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Firm Specific Factors and the Profitability of Listed Non-Life Insurance Firms in Kenya

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Abstract
Insurance as a subset of the financial industry plays a critical function in economic growth of countries. The subsector drives economic sustainability through indemnification of the stakeholders covered in various policies. This is through recompense of parties with insurable interest thus insulation against economic losses. The insurance sector's contribution to Kenya's GDP is relatively low (2.24 percent in 2021) compared to other major sectors such as agriculture, but it can be considered as a key enabler particularly in minimizing financial losses in various sectors. Non-life insurance accounted for 55.2 percent of the total Kenya underwritten insurance premium as of 2021 but the sector witnesses performance hurdles with a recurrent persistent underwriting loss. A similar trend is further observed among the listed non-life insurance firms who recorded mostly negative profits after tax. Against this backdrop, balanced panel data for the four listed non-life insurance firms in Kenya covering 2015-2022 period, obtained from their annual financial statements was analysed using appropriate panel models to achieve the objective of this study which was to estimate the effect of firm specific factors on profitability of listed non-life insurance firms in Kenya. The estimated econometric model used the endogenous variables, return on assets (ROA) and return on equity (ROE), as measures of profitability. The firm specific factors included in the model were firm size, leverage, firm growth, liquidity, underwriting risks, and age of the firm. There was inclusion of gross domestic product growth rate, inflation rate, and interest rate as macroeconomic moderating or control variables.
Keywords: *Return on Assets, Return on Equity, Profitability, Non-Life Insurance, Gross domestic product growth rate, Firm specific factors, Insurer, Underwriting*

1. Introduction

Countries across the world rely on the vigour of their financial institutions to boost economic growth. The insurance subsector is part of this financial services eco-system. It not only aims at enhancing the quality of life by reducing their risk, but also contributes to the country's economic growth (Batool & Sahi, 2019). Consequently, researchers place a high value on the profitability of the players thereof. A financially sound financial institution enhances the vigour and bullish outlook of an economy through the ripple effect of a healthy economy made up of various such firms (Sugiharto, 2022).

The Kenyan insurance industry is composed of the insurers, re-insurers, intermediaries, risk managers and other service providers such as loss adjustors (Ondigi & Willy, 2016). As of 2021, there were 56 licensed insurance companies supplemented by 5 reinsurance companies, 193 insurance brokers, 19 reinsurance brokers and 12030 insurance agents (IRA, 2022). The four listed non-life insurance firms are CIC general insurance, Jubilee general insurance, Britam general insurance company, and Sanlam insurance company. Insurance companies play the role of underwriting insurance policies, premiums pricing and claims management (IRA, 2019). Underwriting means determining the acceptability of risks, the coverage terms and the premium due.

Insurance is a significant part of the economy's financial infrastructure and thus a review of the pecuniary factors on its performance is pertinent with a further benefit of adding to existing body of literature. The profitability of the insurance subsector is influenced by macroeconomic factors such as prevailing rates of interest charged in the economy, population growth, and gross domestic product (GDP) growth (Rashid & Kemal, 2018). However, pre-eminently, factors specific to the firm such as underwriting risks, firm size and market share affect the financial health of an insurer. These are the key elements to explaining the performance of these firms. Insurance firms' profitability also depends heavily on the amount of gross written premium (GWP) generated (Rashid & Kemal, 2018). The premium is the rate the insurer charges based on the estimate of the loss or risk experience expected. Ultimately, their core operations improve due to increased premiums, which in turn increases total profitability (Zhang & Nielson, 2013).

Further to that, Figure 1. illustrates the correlation between some of the insurance parameters and the economic performance in Kenya.

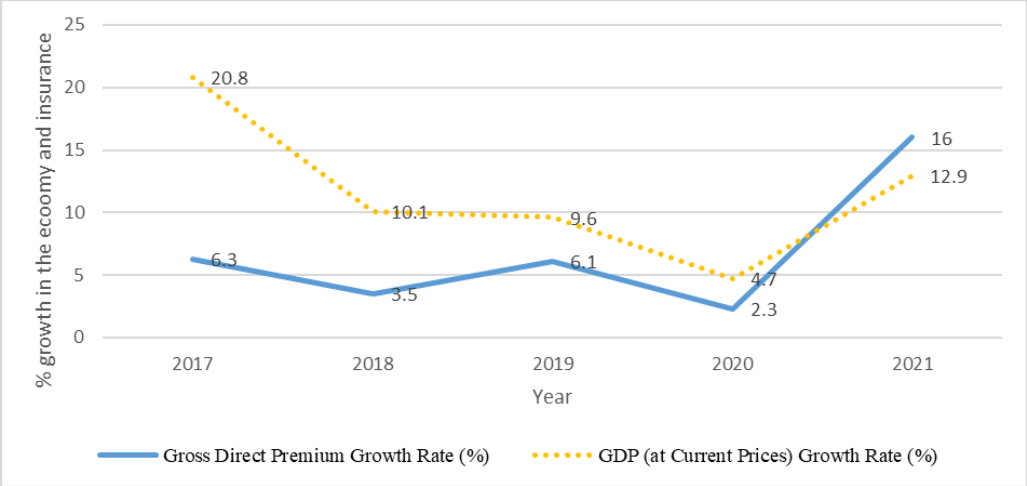

Figure 1. Insurance and Economic Growth in Kenya (2017-2021)

The study covers non-life, listed insurance firms in Nairobi Securities Exchange (NSE) and relied on the 2015-2022 data. The justification for this data period was in that the regulator for the insurance industry, IRA, was incepted in 2015 ensuring quality, clean data. The concentration of the study was on firm level factors influencing financial performance of non-life insurance companies. The focus on financial performance as opposed to non-financial performance is based on the objectivity and standardized measures of the former.

Insurance is a mode of risk transference. This allows for protection against various catastrophes that would impact the economy, lending weight to its importance to the financial services industry.
Non-life insurance sector has been making losses since 2017; recording underwriting losses of 1.013 billion in 2017 from Kenyan shilling 0.02 billion in 2015 (AKI, 2018). The 2018 to 2022 numbers are also equally bad with trending underwriting losses of Kenyan Shillings 3.7 billion in 2022, 6.3 billion in 2021, 1.2 billion in 2020 and 3 billion in 2019 (IRA, 2022).

Various studies have been undertaken to establish and turn around this scenario but have not been able to clearly elucidate on factors specific to the firm that are determinants in the profitable performance of non-life insurance firms and further, the focus has only been on either return of equity or return on assets exclusively as a standalone representation of profitability. For instance, on the reviewed studies, Abdeljawad et al (2020) uses both ROA and ROE but this is interchangeably. Boadi, E. K., Antwi, S., &Lartey, V. C. (2013) finds a possible positive correlation relating liquidity and ROA in Ghana insurance firms while Kripa (2016) established negative correlation in Albania insurance firms' ROA. The effect of this is that there have been disparate findings on the relationship of the various factors and profitability leading to minimal substantive output necessary to influence policy change recommendations.

Further to this, there are minimal studies solely directed at listed non-life insurance firms which provides for the inclusion of market-based variables such as marketing's impact on firm value and market value add whose effect on profitability has not been adequately delved into in the Kenyan insurance sector.

This study sought to address the below objectives:

i. To analyse the effect of the firm specific factors on the return on assets of the Kenyan listed Non-life Insurances companies.
ii. To analyse the effect of the firm specific factors on the return on equity of the Kenyan listed Non-life Insurances companies.

2. Research Methods

The study adopted a non-experimental quantitative research design. In particular, the study undertook a causal-comparative approach. Herein, deductive reasoning is embraced. Deductive reasoning involves the researcher making hypothetical postulations which are then tested by the data collected before inferences are made. It is also fundamental to underscore that by the study being non-experimental in disposition, it denies the researcher the privilege either to control or manipulate explanatory variables. Panel data from 2015 to 2022 was utilized.

The frictional theory of profit and risk and uncertainty theories of profit motivates the research by emphasizing the significance of profit to firms. In addition, the study draws a lot of insights from the theory of the firm, notably on modelling for the objectives of the study. In this theory's perspective where firms are considered as profit maximizing agents and with a linearity assumption between inputs and profit analyzed at firm levels, a profit function can be denoted in a compact matrix form like equation 1:

Equation 1

$$\pi_i = X_i\beta$$

From the equation 1, X denotes a vector of factors that affects profit of an i^{th} firm (X is quantity of input factors in an ideal production function) and β is a vector of corresponding parameters to be estimated.

To estimate the effect of firm specific factors on profitability of insurance firms, the study variables are fitted directly into the theoretical model captured by equation 1, to obtain empirical the models.

Equation 2

$$ROA_{it} = \beta_0 + \beta_1 FSIZE_{it} + \beta_2 LEV_{it} + \beta_3 FGROWTH_{it} + \beta_4 LIQUID_{it} + \beta_5 UNDERISK_{it} + \beta_6 AGE_{it} + \beta_7 GDPGROWTH_t + \beta_8 INFLA_t + \beta_9 INTERATE_t + (\varepsilon_i + v_{i,t})$$

Equation 3

$$ROE_{it} = \beta_0 + \beta_{10} FSIZE_{it} + \beta_{11} LEV_{it} + \beta_{12} FGROWTH_{it} + \beta_{13} LIQUID_{it} + \beta_{14} UNDERISK_{it} + \beta_{15} AGE_{it} + \beta_{16} GDPGROWTH_t + \beta_{17} INFLA_t + \beta_{18} INTERATE_t + (\varepsilon_i + v_{it})$$

From equations 2 and 3 the listed non-life insurance firms' profitability is captured as ROA and ROE. On the other hand, the exogenous variables, FSIZE, LEV, FGROWTH, LIQUID, UNDERISK and AGE are firms' specific variables which are their total asset size, leverage, rate of growth, liquidity, underwriting risk and age while GDPGROWTH, INFLA and INTERATE are macroeconomic controlling factors common across all the firms albeit time variant and they are rate of GDP growth, rate of inflation and rate of interest respectively.β_0 is the intercept while $\beta_1 - \beta_{18}$ are respective parameters estimated, ε_i is firm's fixed effect which is idiosyncratic and time-invariant whereas v_{it} is the usual error term of an econometric model. It is the estimation of equations 2 and 3 that is used to attain the objective of the study specified in chapter one of this proposal.

The study is conducted within Kenya with the target population being listed non-life insurance firms in the country-CIC general insurance, Britam general insurance company, Jubilee general insurance and Sanlam insurance company. During the econometrics analysis, data for some variables was fitted in the model in their raw form as obtained from the sources while for some variables, there was data transformation which included logarithmic transformation and generation of new variables through interaction of other variables containing relevant information. As a preliminary

analysis, some summary statistics were also estimated as well as correlation. This aided in providing a general overview of the data before getting into rigorous econometric estimations.

3. Analysis Result and Discussion

3.1 Descriptive Statistics

Table 1: Descriptive statistics of study variables

Variables	Observations	Mean	Standard Deviations	Min	Max
Log Return on Equity (%)	32	1.9744	0.9264	-1.153	3.814
Log Return on Assets (%)	32	1.4546	0.7510	-18.98	15.256
Interest Rate (%)	32	13.541	1.7416	12	16.58
Inflation Rate (%)	32	6.18	1.118	4.69	7.98
GDP Growth Rate (%)	32	4.475	2.129	-0.3	7.6
Firm Size (Log Total Assets)	32	15.95	0.6528	14.53	16.64
Log Leverage	32	5.3851	0.6129	4.3667	7.857
Growth (%)	32	2.298	1.6213	-2.5308	4.821
Liquidity (%)	32	3.07	2.2989	0.32	10.36
Underwriting Risks (%)	32	63.76	12.35	46.02	106.54
Age (Years)	32	64.5	13.35375	47	85

The results show that all the variables had the same number of observations across all panels and all the firms have been in the market between 47-85 years of operation with a mean of 64.5 years. The firms' liquidity and leverage provide the firm's position in relation to ability meet their obligations in terms of liabilities and debts.

3.2 Empirical Results

3.2.1 Effect of the firm specific factors on the return on assets

To achieve the objective, the study carried out a panel multivariate regression of equation 3.3 and results are captured in Table 2 below.

Table 2: Effect of the firm specific factors on the return on assets

Dependent Variable: Return on Assets (ROA)				
Variables	**Coefficients**	**Standard Deviation**	**t-Statistics**	**P-Value**
Log Leverage	3.2778	0.6527	5.02	0.000
Liquidity	8.3224	2.0879	3.99	0.000
Firm Size	-10.621	2.6273	-4.04	0.000
GDP GR	-0.3699	0.4125	-0.90	0.370
Interest rate	0.2548	0.2986	0.85	0.394
Inflation rate	-0.0010	0.0030	-0.33	0.745
Growth rate	-0.05023	0.0174	-2.88	0.004
Underwriting Risk	-0.08077	0.03486	-2.32	0.020
Age	0.06273	0.0300	2.09	0.037
Constant	22.929	14.57	1.57	0.048
F (7, 15)	**0.58**	**Probability>F**		**0.000**
Sigma u	**0.7564**	**Wald Chi-Square**		**577.01**
Sigma e	**1.554**	**Probability Chi-Square**		**0.0000**
Rho	**0.1915**	**R-Square**	**Within** **Between** **Overall**	**0.9648** **0.9853** **0.9681**

The value of the overall R-Squared as denoted by the results, is 0.9681 implying that about 96.81 percent of the changes in non-life insurance firms is determined by the firm specific factors under consideration in the study and only 3.19 percent of the changes are determined by other specific factors that were beyond the scope of this study. The contribution by each firm in the model is given by the value of rho which is 0.1915 implying that each firm contributes 19.15 percent in the model. It is pertinent to take note of the fact that the F-statistics value is 58.01and of a P-value of 0.000 signifying that the model is good and fit for the examination of the effect of firms' specific factors on the profitability of none-life insurance firms in Kenya.

The coefficient of log leverage is positive (3.278) and statistically significant at 5 percent significance level implying that for a rise in leverage level by one unit, profitability of firms increases by 3.28 percentage points. This finding goes against proffered theory that as debt level increases, profitability decreases, similarly, its findings are different from Odhiambo and Njuguna (2019) that found a positive effect of leverage on ROA as a measure of the firms' profitability but provides similar findings to Asare, N., Alhassan, A. L., Asamoah, M. E., & Ntow-Gyamfi, M (2017) that found a positive effect. An increase in leverage means that the firm incurs more debts to aid in its operations thus improving the profit level of the firm, hence return on assets increases.

Liquidity's coefficient is positive (8.322) and statistically different from zero at 5 percent indicating that an improvement in capability of a firm to meet its obligations by one percent, increases profitability of the firm by 8.32 percent. The finding confirms with Hassan *et al.,* (2018) and Boadi *et al.,* (2013) but differs from Kripa (2016) that found the significant relationship between liquidity and ROA of insurance firms in Albania to be negative.

Simultaneously, coefficient of firm size is negative (-10.62) and statistically significant at 5 percent level of significance indicating that as firm increases in size profit level of the firm declines by 10.62 percentage points. The finding corroborates Ullah, G. M., Faisal, M. N., &Zuhra, S. T (2016) and Hailegebreal (2016) but contradicts Hassan *et al.,* (2018), Asare *et al.,* (2017) that positive significant influence while Oner Kaya (2015) that found a positive influence on profitability of the firm in the insurance sector which was however insignificant.

Further, the findings indicate that GDP, interest rate and inflation rate were realized to be statistically insignificant at 5 percent level of significance. The finding conforms with Hassan *et al.,* (2018) and Hailegebreal (2016) that found inflation and interest rates to be negative and statistically insignificant. This means that as inflation rate increases in the overall economy, profit levels of the firm decline by 0.1 percentage points while a one percent change in interest rate increases profit level increases by 25.48 percentage points. This is because firms are most likely to charge a higher premium rate hence cushioning on firms' profitability.

The growth rate of underwritten premium coefficient is negative (-0.0502) and statistically significant. This means that as the growth rate increases by one percent point, profitability of the firm declines by 5.02 percentage points. The finding negates Kripa (2016) that found a significant relationship with firm's profitability that was positive but agrees with Ben Dhials (2021) findings of a positive influence of premium growth rate on profitability on the firm. The increase in underwritten premiums highly influences profits of non-life insurance firms because firms are able to invest the premiums in profit generating opportunities thus earning higher returns on assets.

The negative coefficient of underwriting risk at (-0.0808) is different from zero at 5 percent level of significance implying that as underwriting risk increases, profitability of the firm falls by 8.08 percentage points. This is because underwriting risk captures the potential loss due to poor underwriting and hence with increased risk, the higher the cost incurred to compensate the risk bearers thereby significantly affecting profit levels of the insurance companies. The finding differs from that of Asare *et al.,* (2017) found a positive significant effect of underwriting risks on the profitability of the insurance firms but confirms Ullah *et al.,* (2016) that underwriting risk negatively affect performance of insurance firms in Kenya measured by profitability. On the contrary, the coefficient of age of the firm is significant and positive. It is different from zero at 5 percent significance level implying that as a firm continues to operate its institutional knowledge and expertise improves with a hedging on observed risks, carrying out investments, waging on its legacy brand, and thus receiving more premiums therefore improving on their profits. The findings concur with Hassan *et al.,* (2018) but disagrees with Kripa (2016) that found a negative significance in age and profit of insurance firms.

3.2.2 Effect of firm specific factors on return on equity

To accomplish the objective, the study carried out panel multivariate regression on equation 3.4 and outputs are captured in Table 3.

Table 3: Effect of specific firm factors on return on equity

Dependent Variables: Return on Equity (ROE)				
Variables	**Coefficients**	**Standard Error**	**t-Statistics**	**P-Value**
Log Leverage	-0.6368	0.07197	-8.85	0.000
Growth rate	6.1295	1.532	4.00	0.001
Liquidity	-0.0807	0.05367	-1.50	0.133
Underwriting Risk	0.01355	0.00566	2.39	0.017
Age	-0.01683	0.00779	-2.16	0.001
Interest rate	-0.07572	0.04663	-1.62	0.104
Inflation rate	0.00041	0.00047	0.86	0.391
GDP GR	0.00933	0.00266	3.51	0.000
Firm Size	53.354	6.8431	7.80	0.000
Constant	6.0031	0.9982	6.01	0.000
F (7, 15)	**0.96**	**Probability > F**		**0.0004**
Sigma u	**0.1615**	**Wald Chi Square (5)**		**608.73**
Sigma e	**0.5754**	**Probability of Chi-Square**		**0.0000**
Rho	**0.07299**	**R-Squared**	**Within** **Between** **Overall**	**0.7833** **0.6554** **0.7557**

The results capture the significance of coefficients of the fixed effect model as statistically significant at 5 percent significance level since the P-value of the Wald test is less than 0.05. Therefore, the variables namely, leverage, growth rate, and liquidity, underwriting risks, age, and firm size are the firm specific factors that determine return on equity of the non-life insurance companies in Kenya.

Additionally, the value of F-statistics is 0.96 and the P-value is 0.004 which is under 0.05 at 5 percent significance level. This means that the model was fit and good to analyse the objective of the study. The constant term is positive (6.003) and significant implying without the specific factors the study considered, the profit level of the non-life insurance companies would be approximately 6 percent holding all other factors constant.

Further the overall R-Squared was 0.7557 implying that around 75.57 percent of the changes on return on equity of the firms are determined by the specific factors the study did consider, however, only 24.43 percent are determined by other factors that are beyond the scope of this study.

The coefficient of log leverage was negative (-0.6368) and statistically significant at 1 percent level of significance, implying that increase in total leverage by one percent would cause return on equity of the insurance firms to declines by 63.68 percentage points. This can be surmised that overreliance on borrowed funds increases the obligation of the firm hence more cash outflow thereby reducing profitability of the firm as affirmed by Rashid et al (2018). The finding negates that of Boadi *et al.,* (2013) and similarly Hailegebreal (2016) that found the relationship between leverage ratio and profitability of insurance companies to be negative and significant.

Premium growth rate coefficient was positive (6.130) and significant at both 1 percent and 5 percent level of significant, this implies that the positive growth rate of premium results in return on equity, which measures firms' profitability, to also increases by 6.13 percentage points. Premium growth measures the increase in the amount of premium underwritten from the insured which is then invested in return earning opportunities. Similar results were obtained by Kripa (2016), Oner Kaya (2015) and Ben Dhials (2021) that delineated a positive significant relationship between premium growth rate and profitability (ROE). The positive significant relationship is due to an increase in

premiums leads to more capital availability for execution in return-earning activities leading to increase in profit levels of the non-life insurance firms in Kenya.

Liquidity's coefficient was observed to be negative (-0.0807) and insignificant at 5 percent level of significance insignificantly different from zero. The finding corroborates Odhiambo & Njuguna (2019) but disputes Hailegebreal (2016) whose results were a negative significant relationship and Boadi *et al.,* (2013) that surmised a positive significant relationship between leverage and ROE. Similarly, underwriting risk was also found insignificant but positive (0.01355). This revelation deviates from Hailegebreal (2016), Koteny*et al.,* (2021) and Owuor (2018) that found the effect of underwriting risk on the profitability of the insurance firms to be negative and significant.

The coefficient relating to the firm's age was negative and statistically significant at 5 percent level of significance. It was also significantly different from zero. For instance, the coefficient of firms age was negative (-0.0168) and significant meaning as the firm obtains one more year in operation its profitability declines by 1.68 percentage points. The finding confirms that of Oner Kaya (2015) but disagrees with Too and Simiyu (2018) that found a positive significant relationship in years of existence the firm (age) and profitability of non-life insurance firms in Kenya.

The coefficient of firm size was positive (53.35) and significant at 1 percent level of significance and significantly different from zero, implying an increase in the total assets of the firm (size) leads to an increase in profitability of the company. The finding negates Too and Simiyu (2017) that found a negative significant effect of firm total assets on profitability of the firm but agrees with Koteny*et al.,* (2021) that captured a positive nonlinear relationship between the two variables. On the same note, at the global arena, the finding confirms that of Boadi *et al.,* (2013) but negates Kripa (2016) that found a negative significant effect of the total assets of the firm on non-life insurance firms' profitability. This is because as firms expand it is more likely to benefit from scale economies hence the increase in profitability level over time.

The coefficient of GDP growth was positive (0.00933) and significantly different from zero implying that an upturn in the variable denoting economic growth by one percentage, return on equity of the listed non-life insurance companies increases by 0.933 percentage points. This is because as the economy grows translating to businesses growth, the requirements for more transfer of risk to insurers vis a vis an increase in the size of the insurable risks also expands. This leads to more premiums garnered for insurers and more capital to generate returns. The finding disagrees with Nyairo (2015) that found a negative insignificant effect and Hassan *et al.,* (2018) that found a positive insignificant effect. However, the coefficient of interest and inflation rates are insignificant.

The coefficient of inflation rate was positive (0.00041) and statistically insignificant and different from zero meaning that a rise in inflation rate by one percent, profitability of insurance companies increases by 0.041 percentage points even though the increase in low. This can be surmised that with inflation the insurable base denominator in premium charged computation is expanded thus leading to higher premium costs with transference to the consumers. The finding corroborates Hassan *et al.,* (2018) but disagrees with Nguguni *et al.,* (2020) that found a negative insignificant effect of inflation rate on return on equity of firms and at the same time negates Odhiambo and Njuguna (2019) whose effect of inflation rate was positive significant on profitability of companies.

4. Conclusions

The study was steered by two objectives with the first being to analyse the effect of firm specific factors on the return on assets of listed non-life insurance companies in Kenya and the second to analyse the effect of firm specific factors on the return on equity of listed non-life insurance companies in Kenya. The study concluded that the firm specific factors that affect the return on asset of the listed non-life insurance companies in Kenya are leverage level, liquidity, firm size, premium growth, underwriting risks, return on equity and age of the firm which significantly affect return on assets. Further granulating reveals that leverage, liquidity and age of the firms have a positive effect on return on assets that is significance hence affect profit performance of the non-life insurance companies.

Additionally, the study sought to analyse the effect of firm specific factors on return on equity of the listed non-life insurance companies in Kenya which was objective two. The findings have revealed that factors such as leverage, premium growth rate, years of existence of the firm (age) and firm size significantly affect return on equity. It is important to note that amongst these specific factors, growth rate and firm size have a positive significant effect on

return on equity while leverage, age and current liabilities have negatively and significantly effect on return on equity of non-life insurance companies in Kenya.

5. Recommendations

5.1 Policy Implications

The findings have shown that leverage, premium growth rate, liquidity, firm size, age, and underwriting risks are the firm specific factors that affect both return on assets and return on equity which are the measures of profitability of the listed non-life insurance companies in Kenya. From the above findings, it has been shown that leverage significantly affect profitability in form whether denoted by ROA or ROE, therefore, the recommendation is that insurance firms need to effectively have a clear leverage management strategy that aligns with the overall sustainability plan of the firm. This falls within the mandate of clearly defined robust financial strategy to bolster profitability. The above variables are regulated through the Insurance Act (2015) CAP 487 on capital adequacy ratio maintenance of at least 100 percent (IRA, 2015). Policy recommendation is for institutionalization of IRA regular spot checks on this on various insurers to ensure there arise no cases of insolvency.

The findings have further borne that the firm's total assets held (size) and age significantly affect the financial performance of the company. This speaks to the need for insurers to have proper profitable growth and expansion plans in place. This can be properly articulated by utilization of proper strategy disciplines such as the Balanced Scorecard Methodology to ensure robust growth and sustainability for longevity in operations. This further underlines the importance of clients to review age, size, operations, and existing legacy of insurers before undertaking purchase of their insurance policies. A prudent underwriter is one with proper underwriting capacity to control underwriting risk and profitability sustainably**.**

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