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Examining the Factors Affecting the Performance of Non-Life Insurance for Sustainable Development in Ethiopia

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Abstract:

Purpose: *The study aims to investigate the factors influencing the performance of general and non-life insurance companies in Ethiopia, with a specific focus on their role in supporting the country's sustainable development.*
Design/Methodology/Approach: *The research employed secondary data from nine non-life insurance companies over a 15-year period, applying a random effect panel data model. Of the 17 insurance companies operating in Ethiopia, nine were selected to ensure data adequacy and reliability, excluding individuals below 15 years of age.*
Findings: *The results revealed that liquidity, loss ratio, and volume of capital were statistically significant determinants of performance in the Ethiopian general insurance sector. Conversely, factors such as age, company size, leverage ratio, and tangibility ratios showed minimal impact on performance.*
Practical Implications: *The findings highlight the need for insurers to prioritize liquidity management, efficient loss control, and capital strengthening to enhance their performance and contribution to sustainable development. The study further suggests that government policies should emphasize building insurers' professional capacity, encouraging innovation, and raising public awareness about insurance services. Additionally, company size—reflected in capital, efficiency, and accessibility—remains important for enhancing market reach, investment opportunities, and client trust.*
Originality/Value: *This study contributes to the limited literature on the nexus between insurance performance and sustainable development in Ethiopia. By identifying key determinants of performance, it provides valuable insights for insurers, policymakers, and stakeholders aiming to strengthen the role of the insurance industry in the country's sustainable economic growth.*

Keywords: *Financial markets, general insurance, sustainable development, panel data, capital.*

JEL Code: *D53, G22, Q01, C23, D24.*
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1. Introduction

1.1 Background of Study

Insurance sector growth and its contribution to the overall economy display different patterns across nations of the world, depending on the structure of the economy and the social security system. Swiss Re Institution (2018) indicated that the insurance sector's contribution to the economy was conventionally measured in terms of percentage of premiums collected to GDP, a measure known as insurance penetration (Fernando *et al.,* 2023).

The transfer of risk to insurers by businesses and individuals allows risk averse entities to undertake projects or participate in transactions and economic activities that they would otherwise avoid due to associated risks (Vella *et al.,* 2020). In this way, insurance plays a major role in promoting economic growth. This was an important prerequisite for the supply of both labor and capital in the economy, thereby contributing to an increase in Gross Domestic Product (GDP).

Kagu (2013) mentioned that African insurance market in general was characterized by underdevelopment owing to several reasons which mainly include less awareness of the society and non-affordability of insurance premiums pertaining to poverty of continent. In 2014, insurance premiums made up 2.8% of Africa's GDP, a considerably smaller percentage than the 6.2% global average.

Due to limited knowledge and disposable wealth, penetration was less than 1% in more than half of all African nations. It is also possible to examine the earning process of the insurance companies from the micro view, considering its own business operation elements that affect the financial results.

European businesspeople from France, Italy, Great Britain, and other countries started insurance industry in Ethiopia around the beginning of 20th century. 33 insurance companies that have operated in Ethiopia since 1960, Imperial Insurance Limited is the sole domestic insurer.

The Ethiopian Government conducted a study via Addis Ababa Chamber of Commerce in 1967 to assess reasons why domestic companies were not involved in the sector as expected. Result of the study showed that absence of detailed rules regarding how to supervise & control insurance business was the main problem of the industry.

Following the result, Ethiopia enacted the first proclamation in 1970, which was the first and enabled the country to have an insurance sector led by clear rules and regulations. This proclamation encouraged development of native insurance companies, which raised number of domestic companies from 1 to 15 until 1975 (Hailu, 2007).

As National Bank of Ethiopia (2018/19) report, there were 17 insurance companies with 568 branches in the country. The state-owned EIC had 85 branches, while the remaining 483 branches were distributed over the 16 private insurance companies. The same information also prevailed that the total capital under insurance industry had reached to Birr 5.5 billion, of which 72 percent went to the private insurance sector companies. Of the 17 insurance companies, 9 operated in the general insurance business sustainability in Ethiopia

The insurance framework realizing sustainable development should incorporate a parallel initiative with a long-range approach in the economic and business enterprises to develop a concept of sustainable development in the Ethiopian insurance company.

The Ethiopian insurance company shields the insurer from negative outcomes such as losses; therefore, there is a need for the safe investment of the premiums. But the insurance companies in Ethiopia also acknowledge challenges and emerging risks in life or non-life insurance sectors because of climatic conditions. Hence, there is a need for European Insurance Regulatory to focus on implementing the sustainable aspects globally.

The study attempted to investigate the internal or external variables affecting the performance of Ethiopian insurance businesses offering general or non-life insurance services. Furthermore, the study endeavoured to evaluate patterns and obstacles encountered by Ethiopian general insurance firms. The paper focused on the non-life segment as it was the most significant segment in terms of premium production in the Ethiopian insurance industry sustainability.

As per National bank of Ethiopia (NBE) the general/non-life insurance segment accounting for over 90% of all national premium output on average, securing a dominant position in the Ethiopian insurance market. It was also predicated on the idea that the performance factors influencing the two insurance groups ought to be handled differently.

1.2 Statement of the Problem

Delhausse, Fecher, Perelman, and Pestieau (1995) indicated that due to a variety of circumstances, the insurance industry in Ethiopia and throughout Africa was characterized by low penetration and underdevelopment in terms of both economic and social advantages. The global insurance sector penetration rate (premium to GDP ratio) has been 6.5%, but Africa recorded approximately 3.6%, nearly half of the worldwide industry average.

Between 2005 and 2016, Ethiopia's average humanitarian response plan constituted approximately 1.3 percent of GDP annually from 2017 to 2021, the appeals varied from US$844.5 million to US$2.8 billion (the latter equating to 27 percent of the

federal budget for FY2021/22), with 47–76 percent of these sums being fulfilled. To achieve the Sustainable Development Goals and increase resilience by lowering vulnerabilities to socioeconomic, climatic, health, and disaster risks, insurance and risk finance are essential. Insurance and risk financing offer crucial safety net that shields resources, people, and livelihoods from the effects of disasters in life or non-life insurance sectors.

In 2021, UNDP initiated new flagship project—the "Insurance and Risk Finance Facility (IRFF)" of the Finance Sector Hub—to assist countries with policy advice, guidance, tools, methodologies, and networks as part of the Tripartite Programme involving UNDP, the German Government, and the Insurance Development Forum.

UNDP Ethiopia initiated a microinsurance program in 2015, encompassing 5,000 smallholder farmers, with support from the Global Environment Facility (GEF), the Oromia and Nyala insurance companies, and the Ministry of Environment, Forests, or Climate Change in partnership. The weather index specified in the agreement with the insurance companies examines a threshold value for rainfall. The insurance company will provide the payment if the amount of rainfall falls short of the threshold.

Various organizations, including the Agriculture Transformation Agency, World Food Programme (WFP), and the World Bank, conducted similar initiatives.

As one of the nations in Africa, even though the insurance industry has a lengthy history in Ethiopia, it was also well-known for its low public awareness, limited accessibility, negligible penetration rate in comparison to its potential, larger population size, and average continental penetration.

According to data from the National Bank of Ethiopia (NBE, 2014–15), the insurance sector in Ethiopia contributed a mere 0.43% of the country's GDP in 2014–15, which is significantly lower than the African average of 3.6%. Additional data from the NBE (2010/11) indicate that Ethiopia's insurance industry contributed only 0.2% of the country's GDP in the 2011 fiscal year.

Numerous empirical studies were carried out by various people with the goal of examining the variables influencing the insurance industry's performance in Ethiopia. Sambasivam and Ayele (2013) and Suheyli (2015) are a few of scholars who have studied the factors shaping insurance businesses in Ethiopia generally. To the best of this study's knowledge, prior research on the Ethiopian insurance sector only examined variables influencing insurance companies' overall performance, not distinguishing between life or non-life insurance, even though the 2 insurance categories were examined independently in other contexts.

The paper is structured to concentrate on the areas that the previous studies did not examine. As a result, the study looked at variables and factors affecting Ethiopia's

non-life insurance industry's sustainability. Unlike other studies that focused on internal or firm-specific determinant identification, this one evaluated the trajectory, current state, and issues encountered by Ethiopian general and non-life insurance companies.

Since the non-life segment constituted a considerable portion of premium production, it was deemed appropriate to study it independently. For the past 6 fiscal years, non-life insurance has comprised for over 90% of the total national premium production, giving it a dominant position in the Ethiopian insurance market (National Bank of Ethiopia, 2018).

Furthermore, because life and nonlife insurance businesses differ in nature, the factors affecting their performance were not expected to be the same. Therefore, it would be better & more meaningful to study the two insurance types separately based on their importance.

Therefore, new study, was planned to concentrate on the topics that the earlier investigations did not cover. The study looked at the variables influencing Ethiopia's sustainable growth in non-life insurance sector.

1.3 Research Objectives

1.3.1 Overall Objective

The study's primary objective was to examine determinants affecting on the performance of non-life/general insurance sustainable development in Ethiopia.

1.3.2 Specific Objectives

Based on study, this paper was made an effort to meet the following particular goals:

1. *To investigate sustainability issues with non-life insurance in Ethiopia.*
2. *To determine internal (micro) variables influencing Ethiopia's non-life/general insurance sustainability performance.*
3. *To determine the external (macroeconomic) elements influencing Ethiopia's non-life/general insurance sector's performance.*

1.4 Research Questions

As per statement of problems of this study would answer the following basic study questions will be answered:

- *What were the main obstacles Ethiopia's non-life insurance sustainability faced?*
- *Which were the main internal (micro) elements influencing Ethiopia's non-life/general insurance sustainability performance?*
- *Which were the main external (macroeconomic) elements influencing Ethiopia's non-life/general insurance sustainability performance?*

1.5 Importance of Study

Insurance companies unquestionably contribute to a nation's sustained economic growth by giving the economy the necessary financial services. This study's attempt to pinpoint the variables affecting non-life insurance company performance in Ethiopia may be very significant to internal and external insurance stakeholders. The management of every insurance firm operating in Ethiopia benefited greatly from this study's identification of trends and important elements that influence profit and the need to take corrective action to keep those profits stable.

Additionally, it was crucial for the regulatory body overseeing the insurance industry to learn in-depth information about the relationships between internal factors, profitability, and other parties with an interest in the sector's profitability, such as investors making insurance-related investment decisions and the communities for which insurance services were provided.

1.6 Scope of the Study

This primary aim of research has been analyze variables that affect Ethiopian non-life and general insurance businesses' performance. Ethiopian non-life/general insurance performance may be impacted by external or internal, company-specific factors. However, the internal components have been focussing of this investigation.

Additionally, the study evaluated general insurance businesses in Ethiopia's current state, trends, and issues. In terms of data duration, all study variables included 15 years of data to ensure significant correlation and accurate estimation results. Thus, all Ethiopian general insurance businesses were considered for the study, except those that catered to minors. With eight general insurance businesses excluded by this specification, nine companies remained. Thus, only 9 of the 17 insurance companies that are active in Ethiopia were considered in the study.

2. Literature Review

Risk transfer mechanisms, such as insurance, offer the possibility of full or partial financial compensation for losses or damages caused due to events beyond control of the insured (Naveed, Zulfqar, and Ahmad, 2011) if a premium is paid under the contract of insurance, the insurer will pay the insured, the other party to the contract, a certain amount of money on occurrence of specified events within a specified period of time.

The principle purpose of insurance indemnity was to bring the insured back to his or her financial position prior to the loss in most cases, or reinstatement in honorarium in relation with actual loss. All insurance companies follow these four basic or guiding rules in doing so:

Absolute good faith: The insured must supply accurate, comprehensive, and understandable information about the subject of the insurance. Regarding the terms and conditions of the contract, both the insurer and the insured shall give the insured accurate, comprehensive, and unambiguous information.

Indemnity: The insured would be promptly restored to the same financial status as before the accident. This means that since the entire goal of an insurance contract was to provide compensation in the event of any damage or loss, it cannot be less or greater than the actual damage or loss.

Insurable Interest: An individual has an insurable interest in an insured object if its physical presence benefits him in some way, but its nonexistence would cause him to suffer a loss. The insured party must sustain a monetary loss because of the covered object's damage.

Proximate cause: A claim could only be paid by an insurer if the loss was almost caused by one of the covered perils. To determine whether or not the insurance was responsible for the loss, the proximate, nearest, or closest cause of the accident should be considered.

There are 2 primary business categories in insurance services: life or non-life/general. When a certain event, like death, occurs, life insurance provides coverage to the insured or their designated beneficiaries. Conversely, general insurance, commonly known as non-life insurance, is used to insure assets and liabilities. Non-life insurance covers a variety of business types, such as automotive, marine, engineering, fire, burglary, financial, and liability.

In addition to compensating for losses, insurance offers additional advantages like assurance, the chance to make further investments, and risk management guidance. Malik (2011) asserts that insurance is essential to the expansion of infrastructure and commercial enterprises. It increases trade, commerce, and entrepreneurship, channels and mobilizes funds, promotes social or financial stability, and raises citizens' and the nation's standard of living.

According to Kasturi (2006) an insurance company's ability to succeed rests on four key factors: (1) market identification; (2) risk assessment and loss estimation; and (3) market identification. (3) market penetration and exploitation; and (4) control over operational and investment expenses. He distinguished between two categories of insurance company performance: non-financial and financial. Net premium earned, underwriting profit, investments made in the company's assets, and outside investments were used to gauge the financial performance.

Conversely, there were two categories for the non-financial performance measurement: internal and external. The expansion of policies and branches, market share, and customer satisfaction are examples of external indicators. On the other

hand, internal metrics are said to include process speed, the number of dropouts, market research, employee morale, and training.

Delhausse, Fecher, Perelman, and Pestieau (1995) contended that an insurance company's performance and output must be evaluated based on amount of premiums it collects. Additionally, insurers must convert from yield/output to total return. You can always tolerate more of one or more risk kinds to obtain incremental yield. All the risks in a portfolio are implicitly and appropriately accounted for by total return alone. This strategy supported the utilization of Return on Asset/Investment as a crucial performance indicator for insurance businesses.

Even though most of the empirical literature on the subject was focused on the insurance industry rather than distinguishing between life and non-life, there were comparatively more studies conducted in this field. According to Meaza (2014) nine factors, including company size, risk of loss ratio, tangibility of assets, leverage, liquidity, growth rate, managerial effectiveness, inflation, and economic growth, affect the profitability (ROA) of Ethiopian insurance businesses.

She identified two new explanatory variables—economic growth and inflation—those prior studies had not considered. The study found that ROA positively correlated with business growth, size, tangibility of assets, managerial effectiveness, or economic growth. However, there was a negative link with the inflation rate, loss ratio/risk, liquidity, as well as leverage.

However, according to Venkata and Shahid (2019) the long-term inflation of goods and services is still negligible, with a negative coefficient, indicating that the negative relationship between inflation and Ethiopia's growth in sustainable development is consistent with economic theory. Nonetheless, inflation is significant at the five percent significance level and has a negative short-term coefficient two periods later.

This means that in two lagged periods, a one percent change in the inflation of goods and services will cause a 0.00072552-birr loss in real GDP. To promote sustained economic development, non-life insurance is also very important. It found that the dependent variable was return on assets, whereas the independent factors were underwriting risk, technical provision, liquidity, firm size, reinsurance dependency, solvency ratio (capital sufficiency), premium growth, real GDP, as well as inflation.

According to the National Planning Commission, Federal Democratic Republic of Ethiopia GTP-II Report (2016) the primary goal of sustainable economic development is to raise the material standard of living for the impoverished at the "grass root" level, which can be measured in terms of more food, real income, health care, education, access to clean water and sanitation, emergency food and cash reserves, etc. Economic growth at the aggregate, typically national level, is only indirectly addressed.

The main goal is to lower the absolute poverty of the world's poor by offering stable, long-lasting livelihoods that reduce the loss of natural resources, environmental damage, cultural disturbance, and social instability. Ethiopia has been aggressively mainstreaming the Sustainable Development Goals since 2015, aligning them with the 2nd "Growth & Transformation Plan (GTP II)", which runs from 2015-16 to 2019-20, and putting them into practice. Additionally, Ethiopia volunteered to take part in the 2017 SDG Voluntary National Review (VNR), which reviewed the SDGs' implementation and mainstreaming into national and subnational development plans.

In summary, there was a dearth of literature in the suggested field, particularly in the non-life insurance service segment. Most of research that was accessible focused on performance drivers and measures. Almost all academic literature has agreed that return on assets (ROA) is the most effective metric for assessing the profitability of insurance businesses. Although both internal or external factors affected insurance businesses' performance, most of the literature in the field indicated that internal factors—which typically include age, size, leverage and economic growth, volume of capital, and tangibility ratio—were the most significant.

2.1 Research Gap

As the empirical reviews show, the researcher was motivated to conduct this study due to a lack of adequate research on the factors influencing non-life insurance profitability in Ethiopian context, the existence of a knowledge gap, and the issue raised in area's statement of problem. Hence to fill this knowledge gap in the field and avail up to date evidence from Ethiopian insurance industries, the objective of this study was to investigate the determinants of non-life/general insurance profitability in Ethiopia.

3. Research Methodology

The plan that directs the researchers during the data collection, analysis, and interpretation phases is known as the study design. This study's main objective was to evaluate variables influencing Ethiopia's non-life/general insurance industry's performance. This research uses the Explanatory research technique for analysis. Explanatory study should be conducted if the goal was to identify which variable could be driving behavior, or if there was a cause-and-effect link among variables. Finally, for this study, researcher employed an explanatory study design.

A researcher's emphasis on the components of the research process and methodologies is reflected in their research approach. This research aims to create a conceptual framework that can only be evaluated using quantitative methods. Furthermore, in order to completely achieve the study's aims, qualitative data—obtained through interviews with specific experts in each insurance company—were also used.

Most of the study's data comes from secondary sources, while some primary data is also used. For every variable in the study, data from nine general insurance firms spanning 15 years was gathered. By looking through the yearly disclosure reports of nine general insurance companies & the NBE, secondary data was gathered.

Panel data—a mix of time series and cross sections—was the type of data used in this investigation. The nine general insurance companies that make up each cross-sectional unit were linked to an equal number of time series observations (15 years total), suggesting a balanced panel type. According to Gujarati (2003) due to its capacity to capture the possible variability of causes, panel data was chosen over cross-sectional or pure time series data analysis.

The NBE report for 2018–19 states that seventeen insurance companies were operating in Ethiopia now. The 17 insurance firms did not require a sample to draw significant conclusions because their numbers were already too small to gather data from 2005 to 2019.

However, only nine samples were included since most recently founded insurance businesses lacked 15 years of data. "Ethiopian Insurance Corporation, Africa Insurance Company S.C., Awash Insurance Company S.C., National Insurance company of Ethiopia S.C., Nyala Insurance Company S.C., The United Insurance S.C., Global Insurance Company S.C., Nile Insurance Company S.C., and NIB Insurance Company" are the nine insurance companies that make up the study's sample size. Insofar as it encompasses more than half of the entire population, the researcher thinks the sample size was adequate to draw valid conclusions about the population.

The study area revealed that both internal and external factors impacted the performance of insurance organization, which was quantified in terms of ROA. Company liquidity, size, solvency margin, loss ratios, and technological provisions were the main internal determining factors. The two external variables are GDP and inflation. As a result, the study considered seven internal/firm-specific criteria to determine the performance of general insurance businesses that are active in Ethiopia.

It was clear that a fixed or random effect model would be employed for the estimation process because panel data was the sort of data that was used. According to Wooldridge (2006) a linear regression model with variable intercept terms across different cross sections is all that the fixed effects model is. Based on fixed effect approach, the intercept in regression model is a group-specific constant term.

However, the REM (Random Effect Model) described a scenario in which the intercept varied with time (time variation) but was randomly and identically distributed over cross sections. The average value of all the cross-sectional intercepts is represented by the intercept.

As a result, the intercept mean value for cross sections is the same, and the error term reflects the unique variations in the intercept values for each firm.

In the literature, methodologies for panel estimation are grouped into two main types: FEM (fixed effects models) or REM (random effects models) (Brooks, 2008) in financial studies. To choose between the 2 models, a Hausman test is performed.

To determine which of the two models was the right one to use, the Hausman test was used. Additionally, the statistical program "STATA" was utilized to identify the most important and powerful explanatory factors influencing the insurance sector's profitability in Ethiopia.

Equation 1 below illustrates an attempt to examine the relationship among seven factors and the general insurance businesses' performance (ROA).

$$Y_{it} = \alpha + \beta x_{it} + \varepsilon_{it} \text{ (General form)} \quad (1)$$

Where:
Y = the dependent variable β
α = Constant term
X = explanatory variables with
β = was coefficient of independent variables
"i" was cross sections and "t" is time period and
ε = error term

Following equation could be driven from the general form above in a way that determine the variables in this study.

$$ROA_{it} = \alpha + \beta_0 SZ_{it} + \beta_1 Age_{it} + \beta_2 LVR_{it} + \beta_3 TNR_{it} + \beta_4 LR_{it} + \beta_5 VOC_{it} + \varepsilon_{it} \quad (2)$$

Where:
ROA_{it}**:** Return on Assets
SZ: Company Size (size)
Age: Age of Company
LVR: Leverage Ratio
TNR: Tangibility Ratio
LQR: Liquidity Ratio
LR: Loss Ratio
ε = error term
β0: Scalar constant under the null hypothesis/intercept
β0,1, 2, …5: coefficients of the corresponding explanatory variables (parameters to be estimated)
i = Insurance company (i = 1, 2, 3 ...9) (i=1,2,3...9) insurance company
t = time periods (t = 1, 2, 3 ...15)

3.1 Data Presentation

The variables that determined the value of dependent variable, in this case ROA, were known as independent or explanatory variables. Major factors influencing Ethiopian general insurance businesses' performance were found to be six explanatory variables. The table below summarizes and presents the definition of variables as well as the predicted sign of the association among dependent variable (ROA) and the six explanatory variables.

Table 1. *Definition of Independent Variables*

Variables	Symbol	Definition	Expected Relationship
Age	Age	Number of operational periods since establishment	+
Leverage Ratio	LVR	Total Liability divided by Total Asset	+/-
Tangibility Ratio	TNR	Fixed Assets divided by Total Assets	+/-
Liquidity Ratio	LQR	Current Assets divided by Current Liabilities	+
Loss Ratio	LR	Claims Incurred divided by Earned Premiums	-
Volume of Capital	VoC	Difference between total assets and total liabilities of a company	+

Source: *Brigham, E. F., & Ehrhardt, M. C., 2017.*

4. Results and Discussions

4.1 Performance Determinants

A multitude of factors impact the performance of general insurance businesses, as has previously been covered in the model specification and other sections of the research. Six elements were found in the article to be performance determinants for Ethiopian general insurance companies. These variables include the insurer's age, volume of capital (VoC), loss ratio (LR), liquidity ratio (LQR), Tangibility Ratio (TNR), and leverage ratio (LVR).

As recommended by Gujarati (2003) before running regression and see the nature and degree of relationship that exists among dependent & independent variables, it is imperative to test the data against the four classic assumptions (Normality, Hetroskedasticity, Multi-collinear and Auto Correlation). Accordingly, these tests are made for each classical assumptions and the result is presented and discussed as follows:

4.2 Descriptive Statistics Analysis

The process of arranging and summarizing the values of variables utilized in model is known as descriptive statistics, and the primary visual aids for this process are

tables and graphs. As a result, the following is how the descriptive statistics are explained and shown.

Table 2 illustrates how the descriptive statistics were provided for the observations. In total, 135 observations were obtained by cross-sectioning 9 general insurance companies with the time-series data points of 15 for each. It is in line with the performance of life and general (non-life) insurance businesses that were active in Ethiopia that was assessed by taking Return on Assets (ROA) as a proxy. Seven factors that are intended to determine or impact ROA were involved in the study. These factors include capital volume, age, size, leverage, tangibility, liquidity, and loss ratio.

Table 2. *Descriptive Statistics*

Variable	Mean	Std. Dev.	Min	Max	Observations
ROA	0.077958	0.0456797	-0.0471418	0.03736024	N = 135 n= 9
Age	18.44444	8.169534	4	44	N = 135 n = 9
Size	19.74974	1.247778	17.41714	24.05804	N = 135 n= 9
Live	0.6612543	0.1161257	0.0845878	0.9083095	N = 135 n = 9
TNR	0.181919	0.125752	0.0034375	0.851903	N = 135 n = 9
LQ	1.079822	0.3079421	0.320917	2.24557	N = 135 n = 9
VoC	18.6917	1.338809	16.35057	22.82185	N = 135 n = 9
LR	0.6308921	0.1338372	0.1235	1.017091	N = 135 n = 9

Source: *Computation from the Insurance Companies Data, 2021.*

Table 2 shows that, when all statistics are considered, the annual mean value of ROA is 7.8%, with values ranging from (-4.7%) to a maximum of 3.7%. The highest value (3.7%) means that there was a gain or profit of 3.7 cents from each Birr in total asset, while the lowest value indicates that there was a loss of 4.7 cent from each Birr of asset.

Conversely, the average number suggests that, on average, every Ethiopian general insurance firm made 7.8 cents from every Birr of total assets. The outcome additionally demonstrated that the sample mean's standard deviation is 4.6%. This shows that there is a 4.6% divergence or variety in the ROA values among the study's insurance businesses.

According to descriptive statistics, the firms of the study are between 1 and 44 years old and the mean and standard deviation (SD) are 18 and 8 years, respectively. The SD suggests that the nine insurance businesses taken into consideration in the study varied in age by eight years. The leverage ratio has mean value of 66% and minimum or maximum value of 8% & 91%, respectively. The greatest value suggests that debt exceeded asset value by three times.

The study's insurance companies' leverage varied by 12%, as shown by SD of the mean values, which is approximately 12%. Conversely, the range of tangibility is

between 0.34% to 85%. While the SD is 13%, the mean value is 18%. The liquidity ratio has a mean and SD of 108% and 31%, correspondingly, with a minimum of 32% and a maximum of around 225%. Each corporation, on average, has more liquid assets than liabilities, as indicated by the mean value. In terms of loss ratio, 12% is the lowest amount, and 107% is the greatest.

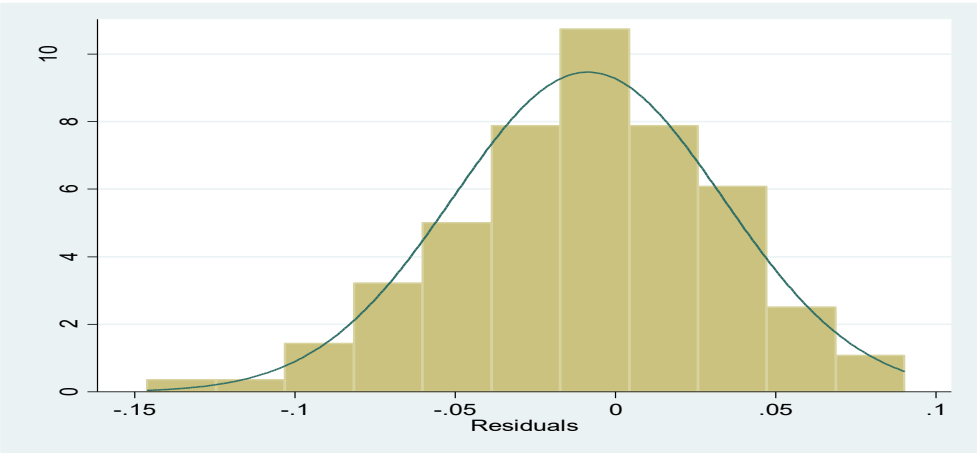
The average result, or around 62%, is understood to suggest that each insurance firm in the research had an average loss ratio of 63%. This indicates that policyholders receive compensation equal to 63% of the total annual premium production. However, the SD is 13%, which suggests that experience of filing claims varies significantly throughout insurance firms.

Table 2 also revealed that the volume of capital (VoC) of the insurance companies considered in the study was at 16.35 million Birr at least and at most 22.82 million Birr for the years 2005 to 2019. The mean amount is Birr 18.7 million and the standard deviation is Birr 1.34 million. The standard deviation value showed that the VoC varied significantly throughout insurance providers.

Normality Test: Normality could be tested using graphical and numerical/statistical approaches, and it assumes that mean of the residuals is zero. Graphical or statistical methods can be used to test the normalcy of data. The normal probability plot (NPP) and residuals histogram are two examples of the graphical technique.

The shape of the histogram is precisely bell-shaped when we look at the graphical tests, as shown in Figure 1 below, indicating that residuals are normally distributed around their zero mean. Graphical tests, therefore, confirmed that the normalcy assumption is met, which ultimately led to the conclusion that the inference to be drawn from sample data is also legitimate or consistent for population.

Figure 1. *Histogram – Normality Test*



Source: *SPSS Output, 2021.*

Multicolinearity Test: According Gujarati (2003) multicollinearity in the regression model indicates existence of considerable correlation among explanatory variables. Coefficient values and signs may become incorrect due to inefficient parameters and a high standard error resulting from this circumstance. A multicollinearity issue is indicated when the correlation coefficient between variables is >0.75.

The absence of multicollinearity among the explanatory variables is a basic assumption of the linear regression model. Multicollinearity exists when one predictor can be expressed as an exact linear combination of other predictors. Variance Inflation Factor (VIF) values are commonly used to assess multicollinearity. High multicollinearity can lead to inaccurate estimation of regression coefficients and make it difficult to determine the individual effect of each independent variable on the dependent variable.

However, multicollinearity can be found simply by examining each explanatory variable's variance inflation factor (VIF) value. In other words, if the VIF is more than 10, it indicates that the independent variables are interdependent. Consequently, as Tables 3 and 4 below show, the outcomes of multi-linearity tests illustrate that, for each variable, the correlation coefficient and VIF are < 0.75 or 10, correspondingly. This indicates that the data used in this study are free of multi-linearity issues.

Table 3. *Correlation between Independent Variables*

	ROA	age	Size	Levi	TNR	LQ	VOC	Los
ROA	1.0000							
Age	0.3671	1.0000						
Size	0.3895	0.7548	1.0000					
Levi	0.0259	0.3081	0.1262	1.0000				
TNR	-0.1738	-0.2024	-0.3480	-0.1054	1.0000			
LQ	0.0783	0.1010	0.1656	-0.3907	-0.2229	1.0000		
VOC	0.3506	0.6936	0.9054	-0.0921	-0.1422	0.3031	1.0000	
Los	-0.2790	-0.0030	-0.0888	0.2784	-0.1467	-0.1793	-0.2404	1.0000

Source: *SPSS output 2021.*

Table 4. *Variance inflation factors (VIF) -Multicolearity Test*

Explanatory Variables	VIF	1/VIF
Size	3.96	0.483595
VoC	2.46	0.587231
Age	2.80	0357317
Levi	1.76	0.566922
TNR	1.69	0.590125
LQ	1.52	0.657397
Los	1.21	0.826983

Mean VIF	4.63	

Source: *Computation from the Insurance Companies Data, 2021.*

Autocorrelation Test: The main purpose of the autocorrelation test is to determine whether there is a correlation among the residual at time "t" and the prior time, "t-1". To accept and depend on regression conclusion, error terms must be random or independent over time.

There is a simple test for autocorrelation derived by Wooldridge (2006) known as "test for autocorrelation in panel data". The program written to be used on Stata to perform the test is called xtserial. A statistically significant "p" result ($p<0.05$) in the test shows an autocorrelation problem, while the null hypothesis (H0) states that there is no first-order autocorrelation. Consequently, Wooldridge test for autocorrelation in panel data yielded following result: a "p" value of 0.154, which is significantly >0.05. Therefore, test result indicates that we should accept the null hypothesis, proving that autocorrelation is not an issue for this investigation.

xtserial ROA Age LVR TNR LQR LR VoC H0: no first-order autocorrelation
F (1, 7) = 2.416
Prob > F = 0.154

4.3 Econometric Result Presentation and Analysis

Since the results from the two models (random and fixed) differ quite substantially in both value and sign of the parameter coefficients, we have to select either of the two by conducting hausman test. So, one of the two must be chosen, best or worse. To this end, Hausman test is conducted, and according to Gujarati (2003) if H0 is rejected, it is concluded that the random effect model is appropriate. The H0 should be accepted if p value is greater than the level of significance (i.e., 0.05 in this case).

Hypothesis Null (H0): The Random Effect Model fits the data.
Optional Hypothesis (H1): The Fixed Effect Model makes sense.

The H0 is to be rejected if a statistically significant probability (p) value is obtained, meaning that $p<0.05$; if not, the alternative hypothesis is to be accepted.

The output shows us the p-value = 0.7587 which is by far > 0.05. Therefore, the H0 is accepted and that indicates the random effect model is the best model for the estimation. As other researcher is applied to choose between FE and RE. The H0 states that variance of error term is zero or there is no significant differences between units (i.e., no panel impact). If Ho is accepted, it implies that pooled OLS is appropriate, while rejection means that random effects is the proper model. As a result, Table 5 below presents the REM's outcome and discusses it appropriately.

Among the seven independent variables, only Liquidity Ratio (LQR), Loss Ratio (LR), and Volume of Capital (VoC) show a significant relationship with the Performance of General Insurance (non-life) in Ethiopia measured by ROA at 5% level of significance as shown in the above regression result table 5. On the other hand, four other variables Age, Size, Leverage Ratio (LVR) and Tangibility Ratio (TNR) were found to be statistically insignificant on the dependent variable at 5% level of significance.

Table 5. *Regression Result*

ROA	Coef.	Std. Err.	Z	P>|z|	[95%	Conf. Interval]
Age	0.0023061	0.0011542	2.00	0.031	0.000044	0.0045683
Size	0.0152381	0.0104849	1.45	0.046	0.0053118	0.0357881
Levi	0.0064958	0.0447284	0.151	0.085	-0.0941618	0.0811702
TNR	-0.0422563	0.0400808	-0.05	0.092	-0.1208133	0.0363007
LQ	0.0100021	0.0142517	0.70	0.030	-0.0379349	0.0179307
VoC	0.0121277	0.0095064	0.281	0.032	0.03076	0.0065046
LR	-0.0989655	0307752	-0.22	0.001	-0.1592837	-0.0386472
cons	0.0468379	0.1128349	3.51	0.008	0.1743144	02679902
No.of observation	135					
Wald chi2(7)	35.54					
Prob > chi^2	0.0000					
R-sq: within	0.4195					
Between	0.6328					
Overall	0.4625					

**Significant at 5% level of significance.*
Source: *SPSS output 2021.*

Dependent variable (ROA) is adversely influenced by Loss Ratio (LR) and Tangibility Ratio (TNR). Still, it exhibits a direct (positive) correlation with the other 5 variables (Age, Size, Leverage Ratio, Liquidity Ratio, and Volume of Capital).

Liquidity (which is measured by the current asset to current liability ratio) is among the significant performance determinants of general insurance companies operating in Ethiopia according to regression analysis. This ratio shows how well the company could utilize its near cash to meet short-term obligations to customers and policyholders without having to improve underwriting and investment profit margins or liquidate financial assets. Because of this, current and liquid assets must always be maintained in an amount large enough to cover any immediate liabilities that may result from unresolved risks.

Table 5 also shows a positive correlation among LQR & ROA, suggesting that organizations with higher levels of liquidity tend to perform better because the insurance industry is linked to unforeseen but catastrophic losses that may

necessitate larger settlement amounts. While some earlier studies have identified a negative link between ROA and liquidity ratio, most previous studies have obtained the same outcome as this paper. It was predicted that the liquidity ratio and ROA would positively and statistically significantly correlate, and this prediction and the actual result agree perfectly.

Based on the regression analysis shown in Table 5, the Liquidity Ratio (LQR) coefficient is 0.010, meaning that a one percent change in LQR would, on average, result in a one percent change in Ethiopian general insurance companies' performance. Alternatively, the regression coefficient of 0.010 suggests that a 1% rise in the average LQR would result in a 1% increase in ROA and vice versa.

The ratio of claims to premium volume collected, or loss ratio (LR), has a major detrimental effect on the operation of general insurance businesses that operate in Ethiopia. It merely indicates the amount of compensation or claims paid to policyholders as a percentage of the premiums collected during a particular financial year.

There is a negative or indirect relationship among LR or insurer performance. This implies that an increase in claims payments will lower insurer performance (ROA). According to Table 5, the coefficient of LR is (-0.099), meaning that a percentage rise in the loss ratio would, on average, result in a 9.9 percent fall in ROA, conversely. Given that the hypothesis result and the regression result agree, it is accepted.

The gap between total assets and total liabilities is known as volume of capital, and it provides insurers with the potential to diversify their business and build a robust customer base and technological infrastructure. Consequently, the regression outcome indicates that there is a statistically significant and positive link among performance of general insurance service providers and VOC. Given that the coefficient is 0.012, a percent change in VOC would typically result in a corresponding percent change in ROA. Accordingly, a 1.2% average increase in VOC would result in a corresponding 1.2% increase in ROA.

The regression results also showed a statistically insignificant link among performance (ROA) of Ethiopian general insurance businesses and age, size, leverage ratio (LVR), and tangibility ratio (TNR).

The company's age was discovered to have a favorable correlation with insurer performance, even though this relationship is statistically insignificant. Other studies have discovered a strong and positive correlation among company's age and performance. Mistre (2015) discovered a weak but negative correlation between ROA and age. As a result, the outcome of earlier research is contradictory. The paper's findings suggest that length of time Ethiopian general insurance businesses have been operating in the market has no bearing on their performance.

Ratio of total obligation to total asset, or leverage ratio (LVR), likewise exhibits a statistically negligible positive connection with ROA. Despite several other studies finding the exact same outcome as this study, most earlier investigations established a negative relationship among LVR or ROA. For instance, and other studies also found a statistically insignificant but favorable correlation between LVR and ROA for insurance companies in Ghana. There might be a reason for the positive link, as financial leverage measures a company's capacity to control economic exposure in the event of catastrophic losses.

Although the degree of the association between leverage and profitability is negligible, the regression result indicates that one exists. As a result, the regression result—which is based on information collected from every general insurance company—proved that insurers in Ethiopia who use a high degree of debt or liability as a source of funding do not have appreciable performance effects.

Tangibility Ratio (TNR), the other explanatory variable, has a statistically insignificantly negative association with performance of general insurance businesses in Ethiopia. This suggests that variables other than tangibility ratio are probably going to have an impact on the performance of Ethiopia's general insurance companies. The inverse relationship can provide information on the kinds of fixed assets Ethiopian insurance companies own. Performance may benefit from fixed assets that are employed to bring in additional revenue, and vice versa.

46.3% is the total coefficient of determination (R2). This indicates that the seven independent variables account for or explain 46% of the variation in ROA, with the remaining change resulting from other causes. R2 levels are often categorized as weak, moderate, or above 0.4 (40%), with values below 0.2 (20%) being weak. Because the study's R2 is 46.3%, it falls under the "strong" category.

5. Conclusion and Recommendations

5.1 Conclusion

Regression study results demonstrate that performance of Ethiopia's non-life/general insurance industry is influenced via company size, technical provisions, reinsurance dependence, loss ratio, and GDP.

The study's findings show a positive coefficient of size and a statistically significant correlation between it and Ethiopia's non-life/general insurance industry's performance. This indicates that the big-size insurance companies are more profit in Ethiopian market than smaller-size ones. Since they have space economy, larger insurance companies have more potential to increase its profit.

The findings of this study reveal that there exists a negative and statistically significant association between the performance of the Ethiopian non-life/general

insurance sector and loss ratio/risk and technical reserves. That implies more claims means less earning. This means that the fewer claims filed and the greater division of earned premiums, the more profitable the insurers.

By imposing higher rates on the high risk, a portfolio reallocation towards the reduce risk bearing policies occurs which possibly reduces the number of claims submitted and increase the earned premium. Price competition; Low public awareness; Service accessibility/urban centricity; Homogeneity of product/ lack of product diversification and Human resource shortage, Government interference through NBE, Unfair competition and Absence of cooperative effort among industry players are the kebele hindering factors affecting performance of Ethio non-life and general insurance market.

Generally, insurance services are provided to transfer the risk associated with the Insured to the Insurer, thereby making the Insured comfortable and focused on their core business. Different countries and areas have different levels of insurance sector development and contribution to the global economy, which may be related to the development of their own economies and civilizations.

The insurance industry in Ethiopia has seen ups and downs before arriving at its current stable growth trajectory. When up to 33 insurance companies were active in the nation during the imperial administration, it was in better shape.

All private insurance businesses were nationalized and combined to form the state-owned company (EIC), which is still in operation today, after the socialist Derg came to power. Since the present administration took office, the industry has been growing in a largely steady manner.

Based on published research, the study assumed that the liquidity ratio (LQR), loss ratio (LR), volume of capital (VoC), age and size of the company, leverage ratio (LVR), and tangibility ratio (TNR) all influence Ethiopian general insurance firms' performance. Out of these, the VoC, LR, LQR, and tangibility ratio (TNR) have the most impact on performance; the other factors, encompassing the company's age, size, and LVR, have less of an impact.

Of the aforementioned factors, the study demonstrated that the tangibility ratio (TNR) and LR had a negative association with Ethiopian general insurance businesses' performance, whereas the remaining factors had a direct or positive relationship with ROA.

The primary difficulties facing insurance companies operating in Ethiopia include low public awareness regarding insurance service, price centered competition, absence of differentiated products (low creativity), government intervention through NBE and shortage of skilled man power in the area.

5.2 Recommendations

This study tried to examine variables influencing Ethiopian general insurance companies' performance. The following recommendations were made to Ethiopian general insurance companies based on study's conclusions:

Research would want to suggest that general insurance companies consider the status of Company Size because when the insurance company size increases, it will have positive impact on company's performance capacity.

Company size means (its capital, efficiency, accessibility, etc). If we look all the factors, for e.g., when the capital increases, it would have more capacity to get various strong clients who could rely on it, in addition it would be profitable by making various investments besides expanding its basic or main role.

The company's ability to expand by opening many branches will also help it become more accessible to customers and enhance output, both of which will contribute to growth in capital. The company's scale may also enable it to partner with reputable, top-tier reinsurers with large capacity, which would aid in attracting large clientele.

And also, General insurance companies consider the importance of Reinsurance Dependence because the company will benefit from choosing and dealing with reputable and highly capable reinsurers, since it will be able to re-insure with dependable reinsurers and know that it will be in excellent hands in the event of a significant loss. Additionally, the company's clients will favour it over rivals. Another advantage is that it could undoubtedly attract reinsurance, allowing the business to expand its clientele and take on more risk without worrying about losing money.

Due to the high loss ratio at which Ethiopian general insurance companies were operating, the insurers should lower their loss ratio. A large loss ratio would have a detrimental effect on company's profitability. If the business collects premiums from a variety of clients without exercising discretion, losses may be so great that the business experiences a loss. Consequently, insurance businesses need to practice sensible underwriting because their business involves accepting losses that, if handled carelessly, could result in significant loss. The total premiums paid by the insured should greatly exceed the potential number of claims. Moreover, additional administrative costs must also be considered, and the technology prospectus in the light of the importance for the general insurance companies.

There are times fees made in do not settle this year, that said. because that fees will be paid ultimately for claims. such until paid, despite. Due to the expense and the need to hold a reserve for the unpaid claim, this has a detrimental effect on the business's profitability as well. However, caution should be used while holding a provision since it needs to be appropriate—it's an estimate, not a precise number—

but it should be close to the exact amount. Since the opposite is true, if it is low, the corporation will pay more than it has planned. High provision typically has a detrimental effect on a company's performance because it is assumed that they will be paid someday, and it costs the company.

This study tried to investigate the variables influencing Ethiopian general insurance companies' performance. Based on study's outcomes, general insurance companies in Ethiopia are advised to prioritize elements that have a resonant effect and are decisive to improve performance. These variables include capital volume, liquidity, ratio, and loss ratio. A substantial amount of liquid assets will make it easier for insurers to settle big claims, which will satisfy customers. As the number of clients and retention rate in the insurance business increase, one of the most crucial factors determining success is customer happiness.

To maintain an acceptable loss ratio, insurers must place a strong emphasis on risk and business selection. They should endeavour to do this by assembling a team of morally and professionally qualified personnel to counteract moral hazard and adverse selection, both of which significantly increase the loss ratio. Insurance businesses must strive towards augmenting their capital volume, as this bestows upon them the opportunity to grow their operations and enhance their credibility and reliability within the industry.

The supervisory authority (National Bank of Ethiopia) is further suggested to concentrate on remedying the unhealthy nature of competition (price war) and to exert more efforts on the fronts which could contribute to enhance the public's understanding on significance and forms of insurance services in the country, as the government of currently is not engaging in any activity that could be termed as raising public consciousness on insurance services.

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