.6 To what extent do the above influence your investments, marketing and cost at which your business is conducted?

3.7 If a proprietary company, do you establish any minimum acceptable yields as a return on shareholders' capital? Before injecting new capital, do you set a minimum acceptable rate of return on this capital and, if so what are your views on acceptable returns?

4. GENERAL OBJECTIVES

Amongst life assurance companies' literature, the following objectives have been declared by some companies. To what extent do they feature in your company's philosophy?

4.1 Does your company aim to maximize the welfare of its policyholders (including both benefits earned and service supplied) and, if so, how *and to what extent*?

4.2 Does your company aim to maximize the welfare of shareholders?

4.3 Does your company aim to maximize the welfare of your staff? If so, how and to what extent?

4.4 When considering the benefits due to policyholders, shareholders and staff, what is your order of priority?

4.5 To what extent does your company wish to maximize the welfare of the country as a whole by mobilizing savings and investing in projects for the national good? What do you believe are your company's social responsibilities, and what is your attitude towards donations and investments in public institutions, universities and other education institutions, welfare organizations, medical research, road safety, sport and charities?

4.6.1 To what extent does the benefit of the community as a whole feature in your investment decisions?

4.6.2 Do you make donations to universities, charities and sports and, if so, how does this relate to your philosophy on 4.1, 4.2 and 4.3 *above*?

4.7 As a service industry, do you believe that an objective of yours should be to provide an excellent service to policyholders and, if so,how does this relate to your other objectives?

4.8 Have you set objectives in respect of your corporate image? If so, how would you wish to be regarded by the public and your competitors?

4.9 Does your company have any other objectives or philosophies?

4.10 Do you set short, medium and long range plans? If so, in what respect, and how do you monitor your performance against your plans?

4.11 Given the objectives above, how do you seek to achieve them? In particular, how have these objectives influenced the conduct of your business, the marketing of your products, the investment of your funds, the training of your staff and the service you provide?

GLOSSARY OF LIFE ASSURANCE TERMINOLOGY*

A

Actuarial Reserve (Actuarial Liability)
the liability or reserve a life assurer has to establish on the basis laid down in the Second Schedule of the Insurance Act, in respect of its unmatured life assurance policies.

Actuary
in terms of Section One of the Insurance Act, this means a Fellow of the Institute of Actuaries of England or of the Faculty of Actuaries in Scotland or of the Society of Actuaries of America or of any other Institute, Faculty, Society or Chapter of Actuaries approved by the Minister of Finance. An actuary is an expert who applies the mathematical doctrines of probability and compound interest to statistics from which life assurance, annuity and similar undertakings derive their principles of operation.

Age
at inception - the age of the policyholder at the inception of his life assurance policy.
next birthday - the age normally used for premium calculations, where the applicant's age at his next birthday is taken as the operative age at the commencement of the life assurance.

Agent
a person who introduces life assurance business for which he receives payment by commission - often a company employee called a representative.

Allocation Amount
the portion of the premium on a linked assurance policy that is used to purchase linked investments. Due to high acquisition costs of new business this amount is usually a smaller percentage of the annual premium in the first year than in the second and subsequent years.

Annuitant
a person in receipt of an annuity.

Annuity
a contract whereby in return for a capital sum periodic payments are made by the life assurer for the remainder of the life of the annuitant. Sometimes payments are made for a fixed period or are subject to being paid for not less than a certain period.

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R.J. Miller, Life Assurance in South Africa, 2nd ed. rev., Johannesburg, Blue Crane Books, 1970.

Assurance
usually refers to long-term insurance or life assurance.

B

Bonus
additions - share of surplus allotted to holders of with-profit policies, usually in the form of additions to the sum assured.
compound - each year as the new bonus is declared, it compounds upon the previous total bonus.
declaration - a bonus is declared once the results of the valuation have been determined and the policyholders are notified of the amount of bonus allotted to their policies.
loading - the extra premium a with-profit policyholder pays for his policy compared to a non-profit policyholder. The payment of this extra premium gives him the right to participate in the profits of the life assurance company.
rate - the amount of bonus allotted is expressed as a rate of the sum assured e.g. R25 per R1 000 sum assured.
reversionary - once declared it forms part of the sum assured and is payable at the same time and in the same circumstances as the sum assured. It 'reverts' to the sum assured.

Broker
an intermediary between the life assurer and prospective policyholders.

C

Closed Fund
a life assurance fund in which no further new business is written.

Commission
basic - the monetary reward paid to the introducer of life assurance business. It is paid by the life assurer and is usually expressed as a percentage of the premium.
initial - the commission paid on the first year's premium.
renewal - the commission paid on subsequent years premiums.
overriding - additional commission paid to introducers of business and varies according to the contract they have with the life assurer. It is usually expressed as a percentage of the initial or renewal commission or of both.

Conventional Business
a term broadly applied to with-profit and non-profit business as opposed to linked assurance business.

D

Days of Grace
period during which a policy is kept in force pending payment of a premium.

Decreasing Term Assurance
a form of term assurance under which the sum assured decreases during the term of the policy. The decrease in sum assured can be level each year but it usually decreases in step with the debt that would be outstanding on a mortgage loan at various rates of interest.

Deficit
occurs when the total value of a life assurer's assets is less than the value of its liabilities. In a given year an operating deficit is the excess of the increase in the value of a company's liabilities over the increase in the value of its assets.

Discontinuance
refers to policies being discontinued by death, maturity, lapse or surrender.

Domestic Insurer
a registered insurer whose head office is in the Republic of South Africa.

E

Endowment Assurance
policy under which the benefit is payable on a predetermined date or at death if this occurs first. It can be linked, with- or non-profit.

Estate
the disclosed and hidden reserves in the value of a life assurer's assets and liabilities. It is the difference between the value of its assets and liabilities where these are calculated on a realistic basis and not on the statutory valuation basis.

F

Foreign Insurer
a registered insurer other than a Domestic Insurer.

Funeral Policy
a policy, on which the benefits are limited, (in terms of Section One of the Insurance Act) to a maximum of R300. These benefits must consist principally of the provision for the funeral of the assured or the funeral or some other non-monetary benefit to any person.

G

General Insurance
another name for non-life or short-term insurance.

I

Immunization
a form of 'matching' the assets of a life assurer to its liabilities such that the business is immune to a general change in the rates of interest i.e. if the rate of interest altered, any change in the value of assets would be accompanied by a corresponding change in the value of the company's liabilities.

Industrial Insurance
insurance business (other than funeral business) whereby the insurer assumes similar obligations to life business but where the sum assured does not exceed R600.

In force
the number of policies in force at a given point of time.

Insurance
usually refers to short-term insurance or non-life insurance.

Insurance Act
the Insurance Act, No. 27 of 1943 as amended.

L

Lapse
a policy lapses if a premium is not paid in the days of grace unless it is kept in force by some form of non-forfeiture clause.

Level Premium
is where identical premiums are payable on the first due date and throughout the life of the policy.

Life Assured
the person whose life is assured by a life policy.

Life Business
excludes industrial and funeral business and a life policy is one whereby a life assurer, in return for the payment of premiums, assumes an obligation to pay certain sums of money on death and/or survival for a specified perio.

Life Office
life assurance company that transacts life business.

Life Offices' Association
the Life Offices' Association of South Africa.

Linked Policy
a form of systematic saving contract under which life cover is usually provided and a part of the premium buys, or is deemed to buy, investment units such as units in equity or propert portfolios. They are also called unit linked or investment linked policies.

Long-Term Assurance Business
means any life, industrial, funeral or sinking fund business.

M

Matching
of assets means investing so as to obtain a distribution of assets, to make them, as far as possible, equally as vulnerable as the liabilities to those influences that affect both and particularly to variations in the rate of interest.

Mortality Table
a table reflecting the mortality of a group of lives. In calculating premium rates, life assurers use mortality tables derived from the mortality of lives assured. In the first few years after assurance commences lives are known as 'select' lives and experience a lighter (lesser) mortality than lives that have been assured for a few years. These lives are said to experience 'ultimate' mortality.

Mutual Company
one which has no shareholders and the assets and profits belong solely to its policyholders.

N

New Business
the new premium income sold by a company.

New Business Strain
describes the situation whereby when new business is sold, the commissions paid and expenses incurred, as well as any death claims arising, together with the actuarial liabilities that have to be set up as required by law, generally exceed the premiums received by the company, the result being a 'new business strain'.

Non Forfeiture
automatic - a clause contained in permanent life assurance policies (as opposed to term assurances- temporary) whereby any premium remaining unpaid at the end of the days of grace is advanced as a loan against the surrender value, for as long as the latter continues to finance unpaid premiums.

Non-Profit Business
business that does not participate in the profits of the life assurer - also called without-profit or non-participating business.

P

Paid up Policy
policy kept in force for a reduced sum assured after the premiums were discontinued prematurely.

Part One Assets
approved securities (or prescribed investments) that must be held by a life assurer. The definition of those assets that constitute Part One assets is given in Part One of the Third Schedule to the Insurance Act.

Per Mille
per thousand.

R

Retention
the sum assured retained by a life assurer on one life.

S

S.A. 1956 - 62
mortality table based on a study of South African assured lives between the years 1956 and 1962. This is the most modern published mortality table in South Africa but recent figures circulated by the Actuarial Society of South Africa indicate that mortality rates in South Africa have not altered significantly since those tables were published.

Short-Term Insurance Business
means any insurance business other than long-term business or compulsory third-party insurance business.

Sum Assured
the amount which becomes payable in the event of a claim at either death or maturity.

Surrender Value
: cash value of a whole life or endowment policy when discontinued. Policies usually only acquire a surrender value after three years premiums have been paid.

Surplus
: the difference between the total value of the assets of a life assurance company and its liabilities. In a given year an operating surplus is the excess in the increase in value of the company's assets over the increase in the value of its liabilities.

T

Term Assurance
: a temporary assurance under which the benefit is payable only on death of the life assured before a predetermined date. It is not available on a with-profit basis.

V

Valuation
: the determination of the actuarial liabilities of a life assurer at a year end. A statutory minimum valuation basis is laid down by the Insurance Act.

W

With-Profit Business
: policies that participate in the profits of the life assurer.

Z

Zillmer
: the initial expense allowance that may be used in the statutory minimum valuation basis.

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