



HETEROGENEOUS INCOME SOURCES AND OPERATING LIQUIDITY OF INSURANCE FIRMS IN NIGERIA

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Abstract

The study examined heterogeneous income sources and operating liquidity of insurance firms in Nigeria. Specifically, the study examined the effect of Gross Premium Income, Investment Income and Fees/Commission Income on Liquidate Ratio of listed insurance firms in Nigeria. The study was based on a total of 104-year data observations obtained from eight (8) insurance firms listed on Nigeria Exchange Group during 2011-2023 periods. Panel Least Square Regression Analysis was used to test the three null hypotheses formulated for the study. Results indicate that the effect of Investment Income as well as Fees/Commission Income on Liquidate Ratio of the insurance firms in Nigeria is positive and statistically significant while the effect of Gross Premium Income on Liquidity Ratio of the firms is positive, but statistically not significant. The study recommends that the insurance firm in Nigeria should intensify marketing effort to sale insurance policies and collect premium income on time to enhance operating liquidity. The firms should equally develop new insurance products in order to expand their premium income and boast their liquidity. The study also recommends that the firms should invest some of their surplus premium on shares of quoted firms to receive returns on the investment and boast operating liquidity. The firm should also improve their operating liquidity by rendering other professional services, such as guarantee, letter of credit.

Keywords: Heterogeneous, Income, Liquidity, Investment and Commission

Introduction

The current economic situation in Nigeria presents a challenging business atmosphere for corporate firms operating in the country, including insurance firms. In fact, today's business environment in Nigeria is characterized by uncertainties occasioned by insecurity, inconsistent government policies, decaying infrastructural facilities, corruption, wide fluctuation in macro-economic variables such as inflation rate, foreign exchange rate, fuel and other commodity prices. This development has forced firms in the country, including insurance companies to look for heterogeneous income source in order to mitigation the risks associated with the business uncertainties and to ensure business sustainability and survival (Umar and Umar, 2020). The objective of corporate diversification is to increase profitability, market share, debt capacity, growth opportunity, risk reduction, and the need to use human and financial resources efficiently (Afza et al. 2008).

DeYoung and Rice (2004) described income sources diversification as the revenue generated from a firm's other business activities other than the income generated from the firm's core or traditional product income. Nguyen (2019) stated that heterogeneous income in the financial service industry was necessitated by the need to mitigate risk and uncertainties in business environment, it was also aimed at increasing firm profitability and enhancing the competitiveness advantage of the firms. Rogers (2001) also noted that income diversification can lead to cheaper premiums for insurance firms or increased margins due to synergies in development, distribution, marketing, research, and perhaps other initiatives. Other benefits of revenue diversification include, earnings growth, increasing market shares, escape route from declining demands and business uncertainties and low profit. Corporate revenue diversification might also allow



firms to save costs and improve revenues owing to dispersal stable costs and economies of scope, reduces firms' risks, and ensures management independence in terms of decreased agency expenses by minimizing cash flow volatility.

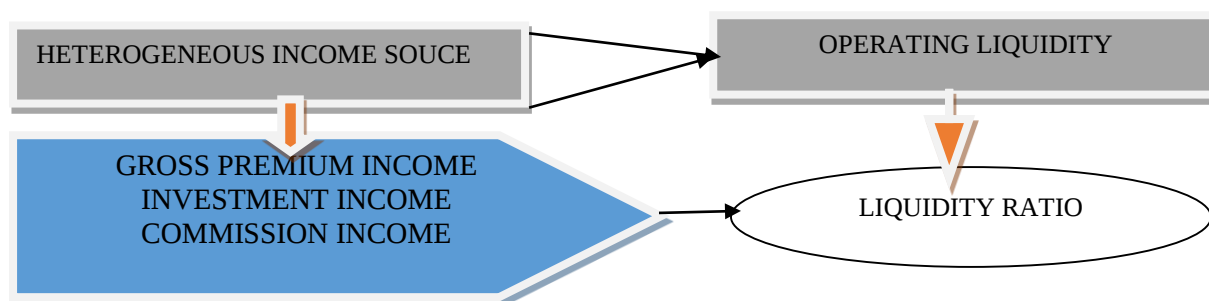
In as much as some benefit are derived from income source heterogeneity, some research does not support the idea of diversification. Some argue that the high cost of diversification increases risks and reduces profits when firms venture into other activities that they are not conversant with. In fact, the diversification may cause adverse impacts on the firms' performance due to managing many operational areas that are not familiar to the firm managers. In view of this, Stiroh, et al (2006) opined that the greater reliance on traditional activities of a firm could led to higher volatility in income and higher risks but not higher returns. This is because expansion into non-traditional activities means increasing fixed costs, leading to increased financial leverage in operations and higher risks. Despite the number of studies conducted on diversified income source, scholars have given little or no attention on the effect of heterogeneous income sources on liquidity of insurance firms in Nigeria. In fact, much attention was paid on the effect of diversified income source on profitability as well as firm value of banks and manufacturing firms. However, the adverse economic environment in the country and the consequent actions taken by the insurance firm managers in the country to survive and grow their firms has made it imperative for empirical studies to be conducted. Thus, this study empirically examines the effect of heterogeneous income sources on operating liquidity of insurance firms in Nigeria during 2011 to 2023 periods.

Conceptual Literature

Hayes et al. (2022) defined liquidity as the ease with which an asset, or security, can be converted into ready cash without affecting its market price. Cash is the most liquid of assets, while tangible items are less liquid. Cash is universally considered the most liquid asset because it can most quickly and easily be converted into other assets. The two main types of liquidity include market liquidity and accounting liquidity. Current, quick, and cash ratios are most commonly used to measure liquidity. Reschiwati et al. (2020) defined liquidity as a ratio that measure a firm's ability to meet its short-term obligations. A high liquidity firms can pay its short-term business obligation without difficulty and so tends to reduce total debt in its capital structure. In view of this, it can be stated that liquidity affects capital structure of firm. Also a highly liquid firm send sends positive signal to the stock market which causes the stock market value of the firm to rise thus increasing the firm value of the firms. Therefore, it can be stated that liquidity affects the value of firms. Green and Brown (2021) described diversifying income source as a means of drawing earnings from two or more additional sources different from traditional income source or product line of the firms or person. A diversified portfolio is one that has investments spread across portfolio of activities different from the traditional income source or product line. The independent variable of the study and proxies for heterogeneous income sources are: Gross Premium Income, Investment Income and Fees/Commission Income.

Bishop (2015) defined gross premium income as a statement of the money that an insurer has earned from premiums and eliminates any money that is or will be paid out elsewhere from those premiums. It's a good measure of how much an insurer is earning though, of course, it doesn't take into account earnings on investments such as equities or bonds. It also doesn't take into account any assets that the insurer has. So you cannot examine an insurer's financial health based on just gross premium income. It's less useful for brokers because a broker won't normally disclose gross premium income. As the majority of the money they take in premiums will go to the insurer; brokers are more interested in gross broking income which is based on the gross premium income. Taylo (2021) also described gross premium income as a statement that indicates the earning of an insurer from already paid premiums. It can be expressed mathematically as: $\text{Gross Premium Income} = \text{Total Net Written Premium} - \text{Insurance Premium Tax}$. This means that gross premium income is net written premium less insurance premium tax. The net written premium is the exact measure of a premium that an insurer or broker keeps as profit.

Johnson and Suarez (2019) described investment income as income derived from money put into financial assets, such as stocks, bonds and other securities. It also applies to money generated by a brokerage, bank, or credit union account. Investment income means money earned by financial assets or financial accounts. Investment income comes in three basic forms, interest, dividends, and capital gains. Bonds generate interest; stocks generate dividends; and capital gains (profits) can come from any investment. Srivastav and Vaidya (2022) explained that firms and individuals earn a large proportion of their total income every year from normal business activities and their salaries. However, properly planned savings and its investments in the financial markets can actually convert nominal savings into big portfolios of investment, which will surely yield the investor a good investment income over time. Frankenfield and Rasure (2021) described commission as a service charge assessed by a broker or investment advisor for providing investment advice or handling purchases and sales of products for a client. There are important differences between commissions and fees, at least in the way these words are used to describe professional advisors in the financial services industry. A commission-based advisor or broker makes money by selling investment products such as mutual funds and annuities and conducting transactions with the client's money. A fee-based advisor charges a flat rate for managing a client's money. This may be either an absolute amount or a percentage of assets under management. Sales between family members are often gifts of equity, which are not commission-based.



Source: Author's Compilation, 2024

Figure 1: Conceptual Framework

Theoretical Framework

Portfolio Theory

Harry Markowitz pioneered Portfolio Theory in 1952. The theory suggested that the investors should diversify their funds among those securities (or activities) which give maximum anticipated return and minimum variance (risk). A portfolio that gives maximum return for a given risk, or minimum risk for given return is an efficient portfolio. Thus, portfolios are selected as follows: (i) From the portfolios that have the same return, the investor will prefer the portfolio with lower risk, and (ii) From the portfolios that have the same risk level, an investor will prefer the portfolio with higher rate of return. Portfolio theory argue that diversified banks avail from economies of confine which refine the performance and reduce risk simultaneously (Nisar et al., 2018). Elsas et al. (2010) argue that banks will benefit from economies of scale, which gradually decreases the risk of banks and increases their profitability. Banks can reduce their risk by diversifying their assets into different geographic areas or diversifying their revenue sources (Hsieh et al., 2013). Banks may face risk diversification rewards if net interest income runnels are uncorrelated with interest income. Further, banks may get a higher risk if NII brooks are riskier and have a high correlation with interest income (Moudud-UI-Huq et al., 2018).

The theory also postulated that firm can reduce income volatility and improve overall financial performance by engaging in a range of income generating activities (Matthies, 2014). Financial institutions diversify



their income by venturing into non-lending activities such as investment banking, advisory, brokerage and underwriting (Saunders et al., 2016). Moreover, Sanya and Wolfe (2011) claimed that income diversification absorbs the impact of information asymmetry through cross selling while cushioning banks against cyclical variation in interest revenue. Khanna and Tice (2001) opined that diversified firms make optimal investment decisions unlike focused firms. Williamson (1986) opined that by holding a diversified portfolio of assets, a bank is able to cushion depositors from any possible losses arising from delegated monitoring. Winton (1997) posits that in a highly competitive market, diversification improves the quality of service banks offer their customer Landskroner et al. (2005) inferred that income diversification improves bank revenue and operational efficiency especially where the scale and scope of operations expands. Income diversification contribute to stable revenues and greater firm longevity (Berger et al., 2010).

Empirical Literature

Wahyuddin and Mauliyana (2021) sampled 11 insurance firms to investigate the effect of premium revenue, underwriting results, investment results and risk based capital on income of insurance firms listed in Indonesia during 2017-2019 periods. The regression results suggest that premium income, underwriting results, investment returns, and risk based capital have a positive and significant effect on profits in insurance the firms. Uddin et al. (2021) examined the effects of bank diversification on Bangladeshi banks' profitability during 2007-2016 periods. An unbalanced panel data from thirty-two (32) banks spanning 318 bank observations were obtained from the annual account of the banks during the period. Findings reveal a significant positive association of income diversification and asset diversification on bank profitability. Klopfenstein (2020) investigated the relationship between life insurance premium revenue and income from their investments. A panel regression analysis was applied on the financial data obtained from eleven (11) public life assurance firms listed on New York Stock Exchange during 1990-2018 (28years). Findings show that a negative correlation between the percentage of total revenue derived from premium revenue and the percentage of total revenue derived from net investment income and there is a positive correlation between the percentage of total revenue derived from premium revenue and the percentage of total revenue derived from equity investment income. Alshadadi and Deshmukh (2021) investigated the determinants of profitability in Saudi insurance companies during 2010-2016 periods. Results show that profitability of insurance firms is significantly associated with the firm size, debt ratio, and the rate of actual loss. The results further indicate that volume of written premiums is the most influential variable on the profitability of insurance companies, followed by the indebtedness rate and then the actual loss.

Shawar (2019) analyzed the factors influencing financial performance of insurance industry in Pakistan during 2013-2017 periods. Gross written premium, claim, reinsurance, management expenditure, interest rate, size, leverage, real gross domestic products were taken as factors (independent variables), whereas sales, profitability, investment income, and underwriting profit were taken as proxy of financial performance. The sample consist of five (5) insurance firms listed in Pakistan during the periods. Panel data regression results reveal that gross written premium has significant impact on all three measure of profitability. Firm size has a negative impact on sales and investment profit. The claims, reinsurance, GDP, interest rate and management expenses have an insignificant relationship with all three profitability measures. Hamal (2020) studied the effects of various firm-specific factors: firm size, liquidity ratio, short-term debt, long-term investment and firm age on financial performance of life insurance firms in Nepal. Return on assets and return on equity were the dependent variables. The study was based on secondary data of seven (7) life insurance firms during 2009/10-2018/19 periods. Results show correlation analysis that size and long-term investment have negative and significant relationship with financial performance. Findings also indicate that higher the age of the firm, the more difficult it will be to accumulate profit. The most influencing factors for the financial performance in Nepalese life insurance firms were firm size and long-term investment. Whereas, the explanatory power of liquidity seemed feeble.



Wiroj and Sorasart (2021) studied the effects of non-interest income diversification on stock return and risk of Commercial Bank in Thailand. The sample consists of ten (10) commercial banks listed on Thailand Stock Exchange during 1997-2015 periods. Research of correlation analysis results suggest that the bank's adjusted non-interest revenues has a positive relationship between non-interest revenues and profitability. The study also found that the increasing trend of the proportional income from commission fees and the income from various investments lead to a reduction in the risk-adjusted rate of return of the banks. Olalere et al. (2021) study the effect of revenue diversification on the firm value and stability of banks using Nigerian and Malaysian banks. The study was based on recent financial data from twenty-six (26) Malaysian and Nigerian banks during 2009-2017 periods. GMM regression result show that revenue diversification noninterest income/gross revenue ratio, fee and commission income/revenue ratio and non-interest income/total assets ratio significantly affect the firm value and stability of Nigerian banks. Liquidity, administrative expenses, net interest margin, non-performing loans, size, GDP growth rate and inflation also affect the firm value and stability of a bank. For Malaysian banks, diversification variables do not significantly affect firm value of a bank, while liquidity, administrative expenses, noninterest income and size significantly affect firm value. Hoanga et al. (2020) analyzed the impact of income diversification on bank liquidity creation and the financial performance of Vietnamese commercial banks during 2007-2017 periods. Data from the annual reports and financial statements of the selected twenty-one (21) commercial banks were analyzed using panel least square and GMM estimations. Result reveal that diversification had a negative impact on both bank liquidity creation and bank profitability.

Methodology

The study adopted ex-post facto researcher design. Therefore, secondary data were obtained from the annual financial statements of selected insurance firms listed on Nigeria Exchange Group during 2011-2023 periods. Secondary data were obtained from the annual financial statements of the selected insurance firms. A total of twenty-three (2023) insurance firms were listed on Nigeria Exchange Group during the period, out of which eight (8) firms were selected for the study. Consistent disclosure of investment income in the annual financial statement is the basis for the selected. Descriptive Statistics, Unit Root test and Panel Least Square Regression Model were used for the study. Panel Least Square Regression Model was adopted to test the formulated hypothesis. The time series data obtained from the annual reports and financial statements of the selected insurance firms were analyzed using Descriptive Statistic, Unit Root test and Panel Least Square Regression Analysis.

Results

Table 1: Descriptive Statistics

	LQR	GRPI	INVI	FECI
Mean	13.72298	6239475.	1088545.	396182.2
Median	7.995000	5091817.	549036.0	137657.0
Maximum	81.52000	25914108	5325645.	2613025.
Minimum	0.860000	-1353047.	1969.000	0.000000
Std. Dev.	15.93498	5049529.	1344755.	541869.9
Skewness	2.533238	1.112746	1.715402	2.135479
Kurtosis	9.095184	4.412276	5.004080	7.480176
Jarque-Bera	272.2219	30.10513	68.40926	166.0233
Probability	0.000000	0.000000	0.000000	0.000000
Sum	1427.190	6.49E+08	1.13E+08	41202953
Sum Sq. Dev.	26154.12	2.63E+15	1.86E+14	3.02E+13
Observations	104	104	104	104

Source: Eview11.0 Output



Presented in table 1 is the descriptive statistics of all the variables used for the study. The variables are comprised of Liquidity Ratio (RQR), Gross Premium Income (GPRI), Investment Income (INVI) and Fees/Commission Income (FECI). Results indicate that the Mean Value of the variables are: 13.72298, 6239475, 1088545 and 396182.2.7 for LQR, GPRI, INVI and FECI respectively, while the Standard Deviations are: 15.93498, 5049529, 1344755 and 541869.9 respectively. These results show that the Standard Deviations of LQR, INVI and FECI are above their mean value while the standard deviation of GPRI is below the mean value. This could be interpreted to mean that LQR, INVI and FECI were volatile during the period while GPRI were not. The results from Jarque-Bera Statistics, Skewness and Kurtosis reveal that the data set used for the study are normally distributed during the period. In particular, the findings show that the p-value of Jarque-Bera Statistics for all the variables are less than 0.05 (P-value<0.0000). The Skewness and Kurtosis tests corroborated this finding as all the Skewness coefficient are greater than 3 whereas all the Kurtosis coefficient are greater than 1. Thus, all the measures indicate that the data set are normally distributed.

Table 2: Levin, Lin & Chu t* Unit Root Test

Null Hypothesis: Unit root (common unit root process)

Series: D(LQR,2)

Date: 07/11/24 Time: 19:28

Sample: 2011 2023

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 72

Cross-sections included: 8

Method	Statistic	Prob.*
	-	
	0.2402	
Levin, Lin & Chu t*	6	0.0051

** Probabilities are computed assuming asymptotic normality

Intermediate results on D(LQR,2)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Bandwidth	Obs
1	-3.65101	33.590	179.69	1	1	3.0	9
2	-1.42809	3.7859	7.6975	1	1	2.0	9
3	-2.66980	5.3853	2.4413	1	1	9.0	9
4	-1.66725	25.549	35.991	1	1	1.0	9
5	-2.89931	3.4782	11.493	1	1	2.0	9
6	-2.06712	200.57	254.50	1	1	1.0	9
7	-2.26184	12.900	40.919	1	1	1.0	9
8	-2.78382	19.751	11.657	1	1	5.0	9
	Coefficient t-Stat	SE Reg	mu*	sig*			Obs
Pooled	-2.25823	-10.728	1.053	-0.554	0.919		72



Source: Eview11.0 Output

The usefulness of Unit Root test is its importance in detecting the presence of a unit root in a time series data. The presence of a unit root in a time series data leads to spurious regression results, hence, this test was conducted to ensure that the data are stationary. Findings from the Levin, Lin & Chu t^* Unit Root test in table 2 suggest that the four variables of the study, namely, LQR, GRPI, INVI and FECI are integrated of order 2(2) with p -value = 0.0051. This implies that the variables have unit roots, but were integrated after second differencing.

Table 3: Panel Least Square Regression Model

Dependent Variable: LQR

Method: Panel Least Squares

Date: 07/11/24 Time: 19:48

Sample: 2011 2023

Periods included: 13

Cross-sections included: 8

Total panel (unbalanced) observations: 104

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GRPI	0.330014	0.447753	0.737044	0.4628
INVI	3.475798	0.820049	4.238523	0.0001
FECI	5.391106	0.908773	5.932292	0.0000
C	27.98013	12.86162	2.175474	0.0320
R-squared	0.728491	Mean dependent var	13.50223	
Adjusted R-squared	0.699297	S.D. dependent var	15.85230	
S.E. of regression	13.47150	Akaike info criterion	8.077091	
Sum squared resid	17966.65	Schwarz criterion	8.179410	
Log likelihood	-411.9702	Hannan-Quinn criter.	8.118534	
F-statistic	14.07945	Durbin-Watson stat	1.607228	
Prob(F-statistic)	0.000000			

Source: Eview11.0 Output

The Panel Least Square Regression Model of the selected insurance firms is presented in table 4.1.3. Findings from the model show that the R^2 of the model is 0.699297. This suggest that 70% of the variations in the Operating Liquidity of the firms is explained by the independent variables (GRPI, INVI and Fess and FECI) while the remaining 30% is explained by other variables not included in the model of the study. It was also observed from the table that the Coefficient of F-Statistics in the model stands at 14.07945 while the p -value is 0.000000, which are less than 0.05 ($0.000000 < 0.05$). Hence, we state that the entire model is significant in predicting the operating liquidity of the insurance firms during the period. The model also reveal that Durbin Watson Statistics Coefficient is 1.607228, which even, though, not within the range of Durbin Watson acceptable range of 2-4. However, it is closer to the lower limit of 2, hence, we approximate to 2 and rely on this to conclude that there is no autocorrelation in the model of the study.

Discussion of Findings

The results of the regression model revealed that the coefficient of Gross Premium Income (GRPI) is 0.330014 while the p -value is 0.4628, which is greater than 0.05 ($0.4628 > 0.05$). These results provided enough evidence to conclude that Gross Premium Income positively, but non-significantly affect Liquidity of insurance firms in Nigeria. This result is consistent. Wahyuddin and Mauliyana (2021) who found that



premium income, underwriting results, investment returns, and risk based capital have a positive and significant effect on profits of insurance firms registered in Indonesia. Shawar (2019) who concluded that gross written premium has significant impact on all three measure of profitability. Ariani and Zulhawati (2017) who noted that risk-based capital, return-on-investment, the ratio of claim and premium-growth as a whole (simultaneous) have a significant effect on the increase of premium income. This result differs with Klopfenstein (2020) who observed that a negative correlation between the percentage of total revenue derived from premium revenue and the percentage of total revenue derived from net investment income.

The regression model also shows that the coefficient of Investment Income (INVI) is 3.475798 while the p-value is 0.0001, which less than 0.05 ($0.0001 < 0.05$). In the light of these results, we postulate that Investment Income positively and significantly affect Liquidity of insurance firms in Nigeria. This result is consistent with Portfolio Theory which suggest that firms can reduce income volatility and improve overall financial performance by engaging in a range of income generating activities other than their traditional line of income. This result is consistent. This result is also in agreement with: Uddin et al. (2021) who found a significant positive association of income diversification and asset diversification on bank profitability. Idil (2016) who observed a positive relationship between insurance companies' performance and their numbers of agents, technical profit/earned premiums ratio and financial assets investment profit. Sanyaolua et al. (2019) who noted that the ratio of interest income, fee and commission income, foreign exchange income and other income influence liquidity negatively while investment income was found to exert positive effect on liquidity. The result differs from Hamal (2020) who concluded that size and long-term investment have negative and significant relationship with financial performance.

The regression model further indicates the coefficient of Fees and Commission Income (FECI) is 5.391106 while the p-value is 0.0000, which is less than 0.05 ($0.0000 < 0.05$). In view of these results, we state that Fees and Commission Income positively and significantly affect Liquidity of insurance firms in Nigeria. This result in agreement the Portfolio Theory which suggest that firms can reduce income volatility and improve overall financial performance by engaging in a range of income generating activities other than their traditional line of income. This result is consistent. The result is also in agreement with Wiroj and Sorasart (2021) who found that the increasing trend of the proportional income from commission fees and the income from various investments lead to a reduction in the risk-adjusted rate of return of the banks. Olalere et al. (2021) who observed that revenue diversification noninterest income/gross revenue ratio, fee and commission income/revenue ratio and non-interest income/total assets ratio significantly affect the firm value and stability of Nigerian banks. The result, however, differs from Hoanga et al. (2020) who concluded that diversification had a negative impact on both bank liquidity creation and bank profitability. Sanyaolua et al. (2019) who noted that ratio of interest income, fee and commission income, foreign exchange income and other income influence liquidity negatively while investment income was found to exert positive effect on liquidity.

Conclusion

The study evaluated the effect of heterogeneous income sources on operating liquidity of insurance firms in Nigeria. The sample consists of eight (8) insurance firms listed on Nigeria Exchange Group during 2011-2023 periods. Panel Least Square Regression Analysis was used to examine the 104 data observations used to conduct the study. In line with the results of the analysis, the study concludes that the effect of Investment Income and Fees/ Commission Income on liquidate ratio of the insurance firms in Nigeria is positive and also statistically significant while the effect of Gross Premium Income on Liquidity Ratio of the firm is positive, but statistically non-significant during the period.

Recommendations

The study recommends the following:



1. The insurance firm in Nigeria should enhance their operating liquidity by increasing their gross premium income. This can be achieved by intensify marketing effort to sale insurance policies and timely collect premium income. It can also be achieved by developing new insurance product in order to expand the premium income of the firms.
2. The firms should also increase their investment income to boast their operating liquidity. Investment income can be increased by using some of the reserved premium income to buy shares of quoted firms so as to receive returns on the investment. The firms can also invest in financial products such as government bonds, debentures and commercial papers among others.
3. The firm should further improve their operating liquidity by increasing their fees and commission income. This can be done by rendering professional services to clients in order to earn fees and commissions. Such professional services include, guarantee, financial and risk management advisory services.

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