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Scale Economies and Performance Evaluation of Insurance Market in Nigeria

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Abstract: This study probed into optimal production scale and specifically assesses the significance of entrepreneurial price on the business performance in the Nigerian insurance industry. The study makes use of Cobb-Douglas cost and profit functional models to investigate performance of randomly selected insurance firms. The outcome of this study suggests that a few insurance firms in Nigeria mostly do not pay claims, therefore, establishing possible reasons why there is apathy for insurance services among insuring public. Labour price is significant in this study,but shows an inverse relationship with business performance.

Key words: Scale economies, insurance business performance, claims payment

INTRODUCTION

Evolution of insurance industry in Nigeria: The British colonial government introduced insurance business into Nigeria in 1910. Traditionally, though some forms of social insurance existed in part of the Nigerian society long before their arrival. This was in form of mutual and social schemes, which evolved through, the extended family system, age grades and clan unions typical of African cultures. This simple form of social insurance was practiced by means of cash donations, organized collective labour of assisting one another and the entire community, who suffer mishap. The people in the community, especially those of the same age bracket collect funds periodically just in the same manner as the industrial life insurance premiums are collected. Right from the on set, Nigerian cultures and indeed African people have seen the reason to contribute funds to assist members who may suffer mishap such as illness, important ceremonies as child naming, marriage, funeral and all kinds of social obligations.

The enactment of workmen's compensation ordinance of 1942 and the Road Traffic Act of 1945 both contributed to the meaningful take-off of insurance industry at that time. Against the backdrop of the fact that Nigerian economy in the 60's was dependent on agriculture, Marine Insurance was popular for external trader to produce export. Fire Insurance was never popular and the expatriates mainly held mortgage security policies. However, the parliament in the first republic set up Obadan Commission (1961) to review the situation in insurance industry and was to come up with recommendations. The outcome of Obadan Commission gave rise to the establishment of Insurance Companies Act of 1961. Arising from this Act, by 1969, Nigeria had registered close to 50 insurance companies, though with foreign domination. The foreign domination was so serious that both Great Nigeria Insurance Company (GNIC) owned by Western Region and African Alliance Insurance (AAI) Company had a meagre share of operation when compared with the overall volume of business in the entire industry. This unfavourable trend persisted for a long time that the Federal Government of Nigeria became skeptical as to what future holds for the then insurance industry that was generally dominated by the foreigners. Nigerians were not allowed to hold sensitive positions, which would have equipped them for managerial or technical responsibilities in the industry.

Out of the 25 insurance companies that existed in 1960, only 7 were indigenous and their total market share was far below 10%, as the bulk of the business went to the foreign-owned companies. The Nigerians business and economic life was dominated by the foreigners. The fallout from this was the heavy drain on Nigeria foreign exchange earnings. As a result of these problems, a parliamentary committee was therefore, set up in 1964, under the chairmanship of honourable J. Obadan, for another time, to carry out the following enquiries:

- To look into the possibility of introducing governmental control for motor vehicle insurance premium.
- To find out about premiums charged for the insurance of motor vehicles in Nigeria, for comprehensive covers and the third party so as to know the extent to which rates have increased since, 1950.

- To know whether the rights of the insurance clients are appropriately covered.
- To make recommendation to the state.

In the end, Obadan committee's recommendation could not go beyond sensitization of government over the danger inherent in the foreign domination of insurance industry.

The Nigerian agents were given power of attorney to transact insurance business such as issuance of cover and service on behalf of the London Principals. Throughout, this period, Insurance focuses more on marine insurance and trade rather than overall development of the economy. The situation was as disenchanting to Nigeria as trading companies were being granted license to operate as insurance companies especially to supervise claims and to issue covers on marine insurance. For example, in 1919 the Africa and East trade companies were both established as Royal Assurance Agency, which later metamorphosised into a full blown insurance companies branch in 1922. This event then opened up the flood gate for Paterzon Zochonis (PZ), General insurance, Liverpool London and Law Union and Rock to mention just a few. It is pertinent to say that all of these companies were wholly owned by the Britons and for the major purpose of providing insurance service for their trading activities. However, in 1985 the African Insurance Company limited emerged as the first wholly indigenous insurance company.

Between 1985 and 1990, there was an upsurge and a phenomenal increase in the number of insurance companies operating in Nigeria. This proliferation accounted for over 110 companies operating in the market during this period. The need for control and timely intervention of the government led to the formation of the National Insurance Corporation of Nigeria (NICON), which was later christened NICON Plc. As at 1969, as an apex company, NICON was further empowered to act as the nation's re-insurance company with other Nigerian insurance firms shedding compulsory shares of their business to the corporation. In compliance with the provisions of the Nigerian Enterprises Promotion decree, the Federal government in 1975, NICON was chosen to participate in the equity shares of 14 foreign owned insurance companies to the tune of 49%. In 1977, the indigenous participation increased to 60% and the control of insurance market by the foreigners began to decline. NICON for a long time assumed the monopoly role of government insurer.

The first remarkable risk business of NICON in the insurance industry came up when an A.D.C 10 aircraft, newly acquired by the Nigerian Airways and insured by NICON crashed at Iju, Lagos state on 25th November, 1989. The 89 persons on board were reportedly killed in the crash. NICON demonstrated its insurance ability by the settlement of the huge claims. Shortly after this episode, there was a phenomenal increase in the number of insurance companies in Nigerian financial market. This was coupled with the fact that in 1986, Structural Adjustment Programme (SAP) brought about the emergence and proliferation of financial institutions, especially, commercial banks and insurance companies. To streamline insurance business activities and stem the upsurge of the mushroom insurance companies, insurance capital base was raised from ₦1-₦2 million. Fall-out from this event was that only 57 out of 152 insurance companies qualified for registration. This was coupled with tighter control over the industry that requested for provision for the licensing and control of insurance intermediacy. Generally, sanity was meant for the insurance market through, this legislation and the control of insurance intermediaries.

Insurance, as a formidable financial sector in Nigerian economy has grown by leaps and bounds in terms of market size and premium income generation. For instance, a Gross Premium Income (GPI) of ₦124 million was realized in 1975 but rose to ₦189 million in 1976 and ₦290 million in 1977. Although, the gross income increase also rose to ₦372 million in 1988, it fell to ₦364 million in 1979 (CBN, 2005). The performance of Nigerian insurance industry in the last 2 decades has been remarkable, increasing its gross premium income by well over 250% within the first one decade. In 1991, Nigerian insurance market was dominated by118 companies and 299 insurance brokers. The gross premium for the first ranked insurance company, NICON was close to ₦2 billion and the total gross premium income for the entire industry was well above ₦42 billion (NICON, 1969-1994), but this amount grossly fall short of enormous risk businesses which insurance companies have undertaken in the economy.

Arising from the above facts, Nigerian insurance market is free but not operating optimally. The new entrants are always ready to float a new business and further deepen the competition. The foregoing therefore, suggests that despite the numerical growth and to some extent, expansion in the insurance industry in Nigeria, the insurance market requires a thorough empirical investigation to determine the cost structure and optimal production levels in which an insurance company can efficiently operate. The knowledge of this cost efficiency study serves to help insurance regulators, practitioners and the industry to identify the policies and strategies that could be deployed to salvage the industry and make the insurance sector contribute effectively to financial market development of the Nigerian economy.

In the event of deregulation policy, especially restructuring and recapitalization in the finance sectors of the Nigeria economy, most financial institutions have had to operate in an increasingly competitive environment. This trend might subsist for long as government policy is geared towards competitive market based on privatization, commercialization and deregulation. The need to meet up with capitalization requirement of the Central Bank had engendered consolidation process, which in turn, has brought about mergers, acquisition and raising of more capital through, the stock market. Another sub-sector similarly affected in Nigeria is the insurance industry (CBN, 2005).

For instance, the insurance regulatory institution in Nigeria, National Insurance Commission (NAICOM, 2005) specified guidelines which insurance firms must meet alongside with the new capital bases. According to the guidelines, insurance firms handling life assurance businesses will have ₦2 billion capital bases, while those ones in Composite business attract ₦3 billion. Insurance firms in reinsurance business would have to raise their capital base to ₦10 billion. Using 2005 as base year these increments represent 1.233% for life insurance, 1.400% for general insurance and 2.757% for reinsurance business. At various fora, NAICOM has reaffirmed the need for re-capitalization of insurance sector so that they would be financially strong to effectively cover all risks associated with the developmental efforts in the economy. This need becomes more important in view of recapitalization that has taken place in the Nigerian banks.

The study conviction is that given certain operational conditions, there exists an optimal production scale that must be met by insurance companies. Ability to recognize this optimum scales, scope and the most efficient cost frontier will assist both insurance regulators and insurance companies in shedding light on what constitute optimal production process and market structure in insurance industry. Many works in the literature, have suggested various avenues through, which a business organization could experience cost efficiencies; among such avenues include organizational structure, executive compensation, market concentration, mergers and acquisition, common stock performance and risk-taking (Kwan, 2001). There is no doubt that the central role of an insurance company is taking risk to cover investor or would be investors from risk-bearing investment decision. By this, insurance manages risks, while banks match risks.

Insurance companies like banks also operate in competitive environment. With heightened competition, whether and how insurance companies may survive in the emerging environment depend in part on how economies of scale and scope, impact on their operations.

Statement of the problems and justification: In spite of remarkable development in the Nigeria insurance markets, the proportions of the insurance markets are small due to low premium income compounded by the generally poor attitude of the people towards insurance services. Arising from the above, the industry is under-capitalized, hence, most insurance companies found it extremely difficult to retain a reasonable% of large risk undertaken by them. A situation which encouraged capital flight to other countries by foreign insurance companies which dominate highly but blue chip risk businesses in oil and gas. Majority of insurance companies' especially small scale ones operate under a scale of inefficient situation. The scale and scope of economies are not the types that could make most insurance companies in Nigeria operate at the optimal level, hence, low investment interests in the industry, not at the same level with banks. The regulatory institution for insurance business in Nigeria, NAICOM has severally accused insurance firms of not actually living up to their expectations in terms of service delivery or meeting up with regulations governing their activities (NAICOM, 2005). Not many of them attract investors' attention as their performance is generally poor. Commissioned agents who are the major marketers of insurance products are not adequately remunerated, hence, low rate of turnover. On the basis of the above reasons, it might be important to determine the optimal cost efficiency level for the production of insurance services in the economy. The main problems have been poor performance and the Nigerian people attitudes towards demand for insurance services have been lukewarm. This assertion is further corroborated by Erhabor (2007). Market statistics show that the Nigerian Insurance Industries covers <5% of the nation's insurable population. Many insurance companies have multiple products and multiple branches than what they could cope with operationally; hence, they have poorly delivered services. Recapitalization of the insurance industry in Nigeria has no doubt recorded a huge volume of business, the sector was able to pull an aggregate gross premium income of ₦90 billion in 2006, over 18% more than what was obtained in 2005.

The specific objectives are to:

- Investigate optimal production scale in the Nigeria Insurance Industry.
- Assess the significance of entrepreneurial price on business performance in Nigerian insurance industry.

Review of related literatures: As many economies of the world now tends towards a free market, the principal objective of financial services deregulation is to improve

market efficiency and enhance consumer choice through, increased competition. Cummins (2004) believe that consolidation has the potential to improve X-efficiency in an industry if it results in poorly performing firms exiting the market, either through, voluntary or involuntary withdrawal or through, mergers and acquisitions (M and As). However, a consensus opinion of the production economists suggests that consolidation has the potentials to positively impact on efficiency especially when it affords firms to take advantage of scale economies in order to reduce unit costs of production. However, unlike studies, which reported consolidation gains, some empirical evidences as reflected in the works of Grifell-Tatje and Lovell (1996) and Berger and David (1997) have rather reflected efficiency losses.

Whether or not there are economies of scale in the production of various goods has long been a subject of dispute Johnston (1995). This represents the contention of many scholars in the 1970's. However, the production engineers, economist and accountants have in the recent past renewed interest and elicited a number of research studies along the line of production function, cost minimization, scope and scale economies not only in the manufacturing industries but also in the service industries. Most outcomes of these researches have been able to demonstrate that larger amount of tangible goods and non-tangible goods (services) could apparently be produced at lower unit costs. It is also important to state that most studies on economies of scale have been based on cost functions (Clark, 1984; Asthon, 2001) among other works (Wang and Lall, 2003) along the same line of reasoning employed the use of Cobb-Douglas cost function to develop a model based on production function, on price elasticity of water demand associated with the marginal productivity. This work made use of the firm level data to examine water use and expenditures for British Columbia Manufacturing firms. Thus the Cobb-Douglas production function has been extensively used in so many empirical analyses of product and factor markets for a study of Du Pont Rayon plants (Afolabi and Osota, 2001) on production characteristics of Banking Industry in Nigeria among a host of other works.

An attempt to measure firm's efficiency started with the research of Farrell (1957). In his celebrated article the measurement of productive efficiency, Farrell (1957) made concerted efforts at investigating firm's inefficiency both from the allocative and technical efficiencies point of views. The production function expresses the technical relation, which connects factor inputs and outputs. In a production process, a firm has a given technology at its disposal, which may be a combination of factor inputs required to produce a given unit of output. Usually, a certain product might be produced by various combinations of technologies (methods) but the decision as to which of these technically efficient combinations to choose from is an economic decision. The production isoquants therefore, exhibit locus of all technically efficient methods, the basis upon which a further inquiry is to be made on economic rationale of production. A production isoquant can assume various shapes depending on the degree of substitutability between and among factors of production. Two extreme cases are linear isoquant and convex isoquant. For a linear isoquant, it assumes a perfect substitution between 2 factor inputs, for instance, using only labour and capital to produce a given level of output. Convex isoquant assumes continuous substitution only over a certain range, beyond which factors cannot substitute each other (Koutsoyiannis, 2004). The point within the ridge lines where a profit maximizing firm must operate is what Mansfield (1979), tagged economic region of production (Mansfield, 1979; Leibenstein, 1996) observed that for a number of reasons people and organizations would hardly work as effectively as they ought to. On the basis of inadequacies sometimes noticed with people and organization.

Asaftei and Kumbhakar (2002) analyzed the impact of technical inefficiency and regulation-induced allocative distortions on cost. Their model specification combines the stochastic frontier model and the shadow cost function and concluded that the proxy for the one-size-fits-all regulation aimed at stabilizing the banking industry does not correlate strongly with the improvements of the cost efficiency but increases the allocative distortions. This assertion also corroborates (Rosko *et al*., 2002), whose study examined the relationship between one membership in different types of systems and hospital cost efficiency. From the same perspective but under different cost conditions, a number of researchers have drawn a correlation between the structures of an organization and management compensation (Pi and Timme, 1993), efficiency and Mergers/Acquisitions (Peristiani, 1997; Berger and David, 1997) and the stock performance of a company and efficiency (Kwan and Eisenbeis, 1998).

Conceptual framework: The major theoretical background for this study is neoclassical theory of firm. This neoclassical theory of firm however, can be categorized into 3 viz; theory of production, theory of cost and the one which attempts to define various objectives of the firm. Nevertheless, the assumption of profit maximization provides a principle by which a firm's decision can be predicted. Economics predicts the firm behaviour with

regard to the choices open to it by showing the consequence of their choices on the firm's performance, especially when they have to choose from a set of alternatives which can not earn them maximum returns over their investment.

On the basis of the above reason, the first and second category of theory of firm assumes a profit maximization objective. Arising from the same reason stated above, the neoclassical theory of firm prescribes what the entrepreneur should do in order to maximize their profit over a given production process. The validity of maximization of inventories returns has been supported by and ever since, profit maximization has dominated all empirical analysis of both production and cost function sestimations in the literatures. Production function is the link between levels of input usage and attainable levels of output. It can also mean a schedule/mathematical equation showing the maximum amount of output that can be produced from any set of inputs, given the existing technology. Thus production function can be expressed as:

$$Q = f(X_1\ X_2 \ldots\ldots\ldots\ldots\ X_n) \quad (1)$$

where:

Q = output. $X_1, X_2 \ldots\ldots\ldots\ldots X_n$ are specified factor inputs.

However, given the production function, the factor input prices and the output prices, the objective of the firm are to maximize profits by choosing suitable combination of factor inputs. This process is called technical efficiency. Technical efficiency assumes maximum output level, which can be achieved for any particular combination of inputs. Technical efficiency, however, needs to be considered with allocative or economic efficiency, which can be achieved only when the firm is producing a given amount of output at the lowest possible cost. It must be stressed that while production function emphasizes technical efficiency, cost function emphasizes allocative or economic efficiency in a production process. However, there is an interaction between the 2, the cost function and production function.

Arising from Neo-classical theory of firm, we have proposed a conceptual framework that emphasizes cost minimization and profit maximization functional forms. This concept rests on duality theory of production. In which case, profit objective of a firm can be achieved either through, cost minimization or profit maximization.

In addition, to the conventional inputs such as capital labour and inter mediate input, the financial intermediation activity of insurance carriers use an extra input, premium reserve which needs to be accounted for in the production function. The output of this activity, measured by the investment is derived in a large part from the premium reserve. These are in effect lent to the company by policyholders and for which they do not receive any explicit interest revenue. To achieve the earlier stated objectives therefore, this study combines 2 restricted functional forms, Cobb-Douglas and Restricted Profit function. The research plans to cross check various results derived from the use of these models and on the basis of which relative suitability or otherwise of each of them can be adjudged.

This study intends to use intermediation approach in modeling insurance production. Insurance collects premiums which are transformed into indemnity which forms the major output from the system. From the perspective of intermediation model, indemnity are paid by the insurance firm and ancillary business, the latter not part of intermediation process. The model therefore, contains costs of production (physical labour, capital and other costs of attracting business). This cost definition includes attraction costs, operational costs and interest costs. The insurance production is conceived as a transformation of 3 major inputs (capital, labour and premium/deposit) into 2 major outputs; indemnity and investments.

The production function can then be mathematically written as follows:

$$C = f(Y', W'\ Z\ M_S) \quad (2)$$

where:

C = Total insurance cost.
Y = Output vector proxied by total indemnity and reinsurance.
W = Input price Vector, proxied by labour price (Lp), price of capital (Kp), Entrepreneurial price (Ep).
Z = Firms size measured by the amount of premium.
M_s = Market share measured by the number of branches.

This cost function is based on the assumption that insurance minimizes total cost, given policy holders demand for indemnities, input prices, company size and market share.

In line with Evans (1999), this study models insurance company as a multi-product firm which utilizes labour, capital and entrepreneurial skills, measured by amount of commission and other expenses paid on insurance policies to produce a certain level of output. Evidence form the available literatures, such as the works of Segal, Rosko etc indicate that insurance is a multi product firm since, it produces more than one service.

Model specifications: The models used for the analysis of this study are: Cobb-Douglas Cost Function and Restricted profit function.

Model 1: Specifies a Multi Product Cobb-Douglas cost function as follows:

$$\ln C = \alpha_0 + \sum_{c_n} \alpha_{c_n} \ln Y_r + \sum i\beta_i \ln W_i + \delta_Z \ln Z + \delta M_s \ln M_s + \psi_{C_n} + \varepsilon_i \quad (3)$$

where:

ln = Logarithms.
C = Total cost.
Y = Outputs are indexed by investment (I) and Indemnity (CL) Inputs W i are indexed by i= Labour input price Lp, Capital input price Kp and Entrepreneurial price.
Z = Size measured by Premium income.
M_s = Market share measured by number of branches.
Ψ_{cn} = Dummy variable.
C_n = Is included.

While, estimating model to capture pre-consolidation and post-consolidation scenarios in the financial market; where o indicates post-consolidation and 1 pre-consolidation.
Σ repersents the error term.

The following coefficients are therefore, obtained α β and δ.

Model 2: (restricted profit function)
Business performance model: Profit function is expected to be decreasing and convex in factor prices but increasing in product prices. Under a duality theorem, the profit function corresponds to a concave production function on one-to-one (Hotelling,1932; Shepherd, 1970; Nyong, 1989).

Business performance and claims payment:

$$\ln PBT = \ln C + \theta_1 \ln L_p + \theta_2 \ln K_p + \theta_3 \ln E_p + \beta_1 \ln Z + \beta_2 \ln M_s + \beta_3 \ln Cl + \ln \sum_i \quad (4)$$

Dummy variables are: LC = 1 and SC = 0.

Other variables have been defined in the previous estimation, except Z and CL which are described as follows:

Z = Premium is however, a pooled income of the insurer which in most times invested to generate more income for the firm. Higher premium as a result of higher scope of lines of business put insurance firm in a better position to undertake more business and make more profits from higher investment portfolios.
CL = Indemnities is the compensation due to policy holder as a result of loss he has suffered; the higher the volume of indemnities due to policy holders, the lower the volume of profit of an insurance firm. In this case, there is a negative relationship between volume of indemnities and the level of profit of an insurance firm.

***Apriori* expectations:** The 3 factors of production highlighted for this work Labour Input Price (LP) Capital Input Price (Kp) and Entrepreneurial Price (Ep) are expected to have negative relationship with level of profit. As their cost increase, *apriori* expectation suggests that profit decrease.

It is expected that market share (Ms) will have a positive relationship with profit on the assumption that the share of the market gives opportunity for more businesses.

Apriori expectation therefore, suggests a positive relationship between volume of premium and total profit of an insurance firm, ceteris paribus.

MATERIALS AND METHODS

Study population and the area: As at the time of this study, Nigeria has a total population of 100 and 23 insurance companies, 5 registered re-insurance companies, 396 registered brokerage services and 29 registered lost adjusters companies.

However, this study is strictly focused on registered insurance companies and for this purpose, stratified random sampling is employed to select 30 registered insurance companies. The 30 companies are later categorized into large, medium and small scale firms. The total assets base is be proxied for the sizes of insurance firms. Insurance companies that have between ₦100 million worth of assets were categorized as small scale; the insurance companies that has between ₦151-₦500 million were categorized as medium scale and the large scale insurance companies were based on ₦501 million and above. This categorization has a strong replica in the research of Afolabi and Osota (2001), on the Production characteristics in banking industry. It must also be stressed that about 90% of the selected insurance companies have their operational head quarters in Lagos; hence, Lagos is our study area.

About 109/1 23 insurance companies in Nigeria have their operational headquarters located in Lagos.

Sources of data for the study: The sources of data for this study are obtained from the followings:

- Returns of Assets and liabilities.
- Returns of current year's profit and loss account.
- Annual analysis of policy and provisions for indemnities.

The above data and information sourced from insurance companies, regulatory authority and the Central Bank yearly bulletin are adjudged, in the literature, to be sufficient enough to elicit necessary data and information needed to estimate the variables.

Sample size: NAICOM (2003), reported that apart from about 30 insurance company whose operations were partial, insurance companies in Nigeria can be segmented into 3 major sizes, 20 belong to large size firms, 29 to the medium size firms, while 46 belongs to the small size category. This study therefore, randomly selected one-third of each of this categories such that 6 was chosen for the large size firms, 9 for the medium size and 15 for the small size firms.

RESULTS AND DISCUSSION

This study discusses empirical findings from the estimated models. This analysis is depicted in Tables from findings from Cobb-Douglas and Business performance models. Recapitalization of the insurance industry in Nigeria has no doubt recorded a huge volume of business, the sector were able to pull an aggregate gross premium income of ₦90 billion in 2006, over 18% more than what was obtained in 2005. The increase might have been borne out of recapitalization process envisaged by the industry. The Claims also paid amounted to ₦33.56 billion as against the record of ₦29.16 billion paid 2 years before, which means that there has been an increase of 15.2% in Claims and a 16.4% increase in premium income as against previous years. Thus, consolidation which started in 2003 in the insurance industry has prompted an increase in the confidence of potential investors into the sector, this can be witnessed in the increase of the confidence of potential investors into the sector, as being manifested by the increased capitalization from ₦30-₦200 billion in February (NAICOM, 2007). However, the following results reveal operational performance of pre-consolidation of insurance firms in Nigeria between 1996 and 2005.

Table 1 shows the result of the profitability equation, which put the profit before tax of the firm as a function of labour cost, capital cost entrepreneurial cost, premium income and market share of the firm. From the result it could be seen that there is inverse relationship between the cost of labour and the firms' profit, which means that as the cost of labour used in the day-to-day activities of the firms increases, there would be an increase in the total cost of production and their by reduces the level of profitability of the firms. This labour price is in times of wages and salaries of the employee of the firms. As workers tend to seek for additional wages and salaries, the performance level of firms dwindles. The coefficient of labour cost (LnLp) is -0.24 which represents the labour price elasticity of firms profit and shows inelastic firm's profitability, meaning that for every 10% increased in the labour cost there would be about 2.4% reduction in the profitability level of the firms. This out come confirms *apriori* expectation. The t-statistics indicates that the cost of labour is significant to the model.

Table 1: Business performance for the entire firm

Dependent variable		Variables	Coefficient	t-statistics
Profit before tax (LNPV)		C(1)	7.927435	2.1819**
		LnLP	-0.239639	4.0013**
		LnKP	0.049860	1.2260
		LnEP	0.168204	2.76989**
		LnZ	0.044836	0.9913
		LnM	-1.788020	0.3680
		SC	2.488370	0.8675
		LC	1.725780	1.7301
R-squared	= 0.361724			
Adjusted R-Squared	= 0.345881			
S.E.	= 2.800000			
D.W.	= 0.340000			

** and *: Significant at 1 and 10%, respectively

Further, the result of entrepreneurial price (LnEp) is also significant at 10% level but the coefficient result did not complied with our *apriori* expectation which suggests an inverse relationship between a firms profit and it entrepreneurial cost. Entrepreneurial skills measure by commissions and other business attraction costs might suggest a positive correlation. The reasoning is that commissions serves as incentives towards marketing of insurances polices. The more an insurance firm spends in the direction of the marketability of their product, the high the volume of the business it may be able to undertake. This fact is more obvious in an insurance market like Nigeria, where there is problem of apathy towards demand for insurance polices. Outcome of this work indicate that for every 10% increase in the entrepreneurial cost, there would be 1.7% increase in the level of business performance. The t-statistics is also significant at 10% level.

The result indicates that the number of branches has a statistically significant negative relationship with business performance. When a firm increases in size through, branch expansion there will be a fall in business performance, which might be due to principle of

diminishing returns that may have set-in. It also means that for every 10% increase in the number of branches there will be about 18.7% decrease in the performance of the business of the firm. The result shows that the sizes, viz a viz, small, medium and large scale firms, have positive relationship with the performance of the business i.e. as the firm grows in size, it will lead to more output of the firm and thereby increase the business performance. It could be seen that out of various sizes, only the medium scale firms are statistically significant and it also indicates that for every 1% increase of firm in the medium size there will be a corresponding 30.4% increase in business performance in Nigerian insurance market.

The coefficient of determination (R^2) for this result shows that 36% of the changes in the business performance for the entire firm are being accounted for by all the explanatory variables. The adjusted coefficient of determination is 35%. This means that though the selected explanatory variables are relevant, there are still other variables that would account for changes in the profit level of the firms that are not considered in this study. The standard error is relatively small and f-statistics validate that there is little auto correlation in the model.

The result in Table 2 indicates that labour price has a statistically significant positive relationship with the performance of firms in the insurance industry. This means that as the price of labour increase there will be a rise in the performance of firms in the industry and that for every 1% increase in the labour price, there will be 0.17% increase in the level of firms' performance in the industry. But the capital price is inversely related to the performance in the insurance industry. This indicates that as the cost of capital inputs in the industry increases, there will be a reduction in insurance firms'performancein the industry. That is, higher cost of capital would inhibit their performance and expansion. This also shows that the degree of responsiveness of firms' performance in the industry to changes in the price of capital is inelastic; meaning that for every 1% increase in the price of capital there will be about 0.3% reduction in the firms' performance in the industry. The t-statistics indicates that the price of capital is statistically significant to the model. The firm size represented by premium income (LNZ) is negatively related to the scope, scale and performance of firms in the industry. This means that the amount ofpremium paid by the clients of the firms would serve as a risk and liability the firms and if not adequately utilized will make them face risk that would increase their cost of production per unit of output and thus reduce their profit level, which in turn bring down level of performance. Furthermore, Entrepreneurial cost, for another time has a positive relationship with business performance level of an insurance firm. The reason might be justified on the basis of what was reported in this case, a 10% increase in entrepreneurial cost would on the average bring about 1.9% increase in the performance level of insurance firm.

Table 2: The effect of claims payment on business performance

Dependent variable		Variables	Coefficient	t-statistics
Profit before tax LNPV		C(1)	-0.127433	-0.045247
		LNLP	0.174947	3.389750**
		LNKP	-0.026434	-0.706701
		LNZ	-0.031231	-0.756019
		LNCL	0.485740	9.409831**
		LNEP	0.186729	3.532270**
		LC	0.472830	0.562410
		MC	1.833221	1.431978
		SC	1.454277	0.571518
R-Squared	= 0.493105			
Adjusted R-Square	= 0.478674			
S.E of regression	= 2.506791			
Durbin-watson start	= 0.433609			

** and *: Significant at 1 and 10%, respectively

Contrary to our *apriori* expectations, the result obtained for Claim variable has shown a statistically significant positive relationship to performance. Under normal circumstances claims payment is supposed to reduce profitability margin of an insurance firm. However, the result from this study has vindicated the fact that many insurance companies in Nigeria do not actual pay Claims to their clients when they have suffered even genuine losses. This might account for reasons why several litigations were pending for determination before courts of law in Nigeria on issues that border on default in Claims payment. Rather than seeing Claims as liability that must be offset, some insurance firms in Nigeria see Claims as asset that could be re-ploughed back into business. This study rather revealed that a 1% increase in Claims contributes to business performance by 0.48%. Other possible reasons might be that many policy holders in Nigeria, though have insurance covers but do not necessarily come forward to demand for their Claims possibly due to the complexity of legal process and the need to ascertain genuiness of claims by the insures before payments are made.

Looking at Table 2, the result in Table 1 has been improved upon by the introduction of claim variable as the R^2 determination has moved up from 36-46%, meaning that independent variables have explained changes in business performance in Table 2 at 49% significant level.

Using the entire firm sample, the Cobb-Douglas result for total output, factor input prices, premium income and market share showed 0.612, 0.566, 0.028 and 0.064 coefficients, respectively. From this result, a 1% increase in total output leads on the average to about 0.6% increase in the total cost of producing insurance services. Likewise a 1% increase in factor input prices leads to

Table 3: Cobb-Douglas results for the entire firms

Dependent variable	Independent variable	Parameter	Co-efficient	t-statistics
Total Cost (TC)	Constant	C (1)	7.425813 (1.195322)	6.212396**
	Output	CN*LNY	0.612164 (0.061337)	9.980398**
	Input price	LNW	0.565536 (0.053865)	10.499120**
	Firm size	LNZ	0.027688 (0.036026)	0.768552
	Market share	LNM	0.063185 (0.228443)	0.276589
	Pre and post consolidation	CN	-10.42176 (1.040575)	-0.015380
	R-Square	R^2	0.615296	
	Adjusted R-Square		0.608499	
	Durbin-Watson		0.440780	

** and *: Significant at 1 and 10%, respectively

Table 4: Test of the fitness of the two models using (R^2)

	Cobb- douglas			Business performance		
Firm categories	Large firm	Medium firm	Small firm	Large firm	Medium firm	Small firm
Sum of squared residuals	62.824 (95)	148.67 (10)	1052.9 (62)	1453.5 (36)	684.39 (44)	1038.0 (29)
Standard error of regression	1.2087 (37)	1.2643 (630)	2.8137 (18)	2.2663 (12)	2.7127 (62)	2.7936 (94)
R-square	0.9048 (38)	0.8730 (04)	0.4156 (23)	0.6152 (96)	0.2339 (86)	0.2115 (16)
Adjusted R- square	0.8937 (72)	0.8661 (77)	0.3936 (54)	0.6084 (99)	0.1928 (02)	0.1818 (74)
Number of observations	49	99	139	289	99	139

about 0.6 increases in total cost ceteris paribus (Table 3). This result is consistent with *apriori* expectations which suggest that cost of production increases as prices of inputs rise at the factor market. Although, both the premium income and market share have positive relationship with total cost but the contribution have been minimal. The model for the entire firm has R^2 (0.616) meaning that about 61% of total cost is explained by the log of output, factor inputs, premium income and market share.

The economy of scale suggests a cost saving advantage as the production goes into large scale. It can on the strength of this result posit that there exist economies of scale for large scale insurance firms in Nigeria (Table 4). The R^2 is significant at 96% confidence level, implying that the explanatory variables used in this model are almost perfect. When viewed this result with medium and small scale, which reported 5.223 and 3.843, respectively, one can simply conclude and in line with economic theory that economies of scale could only be enjoyed by large scale producing firm. Also, in the medium and small firms both the input prices and market share own prices elasticities are inelastic. However, in all the 3 categories, the results have shown ceteris paribus that market share reduce the total cost. This might be true as more branches create opportunity for more businesses and capacity to mobilize larger premium income which on the long run reduces cost of operation.

Contrary to the *apriori* expectation of this study, the result obtained for entrepreneurial price was not significant in the case of Cobb-Douglas, meaning that what the study conceived as Entrepreneurial skills has already been subsumed by the factor input prices. However, the result obtained under business performance model indicates that entrepreneurial price has a statistically significant positive relationship with the firms' scope, scale and performance in the insurance industry. This suggests that any increase in the price of the entrepreneur skills (commissions and advertisements) would raise the firms, scope and increase firms' profit which in turn enhances performances in the insurance industry. The result of business performance model has revealed the need to downsize the salary and wages in the insurance industry much like banks, such that the industry can retain the best personnel in the finance industry. It is a known fact in nigeria financial sector, that banks offer a far better pay and attractive conditions of services much more than any other segment of finance industry. The result obtained from this work reveals that price of labour has a significantly positive relationship with insurance company's performance.

The result also, revealed the need to downsize and right size staffing of insurance companies but offer commensurate salary to the few but well motivated staff. There is also a need to scrape out a number of branches operated by many insurance companies in Nigeria, simply because the result indicates a statistically negative relationship between number of branches and the business performance level. The result reported for market share did not comply with *apriori* expectations. The result obtained for the entrepreneurial price suggests a need to strengthen marketability of insurance policies by injecting more funds into commissions; promotion and advertisements.

However, when examining factor input prices in relation with scope, scale and performance higher price of capital inhibits scope, scale and performance as a 1% increase in the price of capital reduces scope, scale and

performance by 3%. Premium income is also reported in this research that premium income constitute risk to scope, scale and performance and it has negative relationship. The implication of this is that it might not be enough to mobilize premium income only. The mobilized premium income must be invested in high yielding portfolio such that the rate of returns can superceed the rate of risks associated with premium income. The consolidation which is dummy variable has no significant relationship with companies and their performances.

CONCLUSION

Based on the results of our estimated model, it could be reported that most Nigerian insurance firms operations are still cost inefficient. The analysis of assets and liabilities presented in the previous chapter confirmed the urgent need to recapitalize insurance firms such that their scale of operations could be expanded in order to enjoy economics of scale. Of all the 3 categories, the coefficients results obtained for large firm and for all the 3 models reported high significances. The implication of this is that economies of scale is achievable by larger insurance firms, hence, performance can be enhanced through, cost minimization advantages associative of large scale business. It is also pertinent to conclude that there is a need to retain the best suitable experts/ personnel in insurance industry through, attractive remuneration packages that is comparable with bank workers, since, both operate in the same finance industry. This issue becomes more pertinent in the light of universal banking system which tries to create a level playing ground for all financial products in the financial supermarkets.

The study also concluded that mobilization of premium income is not enough to enhance insurance performance what is much more important is the ability to reinvest pooled premium income into high yielding investments, such that the rate of returns obtainable can supersede the level of risks associative of such mobilized premium income. This firm size represented by premium income would contribute to firm's performance only when a sound and suitable investment decision are made.

The principle of rational expectation may be justified for the consolidation as the insurance firms have started to adjust their operations in terms of business plan once consolidation policy was announced for the sector, given the reality of what happened in the Nigerian banking sector, hence, consolidation is bound to have direct impact on business performance in Nigeria.

RECOMMENDATIONS

Insurance companies in Nigeria should handle most importantly the issue of labour. The competition for the best worker in the labour market of finance industry requires attractive remuneration which most insurance companies could not meet up with, hence, mediocre dominated their staffing.

Finally, that insurance firm like banks can also engage in multi – product businesses. The scope economies can be enjoyed only when such multi product businesses are well delivered. In a developing market (like Nigeria), it might be recommended that insurance firms should rather specialize in the production of service where it has comparative cost advantage, especially for non-homogenous service such as oil and gas. By the outcome of this study, the Nigeria insurance firms seem to have such comparative cost advantage in the production of reinsurance service (investment). This also means that, Nigerian insurance industry can venture into blue chip business of oil and gas, only when it is highly capitalized. Alternatively, not too strong ones can specialize in the production of less risky insurance covers such as motor vehicle, burglary among others.

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