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THE INSURANCE INDUSTRY IN NIGERIA: SOURCES AND USES OF FUNDS

The Thesis by

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submitted in partial fulfillment of the requirements for the Degree of Master of Arts in Economic Development and Planning in the African Institute for Economic Development and Planning, has been read and approved by the Committee.

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A B S T R A C T

The insurance industry has not entered the mainstream of research of the financial sector in the Nigerian economy. Most analyses concentrate on the capital market, giving only scant treatment to the insurance sector. This thesis, therefore, attempts an in-depth study of the sector, focussing largely on the sources and uses of funds during the 1969-81 period.

The approach to the thesis is both evolutionary and econometric. The latter, based on the technique of the Ordinary Least Squares (OLS), explored the determinants of growth of the insurance industry (sources) and of its investment behaviour (uses).

Premiums constitute the bulk (averaging over 80 per cent) of the income accruing to the insurance industry. Besides, most of insurance companies' investments are in liquid assets, averaging 51.3 per cent. This is made up of cash and bills receivable (35.6 per cent) and government securities (15.7 per cent). This investment behaviour probably follows the long-term inflationary expectations in the country and the general business atmosphere of a strong risk aversion.

The insurance industry tends to grow pari-passu with economic development. This derives from the observed positive and significant relationships between variation in premiums of the insurance industry and that of factors such as the per capita income, the degree of literacy,

intensity of energy use, etc, which are themselves proxy indicators of economic development. Again, the negative signs observed for the coefficients of the interest rate variable suggest that the prevailing low interest rates in the country discourage insurance company investment. Therefore, there is need for government to move interest rates gradually upward toward their market levels.

A C K N O W L E D G E M E N T S

In life little gets done by any individual without the assistance of God and people. God ignites the yearnings of achievement and one then cannalises the urge into concrete and worthwhile reality through the ideas, criticisms and support of people. This thesis is a product of such cooperative effort. I express here my sincere thanks to them, some of whom, for personal reasons, would prefer to remain anonymous.

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Of course, I am eternally indebted to the Central Bank of Nigeria for sponsoring me to undertake the course in planning.

Finally, I wish to express my profound gratitude to my family, especially my dear wife, Patricia, who has creditably catered for the needs of my children back home in Nigeria single-handedly during my nine-month sojourn in Dakar.

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I.1 INTRODUCTION

The business of insurance has grown so complex over the years that no single definition can cover all its many branches. Thus various writers have offered several definitions of insurance, each definition seeking to portray the message that the particular author wishes to pass on to his readers. The lawyer, for example, writing about insurance law would define insurance as "a contract whereby a person called the insurer, agrees in consideration of money paid to him, called the premium, by another person, called the insured or assured, to indemnify the latter against loss resulting to him on the happening of certain events. The policy is the document in which is contained the terms of the contract..."[1)]

A sociologist would define insurance as a device whereby the participants to the insurance contract provide financial compensation or succour to those among them encountering the many misfortunes or contingencies of life. Under a modern insurance system payments to those who suffer losses are made from the accumulated contributions of all those participating in the insurance arrangement.

On the other hand, the economist would define insurance as a devise for the transfer of some risks of economic loss from the insured who otherwise would have borne the risk to an insurer in return for a premium.[2)]

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1) Osborn, P.G. Consice Law Dictionary, Sweet and Maxwell, 5th Edition, 1964.

2) See Irukwu, J.O. Insurance Management in Africa, Caxton Press (West Africa) Limited, Ibadan, p. 4.

Each one of these definitions does throw some light on the nature of insurance. However, for our present purposes this thesis identifies itself with the last definition, that is, the view point of the economist.

I.2 The Concept of Financial Intermediation

Insurance companies are important non-bank financial intermediaries in a nation's financial system. As financial intermediaries insurance companies represent third party agents that shift funds from the ultimate lender or seller or owner of funds to the ultimate borrower or buyer or user of funds. The borrower in turn provides security or securities which are held by the insurance companies. Thus financial intermediation is an operation not merely that of being a middleman but that of actually generating a new type of asset, the securities, e.g. bonds, ordinary shares and other earning assets. These securities are less liquid than the corresponding liabilities (the premiums) on the balance sheets of the insurance companies.

Depending on the volume and character of their financial intermediation insurance companies could pose dangers for monetary stability and frustrate a nation's monetary policy. For instance, if insurance companies at various times accumulate idle balances in line with Keynes's speculative motive, they can act as agents in the process whereby savings are caught in the liquidity trap and are not transmitted through the market to finance capital formation. This activity is reflected in their holdings of cash through time owing to uncertainty about the future course of interest rates. Moreover, even if the insurance companies do not hold idle balances in accordance with the speculative motive, they may contribute to monetary instability by augmenting the savings currently

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flowing in from their policyholders with the proceeds from sales of assets, particularly Government securities, out of their existing portfolios. If these securities are bought by the public with idle money balances or by the monetary authorities, credit is put at the disposal of borrowers which is greater than the funds which savers are currently putting at their disposal. Thus monetary aggregates may exceed their predetermined targets and hence destabilise short-term monetary policy.

Finally, the distribution of insurance companies' assets between the obligations of the public and private sectors has implications for the conduct of monetary policy. Since such a high proportion of domestic capital formation is under the direct or indirect control of the Government, the extent to which a substantial proportion of the savings flowing through the insurance companies can be diverted to the public sector is an important element in the implementation of monetary and debt policy. In times of boom the effectiveness of the efforts of the authorities to deny finance to the private sector is greatly increased if they can attract a higher proportion of the funds administered by the insurance companies into official hands. It is thus little wonder that many monetary authorities in market-oriented economies exercise some control over the credit operations of insurance companies.

In spite of the importance of insurance companies, analysis of the insurance industry has not been in the mainstream of research of the financial sector in the Nigerian economy. Most analyses focus on the capital market in Nigeria with scant treatment given to the insurance sector. The only fairly incisive analyses of the insurance sector are those done by Falegan[1] and

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1) Falegan, I.I "Insurance and the Capital Market", Central Bank of Nigeria Bullion, CSS Press, Lagos, Vol. 8, n° 2, April - June 1983.

Lijadu.[1] Even so, these analyses are cross-section studies which examine insurance activities in the capital market only. Thus as yet there has been no time series study of the entire spectrum of activities of the insurance sector in Nigeria, spanning the underwriting and investment operations. The purpose of this study is to develop such analysis. As such analysis relates exclusively to commercial or private insurance, no discussion of social insurance, as represented in Nigeria by Pension/Provident Funds, will be undertaken since that is beyond the scope of this thesis.

The approach to the thesis will be both evolutionary/descriptive and econometric. Although a good deal of the description will outline the results of underwriting and investment operations of the insurance industry in an evolutionary setting, the thesis will also attempt an econometric investigation of the causative factors or determinants of growth of insurance industry (sources) and of the latter's investment behaviour (uses).

The thesis is divided into five chapters. Chapter I focusses on the structure of the insurance sector, and government regulatory framework for the sector. Chapter II highlights the sources and uses of funds and the role of the insurance industry in the capital market. Chapters III and IV dwell on econometric models for sources and uses of funds while Chapter V concludes the study with a review of the sector's problems and prospects.

I.3 Data for the Study

The analysis of the insurance industry is based on a thirteen year data series (1969-1981) compiled from the insurance companies'annual returns to the Federal Ministry of Finance, Insurance Division. The choice of 1969 as the base year for the analysis stems from the consideration that insurance business in Nigeria became significantly regulated as from that year, following

1) Lijadu, Y "Insurance Industry and Capital Market Development", Central Bank of Nigeria Bullion, CSS Press, Lagos, Vol. 8, n°1, Jan-March 1983.

the enactment of the Companies Act 1968. Unavailability of data does not permit the extension of the time profile for the analysis beyond 1981.

Time series data, as opposed to the cross-sectional data used by other analysts, have been used not only to investigate the trends and the shifts, if any, in the patterns of underwriting income and expenditures through time but to explore the causal factors of the growth of such income as accrued to the insurance sector and the latter's investment behaviour. Time series data are perhaps superior to cross-section data as they enable predictions to be made of insurance income and investments. Such predictions are less likely to be influenced by major erratic institutional developments than cross-section studies at a point in time.

The Federal Office of Statistics (FOS), Lagos, constitutes our source of data on Gross Domestic Product (GDP) at current factor cost. Estimates of total labour force and urban labour force were derived from coefficients published in World Bank Report 1981. Statistics on net registered tonnage of ships that entered Nigerian ports have been compiled from Nigeria Ports Authority Administration Des Ports Nigerian (1981). The Central Bank of Nigeria, Annual Report (various issues) and Principal Economic Indicators constitute the sources of data on residential consumption of electricity, personal income tax, and exports and imports figures.

I.4 Limitations to the Data

The data for the thesis are subject to errors since they were derived from returns on annual surveys of the insurance sector. Under-reporting of income and the inflation of expenditure figures designed to present a low profit profile are, by and large, features of insurance survey data. The data

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for the last three years, 1979-1981, are also provisional estimates as a few insurance companies had not sent in their survey returns at the time of data consolidation for the entire insurance industry. Besides, the figures for labour force (total and urban) had to be estimated as actual data are unavailable.

A rather theoretical limitation is inherent in the use of time series data themselves. The problem here is that in time series data most of the economic variables are more correlated with each other than in cross-section data. This greater multicollinearity in time series, particularly one having lagged dependent variables as in this study, means that a bias is introduced into standard errors and t-ratios. Thus statistical significance of the coefficients cannot be accurately determined. Fortunately for the study, the problem of multicollinearity is generally mild, except in the extreme cases of equations 34, 40, 42 and 48 of the investment Model where the problem is clearly present as R^2 is very high but none of the regression coefficients is statistically significant on the basis of the conventional t-test.

CHAPTER I

STRUCTURE OF INSURANCE INDUSTRY

1.5 Number and Type

The number of insurance companies operating in the country rose from 27 in 1969 to 70 in 1973. It fell to 69 and 59 in 1975 and 1976, respectively and rose again to 84 in 1981. The decline in the number of insurance companies in the second quinquennium of the review period may be attributed to the liquidation of companies that could not satisfy the provisions of the Insurance Act of 1976.[1].

Three categories of insurance companies have been identified. Firstly, those that engaged solely in the underwriting of life insurance policies ; secondly, those dealing in casualty or non-life[2] insurance, and finally, those that operate both life and non-life business.

A preponderant proportion of insurance companies operating in Nigeria transacted exclusively non-life business in the period. The share rose from 48.2 per cent in 1969 to 67.9 per cent in 1981. The proportion of companies engaged solely in selling life policies and in the combined life and non-life business averaged 12.5 and 24.3 per cent, respectively.

The dominant share of non-life insurance companies in the number of total insurance companies reflected the early preoccupation of insurers with selling non-life policies. Most of the earlier insurance companies which operated before the sixties were not enthusiastic about insuring the lives of Africans - their major reasons being the high risks of doing so and the difficulty of determining profitable premium rates. Thus, until recent years, life policies as a medium of contractual saving have not been encouraged.[3]

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1) See Section 1.9 below for a summary of these provisions.

2) Non-life insurance, often referred to as general insurance, includes policy coverage for fire, accident, motor vehicle, workmen's compensation, marine,aviation and miscellaneous. For details see Insurance Decree n°59 2(1)

3) Ojo, A.T. The Nigerian Financial System, University of Wales Press, Bangor, 1976, p. 47.

The other major reason has been the existence of some form of social security provided in the extended family system in Nigeria, where the social system places the burden of security upon a larger family and there seems to be little reason for an individual to bother about protecting his survivor. Low income and small personal savings, as well as the fact that the modern industrial and commercial sector has been relatively small, are other contributory factors.

It may be observed, however, that the widespread notion - that African life is sub-standard, involving great risks - no longer holds very strong sway. Hence a growing number of insurers have been diversifying their operations to include transactions in life insurance business. The development of multiple-line underwriting whereby a single company underwrites several classes of insurance, is a reflection of the erosion of that notion. It also probably underscores the anxiety of insurers to spread their risks and maximise profit.

I.6 Ownership Structure

Foreign-owned insurance companies accounted for 63 per cent of the total number of insurance companies operating in the country in 1969. The position was, however reversed in subsequent years in favour of Nigerian ownership which represented 51.2 and 62.3 per cent, respectively in 1970 and 1971. The trend was reinforced following the introduction of Indigenous Enterprises Promotion Decree 1972 designed to increase the ownership and control of scheduled Nigerian enterprises. Consequently, in that year, the proportion of foreign-owned insurance companies in total number of insurance companies fell further to 16.9 per cent while that of the Nigerian-owned insurance companies rose to 63.1 per cent. The balance, 20 per cent, was jointly owned by Nigerians and foreigners. This ownership configuration was broadly maintained until 1977 when the exclusive ownership of insurance companies in Nigeria by foreigners was disallowed under another Nigerian

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Enterprises Promotion Decree[1] promulgated that year. In view of this development, the proportion of insurance companies owned exclusively by Nigerians rose to 70.8 per cent in 1981 from 69.8 per cent in 1978. The corresponding figures for the joint companies were 29.2 and 30.2 per cent. (See Table 2).

Life business was transacted predominantly by foreign-owned insurance companies in the first five years of the study period. However, in the last eight years of the period, jointly owned insurance companies sold most of the life policies. With the exception of 1969 when foreigners dominated the writing of non-life policies, Nigerians assumed that position in the entire review period. This reflects the less exacting sophistication required to write out non-life policies.

In mixed business (life and non-life) the ownership position followed the trend and pattern of that for wholly non-life business.

1.7 Paid-up Capital

The paid-up capital of all categories of insurance companies in Nigeria rose from ₦3.8 million in 1969 to about ₦40.00 million in 1981, reflecting a compound growth rate of about 22 per cent over the thirteen-year period. (See Table 3). A number of factors have been identified as responsible for this growth:

(a) the growth in the number of insurance companies ;

(b) fresh injection of capital arising from new offers for subscriptions, rather than sale of existing shares by existing companies in their effort to comply with the provisions of Indigenisation Decree which, inter alia, required the expatriate companies to ensure that 40 per cent of their equity capital was held by Nigerians ;

(c) the provision in the Insurance Act of 1976 which stipulates that a minimum share capital of "not less than ₦500,000 in the case of life insurance business and ₦300,000 in the case

1) The Decree enjoined expatriate insurance companies to give at least 40 per cent of the equity capital of their business to Nigerians.

of non-life insurance business must be maintained at all times by an insurer.[1)]

Of the total paid-up capital of N3.8 million in 1969, N0.8 million (20.3 per cent) was wholly Nigerian-owned. The share rose to 66 per cent in 1981. The jointly owned insurance companies accounted for between 18.6 and 34 per cent between 1969 and 1981. The proportion attributable to foreign-owned insurance companies fell dramatically from 61.1 in 1969 to 3.6 per cent in 1976 and zero per cent in the last five years of the review period, in compliance with the requirements of the indigenisation policy.

I.8 Size Distribution within the Financial System (excluding Central Bank)

With regard to the size of the insurance sector within the financial system excluding Central Bank, the percentage share of assets of insurance companies in total assets of the system could be indicative. The insurance sub-sector accounted for an average of 2.2 per cent in the period. The sector thus ranked fifth after commercial banks, Development banks, Provident Fund and merchant banks, in that order. The commercial banking sub-sector absorbed an average of 84.7 per cent.

REGULATION AND CONTROL OF INSURANCE

I.9 Legislative Control

Legislations regulating the setting up of an insurance business in Nigeria in all its general ramifications date back to 1961 when the Insurance Companies Act (1961, N° 53) was passed into law. This legislation

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1) Prior to 1976, there was no requirement as to the minimum paid-up share capital for an insurance company.

was soon followed by the Trustee Investment Act, 1962 which sought to direct the investment activities of insurance companies to specific channels. Under Section I of the 1962 Act, in particular, insurance companies operating in Nigeria were precluded from investing in private companies. They were to invest only in public companies. Even so, investments in public companies were limited to companies with an issued nominal value of the fully-paid shares amounting to not less than N1 million. Investments in non-quoted securities were disallowed.

Of particular importance because of its quantitative restrictions was the Insurance Companies (Miscellaneous Provisions) Act, 1964. Under the Act, not less than 40 per cent of non-life premiums must be held in investments in Nigeria every year while 100 per cent of premiums on life business attributable to local risks must be invested locally. In addition, the Act required insurance companies to invest at least 25 per cent of their funds in government securities and not more than 10 per cent of the funds in real property.

However, most of the important provisions of these legislations were not strictly enforced until 1968 when the then military administration sought to restore order and effectiveness in the corporate sector of the economy through the promulgation of the Companies Decree 1968.

Such were the early attempts by government to regulate the insurance sector. The current legislations designed to streamline the operations of insurance business are mainly the Insurance Act 1976[1] and

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1) Federal Republic of Nigeria Official Gazette Supplement, Vol. 63, January-December 1976, pp. A261 - A291.

the Nigerian Reinsurance Corporation Act of 1977[1]. The 1976 Act repeals the Insurance Companies Act 1961 and the Insurance (Miscellaneous Provisions) Act 1964 and, while re-enacting some of the provisions of those repealed enactments, prescribes additional measures for the registration of insurers. It also makes fresh provisions for the licensing of insurance brokers. Provisions are contained in the Act specifying time-limits within which motor accident claims are to be settled, prohibiting general increases in premium rates (except with the prior approval of the Government), while other provisions relate generally to the better management and regulation of insurance business in Nigeria.

The major provisions of the Insurance Act of 1976 may be highlighted as follows:

A limited liability company, duly registered as an insurer by the Director of Insurance is allowed to carry on the business of insurance provided:

(a) that the class of insurance business will be conducted in accordance with sound insurance principles ;

(b) that the applicant insurer has and maintains at all times, a paid-up share capital of not less than N500,000 in the case of life insurance business and not less than N300,000 in the case of non-life insurance business ; the corresponding figures in the case of re-insurance business are N5 and N3 million, respectively ;

(c) that adequate arrangements relating to re-insurance treaties in respect of the classes of insurance business to be transacted, are in order and acceptable ;

(d) that the applicant deposits the paid-up capital with the Central Bank before commencing insurance business ; however where an insurer suffers a substantial loss that it cannot meet from its own resources, the Director may approve the withdrawal from the statutory deposit of an amount not more than 25 per cent of the deposit and any amount so withdrawn shall be replaced by the insurer not later than 30 days after the date of such withdrawal ;

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1) Federal Republic of Nigeria Official Gazette Supplement, Vol. 64, N° 29, 23rd June, 1977, Part A, pp. 227 - 235.

(e) that the insurer shall set up and maintain the following technical reserves:

(i) reserves for unexpired risks ;
(ii) reserves for outstanding claims ; and
(iii) contingency reserves to cover fluctuations in securities and variations in statistical estimates.

With respect to non-life insurance business (other than marine insurance business) reserves for unexpired risks shall not be less than 45 per cent of the total net premiums, and in the case of marine insurance, not less than 75 per cent of the net premiums. Reserves for outstanding claims shall include total estimated amount of all outstanding claims together with a further amount representing 20 per cent of the estimated figure for outstanding claims incurred but not reported at the end of the preceding year. Contingency reserves shall not be less than 3 per cent of total premiums or 20 per cent of net profits, whichever is greater, and the amount shall accumulate until it reaches the minimum paid-up capital or 50 per cent of the net premium, whichever is greater.

As regards life insurance business, the insurer shall maintain a general reserve fund which shall be credited with an amount equal to the net liabilities on policies in force and a contingency reserve fund which shall be credited with an amount equal to one per cent of premiums or 10 per cent of profits, whichever is greater, and the reserves shall accumulate until it reaches the amount of minimum paid-up capital.

(f) that:

(i) the insurer invests not less than 25 per cent of its total assets in the securities specified under the Government and other securities (Local Trustees Powers) Act and the Trustee Investment Act 1962 ;

(ii) the insurer, in respect of non-life insurance business invests at least 10 per cent of the assets in real property, or in respect of life insurance business, at least 25 per cent in real property.

The Nigerian Re-insurance Corporation Act of 1977 came into effect retroactively on 1st July, 1976. A major objective of the Corporation Act is to stem the outflow of funds associated with the payment of reinsurance premiums to overseas reinsurance companies by Nigerian registered insurers. Under the Act, the Nigerian Reinsurance Corporation (NRC) is empowered to:

(a) reinsure "any class of insurance business, including life insurance business, and to re-insure against loss of any kind arising from any risk or contingency in respect of any matter whatsoever" ;

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(b) acquire any undertaking of any registered insurer or acquire, hold or have any shares or stocks in, or any financial interest in any such undertaking ;

(c) acquire and invest in any other profitable business ;

(d) assist in organising training schemes for employees of any registered insurer.

A registered insurer is required to reinsure with the NRC, 20 per cent of the sum insured in every policy written or renewed in the period not earlier than 1st January, 1978. Consequent on this, the insurer shall transfer to the NRC an amount equivalent to 20 per cent of the premium received on all policies written or renewed since 1978.

The Board of Directors of the NRC is responsible for the overall policy and general management of the Corporation but subject to the general direction of the Commissioner (Minister) of the Federal Ministry of Finance. In particular, the Minister may, with the approval of the Federal Executive Council (President-in-Council), restrict the powers of the Corporation if he considers such a course to be in the overall interest of the national economy.

I.10 Control through Central Bank Credit Guidelines

It will be observed from the foregoing discussion that legislations cover the general framework and investments of insurance companies. The Acts are silent on their investment assets and lending operations. But a sizeable proportion of insurance funds is applied as loans and advances to building and construction, general commerce, policy loans, car loans and others. Such lending could vitiate the effectiveness of monetary policy if not regulated and monitored.

Consequently, with effect from April 1978, the lending operations of insurance companies were brought under the control of the Central Bank. From then on all insurance companies were required to render monthly returns of their operations to the Bank within 30 days from the end of each month. The Central Bank's control of the lending operations of insurance companies is broadly similar to that exercised over bank lending. In terms of the availability, distribution and cost of credit, the Bank's credit guidelines

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are designed to ensure that preferential treatment is given to the priority sectors of the economy. In the Central Bank credit guidelines for 1981 fiscal year, for instance, insurance companies were enjoined to ensure that loans for residential building construction should be for a minimum period of fifteen years. The interest charges by insurance companies in 1981 for different categories of loans were fixed as follows:

	Per cent
Lending Rates.....	6 - 11 1/2
Preferred sectors - manufacturing, agriculture marketing, mining building and construction.....	7 1/2 - 9 1/2
Most-favoured sectors - residential housing (owner-occupier) and agricultural production.....	6
Less Preferred sectors.....	8 1/2 - 11 1/2

CHAPTER II

SOURCES AND USES OF INSURANCE COMPANIES'FUNDS

The operations of an insurance company, be it life, non-life or mixed, consist of underwriting of insurable risks in return for income (premiums) and the use of such incomes as have been accumulated through underwriting, for investments in the capital market. The profitable operation of insurance business, therefore, depends upon the receipt of income which should not only be sufficient to pay claims to policyholders, commissions to agents, and administrative expenses, but also leave a satisfactory margin for investment. The receipt of sufficient income is predicated, inter alia, on an adequate volume of business undertaken as represented by the dimension of net premiums written and the maintenance by the insurance companies of optimum premium rates. Insurance premium rates differ with the various classes of insurance written and the nature of the risk. However, premium rates are considered as a datum for the study and so their analysis would not be pursued. In this chapter, an attempt is made only at highlighting the results of underwriting/investment operations of life and non-life insurance companies. The focus is mainly on sources and uses of funds.

LIFE INSURANCE BUSINESS

2.1 Sources of Funds

The total income of all life insurance companies operating in Nigeria rose from N6.4 million in 1969 to N102.9 million in 1981, a sixteen fold increase over the thirteen-year period. Premiums[1)] paid by policyholders constituted the main source of funds for the life insurance companies. From N5.3 million or 82.8 per cent of total income in 1969, premiums rose to N91.4 million or 88.8 per cent in 1981. The next most

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1) Include premiums for direct business and reinsurances accepted and exclude those for reinsurances ceded to other companies ; hence premiums in the study are net premiums.

important source of funds for the life insurers during the period was interest, dividends and rent. Income from this source rose from N0.9 million or 14.1 per cent of total income accruing to life insurers in 1969 to N11.1 million or 10.8 per cent in 1981. Profit on sale of assets and other receipts[1)] accounted for an annual average of N0.2 million or some 3 per cent in the thirteen-year period.

The foreign-owned life insurance companies accounted for the bulk of premium income of all life insurers, averaging 85.3 per cent in the period 1969-1971. The three-year period preceded the promulgation of Nigeria's first Indigenisation Decree of 1972. In the remaining decade of the study period, however, the foreign companies were displaced by the joint companies as the largest generators of premium income for all life insurers. From N5.1 million or 43.6 per cent of aggregate premiums of all life insurers in 1972, the premiums of joint companies rose to N53.5 million or 58.5 per cent in 1981. The corresponding figures for the wholly Nigerian-owned life companies in the 1972-81 period were N3.3 million or 28.2 per cent and N37.9 million or 41.5 per cent, respectively. In the period, 1972-1976, the foreign companies accounted for an average of 28 per cent of total premium income of all insurers. However, with the government active pursuit of indigenisation of businesses in the country and the enactment of an Indigenisation Decree of 1977, foreign-owned insurance companies fizzled out of existence.

A similar trend to that of premiums was evident in the ownership distribution of investment income (interest, dividends and rent). The proportion which investment income of foreign insurance companies bore to total investment income of the insurance industry averaged 84.6 per cent in the 1969-1971 period. Indigenisation shifted the observed asymmetry in the ownership distribution of investment income in favour of

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1) These include largely registration and other fees, and appreciation of investments.

joint companies. The joint companies accounted for an average of 65.1 per cent of total industry investment income in the 1972-1981 period. The corresponding figure for the wholly Nigerian insurance companies was 21.7 per cent. The same ownership distribution pattern as in the case of premiums and investment income existed for other miscellaneous receipts recorded in the study period.

2.2 Uses of Funds

Substantial increases in total payments or "outgoings" were recorded by life insurance companies in the review period. (See Tables 5 and 6). From N2.2 million in 1969, total outgoings rose to N45.4 million in 1981, a more than twenty-fold increase in the period. The expansion in total outgoings reflects the yearly growth of expenditure on management expenses[1], net comission, and net claims paid, in that order, especially in the last half of the period.

On an annual average basis, management expenses accounted for 37.5 per cent of total outgoings in the entire study period. The corresponding figures for expenditures on net commission and net claims were 24.1 and 19.0 per cent, respectively. Bonuses,[2] surrenders[3] and other expenditures absorbed an average of 19.4 per cent of total outgoings.

The substantial increase in management expenses, especially since 1975 to the end of the period reflects the huge increases in salaries bill following Udoji Commission salary awards[4] of 1975 and the escalation of other component expenditures. Salaries accounted for an average of about

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1) Include salaries, directors' fees, contribution to staff pension fund, rent for office, medical expenses.

2) Exclude re-insrance recoveries, if any. Bonuses are paid to participating shareholders out of the profits of the companies.

3) Include surrenders of bonus, less reinsurance recoveries, if any.

4) The Udoji Commission was set up by the Federal Government in 1974 to harmonise wages/salaries in both the public and private sectors of the economy.

22 per cent in the last six years of the review period. The other components of management expenses, such as directors' fees, medical and legal expenses and rent for offices, etc, however recorded large increases averaging 16.5 per cent in the period since 1975. The growth in net commission and net claims paid followed the expansion in the volume of business of life insurers. But the relatively low growth rate recorded for net claims paid, averaging 19 per cent in the thirteen-year review period, suggests a very favourable and profitable business environment for the life insurance companies.

2.3 Analysis of Life Insurance Fund[1)]

The life fund of the life insurance companies rose from N18.8 million at the end of 1969 to N235 million at end-December, 1981. The expansion in the life insurance fund, reflecting a more than twelve-fold increase in the period, resulted from the fast rate at which life insurance business grew. The annual average of life insurance fund available for investment in the capital market was N97.4 million during the study period. From N3.9 million in 1969, the amount of additional savings which the insuring public entrusted to life insurers, rose to N46,5 million in 1981, an annual average of N18.9 million. (See Table 7).

The analysis of insurance fund by type of ownership also indicates an ownership pattern similar to that which was observed in the case of premium and investment income. Following the indigenisation policy introduced in 1972, the foreign-owned insurance companies which accounted for the bulk of the fund in the first five years of the period were displaced in the subsequent period, 1974-1981, by the joint companies. The displacement was

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1) Insurance fund of a life insurance company constitutes its principal reserve which is made up of the company's assets plus premiums and net investment income.

observed not only in terms of the size of accretion to the fund but also in the annual stock levels.

NON-LIFE INSURANCE BUSINESS

2.4 Sources of Funds

Aggregate income accruing to non-life or "general insurance"[1] companies operating in Nigeria rose from ₦8.2 million in 1969 to ₦225.6 million in 1981, reflecting a more than twenty-seven fold increase or a compound growth rate of 31.8 per cent. (See Table 8). As in the case of life insurance companies, premiums and investment income constituted the main sources of funds for the general insurance companies.

Premiums accounted for the bulk of total income of general insurers in the period. From ₦8.0 million or 97.6 per cent of total income in 1969, premiums of general insurance companies rose to ₦210.7 million or 93.4 per cent in 1981. On an annual average basis premiums absorbed 95.7 per cent of aggregate income in the thirteen-year study period. Income from investment and other miscellaneous receipts accounted for the remaining average of 4.3 per cent in the period. Of the total premium income recorded in the period, the indigenous companies generated an average of 51.3 per cent. The corresponding figures for the joint and foreign companies were 33.6 and 15.1 per cent, respectively.

The substantial growth in premiums was attributable largely to the rapid expansion in transactions on motor vehicle insurance, particularly in the second half of the study period. The Udoji salary awards of

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1) The non-life insurance companies are conventionally referred to as "general insurance" companies. They sell protection against loss of property resulting from accident, fire, theft and other predictable hazards.

1975 boosted the income levels of many workers, thereby increasing the number qualified to benefit from employers' vehicle loan scheme. From N4.3 million or 53.8 per cent of aggregate premium income in 1969, the premium on motor vehicle insurance rose to N115.7 million or 54.9 per cent of the aggregate premium income.

The non-life insurance companies also generated a sizeable proportion of their premiums from fire insurance. The yield from fire insurance, second to that of motor vehicle insurance, accounted for an average of 11.2 per cent of total premium in the study period. In absolute terms, premiums on fire insurance rose from N1.2 million in 1969 to N24.1 million in 1981, a twenty-fold increase in the period.

An important contributor to the expansion in premiums for the general insurers has been the marine insurance. This source of premiums has the characteristic of growing with increased volume of merchandise trade. From N0.7 million in 1969, premiums on marine insurance rose to N32.0 million in 1981. Thus, during the study period, premiums on marine insurance accounted for an average of 10.4 per cent of total premiums. With the introduction of the Insurance Act of 1976 which requires, inter alia, the insurance of imports by Nigerian Registered Importers, premiums on marine insurance expanded by 416.1 per cent between 1976 and 1981.

Premiums on accident, employers' liability and miscellaneous classes of insurance averaged 18.9 per cent of total premiums of non-life insurance business yearly in the study period.

2.5 Uses of Funds

Total outgoings of non-life insurers, as represented by claims on the various classes of non-life insurance and management expenses, net

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commission and other expenses, rose from N6.8 million in 1969 to N166.4 million in 1981. The rate of growth of expenditure in the period was slower than that of income ; the former recorded a twenty-four fold increase while the latter multiplied itself twenty seven times.

A breakdown of the aggregate outgoings into its component parts indicates that expenditure on management expenses was virtually the heaviest expenditure item in the entire review period. This item was followed closely by expenditure on claims on motor vehicle insurance. From N2.8 million in 1969, outgoings on management expenses rose to N49.7 million in 1981. On a yearly average basis, management expenses alone absorbed about 37 per cent of total outgoings of general insurance companies in the thirteen-year study period. The corresponding figure for outgoings on motor vehicle was 29.8 per cent. Thus management expenses and outgoings on motor vehicle together absorbed an average of 66.8 per cent of total outgoings in the 1969-1981 period.

A breakdown of total outgoings into claims on the various classes of general insurance and other expenditure is of interest. The expenditure recorded on settling reported claims absorbed an average of 45.3 per cent of total outgoings of general insurers in the review period, while that on underwriting and management expenses such as commission, legal and medical expenses, salaries, etc averaged 54.7 per cent (See Table 9).

A disaggregation of total outgoings of general insurance companies by type of ownership indicates that the indigenous companies accounted for the bulk of total outgoings in each year of the review period. In particular, wholly Nigerian companies absorbed an average of 53.1 per cent of total general insurance outgoings in the thirteen-year period. The

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corresponding figures for the joint companies and the foreign ones were 32.8 and 14.1 per cent, respectively.

INSURANCE AND THE CAPITAL MARKET

The manner in which insurance companies operate inevitably leads to the accumulation of funds. Inasmuch as insurance premiums are payable in advance and on policies that run over time, insurance companies have the use of funds that are repayable only in the form of loss claims and over prolonged periods. In other words, in all classes of insurance business there occurs a time lag between the payment of premiums and the settlement of claims so that the insurer holds funds to cover his liabilities to policyholders.

In particular, non-life business is essentially short-term, contracts running for periods of one year or less. Its liabilities are largely of two major types: outstanding claims or loss reserves and unearned premium reserves. The former are provisions to cover claims and the latter represent at a point in time (the end of an accounting period) that proportion of premiums which the company has received on current policies but has not yet earned. In addition to the above sources of funds, contingency reserves are held to cushion a company against losses that might otherwise force it out of business. Because there is a great chance of catastrophic loss in general insurance, general insurance companies typically carry large capital and reserves.

On the other hand, the bulk of life business is essentially long-term. The system of level annual premiums, often payable over 20 years or longer, means that the insurer accumulates funds during the early years of his contracts to meet the excess of claims over income in the later years

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when mortality rates are heavier and endowment policies[1] begin to mature. Thus life funds are available for long-term investment.

The funds thus accumulated by both the life and non-life insurance companies are invested in the capital market to earn income. Indeed successful investment is essential to maintain the solvency of a life fund, for example. In what follows an analysis of the patterns of insurance investment is pursued with a view to depicting the role of the insurance industry in the capital market.

2.6 Investment Patterns of Insurance Companies

The pattern of investments in insurance, over the thirteen-year study period, was dictated not only by the nature/category of insurance companies but also by the requirements of the Insurance Miscellaneous Provisions Act 1964 and recently the Insurance Act 1976. The former Act stipulates that insurance companies must invest not less than 40 per cent of their policy reserves in securities while the latter Act provides for a minimum investment of 25 per cent of total assets in securities of government and semi-governmental bodies. It further stipulates that non-life insurance companies should invest not less than 10 per cent of their total assets in real property while the permissible limit on the asset for life companies was fixed at 25 per cent.

The total assets of insurance companies grew substantially in the study period. At N38.1 million in 1969, the assets rose to N907.6 million in 1981, reflecting about twenty-four fold increase in the period.

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1) The type of assurance policy taken against the danger of poverty in old-age is called endowment assurance in contrast to whole-life assurance. The benefits of endowment take the form of an annuity rather than a lump sum.

Although all the items in the investment portfolio increased in absolute value, changes in the relative importance of the assets occurred during the review period. There was a strong indication of a greater investor preference for government securities over private stocks, shares and bonds. As a proportion of total assets, investment in government securities ranged between 9.3 and 20.8 per cent, averaging 15.7 per cent in the study period. The lowest points in the relative shares of government securities in total assets were recorded in the period 1974-1976 when government had a lot of funds as a result of the oil boom in those years. It should be observed therefore, that insurance companies failed in the review period to comply with the 1976 requirement that they should hold 25 per cent of their total assets in government securities and quasi-government securities. Investment in private stock, shares and bonds declined from 19.2 per cent of total in 1969 to 10.4 per cent in 1981. The percentage share of mortgages and loan assets ranged between 11.9 and 16.5 per cent; averaging 14.1 per cent in the review period (See Table 10).

In the first quinquennium of the review period, insurance companies' investment in cash and bills receivable averaged 43.1 per cent of total assets. The position thus tallied with the solvency requirement that at least 40 per cent of insurance companies' assets portfolio should be in the form of liquid assets. However, in terms of this requirement, the position since 1974 to the end of the review period was unsatisfactory. From 34.3 per cent in 1974, the relative share of cash and bills receivable in total assets declined to 26.4 per cent in 1981.

Of importance is the observation that despite the declining proportion of cash and bills receivable in total assets, the bulk of insurance companies' investments remained in very liquid and low-yielding assets especially when the former are added to government securities, a sizeable proportion of which consists of Treasury bills and Treasury certificates.

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Although life insurance companies are traditionally expected to invest mainly in long-term securities such as government bonds, mortgages and secured loans because of the long-term nature of their liabilities, such companies invested largely in very liquid assets. The assets included short-term government securities, bills of exchange and other short-term securities such as bills receivable. A plausible explanation for this investment behaviour may be traceable to the long-term inflationary expectations prevailing in the country and the general business atmposphere of a strong risk aversion. Thus, cash and bills receivable alone constituted an average of 29.4 per cent of total life assurance assets during the study period. (See Table 11).

At N4.0 million or 20.2 per cent of total life assets in 1969, life insurance companies' investment in government securities rose to N60.1 million or 25.9 per cent in 1981. Such invesment averaged about 24.4 per cent in the period. Private stocks, shares and bonds constituted an annual average of 13.9 per cent of life assets. The corresponding figure for mortgages and loans was 22.1 per cent. The upsurge in the level of activities of the building and construction industry particularly since 1973 largely boosted investments on mortgages and loans by the life insurers.

The bulk of investment of general insurance companies during the study period was, as expected, short-term. This characteristic derives from the fact that not only are liabilities of general insurers generally of short-term in nature but also that claims from them fluctuate much more erratically than those from life insurers. As evident in Table 12, cash and bills receivable accounted for an average of 39.4 per cent of total non-life insurance companies.

Ranking next to cash and bills receivable are miscellaneous items. These are themselves short-term in nature. They accounted for 2.2 per cent of total general insurance assets in 1969 but rose sharply to 41.8 per cent in 1981. The remaining three classes of assets, namely, government securities, stocks, shares and bonds, mortgages and loans constituted an

CHAPTER III

THE DETERMINANTS OF THE SOURCES OF FUNDS IN THE INSURANCE INDUSTRY.

Having discussed the sources and uses of funds in the insurance business including its investment patterns, it remains to quantify the inter-relationships among the relevant explanatory variables in the major sources and uses of insurance sector funds. For purposes of easy exposition, this chapter dwells only on the determinants of the sources of funds. The econometrics of insurance investment behaviour (uses) is attempted in the next chapter. In both chapters, multiple regression analysis is used.

3.1 The Model

The analysis of model of sources of funds proceeds in two steps. First, it is necessary to outline some of the assumptions of the model. These are: (a) Premium rates are assumed to remain fixed over the sample period. In his study of the life insurance sector of the United States economy Cummins[1] concluded that a decline in premium rates

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1) Cummins J.D. An Econometric model of The Life Insurance Sector of the U.S. Economy, D.C. Heath and Company, 1975 USA p. 46.

usually leads to a decline in premiums especially in circumstances of high interest rates. It will be necessary therefore to hold this variable constant. (b) It is also assumed that the insurance-buying public behaves rationally by buying life protection as it grows richer. That is, most of the insuring public is deemed to be risk averse. (c) There exists no undue competition from other financial institutions like the Mutual or Provident Funds.

The second step in analysing sources of funds involves the consideration of variables which may affect the demand for insurance protection. Demand is represented conceptually by insurance premiums paid by clients.

3.2 Selection of variables

The explanatory variables for the econometric exercise are in two groups: the first relates to life business and the second, non-life. Among the variables explaining the life insurance premium function is Y_p, denoting per capita GDP. The rationale for including Y_p as an explanatory variable derives from the recognition that people tend to save, e.g., through taking out life policies, as their income grows. For the same reason, people tend to seek protection against the hazards of life like fire, accident, etc. Hence Y_p also features as an argument in some of the non-life insurance functions.

It is believed that decisions to take out life policies are also a function of the degree of literacy the community has attained or is expected to attain over some given time profile. Education and/or literacy promotes an awareness of the need for insurance protection from some of the hazards of premature death, for example. In this study, the ratio of Federal government current and capital expenditures on education to its total budgetary expenditures, $\frac{Edu}{Tcc}$, is used as proxy for the degree

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of literacy. The variable is also an argument in the fire insurance premium function, for precisely the same reason.

Intuitively other demographic variables than the Y_p and $\frac{Edu}{Tcc}$ could also be considered as arguments in the life premium function. Such variables may include the life expectancy rate, and the distribution of population by age, and by religious groupings. It may be recognised, however, that life insurance companies employ these variables, amongst others, to determine their life premium rates. Besides, premium rates have been assumed fixed for this study. Even so, a direct observation of the variables in the function could have been interesting but for data constraints.

The ratio of urban labour force to total labour force, ULf/Flop, has been included as an explanatory variable in the life premium function because people who buy life protection are, by and large, wage earners and the self-employed entrepreneurs in the urban areas. Thus it is presumed that as the urban labour force grows, the chances of more people seeking to have life insurance cover get enhanced.

Moreover, in recognition of the wide-spread practice in Nigeria whereby annual premium payments by policyholders are tax deductible, people are encouraged to buy insurance protection as a veritable tax shelter. Consequently, the ratio of Federal government receipts on personal income tax to its total direct tax yields, $\frac{Tp}{Td}$, has been employed as an argument in the life premium function to capture this phenomenon of tax deductibility.

Some variables have been selected exclusively for the non-life insurance functions. One such variable is the degree of openness of the economy, measured in the study, by export cum import-income ratio, (Ex+Imp)/ GDP. This variable is used as proxy for economic development in relation to the marine insurance premium function. This use stems from the need to test the commonly held view (at least for the advanced countries) that more open economies experience greater growth in insurance business transactions. For

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the same reason the ratio of the net registered tonnage of ships that entered the Nigerian ports and were cleared to total tonnage of imports, $\frac{NRT}{Imp}$, has been included as an explanatory variable in the marine insurance premium function.

Given that the level of premiums on motor-vehicle insurance depends, inter alia, on the value and number of motor vehicles or passenger cars insured at a point in time, it has been considered necessary to reflect this in the motor-vehicle insurance premium function. However, since data on number of vehicles were unavailable, the value of passenger cars deflated by value of total merchandise imports, Vp/Imp, has been used as an argument, amongts others, in the function.

Finally, electricity consumed in relation to total electricity generated, $\frac{Erc}{Erg}$, has been used as one of the arguments in the fire insurance premium function. This reflects the rationalisation that probably the incidence of fire outbreak is higher the greater the intensity of energy use in modern building structures.

In more formal terms, the relationships, in ratio as well as undeflated level data, are formulated in the following set of equations. The expected signs of the regression coefficients are stated in parentheses below each equation.

$$\frac{PL}{TLY}^{1)} = a_0 + a_1 Y_p + a_2 \frac{ULf}{Flop} + a_3 \frac{Edu}{TCC} + a_4 \frac{Tp}{Td} + \varepsilon_1 \quad \ldots\ldots\ldots\ldots\ldots \quad (3.1)$$

$$(a_1,\ a_2,\ a_3 \geq 0\ ;\ a_4 < 0)$$

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1) The variables in the various insurance premium functions have been deflated with their relevant aggregate statistics in order to minimise the effects of extreme observations, notably hetereoscedasticity. See Kuh, E and Meyer, J "Correlation and Regression estimates when the data are ratios", Econometrica, Vol. 23, N° 4, Oct. 1955, pp. 406 - 407. See also Maddala, G.S. Economietrics, McGraw Hill, Inc. 1977, pp. 93-94.

$$\ln (PL) = b_0 + b_1 \ln (Y_p) + b_2 \ln (ULf) + b_3 \ln (Edu) + b_4 \ln (T_p) + \varepsilon_2 \quad (3.2)$$

$$(b_1, b_2, b_3 \gtrless 0 \; ; \; b_4 < 0)$$

$$\frac{Pm}{TNLY} = c_0 + c_1 \frac{NRT}{Imp} + c_2 \left(\frac{Ex + Imp}{GDP}\right) + \varepsilon_3 \quad (3.3)$$

$$(c_1, c_2 > 0)$$

$$\ln(Pm) = d_0 + d_1 \ln (NRT) + d_2 \ln \left(\frac{Ex + Imp}{GDP}\right) + \varepsilon_4 \quad (3.4)$$

$$(d_1, d_2 > 0)$$

$$\frac{Pp}{TNLY} = e_0 + e_1 \frac{V_p}{Imp} + e_2 Y_p + \varepsilon_5 \quad (3.5)$$

$$(e_1, e_2 > 0)$$

$$\ln (Pp) = f_0 + f_1 \ln (Vp) + f_2 \ln (Yp) + \varepsilon_6 \quad (3.6)$$

$$(f_1, f_2 > 0)$$

$$\frac{Pf}{TNLY} = g_0 + g_1 Yp + g_2 \left(\frac{Erc}{Erg}\right) + g_3 \left(\frac{Edu}{Tcc}\right) + \varepsilon_7 \quad (3.7)$$

$$(g_1, g_2, g_3 > 0)$$

$$\ln (Pf) = h_0 + h_1 \ln (Yp) + h_2 \ln (Erc) + h_3 \ln (Edu) + \varepsilon_8 \quad (3.8)$$

$$(h_1, h_2, h_3 > 0)$$

where

PL = Life premiums

TLY = Total life insurance income

TNLY = Total non-life insurance income

Yp = per capita GDP

Flop = Total labour force

ULf = Urban labour force

Edu = Expenditures on education (Federal)

Tcc = Total Federal Government budget

Tp = Federally collected Personal Income Tax

Td = Total direct taxes

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Pm = Premiums on marine insurance

NRT = Net registered tonnage of ships

Imp = Imports

Ex = Exports

GDP = Gross domestic product at current factor cost

Pp = Premiums on motor vehicle insurance

Vp = Value of passenger cars

Pf = Premiums on fire insurance

Erc = Electricity consumption

Erg = Electricity generation.

ε = Error term

Regression equations were run, based on the Ordinary Least Squares (OLS) technique, using the Time Series Processor (TSP) computer algorithm. Where appropriate, equations have been adjusted for auto-correlated errors through the use of the Cochrane-Orcutt iterative technique and the value of ρ (rho) is presented accordingly. The sample period is thirteen years, 1969-1981.

3.3 Regression Results[1)]

Premiums on Life Insurance

$$\frac{Pl}{TLY} = -0.7503 + 0.00004\ Yp + 11.2224^{*}\frac{ULf}{Flop} + 0.1980\ \frac{Edu}{Tcc} - 9.5923^{**}\frac{Tp}{Td} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (3.9)$$

(1.3147) (1.2321) (2.7941) (1.7427) (4.0499)

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1) The figures in parentheses below the coefficient estimates are the absolute values of the t-statistics. One asterisk indicates that the independent variables are significant at 0.05 probability level, Two asterisks indicate that the independent variables are highly significant at 0.01 level.

$\overline{R}^2$ = 0.7821

DW = 1.2672

SEE = 0.0120 $F_{(4, 8)}$ = 11.7702

$$\frac{PL}{TLY} = -1.6979^{**} + 0.00002Yp + 17.9724^{*}\frac{ULf}{Flop}$$

(6.1944) (0.3718) (3.7961)

$$+ 0.2255^{*}\frac{Edu}{Tcc} - 8.3529^{*}\frac{Tp}{Td} \quad \text{..... (3.10)}$$

(2.2263 (3.8698)

$\overline{R}^2$ = 0.8902

DW = 1.3125

SEE = 0.1077 $F_{(4, 8)}$ = 14.19306 rho (ρ) = 0.58705

In equation (3.9) is presented the results of multiple regression analysis which relates premiums on life insurance to the relevant explanatory variables. All the explanatory variables have the correct signs but it is the coefficents of the urban labour force and the personal income tax variables only which are significantly different from zero. The measures of the degree of literacy and per capita income are not significant. Nevertheless, the regressors explain some 78 per cent of the variation in the life premium function over the thirteen year review period. The Durbin-Watson Statistic, however, at D.W = 1.2672, indicates some existence of serial correlation in the residuals[1]. Cochrane-Orcutt adjustment procedure was therefore applied to the regression and the results are as given in equation (3.10). Interestingly, all the regressors, except the per capita GDP, were

1) Observations made regarding the presence or otherwise of serial correlation at this point and elsewhere in both chapters III and IV of the study are rather tentative. This caveat derives from the recognition that while the standard D.W table assumes a minimum sample size of 15, the number of observations for the study is only 13.

significant but with only a slight improvement in the DW - statistic.

Further experimentation on the life premium function was carried out by fitting an exponential function to the undeflated regression variables in level data. The resultant log-linear function produced results which confirm the significance of the urban labour force and personal income tax variables in the life premium function. The per capita GDP variable was also significant and the explanatory power of the regression improved to 98.9 per cent. The results are as follows:

$$\ln(PL) = \underset{(8.9854)}{-7.8444} + \underset{(1.9949)}{0.4524}\ln(Yp)^{**} + \underset{(5.5578)}{6.1684}\ln(ULf)^{**} + \underset{(1.1636)}{0.0796}\ln(Edu) - \underset{(2.6142)}{0.1128}\ln(Tp)^{*} \quad \ldots\ldots\ldots\ldots\ldots \quad (3.11)$$

$\bar{R}^2 = 0.9897$

DW = 2.5167

SEE = 0.0986 $\qquad F_{(4,8)} = 290.6276.$

Premiums on Marine Insurance

The results relating premiums on marine insurance to the relevant explanatory variables are as follows:

$$\frac{Pm}{TNLY} = \underset{(0.0566)}{0.00281} - \underset{(0.6603)}{0.5259}\left(\frac{NRT}{Imp}\right) + \underset{(2.4423)}{0.2563}^{*}\left(\frac{Ex + Imp}{GDP}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (3.12)$$

$\bar{R}^2 = 0.5042$

DW = 1.1653

SEE = 0.0254 $\qquad F_{(2,10)} = 5.0849$

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In equation (3.12) the coefficient of the "openness" variable, (Ex + Imp)/GDP, is both significantly different from zero and correctly signed. The variable, net registered tonnage of ships, however is neither significant nor correctly signed. Both variables explain some 50 per cent of the variation in the marine premium function. Nevertheless, the logarithmic specification based on undeflated variables in level data was also used. The specification indicates that the marine premium function is indeed non-linear as reflected in the improved goodness of fit statistics. The estimated log-linear equation is as follows:

$$\ln(Pm) = \underset{(2.4815)}{4.0132^{*}} + \underset{(2.5515)}{0.5085^{*}}\ln(NRT) + \underset{(3.9653)}{4.4869^{*}}\ln\left(\frac{Ex + Imp}{GDP}\right) \quad \ldots\ldots\ldots \quad (3.13)$$

$\bar{R}^2 = 0.8557$

DW = 1.4237

SEE = 0.5305 $\qquad F_{(2,10)} = 36.5764.$

In equation (3.13) both the net registered tonnage of ships and the openness variables are significant and correctly signed. The explanatory power of the regressors has been boosted to explain 85.6 per cent of the variation in the marine premium function.

Premiums on Motor Vehicle Insurance

$$\frac{Pp}{TNLY} = \underset{(16.9576)}{0.4639^{**}} + \underset{(4.1932)}{2.0269^{**}}\left(\frac{Vp}{Imp}\right) + \underset{(2.3059)}{0.00012^{*}}\,Yp \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (3.14)$$

$\bar{R}^2 = 0.5766$

DW = 1.7949

SEE = 0.0286 $\qquad F_{(2,10)} = 9.1723$

.../...

$$\ln (Pp) = \underset{(6.8004)}{-4.2107^{**}} + \underset{(0.8487)}{0.1569^{*}}\ln (Vp) + \underset{(5.3955)}{1.2886^{**}}\ln(Yp) \quad \ldots\ldots\ldots\ldots\ldots \quad (3.15)$$

$\overline{R}^2 = 0.9564$

DW = 1.4979

SEE = 0.2474 $\qquad F_{(2,10)} = 132.7162$

In both the linear and log-linear versions of the motor vehicle insurance premium function, by and large, the coefficients of all the explanatory variables (value of passenger cars and the per capita income) are significantly different from zero and have the expected signs. The constant terms in both versions also are highly significant, suggesting that some factors not included in the regressions may induce some variation in the motor insurance premium function. One such factor may be the prevailing law always in force in Nigeria, which enjoins every car or motor owner to insure his/her vehicle. In any event, the explanatory power of the regressors rose from 57.6 per cent for the linear version of the motor vehicle insurance premium function to 95.6 per cent for the log-linear. Doubtless, therefore, most of the variation in the function is explained by the per capita income and the value of passenger cars variables by adopting the non-linear relation as the valid relation. It is interesting to note that the high significance of the per capita income variable reflects the practice in Nigeria whereby workers are granted car loans upon attaining a certain threshold income. For all new car purchases, it is mandatory to obtain motor vehicle insurance, renewable annually.

Premiums on fire insurance

$$\frac{Pf}{TNLY} = \underset{(4.0462)}{0.19072^{**}} - \underset{(3.0895)}{0.0001Y\bar{p}^{*}} - \underset{(1.029)}{0.0564}\left(\frac{Erc}{Erg}\right) - \underset{(1.3127)}{0.1268}\left(\frac{Edu}{TCC}\right) \quad \ldots\ldots\ldots \quad (3.16)$$

.../...

$\bar{R}^2$ = 0.6937
DW = 1.3214
SEE = 0.01329 $F_{(3,9)}$ = 10.05969

$$\ln(Pf) = \underset{(10.6127)}{-11.2137^{**}} + \underset{(0.2437)}{0.0621\ln(Yp)} + \underset{(6.6404)}{1.5825^{**}\ln(Erc)} + \underset{(6.6838)}{0.0421^{**}\ln(Edu)} \ldots \quad (3.17)$$

$\bar{R}^2$ = 0.9881
DW = 2.4897
SEE = 0.105519 $F_{(3,9)}$ = 335.6600

It is clear from evidence of results relating premiums on fire insurance to the relevant explanatory variables(equations 3.16 and 3.17) that a major explanatory factor in the non-linear expression is the level of intensity of energy consumption in building structures. Of importance too is the constant term. The significance of the constant term suggests that there are perhaps other factors that could induce some variation in the fire insurance premium function. Such factors may include riots, political unrest and such acts of God as tornadoes that could scare people into taking out fire insurance policies. The log-linear specification of the fire insurance premium function fits the function very well. The $\bar{R}^2$ of the estimated log-linear relation is quite high at 98.8 per cent.

3.4 Overall Review.

The log-linear specification of the model explaining the determinants of growth of premiums in the insurance industry, fits the data very well. Based on this specification, the explanatory power of the various life and non-life insurance premium functions was considerable and ranged between 85.6 and 98.9 per cent. Therefore, the specification could provide a basis for forecasting the trends of premium income in the insurance industry. By and large, all the variables considered *à priori* to be relevant determinants of variation in the various premium functions, turned out to be significant and correctly signed. Among such variables include Yp, Tp, Ulf, Erc, and (Ex + imp)/GDP. Since these variables are some of the conventional indicators of economic development and/or modernization, it sounds logical to infer that the latter have built-in features that positively influence the growth of the insurance industry.

CHAPTER IV

THE DETERMINANTS OF INVESTMENTS (USES) BY THE INSURANCE COMPANIES

The preceding chapter dealt with the determinants of sources of funds in the insurance sector. This chapter concentrates on the uses of funds or investment behaviour of life and non-life insurance companies operating in Nigeria. It indicates the considerations that lead to the allocation of investible funds among alternative asset groups. Equations are presented to explain net acquisitions of four major assets - government securities ; stocks, shares and bonds ; mortgages and loans ; and cash and bills receivable.

4.1 The Model

Before discussing the explanatory variables it is perhaps necessary to say something about what assumptions underlie the model. First, since for the most part the liability structure of the insurance industry has remained constant over the sample period, the equations developed below do not attempt to measure explicitly the asset-liability interaction effect. However, it is important to recognise that this interaction does underlie the selection by the companies of a preferred investment

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set within which the allocation of funds is carried out. Second, considering that the measurement of risk in economic time series analysis is always problematic and that no really effective method has been developed for doing so, the model assumes implicitly that the relative risk of various asset types has remained constant over the sample period.

4.2 Selection of variables.

As was the case with Chapter III many variables, were tested to measure their explanatory power on insurance companies' acquisition of various asset types. One such variable was Lf/GDP, life fund deflated with respect to GDP. This variable was employed in all the asset functions in life business to capture the impact of funds availability on asset acquisitions by life insurance companies. The counterpart funds for general insurance business was total assets of non-life business as a proportion of GDP, represented by TANL/GDP.

Another index of funds availability is the premiums/claims (P/C) ratio. The extent to which life, non-life and all insurance companies are capable of making long-term funds available for investment in the capital market is indicated by this ratio. The higher P/C ratio gets the more favourably placed are the insurance companies in their ability to feed the market with investible funds. Thus the relevant variable, P/C, was employed as PL/CL to reflect its life-insurance ratio and PNL/CNL as its non-life counterpart ratio.

It is believed that insurance companies adjust their holdings of each asset by a fixed proportion, say β, of the change they would need to reach their desired holdings of the asset in question. In other words, insurance companies' investment behaviour follows some stock adjustment

.../...

pattern in achieving their investment portfolio mix.[1] To capture this tendency, the lagged form of the dependent variable has been included in each asset function, e.g $(GS1/GDP)_{t-1}$, $(\frac{SSB1}{GDP})_{t-1}$, $(\frac{M11}{GDP})_{t-1}$ etc.

Of great importance is the profit motive in decisions to invest in one asset type or the other. Data on insurance companies' profits were, however not available for the study. It was therefore decided that a simple average of interest rates on government securities, commercial bank deposits and loans and deposits with the Federal Savings Bank, r, be included in the asset equations to serve as proxy for return on investments. Even so, data constraints have precluded our using a more desirable average, namely, the weighted average of interest rates.

Several restrictive government legislations were passed at different times during the study period as noted in Chapter I. Essentially such Acts were designed, inter alia, to set limits to and offer guidelines on, insurance companies' investments in assets. In order to capture the possible impact of such legislative changes on insurance companies' investment behaviour, a dummy variable, DM, has been included in each of the asset functions as an argument to represent the years in which the legislations were enacted.

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1) Suppose that the long-run desired holdings of an asset X at time t is defined as

$$X_t^* = X^*(Z_1, Z_2, Z_3)$$

Then the actual stock adjustment process is assumed to be

$$X_t = X_{t-1} + \beta(X^* - X_{t-1})$$

where X_t is the actual stock of asset X at time t.
Substituting X^* into the adjustment equation and simplifying, we obtain

$$X_t = \beta X^*(Z_1, Z_2, Z_3) + (1-\beta)X_{t-1},$$

which can be rewritten as

$$X_t - X_{t-1} = \beta X^*(Z_1, Z_2, Z_3) - \beta X_{t-1} \text{ or}$$

$$\Delta X_t = \beta X^*(Z_1, Z_2, Z_3) - \beta X_{t-1} ;$$

In general,

$$\Delta X_t = X(Z_1, Z_2, Z_3, X_{t-1})$$

This is the approach taken in our formulation.

Formally, the relationships, in ratio as well as level data, are rendered in the following set of equations:

LIFE

$$\frac{GSl}{GDP} = a_0 + a_1\left(\frac{Lf}{GDP}\right) + a_2R + a_3DM + a_4\left(\frac{Pl}{Cl}\right) + a_5\left(\frac{GSl}{GDP}\right)_{t-1} + \upsilon_1 \quad \ldots\ldots \quad (4.1)$$

$$In(GSl) = b_0 + b_1In(Lf) + b_2R + b_3DM + b_4In\left(\frac{Pl}{Cl}\right) + b_5In(GSl)_{t-1} + \upsilon_2 \quad (4.2)$$

$$\frac{SSBl}{GDP} = C_0 + C_1\left(\frac{Lf}{GDP}\right) + C_2R + C_3DM + C_4\left(\frac{Pl}{Cl}\right) + C_5\left(\frac{SSBl}{GDP}\right)_{t-1} + \upsilon_3 \quad \ldots. \quad (4.3)$$

$$In(SSBl) = d_0 + d_1In(Lf) + d_2R + d_3DM + d_4In\left(\frac{Pl}{Cl}\right) + d_5In\,(SSBl)_{t-1} + \upsilon_4 \quad (4.4)$$

$$\frac{Mll}{GDP} = f_0 + f_1\left(\frac{Lf}{GDP}\right) + f_2R + f_3DM + f_4\left(\frac{Pl}{Cl}\right) + f_5\left(\frac{Mll}{GDP}\right)_{t-1} + \upsilon_5 \quad \ldots\ldots\ldots \quad (4.5)$$

$$In(Mll) = g_0 + g_1In(Lf) + g_2R + g_3DM + g_4In\left(\frac{Pl}{Cl}\right) + g_5In(Mll)_{t-1} + \upsilon_6 \quad (4.6)$$

$$\frac{CBl}{GDP} = h_0 + h_1\left(\frac{Lf}{GDP}\right) + h_2R + h_3DM + h_4\left(\frac{Pl}{Cl}\right) + h_5\left(\frac{CBl}{GDP}\right)_{t-1} + \upsilon_7 \quad \ldots\ldots\ldots \quad (4.7)$$

$$In(CBl) = k_0 + k_1In(Lf) + k_2R + k_3DM + k_4In\left(\frac{Pl}{Cl}\right) + k_5In(CBl)_{t-1} + \upsilon_8 \quad (4.8)$$

NON-LIFE

$$\frac{GSn}{GDP} = l_0 + l_1\left(\frac{TANl}{GDP}\right) + l_2R + l_3DM + l_4\left(\frac{PNl}{CNL}\right) + l_5\left(\frac{GSn}{GDP}\right)_{t-1} + \upsilon_9 \quad \ldots\ldots \quad (4.9)$$

$$In(GSn) = m_0 + m_1In(TANl) + m_2R + m_3DM + m_4In\left(\frac{PNl}{CNl}\right) + m_5In\,(GSn)_{t-1} + \upsilon_{10} \quad (4.10)$$

$$\frac{SSBn}{GDP} = n_0 + n_1\left(\frac{TANl}{GDP}\right) + n_2R + n_3DM + n_4\left(\frac{Pnl}{Cnl}\right) + n_5\left(\frac{SSBn}{GDP}\right)_{t-1} + \upsilon_{11} \quad \ldots. \quad (4.11)$$

$$In(SSBn) = p_0 + p_1In(TANl) + p_2R + p_3DM + p_4In\left(\frac{Pnl}{Cnl}\right) + p_5In(SSBn)_{t-1} + \upsilon_{12} \quad (4.12)$$

$$\frac{MLn}{GDP} = q_0 + q_1\left(\frac{TANL}{GDP}\right) + q_2R + q_3DM + q_4\left(\frac{Pnl}{Cnl}\right) + q_5\left(\frac{Mln}{GDP}\right)_{t-1} + \upsilon_{13} \quad \ldots\ldots \quad (4.13)$$

$$In(Mln) = s_0 + s_1In(TANl) + s_2R + s_3DM + s_4In\left(\frac{Pnl}{Cnl}\right) + s_5In\,(mln)_{t-1} + \upsilon_{14} \quad (4.14)$$

$$\frac{CBn}{GDP} = t_0 + t_1\left(\frac{TANl}{GDP}\right) + t_2R + t_3DM + t_4\left(\frac{Pnl}{Cnl}\right) + t_5\left(\frac{CBn}{GDP}\right)_{t-1} + \upsilon_{15} \quad \ldots\ldots \quad (4.15)$$

$$In(CBn) = u_0 + u_1In(TANl) + u_2R + u_3DM + u_4In\left(\frac{Pnl}{Cnl}\right) + u_5In(CBn)_{t-1} + \upsilon_{16} \quad (4.16)$$

.../...

COMBINED LIFE AND NON-LIFE

$$\frac{GSC}{GDP} = v_0 + v_1\left(\frac{Lf + TANl}{GDP}\right) + v_2 R + v_3 DM + v_4\left(\frac{Pl + PNl}{Cl + CNl}\right) + v_5\left(\frac{GSC}{GDP}\right)_{t-1} + U_{17} \quad (4.17)$$

$$In(GSc) = w_0 + w_1 In(Lf + TANl) + w_2 R + w_3 DM + w_4 In\left(\frac{Pl + PNl}{Cl + CNl}\right) + w_5 In(GSc)_{t-1} + U_{18} \ldots \quad (4.18)$$

$$\frac{SSBC}{GDP} = x_0 + x_1\left(\frac{Lf + TANl}{GDP}\right) + x_2 R + x_3 DM + x_4\left(\frac{Pl + PNl}{Cl + CNl}\right) + x_5\left(\frac{SSBC}{GDp}\right)_{t-1} + U_{19} \quad (4.19)$$

$$In(SSBc) = y_0 + y_1 In(Lf + TANL) + y_2 R + y_3 DM + y_4 In\left(\frac{Pl + PNl}{Cl + CNl}\right) + Y_5 In(SSBc)_{t-1} + U_{20} \ldots \quad (4.20)$$

$$\frac{Mlc}{GDP} = z_0 + z_1\left(\frac{Lf + TANl}{GDP}\right) + z_2 R + z_3 DM + z_4\left(\frac{Pl + PNl}{Cl + CNl}\right) + z_5\left(\frac{Mlc}{GDp}\right)_{t-1} + U_{21} \quad (4.21)$$

$$In(MLc) = \psi_0 + \psi_1 In(Lf + TANl) + \psi_2 R + \psi_3 DM + \psi_4 In\left(\frac{Pl + PNl}{Cl + CNl}\right) + \psi_5 In(Mlc)_{t-1} + U_{22} \ldots \quad (4.22)$$

$$\frac{CBc}{GDP} = \lambda_0 + \lambda_1\left(\frac{Lf + TANl}{GDP}\right) + \lambda_2 R + \lambda_3 DM + \lambda_4\left(\frac{Pl + PNl}{Cl + CNL}\right) + \lambda_5\left(\frac{CBC}{GDP}\right)_{t-1} + U_{23} \quad (4.23)$$

$$In\ (CBc) = \phi_0 + \phi_1 In(Lf + TANl) + \phi_2 R + \phi_3 DM + \phi_4 In\left(\frac{Pl + PNl}{Cl + CNl}\right) + \phi_5 In(CBc)_{t-1} + U_{24} \quad (4.24)$$

In these equations, all regression coefficients are expected to be positive. A list of the variables and their definitions are as follows:

GSl = Government securities (Life)

GSN = Government securities (non-life)

R = simple average rate of interest

DM = Dummy variable (1969, 1976 = 1 ; other years 0)

Lf = Life funds

Cl = Claims on life insurance business

Cnl = Claims on non-life business

SSBl = Stocks, shares and bonds in life business

.../...

SSBn = Stocks, shares and bonds in non-life business

Mll = Mortgages and loans in life business

Mln = Mortgages and loans in non-life business

CBl = Cash and bills receivable in life business

CBn = Cash and bills receivable in non-life business

TANl = Total non-life assets,

U = Error term

Regression equations were run over the sample period 1969-1981.

4.3 Regression Results[1)]

Government Securities (Life)

$$\frac{GSl}{GDP} = \underset{(0.30159)}{-0.00019} + \underset{(2.3374)}{0.2466^{*}}\left(\frac{Lf}{GDP}\right) \underset{(0.2977)}{-0.00003R} + \underset{(0.5826)}{0.0001DM}$$

$$+ \underset{(1.1459)}{0.00003}\left(\frac{Pl}{Cl}\right) + \underset{(0.1540)}{0.0636}\left(\frac{GSl}{GDP}\right)_{t-1} \cdots\cdots \quad (4.25)$$

$\bar{R}^2$ = 0.6188

DW = 2.0495

SEE = 0.000155 $\quad F_{(5,6)} = 1.9486$

Equation (4.25) represents a rather poor fit linking the ratio of government securities held by the life insurance companies to GDP, to the relevant explanatory variables. With the exception of the proxy variable for impact of funds availability, Lf/GDP, which is significant, the coefficients of all the other variables are not significantly different from zero. However, all have the expected signs, except the yield or return on investment variable, R, which is negative.

---

1) As noted in Chapter III, * denotes significance at 0.05 probability level ; ** denotes significance at 0.01. Figures in parentheses represent absolute values of t-statistics.

The negative sign for the coefficient of R probably underscores the fact that the prevailing low interest rates in Nigeria do not encourage insurance companies' investments in securities beyond the statutory minimum. The $\bar{R}^2$ is low at 61.9 per cent and the F-ratio is also uncomfortably low, suggesting that the coefficients taken together are hardly statistically different from zero.

Consequently, a log-linear specification of the securities function was attempted. The results of the estimated equation are as follows:

$$\underset{}{\ln(GSl)} = \underset{(3.3530)}{-2.3247^{*}} + \underset{(1.9871)}{0.9880^{*}}\ln(Lf) + \underset{(0.2259)}{0.0194}R + \underset{(0.9264)}{0.1338}DM + \underset{(1.5545)}{0.4505}\ln\left(\frac{Pl}{Cl}\right) - \underset{(0.1468)}{0.0586}\ln(GSl)_{t-1} \cdots \quad (4.26)$$

$\bar{R}^2 = 0.9781$

DW = 1.4976

SEE = 0.1252 $\qquad F_{(5,6)} = 99.3477$

Obviously equation (4.26) fits the data much better than equation (4.25), an indication here also that the relationship is non-linear. This is evidenced by the high $\bar{R}^2$ and the F-ratio. All the variables are correctly signed, and the proxy variable for impact of funds availability, Lf, remains statistically significant.

Stocks, Shares and Bonds (Life)

$$\frac{SSBl}{GDP} = \underset{(0.2749)}{-0.00007} + \underset{(3.4569)}{0.2080^{*}}\left(\frac{Lf}{GDP}\right) - \underset{(0.2679)}{0.000012}R + \underset{(1.4327)}{0.00016}DM - \underset{(0.8979)}{0.00001}\left(\frac{Pl}{Cl}\right) + \underset{(0.1456)}{0.03798}\left(\frac{SSBl}{GDP}\right)_{t-1} \cdots \quad (4.27)$$

.../...

$\overline{R}^2$ = 0.6618

DW = 2.0598

SEE = 0.000088 $F_{(5,6)}$ = 5.3066

In equation (4.27), the measure of funds availability, Lf/GDP, is significant while all the other explanatory variables are not. All the variables are correctly signed except the interest rate, R, and other index of funds availability, Pl/Cl, which have the wrong signs. The regressors explain not less than 66 per cent of the variation in the dependent variable.

However, the log-linear specification of shares, stocks and bonds function in undeflated explanatory variables produces a better fit than the linear equation (4.27). The $\overline{R}^2$ has been boosted to about 90 per cent and the F-ratio becomes high. Even so, the index of funds availability, In(Lf), only remained significant but all variables have signs as expected. The results are as follows:

$$\underset{}{\ln(SSBl)} = \underset{(0.1647)}{0.01362} + \underset{(2.5698)}{0.4184^{*}\ln(Lf)} + \underset{(0.1148)}{0.02162R}$$

$$+ \underset{(1.6436)}{0.2034DM} + \underset{(1.8496)}{0.4013^{*}\ln\left(\frac{Pl}{Cl}\right)} + \underset{(0.2234)}{0.3265\ln(SSBl)_{t-1}} \quad \ldots\ldots\ldots \quad (4.28)$$

$\overline{R}^2$ = 0.9017

DW = 1.9865

SEE = 0.0769 $F_{(5,6)}$ = 251.6698

Mortgages and Loans (Life)

$$\frac{Mll}{GDP} = \underset{(0.8788)}{-0.00034} + \underset{(0.8103)}{0.0762\left(\frac{Lf}{GDP}\right)} + \underset{(0.6128)}{0.00004R} + \underset{(1.1319)}{0.0002DM}$$

$$+ \underset{(1.1462)}{0.00002\left(\frac{Pl}{Cl}\right)} + \underset{(2.1184)}{0.5377^{*}\left(\frac{Mll}{GDP}\right)_{t-1}} \quad \ldots\ldots\ldots\ldots\ldots \quad (4.29)$$

.../...

$\bar{R}^2$ = 0.6890

DW = 2.0823

SEE = 0.00013 $\quad F_{(5,6)} = 2.6585$

$$\ln(Mll) = \underset{(1.1733)}{-1.15012} + \underset{(2.6258)}{0.9124}\ln(Lf)^{*} - \underset{(1.0448)}{0.1087}R + \underset{(0.8889)}{0.1710}DM$$

$$+ \underset{(0.0957)}{0.0316}\left(\frac{Pl}{Cl}\right) + \underset{(0.7393)}{0.2152}\ln(Mll)_{t-1} \quad \ldots\ldots\ldots\ldots \quad (4.30)$$

$\bar{R}^2$ = 0.9649

DW = 1.6092

SEE = 0.16925 $\quad F_{(5,6)} = 61.5741$

In equation (4.29), the mortgages and loans function exhibits a poor fit as evidenced by the low $\bar{R}^2$ and F-ratio. However, all the variables are correctly signed. The coefficient of the lagged value of mortgages and loans holdings is significantly different from zero. This reflects the desire by life insurance companies to maintain some balance in their portfolio composition through stocks adjustment.

However, the log-linear version(equation (4.30) of the mortgages and loans function in undeflated variables produces a better fit than equation (4.29). Both the $\bar{R}^2$ and F-ratio are high. The regression explains some 96 per cent of variation in the dependent variable. The positive coefficient on the lagged value of mortgages and loans holdings in both equations (4.29) and (4.30) confirm the relevance of stock adjustment specification as a factor influencing the investment behaviour of life insurance companies . The measure of availability of investible funds, In(Lf), is significant and the sign of its coefficient conforms to <u>à priori</u> expectation. The other variables are also correctly signed

.../...

except that the interest rate variable has the wrong sign. The negative sign for the coefficient of the interest rate variable probably reflects the disincentive effects of the prevailing low rates of interest in Nigeria, at least in the sample period, on investment in mortgages and loans.

Cash and Bills receivable (Life)

$$\frac{CBl}{GDP} = \underset{(0.2919)}{-0.00069} + \underset{(0.4349)}{0.09302}\left(\frac{Lf}{GDP}\right) - \underset{(0.4849)}{0.00007}R - \underset{(1.6193)}{0.0005}DM + \underset{(0.8973)}{0.00007}\left(\frac{Pl}{Cl}\right) + \underset{(1.8047)}{0.8389}\left(\frac{CBl}{GDP}\right)_{t-1}^{*} \quad \ldots\ldots\ldots\ldots\ldots \quad (4.31)$$

$\bar{R}^2 = 0.6939$

DW = 2.4445

SEE = 0.0003 $\qquad F_{(5,6)} = 2.7201$

$$In(CBl) = \underset{(1.1509)}{-0.9914} + \underset{(1.3401)}{0.3622}In(Lf) + \underset{(0.1777)}{0.0203}R - \underset{(0.7724)}{0.1828}DM + \underset{(2.0825)}{0.7656}In\left(\frac{Pl}{Cl}\right)^{*} + \underset{(0.5841)}{0.1948}In(CBL)_{t-1} \quad \ldots\ldots\ldots\ldots \quad (4.32)$$

$\bar{R}^2 = 0.8840$

DW = 1.4953

SEE = 0.1893 $\qquad F_{(5,6)} = 17.7735$

The log-linear equation (4.32) represents a better fit for the cash and bills receivable function than the linear equation (4.31) Equation (4.32) explains not less than 88 per cent of the variation in the dependent variable. An index of funds availability, $In\left(\frac{Pl}{Cl}\right)$, is significant and correctly signed. The stock adjustment variable, in both

.../...

the log-linear and linear expressions of the cash and bills receivable function, has the correct sign. Although the stock adjustment variable is not significant in the log-linear equation, it is significant in the linear equation at a probability level of 0.10 which, however falls short of the acceptable level for testing an hypothesis.

Government Securities (non-life)

$$\frac{GSn}{GDP} = -0.00107 + \underset{(3.3991)}{\overset{*}{0.1040}}\left(\frac{TANl}{GDP}\right) - \underset{(0.3257)}{0.00004R}$$
$$\underset{(0.5550)}{} \qquad \underset{(0.9565)}{-0.0003DM} + \underset{(0.7067)}{0.0003}\left(\frac{Pnl}{Cnl}\right) + \underset{(0.6892)}{0.4148}\left(\frac{GSn}{GDP}\right)_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (4.33)$$

$\bar{R}^2 = 0.8259$

$DW = 2.0467$

$SEE = 0.00019 \qquad F_{(5,6)} = 11.4135$

$$In(GSn) = -2.0342 + \underset{(1.5669)}{1.1349}In(TANl) - \underset{(0.0542)}{0.0107R} - \underset{(0.1559)}{0.1044DM}$$
$$- \underset{(0.1529)}{0.4196}In\left(\frac{Pnl}{Cnl}\right) - \underset{(0.1828)}{0.1561}In(GSn)_{t-1} \quad \ldots\ldots\ldots\ldots \quad (4.34)$$

$\bar{R}^2 = 0.9309$

$DW = 2.03865$

$SEE = 0.31666 \qquad F_{(5,6)} = 30.6528$

Stocks, Shares and Bonds (non-life)

$$\frac{SSBn}{GDP} = \underset{(2.0332)}{\overset{*}{-0.0015}} + \underset{(2.4745)}{\overset{*}{0.4198}}\left(\frac{TANl}{GDP}\right) + \underset{(3.4060)}{\overset{*}{0.0002}R} - \underset{(0.8413)}{0.0001DM}$$
$$+ \underset{(1.5039)}{0.0002}\left(\frac{Pnl}{Cnl}\right) + \underset{(4.0749)}{\overset{**}{0.6838}}\left(\frac{SSBn}{GDp}\right)_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (4.35)$$

.../...

$\bar{R}^2$ = 0.7337

DW = 1.7329

SEE = 0.0001 $\quad F_{(5,6)} = 8.5784$

$$\ln(SSBn) = -0.8870 + 0.4208^{*}\ln(TANl) + 0.1166\,R$$
$$(1.2583)\quad (2.5745)\qquad (1.2703)$$
$$- 0.0066DM + 0.0541\left(\frac{Pnl}{Cnl}\right) + 0.3397(SSBn)_{t-1} \cdots \qquad (4.36)$$
$$(0.0397)\quad (0.1353)\qquad (1.2315)$$

$\bar{R}^2$ = 0.9741

DW = 1.8247

SEE = 0.1344 $\quad F_{(5,6)} = 83.8254$

Mortgages and Loans (non-life)

$$\frac{Mln}{GDp} = 0.00017 + 0.1295^{**}\left(\frac{TANl}{GDP}\right) + 0.00001R - 0.00003DM$$
$$(0.2750)\quad (7.1596)\qquad (0.1554)\quad (0.2459)$$
$$-0.00012\left(\frac{Pnl}{Cnl}\right) - 0.2239\left(\frac{Mln}{GDP}\right)_{t-1} \cdots\cdots\cdots\cdots \qquad (4.37)$$
$$(0.8061)\qquad (0.8660)$$

$\bar{R}^2$ = 0.9611

DW = 1.5699

SEE = 0.000096 $\quad F_{(5,6)} = 55.48298$

$$\ln(Mln) = -3.0057^{*} + 1.2078^{*}\ln(TANl) + 0.0652R$$
$$(2.1359)\quad (2.6183)\qquad (0.3769)$$
$$-0.1555DM - 0.4562\ln\left(\frac{Pnl}{Cnl}\right) - 0.1616\ln(MLn)_{t-1} \cdots\cdots\cdots \qquad (4.38)$$
$$(0.4692)\quad (0.3584)\qquad (0.3282)$$

$\bar{R}^2$ = 0.9572

DW = 1.4156

SEE = 0.2701 $\quad F_{(5,6)} = 50.2063$

.../...

Cash and Bills Receivable (non-life)

$$\frac{CBn}{GDP} = \underset{(3.0405)}{-0.0049^{**}} + \underset{(5.7947)}{0.1691^{**}}\left(\frac{TAN1}{GDP}\right) - \underset{(2.0903)}{0.0002R^{*}} - \underset{(2.2812)}{0.0005DM^{*}}$$

$$+ \underset{(4.7610)}{0.0016^{**}}\left(\frac{Pn1}{Cn1}\right) + \underset{(5.7603)}{1.1807^{**}}\left(\frac{CBn}{GDP}\right)_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (4.39)$$

$\bar{R}^2 = 0.9650$

DW = 1.5851

SEE = 0.1342 $\qquad F_{(5,6)} = 61.7315$

$$\ln(CBn) = \underset{(0.2277)}{-0.19282} + \underset{(1.2053)}{0.4660}\ln(TAN1) - \underset{(0.8457)}{0.0709R}$$

$$-\underset{(0.1193)}{0.0206DM} + \underset{(0.5631)}{0.3914}\ln\left(\frac{Pn1}{Cn1}\right) + \underset{(0.9867)}{0.4882}\ln(CBn)_{t-1} \quad \ldots\ldots\ldots\ldots \quad (4.40)$$

$\bar{R}^2 = 0.9812$

DW = 1.5851

SEE = 0.1342 $\qquad F_{(5,6)} = 115.7341$

The results of determinants of investments in assets by non-life insurance companies are presented in equations (4.33) through (4.40). The linear equations seem to represent the better specifications than the log-linear ones. A major factor that explains investments in various assets in the sample period has been availability of investible funds, as measured by (TAN1)/GDP and (Pn1)/Cn1). These indicators of funds availability are, for most of the regressions, significant and have the expected signs. The coefficient of multiple determination, adjusted for degrees of freedom ($\bar{R}^2$), range from 73.4 for stocks, shares and bonds to 98.1 per cent for cash and bills receivable. By and large, the F-ratios

.../...

are also high. Most of the variables consistently maintain the correct signs ; nevertheless, the interest rate variable has a wrong, negative sign, suggesting the disincentive effects on investments of low interest rates prevailing in Nigeria, at least during the sample period.

Government Securities (Life and non-life)

$$\frac{GSl + GSn}{GDP} = \underset{(0.5245)}{-0.00132} + \underset{(4.3688)}{0.1307^{**}}\left(\frac{Lf + TANl}{GDP}\right) \underset{(0.9337)}{- 0.0002R}$$

$$\underset{(0.2921)}{- 0.00009DM} + \underset{(0.8502)}{0.0004}\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(1.049)}{0.5993}\left(\frac{GSl + GSn}{GDP}\right)_{t-1} \quad \ldots\ldots\ldots\ldots \quad (4.41)$$

$\bar{R}^2 = 0.8054$

DW = 1.7657

SEE = 0.00027 $\qquad F_{(5,6)} = 10.1058$

$$\ln(GSl + GSn) = \underset{(1.2727)}{-1.1074} + \underset{(1.7686)}{0.7682}\ln(Lf + TANl) \underset{(0.2712)}{- 0.0238R} + \underset{(0.2827)}{0.0573DM}$$

$$\underset{(0.0930)}{+0.0633}\ln\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(0.3627)}{0.1797}\ln(GSl + GSn)_{t-1} \ldots\ldots \quad (4.42)$$

$\bar{R}^2 = 0.9749$

DW = 1.8409

SEE = 0.1542 $\qquad F_{(5,6)} = 86.4339$

Stocks, Shares and Bonds (Life and non-life)

$$\frac{SSBl + SSBn}{GDP} = \underset{(0.0719)}{-0.00006} + \underset{(3.0892)}{0.0588^{**}}\left(\frac{Lf + TANl}{GDP}\right) \underset{(0.2488)}{- 0.00003R} + \underset{(0.6759)}{0.00014DM}$$

$$\underset{(0.0908)}{+0.000012}\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(3.7852)}{0.6171^{**}}\left(\frac{SSBl + SSBn}{GDP}\right)_{t-1} \ldots\ldots\ldots \quad (4.43)$$

$\bar{R}^2 = 0.7977$

DW = 2.9806

SEE = 0.00017 $\qquad F_{(5,6)} = 9.6761$

.../...

$$\ln(SSBl + SSBn) = 0.0277 + \underset{(0.0559)}{0.4486^{*}}\ln(Lf + TANl) + \underset{(0.6407)}{0.0296}R + \underset{(2.2422)}{0.2072^{*}}DM$$

$$-\underset{(1.8123)}{0.4035}\ln\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(1.8312)}{0.3958^{*}}\ln(SSBl + SSBn)_{t-1} \quad \ldots \quad (4.44)$$

$\bar{R}^2 = 0.9918$

DW = 1.9856

SEE = 0.0754 $\qquad F_{(5,6)} = 268.7798$

Mortgages and Loans (Life and non-life)

$$\frac{Mll + Mln}{GDP} = 0.0009 + \underset{(8.2134)}{0.1331^{**}}\left(\frac{Lf + TANl}{GDP}\right) - \underset{(1.1261)}{0.00008}R + \underset{(1.4489)}{0.0002}DM$$

$$-\underset{(1.2173)}{0.0001}\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(0.3768)}{0.0617}\left(\frac{Mll + Mln}{GDP}\right)_{t-1} \quad \ldots \quad (4.45)$$

$\bar{R}^2 = 0.9648$

DW = 2.1949

SEE = 0.0001 $\qquad F_{(5,6)} = 61.3755$

$$\ln(Mll + Mln) = -0.9467 + \underset{(4.0208)}{0.9280^{**}}\ln(Lf + TANl) - \underset{(1.0486)}{0.0577}R + \underset{(1.3455)}{0.1555}DM$$

$$-\underset{(1.3962)}{0.3980}\ln\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(0.2854)}{0.0692}\ln(Mll + Mln)_{t-1} \quad \ldots \quad (4.46)$$

$\bar{R}^2 = 0.9915$

DW = 2.5034

SEE = 0.0955 $\qquad F_{(5,6)} = 258.9926$

Cash and Bills Receivable (Life and non-life)

$$\frac{CBl + CBn}{GDP} = -0.0026 + \underset{(8.3123)}{0.2157^{**}}\left(\frac{Lf + TANl}{GDP}\right) - \underset{(3.3337)}{0.0005^{**}}R - \underset{(2.1010)}{0.0006^{*}}DM$$

$$+\underset{(4.1602)}{0.0009^{**}}\left(\frac{Pl + Pnl}{Cl + Cnl}\right) + \underset{(5.7621}{0.8018}\left(\frac{CBl + CBn}{GDP}\right)_{t-1} \quad \ldots \quad (4.47)$$

.../...

$\bar{R}^2 = 0.9263$

DW = 3.2071

SEE = 0.00023 $\quad F_{(5,6)} = 28.6455$

$$\ln(CBl + CBn) = \underset{(0.2684)}{0.1226} + \underset{(1.8243)}{0.8657}\ln(Lf + TANl) - \underset{(0.3965)}{0.0288}R - \underset{(0.3046)}{0.0349}DM + \underset{(0.0819)}{0.0243}\ln\left(\frac{Pl + Pnl}{Cl + Cnl}\right) - \underset{(0.1203)}{0.0768}\ln(CBl + CBn)_{t-1} \quad (4.48)$$

$\bar{R}^2 = 0.9904$

DW = 3.0709

SEE = 0.0812 $\quad F_{(5,6)} = 227.5958$

The results of the analysis of determinants of investments of all insurance companies (life and non-life) are presented in equations (4.41) through (4.48). As in the case of investment functions for non-life insurance companies, the linear specification of investment functions for all insurance companies (life and non-life) fits the data better than the log-linear one. The linear regressions have desirable goodness of fit characteristics, with $\bar{R}^2$ ranging from 79.8 to 96.5 per cent. The F-ratios are also high, indicating joint-significance of regression coefficients. Again, availability of funds, like in previous investment analysis for life or non-life, is a major factor positively influencing variation in asset holdings by the insurance industry. Thus the coefficients of the measures of funds availability, (Lf + TANl)/GDP or ln(Lf + TANl) or $\left(\frac{Pl + Pnl}{Cl + Cnl}\right)$ are, by and large, significantly different from zero and have the correct a priori signs, in most of the equations. Asset holdings by all insurance companies are also influenced by previous levels of holdings of assets, especially with respect to holdings of stocks, shares and bonds as well as cash and bills receivable.

.../...

An important result of the regressions has been the negative coefficient of the interest rate or yield variable, R. The negative sign suggests, as noted above for the various investment components, that probably the prevailing low interest rates in the country, particularly in the sample period, have had a constraining effect on overall investments in assets by insurance companies. In the case of holdings of cash and bills receivable, in particular, the interest rate is highly significant and has the wrong, negative sign.

4.4 Overall Review

The log-linear specification of the insurance company investment model fits the data for the life insurance companies. In the case of the non-life and the combined life and non-life insurance companies, however, the linear function represents a good fit. The explanatory power of the log-linear equations for the life companies ranged between 88.4 and 97.8 per cent. The corresponding figures for the linear equations of the non-life and the combined life and non-life insurance companies ranged from 73.4 to 96.5 per cent, and 79.8 to 92.6 per cent, respectively. By and large, the F-ratios are also high, indicating joint-significance of regression coefficients.

A major factor positively influencing investment in various assets by the insurance companies has been availability of investible funds. The coefficients of the measures of funds availability adopted for the study are, for most regressions, significantly different from zero and have the correct, positive *a priori* signs. Asset holdings by both the non-life and the combined life and non-life companies are also significantly influenced by previous levels of holdings of assets, especially with regard

.../...

to holdings of stocks, shares and bonds as well as cash and bills receivable. Of importance too is the interest rate variable. In most of the regressions, the coefficient of the interest rate variable is negative, suggesting perhaps that the prevailing low interest rates in the country, especially during the sample period, have some disincentive effects on insurance company investments. However, government regulatory legislations for the insurance industry have not had a significantly constraining influence on investments by insurance companies, except in the isolated case of investments in cash and bills receivable by the combined life and non-life companies. In this latter case (equation 4.47), the dummy variable, employed in the regressions to capture the effects of government legislations, is significant and has a negative sign.

CHAPTER V

PROBLEMS AND FUTURE PROSPECTS OF THE INDUSTRY

It has been discussed in the introductory section of Chapter II that the two major functions of insurance are the underwriting of insurable risks and the investment of surplus and reserve funds. Underwriting is a complex business, involving inter alia, the computation of appropriate premium rates for various classes of insurance. The profitable investment operations including decisions to achieve an optimum portfolio mix within some given time profiles must require a considerable degree of expertise. It is thus little wonder that the art of insurance particularly in a developing country like Nigeria is problematic.

5.1 Problems

Of particular importance is the manpower problem. The absence of adequate and well-qualified personnel, particularly in the field of actuarial science was one of the main reasons why indigenous insurance companies concentrated their business on general or non-life instead of on life business. Most companies have had to resort to hiring, at probably very high costs, actuarial scientists from other parts of the world since indigenous experts are few. Consequently, life insurance business was initially concentrated in the hands of the foreign-owned insurance companies, until the Government indigenisation policy introduced the joint venture approach and defined an acceptable level of Nigerian participation in the insurance business.

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There is also the problem of limited investment outlets. The scope of investment of insurance company funds is influenced by legislation seeking to protect policyholders against incompetent or dishonest management. Such legislations have, however had the effect of precluding insurance companies from investing in private companies. Furthermore, investments in public companies are limited to companies whose nominal value of the fully paid-up shares issued by such companies is not less than one million naira[1]. Thus insurance companies are disallowed by law from investing in securities of non-quoted companies. This limitation to the scope of insurance investments is clearly unnecessary in view of the fact that the number of quoted companies in Nigeria is barely a hundred[2].

As of now, relatively few shares are listed on the Nigerian Stock Exchange and the majority of these shares were offered to the public only since 1972. In that year, 22 securities were listed for trading, 35 in 1974 and 168 at the end of August 1982. Since the demand for these securities far exceeds the supply, they are generally over-subscribed. In the absence of sufficient securities quoted on the Stock Exchange, the insurer is left with a substantial amount of funds which need be invested profitably.

Inflationary pressures and/or expectations pose problems or obstacles to growth of insurance, particularly life insurance business. Many who would have taken out life policies are discouraged from doing so by speculation regarding the discounted value of the future returns on their life policies at maturity. As a result, taking out life policies is looked upon as a luxury which only the richer people in the society can afford.

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1) See Section 2(a) and (b) of the Trustee Investment Act, 1962.

2) See Okigbo, P.N.C. Nigerian Financial System, Longman, 1981, Ch. 10.

5.2 Evaluation and Future Prospects

Despite the problems listed in section 5.1 above, the insurance industry in Nigeria has a great future. This optimism derives from the fact that as the economy develops, the need for insurance protection increases. The problems which inhibit the growth of the existing forms of insurance are more or less teething in nature and may find solutions in the long run as insurance consciousness permeates the society.

A closer examination of the classes or forms of insurance cover may corroborate this expectation. Life assurance may continue to develop with improved marketing/and advertising techniques and increased standards of living and literacy. This is borne out by the results of regressions linking premiums on life assurance to per capita income, urban labour force and literacy variables in the sample period, 1969-1981. The coefficients of the explanatory variables are, by and large, significantly different from zero and positively signed. (See Chapter III). Consequently, more people may take advantage of life assurance as a means of providing for their dependants in the event of their premature death, and also as a means of saving for old age (the so-called endowment assurance) and unforeseen contingencies.

In the area of general insurance, marine insurance has bright prospects since the volume of marine insurance business undertaken by any country increases with the volume of that country's international trade. In this connection, again the regression results presented indicates that variation in premiums on marine insurance is positively and significantly associated with variation in net registered tonnage of ships which entered Nigerian ports and were cleared - a measure of the degree of openess of the Nigerian economy.

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Moreover, the fear of major fire disasters will increasingly induce more and more people and companies/institutions to take out fire insurance policies. The absence of an efficient communications system and good fire extinguishing services in Nigeria increases the potentiality of fire hazards. Public and employers'liability insurance will develop considerably as workers become more conscious of their legal rights. The same growth potentials exist for motor insurance. The law enjoins every car owner to take out a motor insurance policy.

Indeed, other than motor vehicle insurance, available insurance services in the country cannot be described as being widespread as yet. This is because the importance of other classes of insurance like fire, burglary, householders and life assurance has not been fully appreciated by a large proportion of the people due to insufficient awareness of the benefits that accrue from insurance. Therefore, with adequate publicity through all media of communication, insurance transaction should become, in the future, a regular feature of life of the generality of gainfully-employed members of the population. It is insightful to note that less than one per cent of the adult population, as of now, is covered under one form of life assurance or the other. The corresponding figure for the U.S.A and other developed countries is 95 per cent.[1] Thus there is great potential for growth.

The problem of executive capacity, particularly in areas needing the services of actuaries is not insurmountable. The solution lies in training and re-training of staff on the job. Thus with many Nigerians qualifying as actuaries and experts in other departments of insurance, indigenous insurance companies should be able to increase the volume of their transactions on life and other insurance businesses.

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1) Irukwu, J.O "Insurance in Nigeria: Problems and Prospects", in Bullion, Central Bank of Nigeria, 20th Anniversary Edition, Lagos, July 1979,p.65.

5.3 Summary and Concluding Remarks

This thesis has discussed the evolution of the insurance industry in Nigeria, focussing largely on the dimension of funds flows in the sector during the 1969-1981 period. Over the same time profile, some econometric analyses of the causative factors or determinants of growth of the insurance industry (sources) and of the latter's investment behaviour (uses) are attempted.

Aggregate premiums of life insurance companies in Nigeria rose from N5.3 million or 82.8 per cent of total life insurance income in 1969, to N91.4 million or 88.8 per cent in 1981. The next most important source of funds for the life insurers during the period was investment income (interest, dividends and rent). Income from this source rose from N0.9 million or 14.1 per cent of total life insurance income in 1969 to N11.1 million or 10.8 per cent in 1981. Profit from the sale of assets, registration and other fees, and appreciation of investments accounted for an annual average of N0.2 million or some 3 per cent in the thirteen year period. The annual average of life insurance funds available for investment in the capital market was N97.4 million during the study period. The amount of additional savings which the insuring public entrusted to life insurers increased yearly, averaging N18.9 million in the period.

As in the case of life insurance companies, premiums and investment income constituted the main sources of funds for the general or non-life insurance companies. Premiums also accounted for the bulk of total income of general insurers, averaging 95.7 per cent. Income from investment and other miscellaneous receipts averaged 4.3 per cent.

.../...

In both life and non-life insurance companies the major non-investment uses of funds, otherwise referred to as "outgoings", were in respect of settlement of management expenses, net commission and claims. In the case of life insurance companies management expenses absorbed an annual average of 37.5 per cent of total outgoings in the 1969-1981 period. The corresponding figures for expenditures on net commission and net claims were 24.1 and 19.0 per cent, respectively.

At N38.1 million in 1969, the total assets of the insurance industry rose to N907.6 million in 1981, reflecting a twenty-four fold increase in the period. The investment pattern indicated that insurance companies had the highest investor preference for cash and bills receivable which average 35.6 per cent of total insurance industry investments during the 1969-1981 period. This was followed by investments in miscellaneous items which averaged 21.7 per cent. Investments in government securities which ranked third with an average of 15.7 per cent failed to satisfy the requirement that a minimum of 25 per cent of total assets be invested in government and semi-governmental securities.

Thus the bulk of insurance companies'investments remained in very liquid and low-yielding assets especially when cash and bills receivable are added to government securities, a sizeable proportion of which consists of Treasury bills and Treasury certificates. A plausible explanation for this investment behaviour may be traceable to the long-term inflationary expectations prevailing in the country and the general business atmosphere of a strong risk aversion.

Analysis of the determinants of growth of the insurance industry together with that of the latter's holdings of investment assets

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have been attempted. With respect to the growth factors, the regressions indicate that the degree of literacy, the level of urban labour force, the measures of the degree of "openness" of the economy, the level of per capita income, intensity of electricity consumption and value of passenger cars are important factors that determined a positive change in premium income of the insurance industry during the sample period, 1969-1981. For these regressions (see Chapter III), $\bar{R}^2$ ranged between 50 and 98 per cent and the standard errors of regressions were low. F-ratios were high, indicating joint-significance of regression coefficents. On the other hand, the results of regressions presented to explain holdings of assets indicate that availability of investible funds, some stock adjustment considerations especially with respect to holdings of stocks, shares and bonds as well as cash and bills receivable by non-life insurance companies, and the rate of interest are the main factors that influenced changes in holdings of assets by the insurance industry during the sample period. By and large, the regression analysis here (Chapter IV) is again relatively successful, accounting for sixty to ninety-nine per cent of the variation in assets on the various asset functions considered.

From these regression results certain policy implications emerge. First, the insurance industry tends to grow pari-passu with economic development. This derives from the observed positive and significant relationships between variation in premium income of the insurance industry and that of factors like the degree of literacy, the level of per capita income, degree of openness of the economy, intensity of energy use etc., which are themselves some of the proxy indicators of economic development. Thus economic development has built-in features that promote the growth of the insurance industry.

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Second, in view of the fact that in most of the regressions the coefficient of the interest rate variable was negative, suggesting perhaps that the prevailing low rates of interest in the country have some disincentive effects on insurance company investment, there is need for government to move interest rates gradually upward toward their market levels. It need hardly be emphasized that pegging interest rates below their market equilibrium levels could spell doom for capital market development especially as interest rates and effective yields on securities must ideally be determined by supply and demand in a competitive market place.

Third, government regulatory legislations have not had a significantly constraining influence on eligible investments by the insurance companies ; they have, nonetheless imposed some qualitative restraints in that the legislations limit the scope of insurance investments. There is therefore need for government to reconsider its policy on the direction of insurance company investment, such that insurance companies could invest in private, non-quoted companies. In this way, the breadth and depth of the capital market would be fostered.

Finally, in the regression results for the life premium function, the coefficient of the personal income tax variable was significantly different from zero and negatively signed. The negative sign for the coefficient indicates the inverse relationship between premiums and tax payments, that is, the more premiums one pays the less the tax liability. A probable implication of this result is that insurance companies could attract a wider circle of clientele for their life business than is the case of present, if adequate publicity is given to the benefits of tax deductibility of insurance premiums being made available to life policy-holders.

It is important to stress, at this point, that in view of the limitations to the data spelled out in section 1.4 of the thesis, coupled with the fact that the models used in the thesis are single equation models, with their characteristic least squares limitations, the results from the study cannot be taken as more than tentative. It is believed, however, that these limitations are not such as to nullify the tentative conclusions reached, having regard to the high explanatory power of the regressions, the t-statistics and the F-ratios.

BIBLIOGRAPHY

1. Carter, R.L. Economics and Insurance, P.H. Publishing Ltd, Stockport, Cheshire, 1979, p. 49.

2. Canter, R.L. & Dickinson, G.M Barriers to Trade in Insurance, Trade Policy Research Centre, London, 1979.

3. Clayton, G. and Osborne, W.T. Insurance Company Investment, Allen & Unwim, London, 1965, Ch. 111.

4. Cummins, J.D. An Econometric Model of the Life Insurance Sector of the U.S. Economy, D.C. Health & Company, 1975.

5. Ezekiel, M. and Fox, K.A. Methods of Correlation and Regression Analysis, New York, John Wiley & Sons, Inc., 3rd Edition, March 1963.

6. Fadina, A.O."The Increasing Role of the Capital Market in the Economy", Paper presented at the 17th Annual Banking Seminar, University of Lagos, P.4.

7. Irukwu, J.O. Insurance Management in Africa, Caxton Press (West Africa) Ltd., Ibadan, 1977.

8. Kuh, E. and Meyer, J. "Correlation and Regression Estimates when the Data are Ratios", Econometrica, Vol. 23, N°4, October 1955, pp. 400 - 416.

9. Lijadu, Y. "Insurance Industry and Capital Market Development", Paper presented at the National Seminar on Developing the Securities Market, p.5.

10. Okigbo, P.N.C. "The Capital Market and the Nigerian Economy", Management in Nigeria, March 1980.

11. Okigbo, P.N.C. Nigeria Financial System: Structure and Growth, Longman, 1982.

.../...

12. Prime, J.H. Investment Analysis, Prentice-Hall, Inc., 3rd. Edition, Inglewood Cliffs, N.J. 1961.

13. Shonekan, E.A.O. "A publicly Quoted Company: An Appraisal", Paper delivered at the Seminar on Public Quotations for Indigenous Companies, Jan. 1981.

Government Documents

1. Federal Ministry of National Planning, The Federal Republic of Nigeria, Fourth National Development Plan 1981 - 1985, Main Report, Vol. 1, Lagos

2. Federal Office of Statistics, National Accounts of Nigeria, 1974/75 - 1977/78, Lagos, April 1960.

3. Federal Republic of Nigeria, Official Gazette Supplement, Vol. 63, Jan-Dec. 1976.

4. Federal Republic of Nigeria, Supplementary to Official Gazette, N° 29, Vol. 64, 23rd June 1977.

TABLE I

DISTRIBUTION OF INSURANCE COMPANIES BY TYPE OF BUSINESS

Type of business	1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%
Wholly life	6	22.2	7	16.3	6	11.3	8	12.3	9	12.8	9	12.8	9	13.1	6	10.2	6	10.2	6	9.5	8	10.9	8	10.7	9	10.7
Wholly non-life	13	48.2	26	60.5	38	71.7	43	66.2	44	62.8	41	58.6	43	62.3	37	62.7	38	64.4	42	66.7	47	64.4	49	65.3	57	67.9
Life and non-life	8	29.6	10	23.2	9	17.0	14	21.5	17	24.4	20	28.6	17	24.6	16	27.1	15	25.4	15	23.8	18	24.7	18	24.0	18	21.4
TOTAL	27	100	43	100	53	100	65	100	70	100	70	100	69	100	59	100	59	100	63	100	73	100	75	100	84	100

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 2

DISTRIBUTION OF INSURANCE COMPANIES BY TYPE OF BUSINESS AND OWNERSHIP

	1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1982	
	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%	Num-ber	%
A) LIFE																										
(a) Nigerian	1	16.7	1	14.3	1	16.7	1	12.5	1	11.1	2	22.2	2	22.2	2	33.3	2	33.3	2	33.3	2	33.3	4	33.3	2	33.3
(b) Joint	1	16.7	1	14.3	1	16.7	2	25.0	3	33.3	4	44.5	4	44.5	3	50.0	4	66.7	4	66.7	4	66.7	4	66.7	4	66.7
(c) Foreign	4	66.6	5	71.4	4	66.6	5	62.5	5	55.6	3	33.3	3	33.3	1	16.7	-	-	-	-	-	-	-	-	-	-
Total A	6	100.0	7	100.0	6	100.0	8	100.0	9	100	9	100	9	100	6	100	6	100	6	100	6	100	6	100	6	100
(B) NON-LIFE																										
(a) Nigerian	3	23.1	16	61.5	28	73.7	33	76.7	34	77.3	31	75.6	32	74.4	25	67.6	25	65.8	30	71.4	30	71.4	31	72.2	31	72.1
(b) Joint	3	23.1	3	11.6	3	7.9	4	9.4	4	9.1	16	14.6	7	16.3	9	24.3	13	34.2	12	28.6	12	28.6	12	27.9	12	27.9
(c) Foreign	7	53.8	7	26.9	7	18.4	6	14.0	6	13.6	4	9.8	4	9.3	3	8.1	-	-	-	-		-	-	-		
Total B	13	100	26	100	38	100	43	100	44	100	41	100	43	100	37	100	38	100	42	100	42	100	43	100	43	100
C) LIFE & NON-LIFE (mixed)																										
(a) Nigerian	1	12.5	5	50.0	4	44.4	7	50.0	9	52.9	14	70.0	12	70.6	13	81.2	12	80.0	12	80.0	13	81.2	13	81.2	13	81.2
(b) Joint	1	12.5	1	10.0	1	11.2	7	50.0	7	41.2	6	30.0	5	29.4	3	18.8	3	20.0	3	20.0	3	18.8	3	18.8	3	18.8
(c) Foreign	6	75.0	4	40.0	4	44.4	-	-	1	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total C	8	100	10	100	9	100	14	100	17	100	20	100	17	100	16	100	15	100	15	100	16	100	16	100	16	100
D) ALL COMPANIES																										
(a) Nigerian	5	18.5	22	51.2	33	62.3	41	63.1	44	62.8	47	67.1	46	65.7	40	67.8	39	66.1	44	69.8	45	70.3	46	70.8	46	70.8
(b) Joint	5	18.5	5	11.6	5	9.4	13	20.0	14	20.0	16	22.9	16	22.9	15	25.4	20	33.9	19	30.2	19	29.7	19	29.2	19	29.2
(c) Foreign	17	63.0	16	37.2	15	28.3	11	16.9	12	17.2	7	10.0	7	11.4	4	6.8	-	-	-	-	-	-	-	-	-	-
Grand Total	27	100	43	100	53	100	65	100	70	100	70	100	69	100	59	100	59	100	63	100	64	100	65	100	65	100

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 3

PAID-UP CAPITAL OF INSURANCE COMPANIES BY VALUE

(N'000)

Year	Wholly Nigerian		Joint		Foreign		Total	
	Amount	% share	Amount	% share	Amount	% share	Amount	% share
1969	764	20.3	700	18.6	2.294	61.1	3.758	100.0
1970	2.480	45.2	700	12.8	2.308	42.0	5.488	100.0
1971	3.558	53.3	750	11.3	2.358	35.4	6.666	100.0
1972	6.264	61.7	2.886	28.4	1.005	9.9	10.155	100.0
1973	6.451	61.4	3.068	29.2	987	9.4	10.506	100.0
1974	7.423	63.1	3.794	32.3	545	4.6	11.762	100.0
1975	8. 129	62.6	3.855	29.7	1.000	7.7	12.984	100.0
1976	11.124	67.4	4.786	29.0	600	3.6	16.510	100.0
1977	16.774	62.9	9.907	37.1	-	-	26.681	100.0
1978	20.145	64.4	11.157	35.6	-	-	31.302	100.0
1979[1)]	23.840	66.6	11.968	33.4	-	-	35.808	100.0
1980[1)]	25.665	66.8	12.750	33.2	-	-	38.415	100.0
1981[1)]	26.189	66.0	13.486	34.0	-	-	39675	100.0

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 4

SOURCES OF INCOME OF LIFE INSURANCE COMPANIES IN NIGERIA

(N'million)

Sources	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1)]	1980[1)]	1981[1)]
All Companies													
(a) Premiums	5.3	5.5	10.9	11.7	13.1	19.7	24.9	34.1	42.1	55.3	67.5	77.9	91.4
(b) Interest, Dividend & rent	0.9	1.2	1.4	1.4	1.9	3.4	4.2	4.8	6.7	8.4	8.6	9.5	11.1
(c) Profit on Sale of Assets	*	*	*	0.2	0.3	*	0.3	*	*	*	0.1	0.1	*
(d) Other receipts	0.2	0.2	0.2	0.8	0.2	0.5	0.3	0.9	0.9	0.9	0.6	0.9	0.4
Total (Tly)	6.4	6.9	12.5	14.1	15.5	23.6	29.7	39.8	49.7	64.6	76.8	88.4	102.9
Wholly Nigerian													
(a) Premiums	0.1	0.6	0.7	3.3	0.9	5.5	6.4	13.9	18.2	23.2	28.6	32.4	37.9
(b) Interest, Dividend & rent	-	0.07	0.09	*	0.08	0.8	0.9	1.4	1.7	2.1	2.6	2.8	3.2
(c) Profit on Sale of Assets	*	-	-	-	-	0.1	*	*	-	*	*	0.1	*
(d) Other receipts	-	*	*	0.7	*	*	0.1	0.4	0.4	0.1	0.1	0.4	0.3
Total	0.1	0.7	0.8	0.4	1.0	6.4	7.4	15.7	20.3	25.1	31.3	35.7	41.4
Joint													
(a) Premiums	0.5	0.5	0.8	5.1	6.7	8.2	10.4	17.2	23.8	32.1	38.9	45.5	53.5
(b) Interest, Dividend & rent	0.1	0.1	0.2	0.8	1.1	1.9	2.3	3.1	5.0	6.3	6.0	6.7	7.9
(c) Profit on Sale of Assets	*	-	*	*	0.2	0.4	0.3	*	*	*	0.1	*	*
(d) Other receipts	0.1	0.1	0.2	0.06	0.2	*	0.1	0.5	0.5	0.8	0.5	0.5	0.1
Total	0.7	0.7	1.2	6.0	8.2	10.5	13.1	20.8	29.3	39.2	45.5	45.5	61.5
Foreign													
(a) Premiums	4.7	4.4	9.5	3.2	5.4	6.0	8.1	3.0	-	-	-	-	-
(b) Interest, Dividend & rent	0.8	1.0	1.1	0.5	0.8	0.7	1.0	0.4	-	-	-	-	-
(c) Profit on Sale of Assets	-	*	*	*	-	*	-	*	-	-	-	-	-
(d) Other receipts	*	*	*	-	*	-	-	*	-	-	-	-	-
Total	5.5	5.4	10.6	3.7	6.2	6.7	9.1	3.4	-	-	-	-	-

* Less than 0.05 million

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 5
EXPENDITURE OF LIFE INSURANCE COMPANIES IN NIGERIA
(₦'million)

Expenditure Items	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1]	1980[1]	1981[1]
All Companies													
(a) Net claims paid	0.6	0.7	0.9	1.6	1.1	1.9	1.7	2.4	2.8	4.3	5.4	5.6	8.2
(b) Bonuses	0.2	0.2	0.2	*	0.2	0.5	0.6	2.1	1.1	1.0	1.0	2.1	1.2
(c) Net Commission	0.5	0.2	1.7	1.1	1.6	2.8	2.2	4.8	5.6	7.2	8.1	9.4	11.1
(d) Surrenders & outstanding claims	-	-	-	-	-	-	-	-	2.6	3.8	4.7	4.5	6.7
(e) Management expenses	0.6	1.2	1.5	2.0	2.3	2.7	4.6	8.3	7.8	11.2	13.7	14.8	16.7
(f) Other expenditure	0.3	0.4	0.6	0.3	0.5	2.0	2.7	0.9	1.0	1.2	1.2	0.7	1.5
Total	2.2	2.9	4.9	5.0	5.7	9.9	11.8	18.5	20.9	28.7	34.1	37.1	45.4
Wholly Nigerian													
(a) Net claims paid	*	*	*	0.8	0.05	0.6	0.5	1.1	0.9	1.8	2.0	1.5	3.2
(b) Bonuses	*	-	*	*	0.05	0.4	0.08	0.4	0.5	0.3	*	0.4	0.5
(c) Net Commission	-	0.7	0.1	0.2	0.1	0.6	0.8	1.5	1.7	2.3	2.7	3.1	3.5
(d) Surrenders & outstanding claims	-	-	-	-	-	-	-	-	0.5	0.4	0.4	0.5	0.5
(e) Management expenses	*	0.1	0.2	0.4	0.3	0.6	1.5	2.3	2.6	3.0	3.4	3.9	4.1
(f) Other expenditure	*	*	0.08	*	*	0.09	0.2	0.4	0.1	0.2	0.2	0.1	0.6
Total	0.06	0.2	0.4	1.4	0.5	2.3	3.1	5.7	6.3	8.0	8.7	9.5	12.4
Joint													
(a) Net claims paid	0.2	0.3	0.3	0.4	0.5	0.6	0.6	1.1	1.9	2.5	3.4	4.1	5.0
(b) Bonuses	*	0.1	*	*	0.08	0.1	0.3	1.6	0.6	0.8	1.0	1.7	0.7
(c) Net Commission	0.3	*	0.8	0.5	0.6	0.6	1.2	3.0	4.0	4.9	5.4	6.3	7.6
(d) Surrenders & outstanding claims	-	-	-	-	-	-	-	-	2.1	3.4	4.3	4.0	6.2
(e) Management expenses	0.3	0.5	0.7	0.5	0.9	1.6	2.2	5.4	5.2	8.2	10.3	10.9	12.6
(f) Other expenditure	0.1	0.2	0.3	0.2	0.3	0.2	1.2	0.5	0.9	1.1	1.0	0.6	0.9
Total	0.9	1.1	2.1	1.6	2.4	3.1	5.5	11.6	14.7	20.9	25.4	27.6	33.0
Foreign													
(a) Net claims paid	0.4	0.4	0.6	0.5	0.5	0.7	0.6	0.2	-	-	-	-	-
(b) Bonuses	0.2	0.1	0.2	*	0.07	*	0.2	0.2	-	-	-	-	-
(c) Net Commission	0.2	0.1	0.7	0.5	0.9	1.4	0.2	0.4	-	-	-	-	-
(d) Surrenders & outstanding claims	-	-	-	-	-	-	-	-	-	-	-	-	-
(e) Management expenses	0.3	0.5	0.7	1.1	1.1	1.9	2.2	0.5	-	-	-	-	-
(f) Other expenditure	0.1	0.1	0.2	*	0.2	*	1.1	*	-	-	-	-	-
Total	1.2	1.2	2.4	2.1	2.8	4.0	4.3	1.3	-	-	-	-	-

* less than 0.05 million
1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 6
INCOME & EXPENDITURE OF LIFE INSURANCE COMPANIES IN NIGERIA
SUMMARY BY TYPE OF OWNERSHIP
(N'million)

Type of Ownership	Income													Aver-age	Outgoings											Aver-age
	1969	70	71	72	73	74	75	76	77	78	79[1]	80[1]	81[1]	1969 1981	1969	70	71	72	73	74	75	76	77	78	79[1]	80[1]	81[1]	1969 1981
Wholly Nigerian	0.1	0.6	0.8	4.1	1.0	6.4	7.5	15.7	20.4	25.4	31.3	35.7	41.4	14.6	0.06	0.3	0.4	1.4	0.6	2.5	3.0	5.6	6.3	7.9	8.7	9.5	12.4	4.5
Joint	07	0.8	1.2	6.0	8.2	10.4	13.2	20.8	29.3	39.2	45.5	52.7	61.5	22.3	0.8	1.1	2.1	1.5	2.4	3.4	5.5	11.7	14.6	20.8	25.4	27.6	33.0	11.5
Foreign	5.6	5.4	10.6	3.8	6.2	6.7	9.1	3.4	-	-	-	-	-	3.9	1.2	1.2	2.3	2.1	2.8	4.0	3.2	1.2	-	-	-	-	-	1.4
Total	6.4	6.8	12.6	13.9	15.4	23.5	29.8	39.9	49.7	64.6	76.8	88.4	102.9	40.8	2.1	2.6	4.8	5.0	5.8	9.9	11.7	18.5	20.9	28.7	34.1	37.1	45.4	17.4

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 7

ANALYSIS OF INSURANCE COMPANIES' LIFE FUNDS

(N'million)

LIFE FUNDS	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1]	1980[1]	1981[1]
All Companies													
Amount at beginning of year	14.9	20.3	22.1	26.1	35.3	47.2	58.3	71.3	96.1	123.0	148.0	168.1	188.5
Amount at end	18.8	21.9	26.8	33.6	44.7	57.8	72.0	90.9	120.1	152.0	182.0	210.0	235.0
Expansion during the year	3.9	1.6	4.7	7.5	9.4	10.6	13.7	19.6	24.0	29.0	34.0	41.9	46.5
Wholly Nigerian													
Amount at beginning of year	0.06	1.1	1.4	0.5	0.8	15.9	19.3	27.2	36.5	51.1	61.4	72.5	83.4
Amount at end	0.1	1.4	1.7	1.3	1.8	19.4	23.5	37.2	46.0	63.9	77.3	90.3	104.6
Expansion during the year	0.04	0.3	0.3	0.8	1.0	3.5	4.2	10.0	9.5	12.8	15.9	17.8	21.2
Joint													
Amount at beginning of year	2.2	2.6	2.9	12.0	16.1	24.4	30.1	39.0	59.5	71.9	86.6	95.6	105.1
Amount at end	2.6	2.9	3.4	15.9	20.3	29.6	36.3	46.6	74.0	88.1	104.7	119.7	130.4
Expansion during the year	0.4	0.3	0.5	3.9	4.2	5.2	6.2	7.6	14.5	16.2	18.1	24.1	25.3
Foreign													
Amount at beginning of year	12.6	16.6	17.8	13.6	18.5	6.9	8.9	5.0	-	-	-	-	-
Amount at end	16.1	17.6	21.7	16.4	22.7	8.8	12.3	7.0	-	-	-	-	-
Expansion during the year	3.5	1.0	3.9	2.8	4.2	1.9	3.4	2.0	-	-	-	-	-

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 8

SOURCES OF INCOME OF NON-LIFE INSURANCE COMPANIES IN NIGERIA

(N'million)

SOURCES	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1)]	1980[1)]	1981[1)]
All Companies													
Premiums	8.0	10.6	15.7	24.7	28.4	36.5	67.8	102.9	154.5	159.6	155.8	174.0	210.7
1. Fire	1.2	1.6	2.2	3.1	3.2	4.4	7.3	8.2	12.3	14.0	13.7	16.8	24.1
2. Accident	0.5	0.9	1.0	1.5	1.8	2.2	3.2	5.5	9.7	12.1	10.8	11.9	16.5
3. Motor vehicle	4.3	5.7	8.9	15.7	17.4	21.5	43.6	68.8	91.8	94.7	96.4	101.8	115.7
4. Employers'liability	0.7	0.7	1.0	1.6	1.7	1.1	3.4	5.0	7.0	8.3	7.9	8.4	11.9
5. Marine	0.7	0.9	1.3	1.8	2.1	3.2	5.0	6.2	21.2	23.7	22.8	24.6	32.0
6. Miscellaneous	0.5	0.7	1.2	1.5	2.0	3.3	5.3	9.2	12.4	6.8	4.2	10.5	10.5
Other Income	0.2	0.4	1.1	0.9	0.9	2.6	2.8	2.1	9.8	7.3	4.8	7.0	14.9
7. Interest,dividend and rent	0.2	0.2	0.3	0.4	0.4	1.2	0.1	1.0	6.7	3.2	2.4	2.1	8.9
8. Other receipts	*	0.2	0.8	0.5	0.5	1.4	2.7	1.1	3.1	4.1	2.4	4.9	6.0
Total	8.2	11.0	16.8	25.6	29.3	39.1	70.6	105.0	164.3	166.9	160.6	181.0	225.6
Wholly Nigerian													
Premiums	3.1	4.7	8.9	9.6	11.3	17.3	32.6	53.8	102.5	96.5	94.0	104.5	112.0
1. Fire	0.5	0.6	0.9	0.8	0.9	2.0	2.8	4.0	7.8	8.4	7.9	9.6	11.2
2. Accident	0.2	0.4	0.6	0.5	0.9	1.3	1.7	3.5	7.6	9.7	8.2	9.0	11.9
3. Motor vehicle	1.7	2.8	5.5	7.2	8.4	11.1	23.7	38.1	60.5	58.1	58.0	61.3	62.9
4. Employers'liability	0.3	0.3	0.5	0.4	0.2	0.5	1.1	1.3	2.9	2.3	1.9	2.1	3.5
5. Marine	0.2	0.4	0.6	0.3	0.4	0.8	1.3	2.0	15.4	14.9	15.0	15.6	18.3
6. Miscellaneous	0.2	0.4	0.8	0.4	0.4	1.5	1.9	4.9	8.7	3.1	3.0	6.9	4.2
Other Income	*	0.2	0.8	0.4	1.3	1.0	1.2	1.0	6.6	3.3	1.1	3.0	5.6
7. Interest, dividend and rent	*	0.1	0.1	0.1	*	0.5	0.1	*	5.1	0.1	*	*	2.5
8. Other receipts	*	0.1	0.7	0.3	1.3	0.5	1.1	1.0	1.5	3.2	1.1	3.0	3.1
Total	3.1	4.9	9.7	10.0	12.6	18.3	33.8	54.8	109.1	99.8	95.1	107.5	117.6

TABLE 8 (Contd.)

SOURCES	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1]	1980[1]	1981[1]
Joint													
Premiums	1.0	1.4	1.7	8.9	9.7	16.1	29.9	43.3	52.0	63.1	61.8	69.5	98.7
1. Fire	0.3	0.3	0.4	1.4	1.3	2.1	4.1	4.1	4.7	5.6	5.8	7.2	12.9
2. Accident	*	0.3	0.1	0.7	0.5	0.7	0.9	1.8	2.2	2.4	2.6	2.9	4.6
3. Motor Vehicle	0.6	0.6	0.8	4.6	4.9	8.8	17.2	27.2	31.4	36.6	38.4	40.5	52.8
4. Employers'liability	0.1	0.1	0.1	0.5	0.7	1.0	1.7	2.6	4.2	6.0	6.0	6.3	8.4
5. Marine	*	*	0.1	0.8	1.0	1.7	2.6	3.3	5.8	8.8	7.8	9.0	13.7
6. Miscellaneous	*	0.1	0.1	0.9	1.1	1.7	3.3	4.3	3.7	3.7	1.2	3.6	6.3
Other Income	*	*	*	0.1	0.3	1.5	1.4	1.1	3.1	4.0	3.7	4.0	9.3
7. Interest, dividend & rent	*	*	*	*	*	0.6	*	1.0	1.6	2.1	2.4	2.1	6.4
8. Other receipts	-	-	-	0.1	0.3	0.9	1.4	0.1	1.5	1.9	1.3	1.9	2.9
Total	1.0	1.4	1.7	9.0	10.0	17.6	31.3	44.4	55.1	67.1	65.5	73.5	108.0
Foreign													
Premiums	3.8	4.5	5.2	6.1	7.4	3.1	5.4	5.7	-	-	-	-	-
1. Fire	0.5	0.7	0.8	0.8	1.0	0.3	0.3	0.1	-	-	-	-	-
2. Accident	0.3	0.2	0.3	0.3	0.4	0.3	0.5	0.2	-	-	-	-	-
3. Motor Vehicle	2.0	2.3	2.6	3.3	4.1	1.6	2.8	3.4	-	-	-	-	-
4. Employers'liability	0.3	0.3	0.4	0.7	0.7	0.4	0.6	1.1	-	-	-	-	-
5. Marine	0.4	0.7	0.6	0.7	0.6	0.5	1.1	0.9	-	-	-	-	-
6. Miscellaneous	0.2	0.3	0.4	0.3	0.6	*	*	*	-	-	-	-	-
Other Income	0.1	0.2	0.2	0.4	0.3	0.1	0.2	*	-	-	-	-	-
7. Interest, dividend & rent	0.1	0.1	0.2	0.3	0.3	*	*	*	-	-	-	-	-
8. Other receipts	*	*	*	*	-	0.1	0.2	-	-	-	-	-	-
Total	3.9	4.7	5.4	6.5	7.7	3.2	5.6	5.7	-	-	-	-	-

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 9

BREAKDOWN OF EXPENDITURES OF NON-LIFE INSURANCE COMPANIES IN NIGERIA

(N million)

Types of Expenditure	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1)]	1980[1)]	1981[1)]
All Companies Claims	3.0	3.8	4.7	7.5	11.4	13.3	18.8	27.6	46.0	55.5	62.0	63.9	87.9
1. Fire	0.4	0.5	0.7	0.9	1.5	1.0	1.2	2.3	4.3	4.5	5.3	6.0	10.5
2. Accident	0.2	0.4	0.2	0.4	0.5	0.4	0.7	0.8	1.7	2.1	2.7	3.2	5.2
3. Motor Vehicle	1.9	2.2	2.8	4.5	7.8	9.4	12.5	20.3	32.6	37.7	41.6	43.6	50.8
4. Employers' liability	0.2	0.2	0.4	0.4	0.6	0.7	0.9	1.1	1.3	1.4	2.4	2.0	2.6
5. Marine	0.2	0.3	0.3	0.9	1.0	1.2	1.7	1.7	3.8	6.4	6.1	6.3	8.4
6. Miscellaneous	0.1	0.2	0.2	0.3	0.6	0.6	1.8	1.4	2.3	3.3	3.9	2.8	10.4
Other expenditure	3.8	5.3	8.1	12.4	14.5	17.4	23.9	35.0	41.5	57.1	63.0	65.1	78.5
7. Management expenses	2.8	3.9	5.6	7.9	9.1	12.3	16.1	22.1	25.1	42.9	44.4	44.8	49.7
8. Net commission	0.8	0.9	2.3	3.8	4.6	3.8	6.4	11.4	12.9	10.5	15.7	16.2	21.1
9. Other expenses	0.2	0.5	0.2	0.7	0.8	1.3	1.5	1.5	2.5	3.7	2.9	4.1	7.7
Total	6.8	9.1	12.8	19.9	25.9	30.7	42.7	62.6	87.5	112.6	125.0	129.0	166.4
Wholly Nigerian Claims	1.0	1.5	2.3	2.2	3.7	5.1	8.7	12.7	27.2	30.4	35.0	37.3	49.7
1. Fire	0.1	0.2	0.4	0.2	0.3	0.3	0.4	0.9	2.9	2.1	2.9	3.3	5.6
2. Accident	0.05	0.1	0.1	0.1	0.2	0.1	0.3	0.3	1.1	1.3	1.5	1.8	2.9
3. Motor vehicle	0.7	0.9	1.4	1.6	2.9	4.2	6.2	10.3	20.0	21.6	24.7	26.8	30.7
4. Employers'liability	0.09	0.1	0.2	0.9	0.09	0.2	0.2	0.2	0.5	0.2	0.6	0.6	0.7
5. Marine	0.05	0.08	0.08	0.07	0.1	0.2	0.6	0.4	1.3	3.2	2.9	2.9	3.6
6. Miscellaneous	0.06	0.09	0.1	0.09	0.09	0.1	1.0	0.4	1.4	1.8	2.4	1.9	6.2
Other expenditure	1.5	2.8	5.3	5.3	6.9	9.6	13.7	22.3	29.0	40.6	41.5	42.4	49.9
7. Management expenses	1.2	2.0	3.6	3.2	4.0	6.6	8.9	13.0	16.3	25.6	26.2	26.4	29.2
8. Net Commission	0.3	0.4	1,5	1.5	2.1	2.5	4.1	9.2	10.5	12.5	13.3	13.8	16.9
9. Other expenses	*	0.4	0.2	0.6	0.8	0.5	0.7	0.07	2.2	2.5	2.0	2.2	3.8
Total	2.5	4.4	7.6	7.5	10.6	14.7	22.4	35.0	56.2	71.0	76.5	79.7	99.6

.../...

TABLE 9 (Contd.)

Types of Expenditure	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1]	1980[1]	1981[1]
Joint													
Claims	0.6	0.5	0.5	3.3	4.2	6.9	8.2	12.8	18.8	25.1	27.0	26.6	38.2
1. Fire	0.1	0.1	0.1	0.4	0.6	0.6	0.6	1.3	1.4	2.4	2.4	2.7	4.9
2. Accident	*	0.1	*	0.2	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.4	2.3
3. Motor vehicle	0.3	0.2	0.3	1.9	2.2	4.4	5.4	8.7	12.6	16.1	16.9	16.8	20.1
4. Employers'liability	*	*	*	0.2	0.2	0.4	0.4	0.6	0.8	1.2	1.8	1.4	1.9
5. Marine	*	*	*	0.4	0.5	0.8	0.7	0.8	2.5	3.1	3.2	3.4	4.8
6. Miscellaneous	*	*	*	0.2	0.3	0.4	0.8	1.0	0.8	1.5	1.5	0.9	4.2
Other expenditure	0.6	0.6	0.7	4.4	4.7	6.7	9.1	12.0	12.5	16.5	21.5	22.7	28.6
7. Management expenses	0.4	0.6	0.5	3.0	3.1	4.8	6.1	8.2	8.8	17.3	18.2	18.4	20.5
8. Net commission	0.1	*	0.2	1.3	1.6	1.2	2.2	2.3	3.5	(2.1)	2.4	2.4	4.2
9. Other expenses	0.1	-	-	0.1	*	0.7	0.8	1.5	0.2	1.2	0.9	1.9	3.9
Total	1.2	1.1	1.2	7.7	8.9	13.6	17.3	24.8	31.3	41.6	48.5	49.3	66.8
Foreign													
Claims	1.4	1.7	1.9	1.8	3.5	1.3	1.8	2.1	-	-	-	-	-
1. Fire	0.1	0.2	0.3	0.3	0.3	*	0.1	*	-	-	-	-	-
2. Accident	0.08	0.1	0.1	*	0.1	0.1	0.1	*	-	-	-	-	-
3. Motor vehicle	0.9	1.0	1.1	1.0	1.9	0.8	0.9	1.3	-	-	-	-	-
4. Employers'liability	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.2	-	-	-	-	-
5. Marine	0.1	0.2	0.2	0.4	0.3	0.2	0.4	0.5	-	-	-	-	-
6. Miscellaneous	*	0.1	0.1	*	0.2	*	*	*	-	-	-	-	-
Other expenditure	1.7	1.8	2.1	2.7	3.0	1.0	1.1	0.8	-	-	-	-	-
7. Management expenses	1.2	1.3	1.5	1.8	1.9	0.9	1.1	0.7	-	-	-	-	-
8. Net commission	0.4	0.4	0.6	0.9	1.1	0.1	*	0.1	-	-	-	-	-
9. Other expenses	0.1	0.1	*	*	*	*	*	*	-	-	-	-	-
Total	3.1	3.5	4.0	4.5	6.5	2.3	2.9	2.9	-	-	-	-	-

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 10

INVESTMENT STRUCTURE OF INSURANCE COMPANIES IN NIGERIA

(₦ million)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1]	1980[1]	1981[1]
Government securities	6.6	6.7	10.8	16.9	22.6	19.7	29.1	22.4	61.4	78.1	96.2	115.9	133.1
Stocks, shares and bonds	7.3	9.5	9.2	11.8	13.4	18.1	20.7	30.6	37.2	53.6	65.7	77.5	94.4
Mortgages & loans	6.3	7.6	7.4	11.6	12.9	20.1	23.9	38.1	58.1	72.9	89.1	108.2	127.6
Cash & bills receivable	16.9	20.4	30.1	33.9	45.0	47.8	64.9	82.5	129.7	144.6	177.6	209.9	239.8
Miscellaneous	1.0	2.2	3.7	9.7	14.8	33.6	48.7	67.2	121.9	174.0	217.9	262.2	312.7
Total	38.1	46.4	61.2	83.9	108.7	139.3	187.3	240.8	408.3	523.2	646.5	773.7	907.6

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 11

INVESTMENT STRUCTURE OF LIFE INSURANCE COMPANIES IN NIGERIA

(₦ million)

Assets	1969	1970	1971	1972	1973	1974	1975	1976	1977	1979	1979[1)]	1980[1)]	1981[1)]
Government securities	4.0	4.5	7.9	7.9	15.3	15.4	18.6	29.4	33.9	39.6	46.6	54.2	60.1
Stocks, shares & bonds	2.5	4.1	3.0	5.1	7.0	8.0	8.7	16.0	18.7	22.9	27.9	31.8	39.6
Mortgages & Loans	4.7	5.7	5.0	5.4	9.5	15.6	18.2	27.9	35.5	36.1	42.2	49.0	56.2
Cash & bills receivable	8.0	8.8	12.4	9.6	19.4	25.9	29.5	25.7	34.0	29.4	36.3	40.5	45.9
Miscellaneous	0.6	0.9	1.4	3.4	5.7	7.0	6.7	12.4	23.1	21.9	27.0	25.9	30.6
Total	19.8	24.0	29.7	31.4	56.9	71.9	81.7	111.4	145.2	149.9	180.0	201.4	232.4

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 12

INVESTMENT STRUCTURE OF NON-LIFE INSURANCE COMPANIES IN NIGERIA

(N million)

Assets	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979[1)]	1980[1)]	1981[1)]
Government securities	2.5	2.2	3.0	8.9	7.3	4.2	10.5	13.1	27.5	38.5	49.6	61.7	73.0
Stocks, shares & bonds	4.9	5.4	6.3	6.8	6.4	10.1	12.0	14.6	18.5	30.7	37.8	45.7	54.8
Mortgages & Loans	1.6	1.9	2.4	6.2	3.4	4.5	5.7	10.1	22.6	36.8	46.9	59.2	71.4
Cash & bills receivable	8.9	11.6	17.6	24.3	25.6	21.9	35.4	56.8	95.7	115.2	141.3	169.4	193.9
Miscellaneous	0.4	1.3	2.3	6.3	9.1	26.6	42.0	54.7	98.8	152.1	190.9	236.3	282.1
Total	18.3	22.4	31.6	52.5	51.8	67.3	105.6	149.3	263.1	373.3	466.5	572.3	675.2

1) Provisional

Source: Federal Ministry of Finance, Insurance Division, Lagos

TABLE 13

EXOGENOUS REGRESSION VARIABLES[1]

Year	Yp	Ulf	Edu	Flop	TCC	Tp	TTd	NRT	Imp	Ex	GDP	Vp	Erc	Erg	R %
1969	55.0	3.4	5.3	23.4	738.9	0.8	140.6	8.5	497.4	636.4	3549.3	13.8	1036.4	1284.4	4.5
1970	78.6	3.4	5.2	23.8	838.8	0.8	144.6	3.6	756.4	877.1	5205.1	13.8	1272.8	1541.0	4.6
1971	96.9	3.5	8.5	24.4	639.0	0.2	451.1	5.0	1078.9	1280.8	6570.7	29.5	1586.0	1887.3	4.8
1972	103.7	3.5	28.6	24.9	977.3	0.5	624.4	36.8	990.1	1421.8	7208.3	54.4	1848.9	2237.2	5.1
1973	157.4	3.6	78.7	25.5	1091.3	1.2	852.9	39.1	1224.8	2268.4	11223.6	76.6	2034.7	2507.8	5.0
1974	255.2	3.7	196.5	26.2	2097.5	11.1	303205	42.3	1737.3	5783.9	18652.0	97.0	2256.2	2857.7	5.4
1975	286.7	3.8	850.4	26.9	4902.1	15.9	2990.2	56.0	3721.5	4920.2	21475.1	220.3	2604.6	3276.8	5.1
1976	355.7	3.9	1051.2	27.6	6691.3	335	3852.4	53.4	5148.5	6743.7	27317.8	261.0	3095.4	3904.6	4.7
1977	407.3	4.0	504.1	28.2	7367.9	3.5	4839.2	62.8	7089.7	7621.7	32051.8	185.0	3575.2	4676.7	4.1
1978	417.1	4.1	826.6	29.0	8620.0	3.3	3962.3	66.3	8140.8	6308.5	33660.4	175.0	4419.0	4579.1	6.0
1979	482.9	4.2	1667.1	29.7	7406.7	2.9	5753.7	77.1	6169.2	10645.7	39938.6	170.0[1]	4030.2	6225.5	6.0
1980	510.4	4.3	1238.5	30.4	11785.1	4.4	8403.1	86.6	9095.6	14186.7	43280.2	165.0[1]	4703.3	7140.4	6.8
1981	500.0	4.4	930.0	31.0	9595.9	3.7[1]	9403.6	76.7	12919.6	11023.3	43450.0	140.0[1]	5621.3	7776.6	6.8

1) Variables are as defined in Chapters III and IV ; they are in millions of appropriate units, unless otherwise stated.

Sources: Federal Office of Statistics, FOS, Lagos
World Bank Report 1981
Administration Des Ports Nigerian (1981), Published by the Nigeria Ports Authority
Central Bank of Nigeria, Annual Report (Various issues)
" " " Principal Economic Indicators (various issues)