

## **FIRM SPECIFIC FACTORS THAT DETERMINE INSURANCE COMPANIES' PERFORMANCE IN ETHIOPIA**

*Daniel Mehari, MSc*

Arba Minch University, Arba Minch, Ethiopia

*Tilahun Aemiro, Msc*

Bahir Dar University, Bahir Dar, Ethiopia

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### **Abstract**

The performance of any business firm not only plays the role to improve the market value of that specific firm but also leads towards the growth of the whole sector which ultimately leads towards the overall prosperity of the economy. Assessing the determinants of the performance of organizations has gained importance in the corporate finance literature; however, in the context of insurance sector, it has received little attention particularly in Ethiopia. Accordingly, this study investigated the impact of firm level characteristics (size, leverage, tangibility, Loss ratio (risk), growth in writing premium, liquidity and age) on performance of insurance companies in Ethiopia. Return on total assets (ROA) - a key indicator of insurance company's performance- is used as dependent variable while age of company, size of the company, growth in writing premium, liquidity, leverage and loss ratio are independent variables. The sample includes 9 insurance companies over the period 2005-2010. The audited annual reports (Balance sheet and Profit/Loss account) of insurance companies were obtained from National Bank of Ethiopia (NBE) and insurance companies' annual publication reports. The results of regression analysis reveal that insurers' size, tangibility and leverage are statistically significant and positively related with return on total asset; however, loss ratio (risk) is statistically significant and negatively related with ROA. Thus, insurers' size, Loss ratio (risk), tangibility and leverage are important determinants of performance of insurance companies in Ethiopia. But, growth in writing premium, insurers' age and liquidity have statistically insignificant relationship with ROA.

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**Keywords:** Performance, Insurance Companies, Ethiopia

## **Introduction**

The performance of any business firm not only plays the role to increase the market value of that specific firm but also leads towards the growth of the whole sector which ultimately leads towards the overall prosperity of the economy. Assessing the determinants of performance of insurers has gained the importance in the corporate finance literature because as intermediaries, these companies are not only providing the mechanism of risk transfer, but also helps to channelize the funds in an appropriate way to support the business activities in the economy. However, it has received little attention particularly in developing economies (Ahmed et al, 2011).

Ethiopia's Insurance sector has shown strong resilience to a challenging macroeconomic environment and global development. For example, according to a report by NBE (2010) the size of the country's Insurance sector in terms of assets has increased by 47.5% by the end of June 2010. The non- life insurance sector also registered a higher gross written premium of about Birr 1.38 billion, thus showing a 17% increase over the previous year's premium. Moreover, the life insurance written premium has increased by 14%.

Despite the current insurance companies' development with respect to both total assets and in number, no studies were conducted to investigate the determinants of performance of insurance sector in Ethiopia. Therefore, the objective of this study is to identify the factors that influence insurance companies' performance in Ethiopia. The significance of this study stems from the fact that various studies in Ethiopia have investigated the determinants of performance only for non-financial and banking sectors. Therefore, the researcher believes that the study fills an important gap in understanding the determinants of performance for insurance companies in the developing economy. Such an understanding is important, because it equips financial managers with applied knowledge for determining factors that affect firms' performance. From a theoretical point of view, it provides an important data for comparing determinants of performance of insurance companies between developed and developing economies.

## **Literature Review**

While there have been many studies aimed at isolating the characteristics, behavior and performance determinants of insurance companies in developed countries, there are few that focus on developing countries of Africa, and indeed none in Ethiopia. For instance, Chen et al. (2009) examined the determinants of profitability and the results showed that profitability of insurance companies decreased with the increase in equity ratio. Sloan, and Conover (1998) deduced that the functional status of insurers do not affect the profitability of

being insured but public coverage has significant impact on profitability of insurance companies. Chen and Wong (2004) found that size, investment, liquidity are the important determinants of financial health of insurance companies.

In many literatures, it has been suggested that company size is positively related to financial performance. The main reasons behind this can be summarized as follows. First, large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies. Second, large insurance companies usually can relatively easily recruit able employees with professional knowledge compared with small insurance companies. Third, large insurance companies have economies of scale in terms of the labor cost, which is the most significant production factor for delivering insurance services. For instance, Browne et.al, (2001) has shown empirically that company size is positively related to the financial performance of US life insurance companies. However, company size is not found to be an important determinant of operational performance in the Bermuda insurance market during the period 1993-1997 (Adams and Buckle, 2000).

Insurance companies could prosper by taking reasonable leverage risk or could become insolvent if the risk is out of control. Adams and Buckle (2000) provide evidence that insurance companies with high leverage have better operational performance than insurance companies with low leverage. Nevertheless, more empirical evidence supports the view that leverage risk reduces company performance. Carson and Hoyt (1995) find that leverage is significantly positively related to the probability of insolvency. Moreover, a negative relationship between leverage and performance has also been found in Browne et al. (2001).

Companies with more liquid assets are less likely to fail because they can realize cash even in very difficult situations. It is therefore expected that insurance companies with more liquid assets will outperform those with less liquid assets. Browne et al., (2001) found evidence supporting that performance is positively related to the proportion of liquid assets in the asset mix of an insurance company. More empirical findings have confirmed that there is a positive relationship between liquidity and financial performance of insurers (Ambrose and Carroll, 1994 and Carson and Hoyt, 1995). However, according to the theory of agency costs, high liquidity of assets could increase agency costs for owners because managers might take advantage of the benefits of liquid assets (Adams and Buckle, 2000). In addition, liquid assets imply high reinvestment risk since the proceeds from liquid assets would have to be reinvested after a relatively short period of time. Undoubtedly, reinvestment risk would put a strain on the performance of a company. In this case, it is, therefore, likely that insurance companies with less liquid assets outperform those with more liquid assets.

Organizations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk-taking (Fama and Jensen, 1983; Lamm-Tennant and Starks, 1993). As a consequence, insurers that underwrite risky business (e.g., catastrophe coverage) will need to ensure that good standards of management are applied to mitigate their exposure to underwriting losses ex-ante and maximize returns on invested assets ex-post. This could improve annual operational performance by encouraging managers to increase cash flows through risk taking. On the other hand, excessive risk-taking could adversely affect the annual performance of insurers and reinsurance companies. Furthermore, higher annual insurance losses will tend to increase the level of corporate management expenses ex-post (e.g., claims investigation and loss adjustment costs) that could further exacerbate a decline in reported operational performance. In contrast, insurers and reinsurance companies with lower than expected annual losses are likely to have better operational performance because, for example, they do not incur such high monitoring and claims handling costs.

Premium growth measures the rate of market penetration. Empirical results showed that the rapid growth of premium volume is one of the causal factors of insurers' insolvency (Kim et al. 1995). Being too obsessed with growth can lead to self-destruction as other important objectives may be neglected.

Ahmed et al., 2011 also investigated the impact of firm level characteristics on the performance of the life insurance sector of Pakistan over the period of seven years from 2001 to 2007. The results of the OLS regression analysis revealed that leverage is negatively and significantly related to the performance of life insurance companies. Growth of written premium and age of a firm has also negative relation to performance of life insurance companies but they are statistically insignificant. The study also showed that firm size is positively and significantly related to the performance of insurance companies. This indicates that performance of the large size firm is better than the small size firm. According to this study tangibility of assets and liquidity have also a positive relation to performance of insurance companies but they are statistically insignificant.

Another study by Malik (2011) examined the determinants of Pakistan's insurance companies profitability proxied by return on total assets. The variables tested in this paper were age of company, size of company, the volume of capital, leverage ratio and loss ratio. The result shows that there is no relationship between profitability and age of the company and there is a significant and positive relationship between profitability and size. On the other

hand the analysis suggests that leverage ratio and loss ratio have a negative impact on profitability of insurance companies in Pakistan.

## **Data And Methodology**

### **Data and Sampling**

This study employed secondary data sources, which are annual report of insurance companies obtained from National Bank of Ethiopia (NBE). Currently there are fourteen (14) insurance companies operating in Ethiopia, however, only nine insurance companies were selected purposefully and others excluded since they are recently established and their market share is very small.

### **Model Specification, Hypotheses and Variable Measurement**

Several important issues need to be dealt with in specifying an empirical model. These include choice of suitable dependent and explanatory variables, measurement of these variables, and model specifications. The remainder of this section discusses these concerns.

#### **Choice of Dependent Variable and its Measurement**

In line with earlier studies that investigated the determinants of Insurances' and Banks' performance, this study relies on one commonly used measure of performance, which is returned on total assets (ROA). Return on total assets (ROA) is calculated as net profit before tax by total assets. This is probably the most important single ratio in comparing the efficiency and financial performance of insurance companies as it indicates the returns generated from the assets that Insurers owns. The formula for the performance measure is given as follows:

$$ROA = \text{Net profit before tax}_{(t)} / \text{Total Assets}_{(t)}$$

#### **Choice of Explanatory Variables and their Measurement**

The choice of explanatory variables is based on their theoretical relationship with the dependent variable. Generally speaking, the chosen explanatory variables are expected to partly explain the variation of the dependent variable. In this paper, firm specific variables affecting the performance of Ethiopian insurance companies will be accounted. These explanatory variables and their measurement are as follows.

- a) Age of company (AG): This variable is measured as the number of years from date of establishment
- b) Size of company (SZ): Performance is likely to increase in size, because larger firms will have better risk diversification, more economic scale advantage, and overall better cost efficiency. In this study, total asset is used as a proxy for Company Size.  
Company Size = Natural log of total assets

c) Leverage (LV): It is a financial ratio that indicates the percentage of a firm's assets that are financed with debt. The Leverage Ratio is measured as:

$$\text{Leverage Ratio} = \text{Total Liabilities} / \text{Total Assets}$$

d) Loss ratio (LOSS): This variable is measured as the ratio of incurred claims to earned premiums. It is measured as: Loss ratio = Net claims incurred / Net earned premiums

e) The tangibility of Assets (TA): It is a ratio that measures the share of Fixed Assets from Total Assets.  $TA = \text{Fixed Assets} / \text{Total Assets}$ .

f) Liquidity (LQ): The Liquidity Ratio measures the firm's ability to use its near cash or “quick” assets to retire its liabilities. Liquidity Ratio = Current Assets / Current Liabilities.

g) Premium Growth (PG): Proxy for Premium Growth is the percentage increase in Gross Written Premiums (GWP). The equation is expressed as follows:

$$PG = (\text{GWP}(t) - \text{GWP}(t-1)) / \text{GWP}(t-1)$$

### **Research Hypotheses**

The study tested the following research hypotheses formulated based on prior empirical literature.

H1. Age of a company has a positive impact on performance of insurance companies in Ethiopia.

H2. The size of a company has a positive impact on performance of insurance companies in Ethiopia.

H3. There is a positive relationship between tangibility of assets and performance of insurance companies in Ethiopia.

H4. Leverage has a negative impact on performance of insurance companies in Ethiopia

H5. Loss ratio has a negative impact on performance of insurance companies in Ethiopia.

H6. Liquidity has a positive impact on performance of insurance companies in Ethiopia.

H7. The insurance premium growth has a negative impact on performance of insurance companies in Ethiopia.

### **Model specification**

In order to decide between fixed effect and random effects regression model, we run the Hausman test. Since the p-value is insignificant at 5% level of significance random effect was selected. Further test was also conducted to choose between random effect versus pooled OLS regression model by using Breush and pagan Lagrangian multiplier test and the result shows that pooled OLS is fitted for the study since the P-value is insignificant at 5% level of confidence. Therefore, our baseline model could be specified as follows:

$$ROA = \beta_0 + \beta_1 AG_{i,t} + \beta_2 SZ_{i,t} + \beta_3 LV_{i,t} + \beta_4 LOSS_{i,t} + \beta_5 TA_{i,t} + \beta_6 LQ_{i,t} + \beta_7 PG_{i,t} + \epsilon_{it}$$

Where:

ROA = Return on total assets;

AG = Age of companies;

SZ = Size of companies;

LV = Leverage;

LOSS = Loss ratio;

TA = Tangibility of assets;

LQ = Liquidity;

PG = Premium Growth;

$\epsilon$  = is the error component for company  $i$  at time  $t$  assumed to have mean zero  $E[\epsilon_{it}] = 0$

$\beta_0$  = Constant

$\beta_{1,2,3,\dots,7}$  are parameters to be estimated;

$i$  = Insurance company  $i = 1, \dots, 9$ ; and  $t$  = the index of time periods and  $t = 1, \dots, 6$

## Results And Discussions

### Regression Diagnostics Tests

Regression assumptions to be checked include normality of the error term, multicollinearity, and heteroskedasticity. Shapiro wilk W test for normality of the error term shows the residuals were normally distributed ( $W=0.97997$ ,  $\text{Prob}>z = 0.49900$ ). **(Insert Table 1 here)**. Regarding multicollinearity, the Variance inflation factors (VIFs) for the independent variables included in the regression equation are all lower than 3. According to Gujarati (2004), variables can be regarded as highly collinear if the VIF value of explanatory variables exceeds ten. Based on this rule-of-thumb, it seems that problems associated with multicollinearity are unlikely in this model. **(Insert Table 2 here)**. Breusch-Pagan / Cook-Weisberg test for heteroskedasticity revealed homoskedastic results ( $\text{Prob} > \chi^2 = 0.3269$ ). **(Insert Table 3 here)**. Besides Ramsey RESET (regression specification error test) test was performed for model specification and the results show the model has no omitted variable ( $\text{Prob} > \chi^2 = 0.3642$ ). **(Insert Table 4 here)**.

### Regression Results

Table 5 presents the results estimated by using pooled ordinary least squares (OLS) regression. **(Insert Table 5 here)**. The  $R^2$  shows that the model explains 56.04 percent of the variability in return on total asset for insurance companies in Ethiopia. The rest 43.96 percent of the variation in return on asset was not explained by the independent variables of the study. However, P -value of 0.0001 indicates a strong statistical significance at the 1 % level of significance, which shows the explanatory power of the model.

The findings of this study show that there is negative relationship between age and ROA but statistically insignificant. This finding was similar to that of Malik (2011) and Ahmed et al. (2011). Thus based on this research finding age of insurers' is not considered as a powerful explanatory variable to determine the performance of insurance companies in Ethiopia. However, the variable size is positively related to ROA and statistically significant at the 5 % level of significance. This reveals that performance of large size insurance companies is better than small size companies. Large insurers are likely to perform better than small insurers because they can achieve operating cost efficiencies through increasing output and economizing on the unit cost of innovations in products and process development (Hardwick, 1997). Large corporate size also enables insurers to effectively diversify their assumed risks and respond more quickly to changes in market conditions (Wyn, 1998). The finding of this study is congruent with, Gardner and Grace (1993); Sommer (1996); Cummins and Nini (2002); Chen and Wong (2004); Liebenberg and Sommer (2007); Malik (2011) and Ahmed et al. (2011). Hence, firm size is an important determinant of the financial strength of insurers both in developing and developed economies.

The pooled ordinary least squares (OLS) result indicates that the leverage is positively and significantly related to the performance of the insurance companies at 1 percent level of significance. The result indicates that insurance companies in Ethiopia with high financial leverage have better performance than companies with low financial leverage. This result is similar to that of Adams and Buckle (2000), Shui (2004), and Elango et al. (2008).

The variable risk is found to have a negative and statistically significant (at the 1 % level of significance) relationship with ROA. According to the nature of the insurance industry, the ratio of net claims paid in net premiums earned (loss ratio) is used as a proxy to measure the risk of the insurance companies in Ethiopia. This shows that insurers that underwrite risky business (e.g., catastrophe coverage) will need to ensure that good standards of management are applied to mitigate their exposure to underwriting losses ex-ante and maximize returns on invested assets ex-post. Otherwise, they will turn out to be poor performers. Excessive risk-taking could adversely affect the performance of insurance companies. Malik (2011) and Ahmed et al. (2011) also found the same result. The results of this study also indicate that having a large proportion of fixed assets to total assets (tangible) entails significant and positive impact on performance. The finding is similar to that of Ahmed et al. (2011).

Liquidity is found to be positively related to ROA but statistically insignificant. The result of the study is consistent with that of Chen and Wong (2004) and Ahmed et al. (2011).



The positive coefficient of growth in writing premium indicates a positive relationship between growth in writing premium and performance. However, this positive relationship is found to be statistically insignificant with the p-value of 0.105. The result of the study supports the findings of Chen and Wong (2004).

**Table 5** Pooled ordinary least square (OLS) Regression Results-return on assets (ROA) as dependent variable.

Variables	Coefficient	Standard Error	t –value	P-value
CONSTANT	-0.2390538	0.1112393	-2.15	0.037
AG	-0.0005889	0.0009388	-0.63	0.534
SZ	0.0330763**	0.0145583	2.27	0.028
LV	0.1883774*	0.0410987	4.58	0.000
LOSS	-0.1787326*	0.0338376	-5.28	0.000
TA	0.1168741**	0.0514593	2.27	0.028
LQ	0.0017094	0.0027178	0.63	0.532
PG	0.0587373	0.0354791	1.66	0.105

Number of observations 54  
 F (7, 46) 8.83\* (Prob > F = 0.0001)  
 R-squared 0.5604  
 Adjusted R-squared = 0.4935

*Source: Author’ own computation*

\*Significant at 1 percent level, \*\*Significant at 5 percent level,

## Conclusions

In this study, the empirical analysis of investigating the determinants of the performance of Ethiopian insurance companies was conducted using a panel data set consisting of financial data of nine insurers over the period of 2005 to 2010. The results of pooled OLS regression analysis revealed that firm size, leverage, loss ratio and tangibility of assets were statistically significant to explain performance of insurance companies in Ethiopia. The result of the study also shows that insurers’ size, leverage and tangibility of assets were positively related to insurance performance, while loss ratio was negatively related to performance (ROA). Hence, large sized, highly leveraged, low risk and high fixed asset insurance companies have better financial performance than small sized, less leveraged, high risk and low fixed asset insurance companies in Ethiopia. Firm age, liquidity and growth in written premium have no a statistical significant relationship with performance of insurers.

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**Annex**

**Table 1-** Normality Test

H0: Variables are normally distributed

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
Residuals	54	0.97997	1.001	0.003	0.49900

**Table 2-** Multicollinearity Test

Variable	VIF	1/VIF
AG	2.98	0.335144
LV	2.89	0.346486
LOSS	2.80	0.357007
SZ	2.47	0.405308
PG	1.56	0.640142
LQ	1.31	0.762670
TA	1.21	0.824715
Mean VIF		2.17

**Table 3-** Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity

Ho: Constant variance

Variables: fitted values of Return on total assets (performance measure)

Chi2 (1) = 0.96

Prob > chi2 = 0.3269

**Table 4-** Ramsay Test for Model Specification

Ramsey RESET test using powers of the fitted values of ROA (measure of performance)

Ho: model has no omitted variables

F (3, 43) = 1.09

Prob > F = 0.3642

**5. Hausman Test for Random Vs Fixed Effect**

Test: Ho: difference in coefficients not systematic

chi2(7) = (b-B)'[(V\_b-V\_B)^(-1)](b-B) = 2.25

Prob>chi2 = 0.9449

**6. Breusch and Pagan Lagrangian Multiplier Test for Random Effect**

ROA [Insurers, t] = Xb + u[insurers] + e[insurers, t]

Test: Var (u) = 0 chi2(1) = 2.90

Prob > chi2 = 0.0888