

Analysis of the Trend and Effect of Liquidity Management on the Performance Insurance Companies in Nigeria

Otalu J.A*

Department of Business Administration and Management, Federal Polytechnic, Ado Ekiti, Nigeria

Corresponding authorOtalu J.A***Article History***Received: 27.01.2018**Accepted: 07.02.2018**Published: 28.02.2018*

Abstract: The paper investigated the trend of the performance of insurance sector and the implication of liquidity management on their performance between 2000 and 2008. The study made use of return on equity ROE as measure of insurance companies' performance; other variables used as independent variables are liquid asset volume, working capital, total investment, under-writing risk, dividend and equity capital. Seven non-life insurance companies were used for the analysis, descriptive statistics and panel data analysis were used to analyze the data. The results show that while all the performance indicators such as profit after tax return on asset, return on equity among others have been following rising trends over the years; liquid asset volume has been following a falling trend. The panel data results show that liquidity does not have significant impact on the performance of insurance companies. It is recommended that insurance companies should embark on strategies that will make management of liquidity have significant positive impact on the performance of insurance companies in Nigeria.

Keywords: Management, Descriptive statistics, performance.

INTRODUCTION

The main business of insurance companies is risk mobilization of individuals and companies based on the system of pooling and diversification.

It also strengthens the linkages with other sectors of the economy promoting growth and stability, and creating a sizeable impact on the national income of the country [1]. Insurance activity is characterized by the reversal of the production cycle because premiums are collected when the contract is signed and claims and costs arise only if specific event occurs [1].

The economic effect of restructuring the ailing economy posed a serious liquidity problem to the insurance industry and institutions. From the economic problem, there are contractions of business due to reduction in investment as a result of poor saving. This manifest on the rate of demand for possible claim settlement as against the usual registering of new insurance business proposal the effect of this lead to reduction of income as there should be shortage of funds. This problem arises when the state of fund cannot meet up with the pressing financial needs. When things were up right, fund accrued from life and non-life business make the insurance industry to experience economic pinch as virtually all the insurable interest get above the reach of the insured with the existence of this problem, the insurance industry cannot meet their social and economic obligations and it implied that the direct participation to reduce the effect on depressed economy would not be realistically achieved.

The significance of this study arises given the unsavoury experience of the deregulated insurance era in Nigeria and the present global economic meltdown. Apart from this, liquidity has always been a source of concern with some Nigeria insurances. The importance of liquidity has even acquired a new dimension in the advanced countries of the world in recent years. This is basically because of responses to structural changes and funds management techniques in these countries. The development of new technical innovations that do not necessarily fit into the world of the age long liquidity tests. The key role played in any insurance set-up further epitomizes it importance. Right from time liquidity has been associated with allocation of assets. According to their capacity to generate the cash necessary to satisfy creditors and depositor calls on the insurance liabilities. However, with the emergence of active liability management strategies, liquidity has been more than a function, particularly in some instance of the of the insurances capacity to acquire additional funds in the market place.

However, the variations in the conclusions of empirical studies on this topic make it of continuing debate and significantly relevant. This study will add to few literatures available in Nigeria on the relationship between liquidity management and performance, examine liquidity management strategies as well as determine factors affecting liquidity in the insurance companies quoted in Nigeria, Moses [2], Ebhodaghe [3], Biety [4], Adekanye [5], and Anyanwu [6], assert that the objective of liquidity management is to gear financial institutions towards a financial position that enables them meet their financial obligations as they arise.

Liquidity is the term used to describe how easy it is to convert assets to cash. The most liquid asset, and what everything else is compared to, is cash. This is because it can always be used easily and immediately. This study will provide useful information for Customers of financial institutions especially insurance companies in Nigeria. It will help managers to make economic informed decisions on the liquidity position in insurance companies in Nigeria. Also, the study will be of immersed usefulness to the policy holders (both potential and prospective). Researchers also will find it useful upon which further studies could be based. Consequently this study is set out to investigate the trend of performance and liquidity management as well and its effect on their performance.

LITERATURE REVIEW

Liquidity is a financial term that means the amount of capital that is available for investment. Today, most of this capital is credit, not cash. That's because the large financial institutions that do most investments prefer using borrowed money. High liquidity means there is a lot of capital because interest rates are low, and so capital is easily available. Why are interest rates so important in controlling liquidity? Because these rates really dictate how expensive it is to borrow. Low interest rates mean credit is cheap, so businesses and investors are more likely to borrow. The return on investment only has to be higher than the interest rate, so more investments look good. In this way, high liquidity spurs economic growth. Liquidity can be defined as the state or condition of a business organization which determines its ability to honour or discharge its maturing obligations.

These maturing obligations are composed of current liabilities and long-term debts. Liquidity can also be defined as a measure of the relative amount of asset in cash or which can be quickly converted into cash without any loss in value available to meet short term liabilities. Liquid assets are composed of cash and bank balances, debtors and marketable securities. Liquidity is the ability of a firm to meet all obligations without endangering its financial conditions. Liquidity will help a firm to avoid a situation where a firm will be forced to liquidate with its attendant problems of selling assets at distressed prices and the extra fees paid to lawyers, trustees in bankruptcy and liquidators on liquidation. The definitions above imply that, as liquidity increases, the probability of technical insolvency is reduced. The definitions above went ahead to expand the views by recognizing two dimensions of liquidity namely the time necessary to convert an asset into money and the degree of certainty associated with the conversion ratio or price realized for the assets.

Liquidity Ratios

These are class of financial metrics that are used to determine a company's ability to pay off its short-terms debts obligations. Generally, the higher the value of the ratios, the larger the margin of safety that the company possesses to cover short-term debts.

Principles of Insurance

There are certain principles guiding the operation of Insurance, where these principles are lacking, Insurance operation cannot succeed. These principles include:

(a) Pool of Risks: This is a fund from which money would be drawn to pay losers.

Insurance provides that there must be a steady fund where money is readily available to pay losers. This fund is generated through the premiums paid by all the insured persons for a specific period of time. This is accumulated contributions of all parties participating in the scheme.

(b) Insurance Interest: Interest of all members who participate in the Insurance

Scheme is catered for and given high consideration. Interest here refers to attention of all the insured persons who subscribe promptly and duly to the Insurance fund.

(c) Honesty is a strong of virtue in Insurance scheme.

(d) The price of compensation is determined likewise the premium to be paid including the specified period covered by the scheme. All these are to be clearly stated in an unambiguous term and must be clearly explained to all participants.

(e) Proximate cause: This includes those covered in the insurance policy. This can be insured person himself or his dependants as it must have been clearly stated in the policy. The policy is the document which contains the terms of contract.

The Concept of Liquidity Management

Finance in an insurance system is likened to the blood in the human system, adequate circulation of this blood in the body means the human system will function well resulting into good health. And the inadequacy will also mean that human system will be weak. Similarly, business can only operate under the state of adequate liquidity. A company is said to be liquid, if it can convert its asset to cash with minimum amount of delay and inconvenience. The optimum capital structure is determined by keeping in mind the long-term and short-term requirements of finance. This is in line with [7], who define liquidity as “the speed and ease with which an asset is sold and still realizes fair price”. Therefore, liquidity is seen as the inflows and outflows of cash through the firm as product acquisition, sales payment and collection processes taking place over time, with which asset can be converted into cash without a significant loss of principal liquid asset. It is a relationship between the time dimension (how long it will take to sell) and the price dimension (The discount from fair market price) of an investment asset. Hence, a firm should ensure it does not suffer from lack of liquidity and does not also have excess liquidity. Failure to meet obligation due to lack of sufficient liquidity results in poor credit worthiness and loss of creditors’ confidence. However, a high degree of liquidity results in idle cash. Thus, liquidity management as a concept encompasses efficient and effective planning and organization of insurance assets which will enhance its liquidity and profitability at a minimum cost possible.

Principle of Liquidity Management

The liquid Capital needs of a firm are influenced by numerous factors. The important principles of liquid capital are as under: -

(i) Nature of Business: The amount of liquidity required by a firm depends largely on the nature of business. In rail components Transport Company, electronic company and many other welfare institutions of very less amount of liquidity is required because amount of liquidity depends on cash receipt and sales of service in cash. Contrary to this business firm organized in the production of luxury items need a large amount of liquid capital, because due to fluctuation in demand, they need a higher quantity of stock.

(ii) Seasonality of Business: Due to seasonal business fluctuations demand of these products may. They have product in particular seasons. The amount of liquidity had also fluctuated according to the seasonal requirements. Some industries are such in which the demand of these product remains in the whole year but the production will be done in a particular season as sugar industry, woolen industry and cola industries in India. In those types of industries, a large amount of liquidity is required in the productive season.

(iii) Production Policies: No business concern can fully rely on cash sales. It has to sell on credit, If the credit period is less and collection department is efficient than more liquid resources is required. If the collection period is long than high amount of liquid capital is required. Thus, the ordering policy of a concern dictates the amount of liquid capital.

(iv) Size of Business: The size of business is an important factor in determination of liquid capital. A large scaled production industry needs large amount of liquid capital in comparison to productive institute of small size.

(v) Period of Operating Cycle: The business concern having large gestation proportion period needs of large amount of liquid capital, because their periodical operating cycle is of a greater period. While industry having an operating cycle of a very short period need a lesser amount of liquidity. In the first case, the concern has to keep a larger amount of capital in liquid form to pay current liabilities. Thus, the amounts of liquidity depend upon the period of operating cycle.

(vi) Proportion of Raw Material in Cost: The concern having large proportion of raw materials in its production need higher liquidity, because, the concerns have to pay higher amount of purchases of raw materials in seasonal business. The concern needs higher stock of raw materials and in that case they need higher amount of liquidity.

(vii) Credit Availability and Purchasing Time: The condition relating to credit decided by the creditors affects the amount of working capital. The business concern in which easy credit is available, lesser amount of working capital is required. Similarly, if we have liberal credit facilities from the bank, we may run business with a small working capital. Secondly, the time of purchasing also decides the amount of working capital. If the total raw materials is purchased at the beginning that is on the time of new crops coming in the market. We require a higher amount of liquid capital in that month in the next month that is maximum amount of liquid capital requirements

(viii) Fluctuation of Business Activities: If the business activity fluctuates, a higher amount of liquid capital is required. In the boom period, the demand condition increases together with the increase in prices. In this situation, the business concern requires sufficient inventory of raw materials. Contrary to this during the depression business activities become sluggish and a lesser amount of liquid capital to be sufficient.

(ix) Growth Rate of Business: The growth in existing business and the tendency of expansion directly affected the amount of liquid capital. If the growth rate and expansion is low, lower amount of working of capital may be sufficient but if the expansion is done at a higher rate than larger amount of fund is needed for fixed assets as well as for current assets.

(x) Amount of Profit and Dividend Policy: Ploughed back of profit is an important source of working capital provided that profit is earned in cash. Therefore, in the concerns in which profit-earning capacity is due to good production and marketable securities management and monopoly, they need a lesser amount of liquid capital. On the other hands, if the profit earning capacity is low, higher amount of working capital is required.

(xi) Other Resources: Beside the above factor various other points are responsible for the amount of liquid capital: -

- (a) Role of industrial development;
- (b) Means of transport and communication;
- (c) Political stability;
- (d) Market condition; and,
- (e) Condition of supplies etc.

Insurance Liquidity: Sources and management

The viability of insurance companies can be directly linked to their liquidity management. Hence the ability to ensure that there is availability of funds to meet its financial commitments or maturing obligations at a reasonable price at all times.

Also important is the need for adequate income through interest on investments as this will ensure continued provision of productive resources. Therefore, it is uneconomic and financially unreasonable for insurance companies to allow excess idle cash in the vault or excess liquidity. Rather, they should manage their liquidity to maximized revenues while holding risks of insolvency at a desired level.

Liquidity management therefore refers to the planning and control of liquid assets either as an obligation to the policyholder needs or as a measure to adhere to the monetary policies of the Central Bank as well as compliance with the legal requirements in respect of cash position.

However, it is very essential for insurance companies to manage and maintain adequate funds for operations in order to avoid excesses or deficiencies of the required primary reserves.

Effective liquidity management therefore involves obtaining full utilization of all reserves. They are maintained to satisfy legal and operational requirements. While the secondary reserves are those liquid assets that can be converted into cash without impairment of the principal sum invested. Secondary reserves are characterized by short maturity, high credit quality and high marketability. The secondary reserves are held primarily to meet both anticipated and unanticipated short-term and seasonal cash needs from depositors. They contribute to that attainment of both profitability and liquidity objective of the bank.

Empirical Literature

Obinna D. M. and Nkiru S. O. [8] This study examined the significance relationship that exists between insurance investment and the Nigeria capital market, and the significance relationship that exists between total insurance business and economic growth of Nigeria for the period 1989-2001. The Pearson's Product Movement Correlation Coefficient was used to test the hypotheses to determine the extent of correlation, while the t-test was used to find out the significance of the relationship that exists between the variables. The study discovered that there was a significant relationship between Nigeria Insurance market investment and capital market, and there was also a significant relationship between Insurance business and economic growth. The study concluded that Insurance business is a business that have allowed different risk to be managed more efficiently, boosting financial stability, mobilization of domestic saving and accumulation of new capital that enhance the performance of the Nigeria Capital market and Economic Growth. The researchers therefore recommended that National insurance commission (NAICOM) should make policy that will enhance effective growth and development of insurance business in Nigeria and ensures that cooperate organizations and individual embraces the compulsory insurance business in Nigeria.

Oke, M. O. [9] examined the short and long-run relationships between economic growth and insurance sector development in the Nigerian economy. The fixed-effect model was adopted and relevant data within the period of 1985 and 2000 were collected and analysed with the use of co-integration analysis. Gross domestic product (GDP) was adopted as a proxy for the level of economic growth, while numbers of insurance companies (NIC), premium of life-insurance (PLI), premium of non-life insurance (NLP), total insurance investment (TII), and inflation rate (INF) were used in measuring insurance sector growth. The findings revealed that insurance sector growth and development positively and significantly affects economic growth. The coefficient of multiple determinations denoted as R² with a value of 0.87 showed that about 87% variation in the dependent variable was explained by the explanatory variables while the remaining 13% was explained by the stochastic variables. The result of the Granger causality test also revealed that the extent of influence the insurance sector growth had on economic growth was limited and not direct because of some cultural, attitudinal traits and values in the country. It was recommended that government should create a good environment for insurance activities in Nigeria. The insurance companies should also engage in insurance business that is environment and customer friendly, as well as, formulating insurance policies that can accommodate every sector and segment of the economy.

Andrew and Osuji [10] examined the efficacy of liquidity management and banking performance in Nigeria. Profitability and Return on Capital Employed (ROCE) were adopted as our performance indicators or dependent variables. The research design was survey design, accomplished through the administration of structured questionnaires. Data obtained were first presented in tables of percentages and pie charts and were empirically analysed by Pearson product-moment correlation coefficient (r). Findings from the empirical analysis were quite robust and clearly indicate that there is significant relationship between efficient liquidity management and banking performance and that efficient liquidity management enhance the soundness of bank. These findings which may have re-echoed results from similar researches re-emphasized that efficient liquidity management have important policy implications for developing and emerging economies. Considering the systemic consequences of liquidity problems, it was recommended that a more professional approach should be taken in its management.

Shafana [11] examined the degree and pattern of determinants of liquidity on profitability of financial institutions in Sri Lanka for the period from 1989 to 2000. The study covers 16 Banks and Finance Companies listed on the Colombo Stock Exchange. For these objectives, the study used Cash Position Indicator (CPI), Capacity Ratio (CR) and Total Deposit Ratio (TDR) as independent variables to measure the liquidity level to examine its determinants on Return on Assets (ROA) of financial institutions in Sri Lanka. The correlation and regression model were used as statistical tools for hypotheses testing to draw final conclusions. The findings revealed that CPI and TDR have significant determinants on ROA with sign of positive and negative respectively while CR has insignificance on ROA of Banks and Finance Companies in Sri Lanka. The overall finding from regression model is that 30% of variation in profitability (ROA) is explained by variation of liquidity of Banks and Finance Companies in Sri Lanka. Further, the liquidity has negative and significant impact on profitability of financial institutions in Sri Lanka. The finding is more useful to finance decision makers of financial institutions for taking sound decisions on proper trade-off between liquidity and profitability.

METHODOLOGY

This section deals with the model specification, the estimating techniques or method of analysis as well as the sources of data.

Model specification

Based on the liquidity asset theory explained in chapter two of this research work, and leveraging on the empirical studies of Daniel M. and Tilahun A. [12]; Shafana [11], The general form of the model is expressed thus:

$$ROE_{it} = \beta_0 + \beta_1 LIQ_{it} + \beta_2 \log DVD_{it} + \beta_3 \log EC_{it} + \beta_4 \log INV_{it} + \beta_5 \log UWR_{it} + \beta_6 WC_{it} + \beta_7 \log SIZE_{it} \dots \dots \dots (1)$$

From equations 1, return on equity (ROE) is used as a dependent variable while liquidity LIQ, dividends DVD, equity capital EC, investments INV, underwriting risk UWR, working capital WC and size of the firm SIZE are the independents variables.

Estimating technique

The technique adopted for the estimation of the model is panel data analysis. This estimating technique is used to examine the impact of liquidity management and other variables in the model on the financial performance of the companies. The procedure for the panel data analysis is expressed thus:

Panel unit root test

The panel unit root test explores the data characteristics of the panel before proceeding to the panel model estimation. The idea here is to test for stationarity of each variable used in the study. According to Engel and Granger [13] a variable may not be stationary but a linear combination of the non-stationary variables maybe stationary hence the need for cointegration. The method of panel unit root test adopted for this study is Im, Pesaran and Shin (IPS) test. The test has been proven to be suitable in verifying stationarity of variables in panel data [14, 15].

The basic ADF specification is given by:

$$\Delta y_{i,t} = \alpha y_{i,t-1} + \sum_{j=1}^{p_i} \gamma_{ij} \Delta y_{i,t-j} + \beta_0 + \beta_1 t + \beta_1 x_{i,t} + \varepsilon_{i,t} \dots \dots \dots (2)$$

Where, β_0 is the constant, $x_{i,t}$ represents the explanatory variables, $\Delta y_{i,t}$ is the explained variable, $\beta_1 t$ is a time trend and p_i is the required lag length. The null hypothesis to be tested for the ADF is $H_0: \alpha_i = 0$, for all 'i's while the alternative hypothesis is $H_1: \alpha_i < 0$, for at least one i. The lag lengths are selected using the Akaike Information Criterion.

Panel data regression

The study shall adopt the panel data fixed regression analysis to analyze the impact of liquidity management on the performance of the companies. The term “fixed effect” is due to the fact that although the intercept may differ among firms, each firm’s does not vary overtime, that is time-variant. This is the major assumption under this model i.e. while the intercept are cross-sectional variant, they are time variant.

Within-Group Fixed Effects

In this version, the mean values of the variables in the observations on a given firm are calculated and subtracted from the data for the individual, that is;

$$Y_{it} - \hat{Y}_i = \sum_{i=2}^k \beta_i (X_{ijt} - X_{ij}) + \delta(t - \bar{t}) + E_{it} - \bar{E}_i \quad \text{----- (3)}$$

And the unobserved effect disappears. This is known as the within groups regression model.

First Difference Fixed Effect

In the first difference fixed effect approach, the first difference regression model, the unobserved effect is eliminated by subtracting the observation for the previous time period from the observation for the current time period, for all time periods. For individual *i* in time period *t* the model may be written:

Sources of Data Collection

The data used for this study are obtained from secondary sources which includes; Annual Reports and Statements of Accounts of the selected firms. Other data sources would be from books, journals, websites, and environmental reports of selected firms and database of Nigerian Stock Exchange (NSE).

RESULTS AND DISCUSSION

Analysis of Trend and Pattern of performance indicators of the 7 Non-Life Insurance companies in Nigeria

This section examines the trend and pattern of Profit after tax, Size, Assets, Sales, Net Working Capital, Short-debt, Investment, Return on Assets and Dividend of the 7 Non-Life Insurance companies in Nigeria from 2000-2008. This is with the view of showing the relationship that exists between them and are shown in Figure-1 & 2.

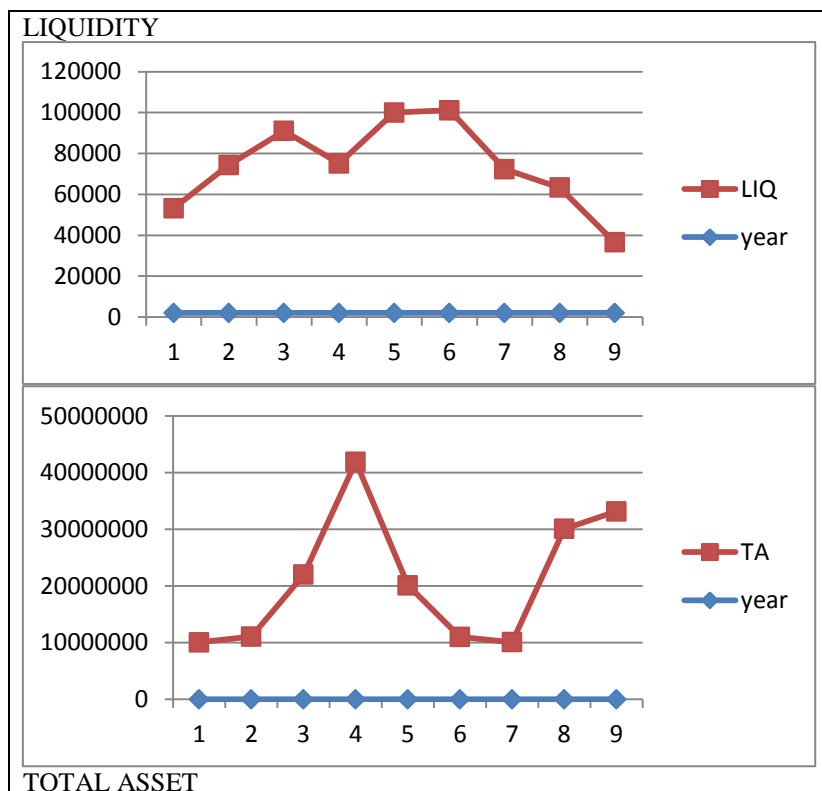


Fig-1:

Source: Authors computation

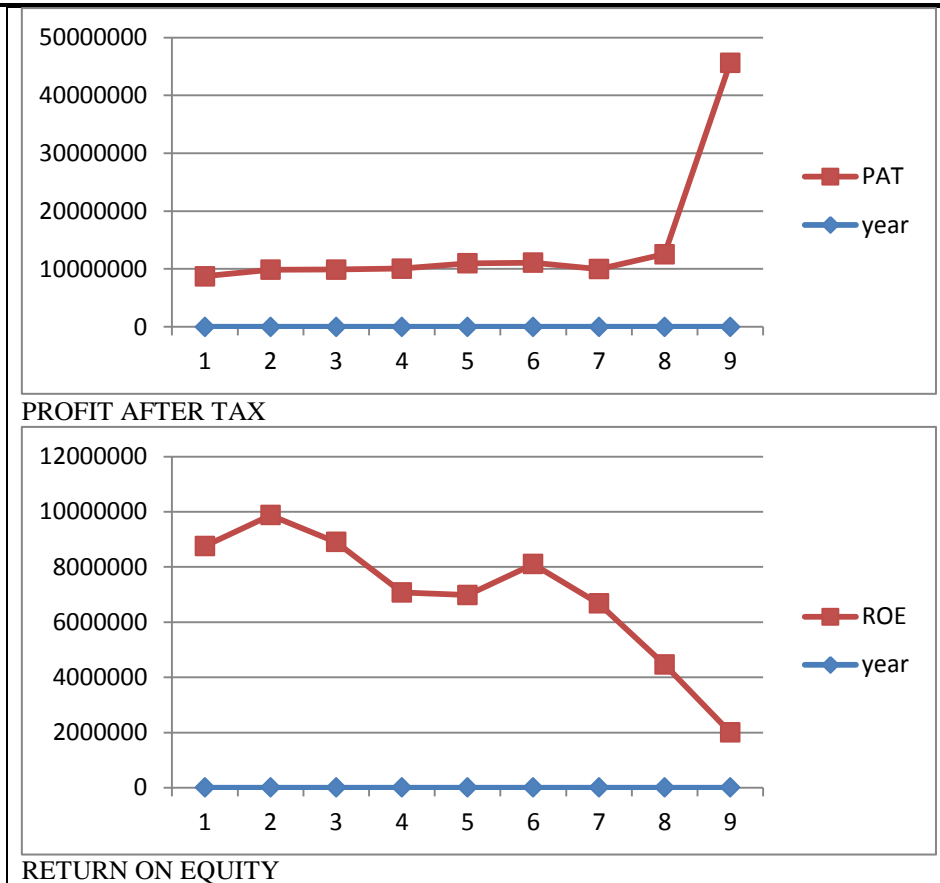


Fig-2:
Source: Authors computation

The average of total profit after tax for all the sampled 7 insurance companies had a mean of 0.256 million naira in 2006, it rose to 1.564 million and 35.625 million naira in 2000 and 2001 respectively. It fell to 32.194 million in 2004 and rose again to 43.134 million in 2006 and it reached its top in 2008 of an average of 79.157 million naira. Also, the average of total assets for all the sampled 7 insurance companies had a mean of 16.142 million naira in 2000, it rose to 724.703million and 826.379 million naira in 2002 and 2005 respectively. It fell to 20.135 million in 2006 and rose again to 899.141 and 1.029 billion naira in 2007 and 2008 respectively.

The average of total assets for all the sampled 7 insurance companies had a mean of 16.142 million naira in 2000, it rose to 724.703million and 826.379 million naira in 2003 and 2004 respectively. It fell to 20.135 million in 2006 and rose again to 899.141 and 1.029 billion naira in 2007 and 2008 respectively.

Descriptive Statistics

Before applying panel data analysis, the descriptive statistics was carrying out before analyzing time-series and statistical properties of the data. The descriptive statistics of data series provide information about sample statistics such as mean, median, maximum value, minimum value and the distribution of the sample captured by Skewness, Kurtosis and Jarque-Bera statistics. The numerical descriptive statistics below showed the shape of the distribution measured by skewness which is the deviation from symmetry; Kurtosis – to measure whether the data is peaked or flat. Also, Jarque-Bera is being used to measure normalcy of the data distribution. The measure of central of tendency was the median and mean which gave estimate of the center of the distribution. The measure of variability was the minimum and maximum values, the standard deviation from the mean and the sum squared deviation.

The results are presented in Table-1 and Figure-2 is the histogram of the variables. This is done in order to correct the problems of multicollinearity among the variables which can bias the result of the regression estimate [16].

From the descriptive statistics of the data employed in the study, all the data are in their annual and natural log form and range from 2002 to 2008. The descriptive statistics show that all the series display a high level of consistency as their mean and median values (7.3322 and 5.6340 respectively) lie between the maximum and the minimum values of the series. The skewness and the kurtosis statistics provide critical information about the symmetry of the probability

distribution of different data series as well as the thickness of the tails of these distributions respectively. Both statistics are imperative as they are employed in the computation of the Jarque-Bera statistic which is in turn employed in testing for the normality or asymptotic

Furthermore, standard deviation result shows that Return on equity (ROE) is the most widely dispersed variable (17.9769) while the Equity-Capital is the least dispersed variable (0.7442), Liquidity has a standard deviation of 6.9651. Dividends, Investment, return on assets size (log of total assets), Underwriting, working capital and total assets has a standard deviation of 1.7974, 2.0964, 7.4380, 1.7193, 0.8394, 1.9531 and 1,7193 respectively. Table 4.3 represents that all the variables are normally distributed as Jarque-Bera statistics value is greater than the Kurtosis value for all variables. The normality assumption is further proved by the nearness of the mean and the median values for these data series. The closer the mean and median values of data series, the greater the probability that such data series will be normally distributed.

Table-1: Descriptive Statistic of Data

	LIQ	LOGDVD	EC	LOGINV	ROE	SIZE	LOGUWR	LOGWC
Mean	7.332204	11.65510	15.75052	15.92762	5.689064	16.88847	15.12876	15.85410
Median	5.634007	11.69012	15.73528	15.85452	0.088891	16.65028	15.02409	15.86735
Maximum	36.30220	14.42736	18.40625	21.81780	81.17188	22.67250	16.69265	22.32586
Minimum	0.892668	7.175490	13.55821	13.43626	-0.441732	13.95379	13.01648	12.20949
Std. Dev.	6.965113	1.797354	0.744150	2.096436	17.97690	1.719311	0.839414	1.953144
Skewness	2.244455	-0.376456	0.112407	1.554584	3.093750	2.312911	-0.067647	1.580113
Kurtosis	8.729954	2.291141	5.535463	5.047384	11.05289	8.541340	2.526903	6.656291
Jarque-Bera	154.5328	1.782260	18.89742	39.84378	300.8079	151.9720	0.696109	65.20076
Probability	0.000000	0.410192	0.000079	0.000000	0.000000	0.000000	0.706060	0.000000
Sum	513.2543	466.2041	1102.537	1099.006	398.2345	1182.193	1043.885	1062.224
Sum Sq. Dev.	3347.383	125.9888	38.20938	298.8629	22298.65	203.9662	47.91384	251.7750
Observations	70	40	70	69	70	70	69	67

Note: LIQ denotes Liquidity, LOGDVD is log of dividends, LOGEC is log of equity capital, LOGINV denotes log of Investment ROE denotes return on equity, SIZE is log of total assets, LOGUWR is the log underwriting risk (that is, Net Premium), LOGWC is the log of working capital and LOGTA is log of total assets.

Source: Author’s computation

Panel Unit Root Test

Non-stationary time series data pose some challenges in regression results. It is important to check the properties of time series data before analyzing the relationships that exist among the variables. It has been well established in the literature that unit root (not stationary data) will normally produce spurious regression results. To avoid spurious regression result, unit root test was carried out on all the variables used in this study in order to know their properties. To determine the order of the series, that is, in testing for stationarity of the data used, we conducted two different unit root tests that are common in the literature. We used the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests.

The ADF unit root test involves testing the null hypothesis of a unit root, $H_0: \alpha = 0$, versus the alternative of a stationary process, $H_1: \alpha \neq 0$. The test is based on the typical t-ratio for α . The t-statistic does not however follow the t-distribution under the null; thus, critical values are simulated for each regression specification and sample size. PP unit root test uses a non-parametric method to control for serial correlation under the null hypothesis. H_0 and H_1 are the same as in the ADF test; however, PP unit root test is based on its own statistic and corresponding distribution. The detail of the unit root tests is discussed in Brooks [17], Greene [18], and Maddala [15]. The results for both test are shown in Table 4.4. The rule adopted is that if the absolute value of the ADF test or that of PP test is greater than 5% critical value, then the tested variable is said to be stationary, otherwise the tested variable is non-stationary. This is appropriate in order to avoid any variable above I (2). According to Outtara [19], the presence of I (2) variables make the computed F-statistics provided by Peseran *et al.*, [20] not valid because the bound test is based on the assumption that the variables are I(0) or I(1). From the analysis below it is obvious that most of the variables are stationary at level in both ADF-fishers test and PP-fishers test.

From Panel unit root test of at the variables (with Individual Intercept), return on assets (ROA), return on equity (ROE), log of underwriting risk (logUWR- proxy for Net premium), working capital and size (logWC) are found to be integrated at level, that is I(0), while liquidity ratio (LIQ), log of dividends (logDVD) and log of investments (logINV) are integrated at order one, that is I(1)

Table-2: Panel Unit Root Test of all Variables (with Individual Intercept)

Variables	ADF-Fishers test statistic			PP-Fishers test statistic		
	Levels	1 st Differen	Remarks	Level	1 st Diff	Remark
ROE	11.7847	22.6304	I(0)**	22.3026	60.8343	I(0)**
LIQ	13.4135	41.0690	I(1)*	11.7219	38.0034	I(1)*
LogDVD	4.771	23.6952	I(1)*	14.1726	39.4627	I(1)*
LogEC	18.2719	28.4877	I(1)**	38.6175	43.6517	I(1)*
LogINV	11.7408	19.3443	I(1)***	31.8611	49.1583	I(1)***
logUWR	30.8875	-	I(0)*	33.2551	-	I(0)*
LogWC	30.3565	-	I(0)*	41.3581	-	I(0)*
SIZE	24.9602	-	I(0)*	38.8354	-	I(0)*

NOTE: *, ** and *** denotes 1%, 5% and 10% levels of significance respectively
 Source: Author’s Computation

Having established (10) strategies adopted by insurance companies in the management of liquidity, it is therefore imperative to examine the effect of liquidity management on the financial performance of Insurance companies.

Panel regression using ROE as dependent variable

Analyses of the effect liquidity management on financial performance of insurance firms using returns on equity (ROE) as a proxy for financial performance yield the following equations:

$$ROE_{it} = \beta_0 + \beta_1 LIQ_{it} + \beta_2 \log DVD_{it} + \beta_3 \log EC_{it} + \beta_4 \log INV_{it} + \beta_5 \log UWR_{it} + \beta_6 WC_{it} + \beta_7 \log SIZE_{it} \dots \dots \dots (4)$$

The result is presented in Table-3 liquidity ratio (proxy for liquidity management) has positive but insignificant effect on return on equity (ROE) with the value of t-statistics = 0.4673 and probability value = 0.6514 > 0.05. In such that a unit change in liquidity ratio will lead to about 0.656054 percentage point increase on return on equity. The result was consistent with the findings of Owolabi and Obida [21] who observed that there is a relevant degree of relationship between liquidity management and profitability of firms.

Dividends has a negative and insignificant relationship on return on assets with the value of t-statistics = -2.0107 and probability value = 0.0752 < 0.05. That is, a unit change in dividends will lead to about -4.778251 percentage point decrease in return on equity.

Also, equity capital has a negative and insignificant relationship on return on assets with the value of t-statistics = -1.8352 and probability value = 0.0997 > 0.05. A unit change in equity capital will lead to about -23.08634 percentage point decrease in return on equity.

Furthermore, investment, has positive but insignificant effect on return on equity (ROE) with the value of t-statistics = 1.1894 and probability value = 0.2647 which is greater than 5 percent. In such, that a unit change in investment will lead to about 17.21636 percentage point increase on return on assets.

Underwriting risk (logUWR) has positive but insignificant effect on return on equity (ROE) with the value of t-statistics = 0.0741 and probability value = 0.9425 > 0.05. A unit change in investment will lead to about 0.602273 percentage point increase in return on assets.

Working capital (logWC) has positive but insignificant effect on return on equity (ROE) with the value of t-statistics = 0.6916 and probability value = 0.5066 > 0.05. A unit change in working capital will lead to about 3.763029 percentage point increase in return on assets.

Size (which is the log of total assets) has negative and insignificant effect on return on assets with the value of t-statistics = -1.0676 and probability value = 0.3135 > 0.05. A unit change in size of the firm will lead to about 15.31286 percentage point decrease in return on assets.

Table-3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	188.3150	221.1144	0.851663	0.4165
LIQ	0.656054	1.421427	0.461546	0.6554
D(LOGDVD)	-4.778251	2.376135	-2.010934	0.0752
D(LOGEC)	-23.08634	12.56091	-1.837951	0.0992
D(LOGINV)	17.21636	14.45631	1.190924	0.2641
LOGUWR	0.602273	7.590382	0.079347	0.9385
LOGWC	3.763029	5.422953	0.693908	0.5053
SIZE	-15.31286	14.42734	-1.061378	0.3162

Effects Specification			
Cross-section fixed (dummy variables)			
Period fixed (dummy variables)			
R-squared	0.830192	Mean dependent var	2.874400
Adjusted R-squared	0.471709	S.D. dependent var	15.05937
S.E. of regression	10.94570	Akaike info criterion	7.833009
Sum squared resid	1078.275	Schwarz criterion	8.775972
Log likelihood	-93.57863	Hannan-Quinn criter.	8.128333
F-statistic	2.315847	Durbin-Watson stat	1.853815
Prob(F-statistic)	0.098761		

Source: Authors computation

Test for overall significance

The R square test is the overall test of statistical significance. The value of the F statistics is 2.315847 and it is significant at 5% the implication is that the ROE model is significant and all the variables used as independent variables are all desirable. The R square value shows that about 80 per cent of the variations in ROE is explained by the independent variables.

CONCLUSION AND RECOMMENDATIONS

Findings from the study have shown that the liquidity management has not be having significant impact on the performance of the insurance companies in Nigeria. The only variable in the model that is individually statistically significant is investment. The implication is that the model of management of liquidity in the insurance companies in Nigeria has not affected their performance significantly. From the trend analysis it indicates that as the volume of liquidity is falling all the performance indicators are rising this includes the profit after tax, return on equity ROE. This is in support of the panel results that the liquid asset might not be having positive impact on the performance of the insurance companies.

Based on the forgoing it is important for the insurance companies to embrace policies that will make judicious use of their liquid asset in such a way that it will influence their performance positively.

REFERENCES

1. Simpson, S. N. Y., & Damoah, O. B. O. (2008). An evaluation of financial health of non-life insurance companies from developing countries: The case of Ghana.
2. Moses, D., Clette, F., Delaboudinière, J. P., Artzner, G. E., Bougnet, M., Brunaud, J., ... & Song, X. Y. (1997). EIT observations of the extreme ultraviolet Sun. In *The First Results from SOHO* (pp. 571-599). Springer, Dordrecht.
3. Oseghale, C. I., & Ebhodaghe, F. O. (2011). Asphaltene deposition and remediation in crude oil production: solubility technique. *J Eng App Sci*, 6(4), 258-261.

4. Biety, M. (2003). Liquidity and asset liability management in saving services for the poor, an operational guide, ed. Madeline Horesehchland, Washington D.C. Pact publication.
5. Adekanye, F. A. Z. (1984). *The elements of banking in Nigeria*. Burn.
6. Anyanwu, J. C. (1993). Monetary Economic system in Nigeria, Quodro impressions Ltd.
7. Biety, M. (1998). Operational guide line for the development and early credit union operations.
8. Umoinyang, M. E. (2015). *Economics of Fish Marketing in Akwa Ibom State, Nigeria* (Doctoral dissertation).
9. Oke, J. M., & Hamburger, M. O. (2002). Screening of some nigerian medicinal plants for antioxidant activity using 2, 2, diphenyl-picryl-hydrazyl radical. *African Journal of Biomedical Research*, 5(1-2).
10. Agbada, A. O., & Osuji, C. C. (2013). The efficacy of liquidity management and banking performance in Nigeria. *International review of management and business research*, 2(1), 223-233.
11. Shafana, M. A. C. N. (2014). Macroeconomic variables effect on financial sector performance in Emerging Sri Lankan Stock Market. *International Journal of Science and Research*, 3(10), 227-231.
12. Dezar, C. A., Gago, G. M., González, D. H., & Chan, R. L. (2005). Hahb-4, a sunflower homeobox-leucine zipper gene, is a developmental regulator and confers drought tolerance to Arabidopsis thaliana plants. *Transgenic research*, 14(4), 429-440.
13. Chan, K. C., Gup, B. E., & Pan, M. S. (1997). International stock market efficiency and integration: A study of eighteen nations. *Journal of business finance & accounting*, 24(6), 803-813.
14. Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of econometrics*, 115(1), 53-74.
15. Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and statistics*, 61(S1), 631-652.
16. Chang, J. M., & Agun, S. K. (2000). Designing reusable components in VHDL. In *ASIC/SOC Conference, 2000. Proceedings. 13th Annual IEEE International* (pp. 165-169). IEEE.
17. Brooks, N., Adger, W. N., & Kelly, P. M. (2005). The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation. *Global environmental change*, 15(2), 151-163.
18. Greene, W. H. (2003). *Econometric analysis*. Pearson Education India.
19. Ouattara, B. (2004). *Modelling the long run determinants of private investment in Senegal* (No. 04/05). Credit Research Paper.
20. Johnson, V., Zolot, M., & Pesaran, A. (2001, October). Development and validation of a temperature-dependent resistance/capacitance battery model for ADVISOR. In *Proceedings of the 18th Electric Vehicle Symposium*.
21. Sanghani, D. A. (2014). The Effect of Liquidity on the Financial Performance of Non-Financial Companies Listed At the Nairobi Securities Exchange. *Unpublished MBA Project*.