LIQUIDITY RISK AND TOTAL PREMIUM INCOMES OF QUOTED INSURERS' COMPANIES IN NIGERIA

Nafiu, Najimu Ayinde[1*], Bakarey, Emmanuel Bamidele[2], Isimoya, Ogochukwu Augustine[3]

[1]Department of Actuarial Science, Federal University Dutse, Jigawa State, Nigeria.

[2]Department of Insurance, University of Jos, Plateau State, Nigeria.

[3]Department of Actuarial Science and Insurance, University of Lagos Akoka, Lagos State, Nigeria.

***Corresponding author:** Nafiu, Najimu Ayinde

Department of Actuarial Science, Federal University Dutse, Jigawa State, Nigeria.

Abstract

The COVID-19 as pandemic has not only affected world economy but also nations as well as settlements. Basically, the research investigates main liquidity risks in Nigerian quoted insurers during the COVID-19 pandemic for a two-year (2019 and 2020). After-fact design is adapted from already prepared data through annual financial reports from 2019 to 2020. Multivariate ordinary statistics would be adopted to analyze the establishment of a quasi-experimental design. Based on this analysis, the key liquidity risks (ROA, ROE, ROCE and EPS) reveal to be statistically and directly weighted but non-significant on total gross premium incomes, which the proactiveness has to be taken place due to lockdown in world exigency diseases. The study is recommended in carrying on the analysis of fiscal and liquidity risks on insurance companies' solvency, and pension fund as well as annuity fund. Further recommendations could be established on the analysis fiscal and liquidity risks, which government agency in-charge of liquidity risk should have put statutory regulations and guidelines on liquidity risk management in order to increasingly combine different liquidity ratios for futuristic period. Nigerian insurance companies should have employed professional personnel that manages the liquidity risk. Liquidity risk management should not only the priority of the top managerial personnels, but also at middle and lower level of hierarchy of insurance companies in Nigerian principles of liquidity ratios through NAICOM and NIA.

Keywords: *Liquidity Risk Management, Insurance, Insurance Companies, Gross Premium Earnings*

1. Introduction

In 2020, the emergence of global epidemiological pandemic had resulted to globalisation innovations in economic workforce, and governmental parastatals are encouraged including private enterprises to prudently and peacefully proclaim to populace on the emergent well-being on all nations of the globe (World Health Organization, 2020). Generally, adequate risk managerial programmes has to be unveiled in order to decrease the spread of the deadly virus in favour of economy and politics (World Economic Forum [WEF], 2020). Due to the consequences of the deadly virus, the need has come in assessing financial and liquidity ratios in Nigerian quoted primary insurers on gross premium income (GPI). Moreover, Nigeria as a nation must improvise and fortify the wellbeing scheme for early wellbeing exigencies due to recorded cases of confirmed COVID-19 pandemic patients (Nigeria Centre for Disease Control [NCDC], 2022). Despite this, financial and liquidity sustainability are being investigated among different prominent conceptual contexts in the corporate globe (Khan, & Ali, 2016).

Tashanova *et al.,* (2020) asserted that governmental agencies have pronounced different alerting indicators as a result of global epidemiological pandemic that brought closed-down of business operational activities in Nigeria. The Economic lockdown and shutdown in terms of confined human beings and products disrupted from importation of consignments as well, which reduced the invested funds due to the deprivation of shareholder, stockholders' trust at security industry (Junk, Park, Hong & Hyun, 2016). Muhammad *et al.*, (2017) viewed that most authors had done some studies searching relationship between dependent variable (shares market price) and independent variables (Earnings per Shares (EPS), Return on Equity (ROE), and Return on Assets (ROA)). However, outstanding liabilities payment from assets owned should be computed by organization's capacity is termed as liquidity ratio. The overall calculation of liquidity ratios with its required legal system is the division of all insurance companies' fixed and current assets over the net liabilities. NAICOM and NIA encourage using financial metrics (overall liquidity ratio) to financially maintain healthy and solvency capacity on its liabilities in order to obtain returns (Tuovila, 2021). In fact, different researchers had investigated on management of liquidity risk and its effects on the association of effective, efficient sustainability (Nigeria Centre for Disease Control [NCDC], 2022; Tashanova *et al.*, 2020; Muhammad *et al.*, 2017; Junk, Park, Hong & Hyun, 2016).

The research objectives have been stated in order;
  i.   To examine the association of Return on Assets (ROA) and total premium earnings of quoted insurers' firms.
  ii. Investigate the association of Return on Equity (ROE) and total premium earnings of quoted insurers' firms.
  iii. Investigate the association of Return on Capital Employed and total premium earnings of quoted insurers' firms.
  iv. Investigate the association between earnings per shares and gross premium income of quoted insurers' firms.

2. Literature Review
2.1. Review of Conceptual Literatures

2.1.1. Liquidity Ratio Management
The management of liquidity necessitates financial and operational conditions of the account statement, and ensuring that the financial institutions operates within the scopes and boundaries of statutory, regulatory and guidelines of the institutes (Choudhry, 2011). Liquidity management necessitates the liquidity level control in the economic operation to manage financial and monetary stability, which enough liquidity dominance will be achieved from stable price through a lot of liquidity consequence. In 1993, CBN had introduced non-direct instrument for management of liquidity from regulatory operational tool such Open Market Operation (Central Bank of Nigeria [CBN], 2021). In fact, the effectiveness and efficiency of planning and organizing of Deposit Money firms' liquidity of assets that will improve their sustainability at a possible reducing cost is described as liquidity management (Nikolaou, 2019). The ability and capacity of companies are to expense its obligatory debts at s short period of time is known as liquidity ratio, which current, quick and cash ratios are the types of liquidity ratio (Corporate Financial Institute [CFI] Team, 2023). When liabilities in-arrear can be set-off against the total assets of an organization so as to measure its capacity and ability is termed as the overall liquidity ratio (Tuovila, 2021), which liquidity ratio instruments are cash, treasury bill and certificates, treasury bonds and other specified liquid securities (CBN, 2021).

2.1.2. Assets Return
Assets Return as ROA is a relationship between profit and total assets or properties i.e short and long-term assets of insurance companies (Das, 2023). ROA is described as an annual earnings divided by total assets of a firm in order to measure productivity and financial efficiency (Maverick, 2021). The associative correlation of a company's total assets is the reflection its profitable operation of a company. That is, the effectiveness and efficiency of management is the adequate usage of its total assets or properties to earn profitable revenues to an enterprise, which this is calculated as the division of annual year profit by the company's total assets (current assets plus fixed assets). In fact, the highly increased in ROA, the adequacy of company's profit on investible properties (Muhammad *et al.*, 2017).

2.1.3. Return on Equity
This is the relationship between profit and shareholders' fund or capital of insurance companies (Das, 2023). The measurement of stock return performance is disclosed as an association between profits for the year earned by dividing it with total value of shareholders' funds in the financial reports of insurance companies' financial status (Joshua, 2017). The efficient measurement of a company is to maximize profitability from almost all shareholders' fund or equity in order to reveal how the useable operational resources are being active to earn profitable growth in terms of company's performance. In addition, return on equity (ROE) can be compared its earning profitability with similar or other company in same or similar industry, which can be measured as profit of year over shareholders' fund average (Muhammad *et al.*, 2017).

2.1.4. Capital Employed Return
Return on Capital Employed (ROCE) is an association of the year profit over capital employed. Where current liabilities from the balance is subtracted from the addition of fixed asset and current assets is known as capital employed of insurance companies (Das, 2023). ROCE is also described as annual earnings divided by total shareholders' equity plus debt liabilities (Maverick, 2021). Return

on capital employed (ROCE) is the comparison association of profit of year capital invested in the company so that its rate should be higher than the borrowing rate in order for reduction of shareholders fund would be set in as a result of increasing in the rate of borrowing. It can be measured as profit of year over total capital employed during the financial operational year (Muhammad *et al.*, 2017).

2.1.5. Earnings per Shares

Earnings per Shares is a financial conventional measurement tool that is described as how much earning profit measures over common shares or stock outstanding (Horngreen, Harrison, & Oliver, 2009). Earnings per Shares is the division of net profit (after tax deduction) over the number of ordinary shares of an organisation, which is also otherwise expressed as (net profit (before tax deduction) minus total provisional taxes) over number of ordinary shares of a company (Muhammad *et al.*, 2017). The measurement of earning per share is the net earnings divided by the operational numbers of share, which the adjusted numerator and denominator for shares could be got from convertible debts, option or warrants (Fernando, 2023).

2.1.6. Gross Premium Income

Kagan (2023) defined gross premium income (GPI) as the amount of an insurer's premium incomes that are used to measure what premium's portion owed to reinsurance company, which is served as the basis where the rate of premium ceded to reinsurer. It is otherwise known as gross net written premium income (GNWPI) or direct premium written during the insurance policy period (Rhinehart, 2023). Insurance context, gross premium income is significantly a revenue expression that is revealed the actual total addition earnings already paid from consideration earnings by insurers on insurance policies underwritten. It is measured by total actual net written premium minus insurance premium tax in order to be operated as financial pillar of insurance company (Get Insurance [GI], 2023). Meanwhile, net written premium income is the measurement of premium portion that has to be kept by the insurer or insurance broker, which the exclusion of any sum cedes for reinsurance programs (Bishop, 2015).

2.2. Theoretical Review

In insurance industry, insurers and reinsurers used overall liquidity ratio to financially optimize healthy and solvent capacity to cover its liabilities from its total assets.

2.2.1. Theory of Liquidity Preference

The theory of liquidity preference described by Keynes who stated that individuals cash value for both existing transacted businesses and store of value for money used would sacrifice the present interest earnings for money at hand for precautionary motive. Though, investors unwillingly reduced holding of cash if and only if rates of interest increased so that profit could be secured. People want to hold money for speculative, precautionary and transactional motives due to fortuitous output on up and down of interest rate future events. Therefore, the futuristic purchasing power for holding money is suggested to hold policies of active cash for businesses rather than inactively binding call for deferred payment (Bibow, 2005).

2.2.2. Financial Metrics Theory

Financial metrics are quantitative measurement used to evaluate the productivity and performance of enterprises, in which the internal managers not only embrace to improve productivity but also the outside analysts employed to make decisions involving the

company (Redmond, 2018). Also, metrics for productivity compute the dissimilar surfaces of productivity of enterprises. Fiscal metrics express surfaces of fiscal productivity that retain revenues turnover, grow profit rate, gross profit minus expenses rate, cash-inflow minus cash-outflow, working capital, debt-to-equity ratio, inventory turnover, and current assets over current liabilities. The improvement of efficient operation and formulated planning and strategic activity are adapted as diversifications on industrial companies (CFI Team, 2023).

2.2.3. Theory of Risk Return

The theory of risk return was pioneering by Markowitz, which defined insurance as a risk management tools in terms of risk-taking mechanism as well as profit oriented business firm within their professional risk assumed in order to maximize profitability if and only if insurance businesses assumed higher risks, there should be higher turnover as a result adequate underwriting procedures and experience (Chen, 2023).

2.2.4. Shift-ability Theory

The preservation of company's liquidity is enhanced when assets are kept for investors' cash purchased assets especially during speculation period. Therefore, company's liabilities would bring additional liquidity on its assets' marketable and transferable security returns. This theory provides liquidity on firm's highly marketable securities especially boosted liquid assets. Liquidity assets are stored in order to measure financial status in terms of cash solvency margin (Nwankwo, 1992). Investors' confidence would be reduced due to company with inadequate financial position which may reduce liquidity especially during financial disaster.
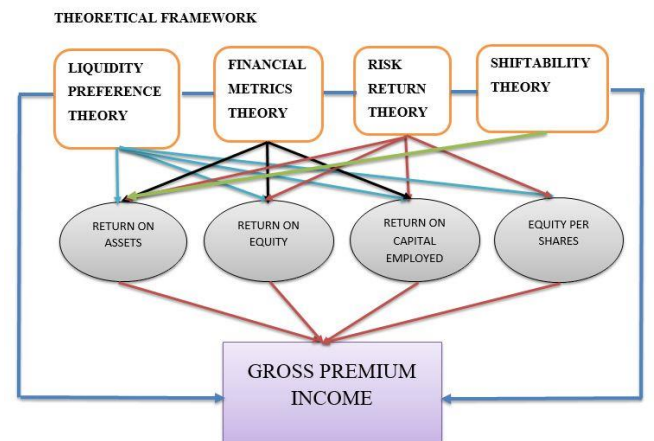

Figure 1: Theoretical Framework, 2023.
Source: Authors' Framework, 2023.

2.3. Empirical Review

Idolor, and Adelegan (2023) asserted management of liquidity and performance of finance of Nigerian deposit money banks (DMBs). The study examined liquidity management and financial performance of Nigerian deposit money bank within the year (2011-2020), which descriptive statistics, correlation analysis, STATA 11 were employed to test the data. The findings showed that deposit over asset, and loan deposit ratios have an indirectly non-significant association with return on assets and net interest margin respectively of Nigerian DMBs. Only cash reserve ratio has a directly non-significant association with return on assets of Nigerian DMBs. The recommendations of the research was for Central Bank of Nigeria to strive to uplift their guidelines and regulatory efforts above all deposit money banks. Also, any defaulters of serial loans should be prosecuted by special financial

court (SFC). In addition, staff professional development should be embraced through series of training and retraining exercises by the banks' management and the board of directors.

Igwenwanne, Ozurumba, Nwaimo, Anyanwu, and Uba (2023) postulated the evaluation of management of liquidity on Nigerian deposit money banks (DMBs)' performance for ten years (2012-2021). Research investigated evaluation of management of liquidity on Nigerian deposit money banks' performance. The study adopted using Fixed Panel Least Square model estimation, descriptive test, Levin, Lin and Chu (LLC) unit root test. The findings of the study showed that DMBs' performance revealed positively significant, and negatively insignificant association by the ratio of liquidity management and efficiency, and cash ratio respectively. The recommendations stated was that DMBs should be proactive in putting some certain measurements in place to have the effective and efficient liquidity management rather yawning for profitability maximization only.

Sedovandara, and Mahardika (2023) studied financial performance determinant on Indonesian energy and mineral sector. The study examined the determinants of financial performance on Indonesian energy and mineral sector. The research adapted to use descriptive statistics and panel data regression analysis. The outcomes of the research revealed that return on assets (financial performance) positively and simultaneously significant affected by systemic environmental management, asset management and capital structure. The recommendation of the study suggested that there should be an extensional period for the research observed so as for the variable to more be validated. Also, the addition of controlled variables and consideration of other external parameters may have influential effect on financial and operational sustainability.

Onuaguluchi, and Okwo (2022) studied management of liquidity and Nigerian insurers' gross incomes. The research investigated liquidity management on gross earnings by Nigerian insurance companies. The study employed ex-post facto design and correlation technique to analyse the collected data. The outcomes of the study revealed the current, cash, and operating cash-flow ratios showed a directly strong, an indirectly weak, and directly weak association with profit respectively during the year in Nigerian insurance companies. The recommendation of the research was that Nigerian insurance companies should put effort to uplift the current assets on current liabilities so that the propensy of holding cash against profitable investment would not affect the generation of revenues in Nigerian insurance industry.

Danmulki, Agbi, and Mustapha (2022) studied the management of liquidity evaluation and performance of finance in Nigerian listed DMBs. The study examined the management of liquidity evaluation and performance of finance in Nigerian listed DMBs. The study adapted using panel multiple regression technique to analyse the collected data. Results showed that liquidity, capital adequacy and loan over deposit ratios have shown negatively significant, positively significant, and positively non-significant consequences with DMBs' performance of finance in Nigeria. The recommendations was that board of directors should increasingly pursue capital increment with the CBN. Also, DMBs should always monitor and assess by CBN in order to meet up with the regulatory requirement of capital adequacy before operating in banking industry.

Masare (2022) studied the risk of liquidity and performance of finance of listed manufacturing firms on Nairobi Securities Exchange (NSE). The study investigated liquidity risk and performance of finance performance of listed manufacturing firms on Nairobi Securities Exchange (NSE). The study employed descriptive statistics, correlation and regression analysis techniques. The outcomes of the research revealed that liquidity risk, leverage ratio, firm size and efficiency of management showed indirectly significant, directly non-significant, directly non-significant and directly significant respectively on return on assets (ROA) of quoted manufacturing companies in Nairobi Securities Exchange (NSE). The recommendation of the study stated that management of liquidity risk of quoted manufacturing in Nairobi Securities Exchange should be fortified based on formulated policies and guidelines from NSE to enhance the effective and efficient management teams.

Arini, Samrotun, and Masitoh (2021) asserted the ratio of financial analysis' determinant over distressful finance. The study examined how liquidity, activity, profitability, and leverage ratios respectively would affect textile and garment companies listed on the Indonesia Stock Exchange in the year (2018–2019). The study adopted using linear regression analysis to analyse the collected data. Liquidity and leverage ratios had influentially non-significant on distressful finance of the quoted manufacturing firms in Indonesia Stock Exchange. While, activity ratio and profitability ratio also had influential and significant effect little effect on distressful finance of the quoted manufacturing firms in Indonesia Stock Exchange. It was recommended that the authors should have increased and combined the different ratios so that longer time for the research would have been developed. Also, companies sample should have added in different quoted industries for improved outcomes.

Okere, Okeke, Echeonwu, Emili, and Rufai (2021) opined management of liquidity and Nigerian quoted DMBs' performance of finance. The research investigated management of liquidity and Nigerian quoted DMBs' performance of finance. The research adopted descriptive and inferential statistical techniques to analyse the collected data. The results showed that liquidity management has shown as an important association with the Nigerian Deposit Money Banks' financial performance despite Treasury Single Account (TSA) was adopted. The recommendation of the study was that professionally sound liquidity managerial personnel should be employed by DMBs in order to bring good mechanisms for better sustainable productivity. Internally financial control management system should be recognized and checked from time to time in line with the new Treasury Single Account (TSA).

Arief (2021) studied liquidity of finance, management of asset, and performance of finance in Indonesian quoted manufacturing firms. The study examined the liquidity of finance, management of asset, and performance of finance in Indonesian quoted manufacturing firms. The study adopted descriptive statistics, classical assumption test and multiple linear regression model. Generally, return on assets revealed to directly and significantly affect by the current ratio, management of asset as total asset turnover, cash turnover as turnover cash, debt over equity ratio as capital structure in Indonesian listed companies. Individually, only capital structure revealed insignificantly affect financial performance as (ROA), while current ratio, total asset turnover, and cash turnover did significantly have effect financial performance. The recommendation was that current ratio and total assets turnover should be more focused on in order to have positive and significant association with return on assets (financial performance).

Azeez (2020) studied liquidity risk management and selected companies' profitability in Nigeria. The study revealed that return on capital employed (ROCE) did not have any associated consequence by current ratio, current assets/total assets ratio, and working capital ratio because the probability value was higher than the value of significant level. The study adapted to case study design by using multiple regression and correlation analysis techniques to test the collected data. Summarily, it was revealed that liquidity risk management did not directly and significantly have any effect on Nigerian food and beverage industrial enterprises' ROCE as financial performance. The recommendation of the study was that Nigeria and other nations' management firms should put more efforts on time-lag in converting inventories and receivables flow to cash-flow in order to uplift the management of liquidity risk.

Asuquo, and Offiong (2019) postulated the dominance of economic value added (EVA) over earnings per share (EPS), return on equity (ROE), and return on capital employed (ROCE) in Nigerian stock return analysis of quoted banks in Stock Exchange Market. The study examined how EVA's dominance on EPS, ROE, and ROCE in Nigerian stock return analysis of Stock market. The research employed descriptive and analytical statistical techniques to analyse the collected data. The findings from the outcomes revealed that the relative information content analysis tested showed that EVA did not reveal any dominance of EPS, ROE, and ROCE in the evaluation of stock returns. In incremental information analysis tested, there was a sound complementary evaluation of EVA with ROE on stock returns compared with EPS and ROCE independently measurements. The research stated its recommendation based on the outcomes that complementary evaluation and measurements from EVA should be employed to ROE compared with EPS and ROCE in stock return measurement due to its usefulness in measuring.

2.4. Research Gaps
Generally, the observations from the past researchers were that liquidity risk management employed are current ratio (Onuaguluchi, & Okwo, 2022; Arief, 2021), current assets/total assets, and working capital (Azeez, 2020), total asset turnover, turnover cash, debt over equity ratio (Arief, 2021), liquidity and leverage ratio (Danmulki, Agbi, & Mustapha, 2022; Masare, 2022), activity, and profitability ratios (Arini, Samrotun, & Masitoh, 2021), firm size and management efficiency (Masare, 2022), cash ratio, and operating cash flow ratio (Idolor & Adelegan, 2023; Igwenwanne, Ozurumba, Nwaimo, Anyanwu & Uba, 2023; Onuaguluchi, & Okwo, 2022), capital adequacy and

loan over deposit ratios (Idolor, & Adelegan, 2023; Danmulki, Agbi, and Mustapha (2022), liquidity management and efficiency (Igwenwanne, Ozurumba, Nwaimo, Anyanwu, & Uba, 2023), which all these are different the study.

Also, financial performance of the previous studies was Return on Assets (Masare, 2022; Arief, 2021), gross earnings (Onuaguluchi, & Okwo, 2022), return on capital employed (Azeez, 2020), economic value added (Asuquo & Offiong, 2019), which this study adapted to gross premium income of insurance companies in Nigeria employed by (Onuaguluchi, & Okwo, 2022). Finally, almost all the previous authors investigated on DMBs and other manufacturing firms for their studies, which this study is examined on insurance companies as one of the financial institution in Nigeria. Only Onuaguluchi, & Okwo (2022) investigated their study insurance companies in Nigeria.

3. Methodology
This research is objectively examined effects of liquidity risk management (ROA, ROE, ROCE, EPS) on GPI of Nigerian quoted Insurers' firms. Based the market shares, annual reports of five selected insurance firms are chosen for two years (2019 and 2020), using readymade (ex-post facto) research design with simple random sampling techniques. The presented and analyzed data would be adopted by using multivariate ordinary statistics and schedules. Also, the collected secondary data will be used from five randomly selected insurers in Nigeria to analyze through multiple regression analysis.

3.1. Specification of model
Multivariate ordinary model adopted below for analyzing the relationship that associates ROA, ROE, ROCE and EP) on GPI of Nigerian quoted Insurers' firms (Arief, 2021; & Azeez, 2020).

$$ROA = f(ROA, ROE, ROCE, EPS) - - - - - - - -1$$
$$GPI = \beta 0 + \beta 1 ROA + \beta 2 ROE + \beta 3 ROCE + \beta 4 EPS + \xi - - - - 2$$

Where:
GPI = Gross Premium Income
ROA = Return on Assets
ROE = Return on Equity
ROCE = Return on Capital Employed
EPS = Earnings per Shares
ξ = Unexplained Parameter
β_0 = Autonomous Parameter
β_1, β_2, β_3 & β_4 are the explanatory variables needed for computation.

Table 1: Specification of Dependent and Independent Variables

S/N	Variables	Proxy	Measurement	Sources
1	Gross Premium Income	GPI	Gross income received	Onuaguluchi, and Okwo (2022)
2	Return on assets	RPA	$\dfrac{NPAT}{Total\ Assets}$	Idolor, and Adelegan (2023) Sedovandara, and Mahardika (2023); Masare (2022); Arief (2021); Asuquo, and Offiong (2019)
3	Return on Equity	ROE	$\dfrac{NPAT}{Shareholders'Funds}$	Azeez (2020); Asuquo, and Offiong (2019)
4	Return on Capital Employed	ROCE	$\dfrac{NPAT}{Total\ Capital\ Employed}$	Asuquo, and Offiong (2019)

5	Earnings per Shares	EPS	$\dfrac{NPAT}{NO.\ of\ Ordinary\ Shares}$	Asuquo, and Offiong (2019)

Source: Authors' Computation, 2023

4. Results and Discussions

4.1. Multivariate Statistical Theory

Table 2: Summary of Model

Model	R	R Square	Adjusted R Square	Std. Error of the	Change Statistics		
				Estimate	R Square Change	F Change	Sig. F Change
1	.853[a]	.748	.546	10992195726	.748	3.701	.092

Source: Authors' Computation, 2023.

The summary of model shows the regression analysis which indicates good fit R, R^2 and Adjusted R with their value of 0.853, 0.748 and 0.546 respectively.

Table 3: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	178884527307468020000 0.000	4	44721131826867005000 0.000	3.701	.092[b]
	Residual	604141834430343400000. 000	5	120828366886068680000. 000		
	Total	239298710750502400000 0.000	9			

Source: Authors' Computation, 2023.

The ANOVA shows the F calculated value to be 3.701 which indicates non-significant level of 0.092 greater than 0.05. This simply means the regression model is statistically insignificant, which reveals positively insignificant explained.

Table 4: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-17012007371.715	10672547305.524		-1.594	.172
	Return on Assets	-2815954358.448	1441954112.625	-1.507	-1.953	.108
	Return on Equity	1370578696.710	401344463.099	.816	3.415	.019
	Return on Capital Employed	1657496523.346	1095199179.965	1.141	1.513	.191
	Earnings per Share	23963790.701	120243278.681	.062	.199	.850

Source: Authors' Computation, 2023

From the regression findings, the substitution of the equation:

$$GPI = -17012007372 + (-2815954358)ROA + 1370578697ROE + 1657496523ROCE + 23963791EPS + 0.252 - - - - 4$$

The model reveals from the table 4 shows an autonomous variable of -1.701+E10 for which ROA, ROE, ROCE, EPS have been explained.

Only the return on assets has negative effect on gross premium income with −2815954358 i.e ROA has indirect association with gross premium income. Also, the ROE, ROCE and EPS have positive association effect with gross premium income by 1370578697, 1657496523 and 23963791 respectively. Three predictor variables (ROE, ROCE and EPS) have a positive association on Gross Premium Income,

Only ROE has directly significant relationship with Gross Premium Income 0.019 lesser than 0.05. ROCE and EPS are direct insignificant association with productivity relationship between the three independent variables are insignificant relationship with productivity (Gross Premium Income) with their probability values 0.11, 0.19 and 0.85 more than 0.95 degree of freedom respectively. As a result of this, only Asuquo, and Offiong (2019) postulated the usage of almost all the independent variables. Although, Onuaguluchi, and Okwo (2022) adapted by using gross earnings as

its dependent variable, which almost all independent were not strongly affecting the variable.

Generally, the association of explanatory parameters are insignificant on explained parameter with probability value of 0.172 against 0.95 degree of freedom. However, the previous authors that have similar findings for this study (Idolor, & Adelegan, 2023; Igwenwanne, Ozurumba, Nwaimo, Anyanwu & Uba, 2023; Masare, 2022; Arini, Samrotun, and Masitoh, 2021).

However, the p-value of 0.092 is greater than 0.05 which indicates that there is statistically insignificant relationship between the gross premium income, and EPS, ROE, ROCE and ROA. The previous authors were empirically reviewed different studies on management of liquidity and performance of finance of different firms, but some of the researchers that externally reviewed and investigated (Idolor, & Adelegan, 2023; Igwenwanne *et al.*, 2023; Masare, 2022; Arini, Samrotun, and Masitoh, 2021), Arief (2021), Arini, et al (2021) among others. Also, the Nigerian authors who researched in Nigerian context on management of liquidity, but were focused on deposit money banks previously known as commercial banks without reviewing and investigating on insurance firms (Idolor, & Adelegan, 2023; Igwenwanne *et al.,* 2023; Onuaguluchi, & Okwo, 2022; Danmulki, Agbi, & Mustapha, 2022; Azeez, 2020; Asuquo, & Offiong, 2019). Based on this has established the research gaps in the reviewed literatures in order to fill it by investigating the association of management of liquidity risk and total gross premium income in Nigerian insurers' firms.

The economic implications of findings for this study have to be clearly stated because COVID-19 pandemic has put brought opportunities and threats on liquidity risk already. So many insurance firms should financially protect their liquidity assets against short and long term debts during the COVID-19 pandemic period so that financial distress and economic recessions in line with unfavourable liquidity risk would not erode all total gross premium revenues earned of Nigerian insurers' firms.

5. Conclusion and Recommendations

The outcomes establish non-significantly negative association of Gross Premium Income and ROA of Nigerian insurers' firms. Likewise, the research reveals significantly direct association of Gross Premium Income on ROE in Nigeria. Finally, the research reveals non-significantly direct association of Gross Premium Income and ROCE and EPS respectively. However, an advent of epidemiological disease has affected business of insurance in the world at large, in which the regulatory bodies should have ready to reactive in making the awareness of this uncertainties to be known to all operators. Also, inherent risks can serve as opportunities for insurers, reinsurers, intermediaries and regulators in order to stand as better chances to develop an innovative product in insurance markets through a defined strategic, financial and operational decision making technique.

The study's recommendations are enlisted below:

i. Government agency in-charge of liquidity risk should have put statutory regulations and guidelines on liquidity risk management in order to increasingly combine different liquidity ratios for futuristic period.

ii. Nigerian insurance companies should have employed professional personnel that manages the liquidity risk.

iii. Liquidity risk management should not only the priority of the top managerial personnels, but also at middle and lower level of hierarchy of insurance companies in Nigeria.

References

1. Arief, M. (2021). Financial liquidity, asset management, and financial performance in Indonesian listed companies. *International Journal of Management Research and Social Science (IJMRSS), 8*(2), 40-46.

2. Arini, S. A., Samrotun, Y. C., & Masitoh, E. (2021). Determinant of financial ratio analysis to financial distress. *Jambura Science of Management, 3*(1), 26-35

3. Asuquo, M. V., & Offiong, P. E. (2019). The dominance of EVA over EPS, ROE, and ROCE in Nigerian stock return analysis: The Nigerian evidence. *Advance in Social Sciences Research Journal, 6*(8), 296-305.

4. Azeez, O. A. (2020). Impact of liquidity management on profitability of selected companies in Nigeria. *Scientific Research Community Journal of Economics & Management Research, 1*(3), 1-5.

5. Banwo & Ighodalo (2020). *Nigeria: COVID-19 and commercial transactions in some emerging legal issues*. Mondaq Limited. https://www.mondaq.com/nigeria/contracts-and-commercial-law/910150/covid-19-and-commercial-transactions-some-emerging-legal-issues

6. Bibow, J. (2005). *Liquidity preference theory revisited-To ditch or to build on it?* The Levy Economics Institute of Bard College. Working Paper No. 427. 1-32. https://levyinstitute.org/pubs/wp_427.pdf

7. Bishop, A. (2015). *What is gross premium income?* Insurance Glossary. Riskheads, Insurance Software, Glossory, Solutions, and Risk System.

8. Central Bank of Nigeria (2021). *Liquidity management in Nigeria*. Understanding Monetary Policy Series 4, 1-23. ISBN: 978-978-51972-2-8

9. Corporate Finance Institute Team (2023). *Business metrics: Overview, classifications and formula*. (c) 2015-2023 CFI Education Inc. https://corporatefinanceinstitute.com

10. Chen, J. (2023). *Risk-Return tradeoff: How the investment principle works*. Investopedia Trade. Trading Skills > Risk Management.

11. Choudhry, M. O. (2011). *An introduction to banking: Liquidity risk and asset-liability management*. Hoboken: John Wiley & Sons.

12. Danmulki, B. I., Agbi, E. S., & Mustapha, L. O. (2022). Liquidity management and financial performance of listed deposit money banks in Nigeria. *Gusau Journal of Accounting and Finance (GUJAF), 3*(2), 1-17.

13. Das, A. (2023). *Learn with ET markets: ROA, ROE, ROCE, and ROIC explained*. The Economic Times. Power by ETPrime. Copyright © 2023 by Bennett Coleman & Co.

14. Fernando, J. (2023). *Earnings per share (EPS): What it means and how to calculate it*. Investopedia Trade. Corporate Finance > Financial Ratios.

15. Get Insurance (2023). *What is gross premium income?* Copyright © 2023 Get Insurance. All Rights Reserved

16. Horngreen, C., Harrison, W., & Oliver, M. (2009). *Accounting: 8th edition*. New Jersey: Prentice Hall, 1243.

17. Idolor, E. J., & Adelegan, M. O. (2023). Liquidity management and financial performance of deposit money banks in Nigeria (2011-2022). *Journal of Academic Research in Economics, 10*(10), 1-25.

18. Igwenwanne, I. E., Ozurumba, B. A., Nwaimo, C. E., Anyanwu, F. A., & Uba, C. P. (2023). Evaluation of the liquidity management on deposit money banks' performance in Nigeria. *International Journal of Economics, Business and Management Research, 7*(1), 122-138.

19. Jung, H., Park, M., Hong, K., & Hyun, E. (2016). The impact of an epidemic outbreak on consumer expenditures: An empirical assessment for MERS Korea. *Sustainability*, *8*(454), 1-15. https://www.doi.org/10.3390/su8050454

20. Joshua, V. (2017). *Return on equity (ROE) and income statement analysis*.

21. Kagan, J. (2023). *Gross net written premium income (GNWPI) overview*. Investopedia Trade. Business Insurance > Corporate Insurance.

22. Khan, R. A., & Ali, M. (2016). Impact of liquidity on profitability of commercial banks in Pakistan: An analysis on banking sectors in Pakistan. *Global Journal of Management and Business Research, 16*(1), 53-59

23. Masare, W. B. (2022). *Effect of liquidity risk on financial performance of manufacturing firms listed on Nairobi securities exchange.* Department of Business Administration, Faculty of Business and Management Sciences, University of Nairobi.1-51. Erepository.uonbi.ac.ke/bitstream/handle/11295/163512/ Masare ………….

24. Maverick, J. B. (2021). *ROCE vs. ROA: What's the difference?* Investopedia Trade. Corporate Finance > Financial Ratio.

25. Muhammad, A. A., Usama, K., Hasnain R., Hafiz, A. A., Mohsin, R., Muhammad I. U. (2017). The Relationship between ROA, ROE, ROCE and EPS ratios with break-up values of shares of Karachi-Pakistan fuel and energy listed companies. *Journal of Finance and Accounting*, *5*(3)*,* 115-122. https://www.doi.org/10.11648/j.jfa.20170503.15

26. Nigeria Centre for Disease Control (2022). *Two Years of COVID-19 response: Building on lessons from COVID-19 to strengthen Nigeria's health security for the future*. www.ncdc.gov.ng/news/358/two-years-of-covid-19-response%3A-building-on-lessons-from-covid-19-to-strength-nigeria%E2%80%99s-health-security-for-the-future

27. Nikolaou, K. (2019). *Liquidity (risk) concepts definitions and interactions.* European Central Bank Working Paper Series, No. 1008, February, 2001.

28. Nwankwo, U. (1992). Economic agenda for Nigeria. Centralist Production Limited, Lagos Nigeria

29. Okeke, W., Okeke, O. O., Echeonwu, S. I., Elimi, E. C., & Rufai, O. (2021). Liquidity management: Implications for financial performance of deposit money banks (DMBs) in Nigeria. *Asian Economic and Social Society, 11*(1), 24-32.

30. Onuaguluchi, F I., & Okwo, I. M. (2022). Liquidity management and gross earnings of insurance firms in Nigeria. *European Journal of Accounting, Auditing and Finance Research, 10*(12), 1-13.

31. Redmon, A. (2018). *Financial metrics*. ISIXSIGMA. https://www.isixsigma.com

32. Rhinehart, C. (2023). *Direct premiums written: What they are, how they work.* Investopedia Trade. Business Insurance > Corporate Insurance.

33. Sedovandara, D. F., & Mahardika, D. P. K. (2023). Financial performance determinant: Evidence on Indonesian energy and mineral sector. *Journal Akuntansi (AJ), 27*(2), 299-317.

34. Tashanova, D., Sekerbay, A., Chen, D., Luo, Y., Zhao, S., & Zhang, Q. (2020). *Investment opportunities and the strategies in an era coronavirus pandemic.* https://ssrn.com/abstract=3567445

35. Tuovila, A. (2021). *Overall liquidity ratio*. Investopedia. Powered by Trusts. https://www.investopedia.com

37. World Economic Forum (2020). *The is the impact of coronavirus on businesses by Smith-Bingham Richard and Hariharan Kavitha*. The World Economic Forum COVID Action Platform. World Economic Forum. https://www.weforum.org/agenda/2020/02/why-is-coronavirus-a-global-business-risk/

38. World Health Organization (2020). *Who Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020.* https://www.google.com/search?q=WHO+%28World+Health+Organization%29.+2020a.+WHO+Director+General%27s+opening+remarks+at+themedia+briefing+on+COVID-19+-+11+March+2020.+11+March.&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&gws_rd=ssl

8