Determinants of the Profitability of Insurance Companies in Ethiopia

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Abstract

The objective of the study is to investigate the factors that determine the profitability of insurance companies in Ethiopia. The performance of any firm is not only plays the role to increase the market value of that specific firm but also leads towards the growth of the whole industry which ultimately leads towards the overall prosperity of the economy. To maximize the insurance companies' profitablity, it is necessary to identfy the major factors affecting their profitablity. In ethiopian insurance industry context, there are few studies conducted which incorporated only the internal factors. To achieve the research objective explanatory type of research design was employed. This study the explanatory research design was employed to examine the relationship of the stated variables. A panel data study design which combines the attributes of cross sectional (inter-firm) and time series data (inter-period) was used. To comply with the research objectives, the researcher was focused on secondary data, which are obtained from financial statement of selected individual insurance companies, National bank of Ethiopia (NBE) and financial publication of Ministry of Finance and Economic Development of Ethiopia (MOFED). Purposive sampling was used so as to include all insurance companies established and serving with in the specified period of time from 2010 – 2019. To analyze the collected data the researcher was used descriptive statistics, regression analysis and diagnostic tests. The collected data would be analyzed by using E-views 10. The researcher used the multiple regression econometrics models through which the financial performance of the insurance companies in the Ethiopian market is analyzed. The study shows that; profitability was usually expressed as a function of internal and external determinants. By using internal factors such as size of company, leverage, tangibility of asset, liquidity, loss ratio, growth of firm and premium growth with the external variable inflation and economic growth, this study examined the determinants of profitability of insurance companies over the period of 2010 – 2019, using regression model for profitability measures; (ROA) and (ROE). Based on the study findings, the profitability of insurance companies measured by ROA and ROE, since the company's management has control over the insurance company's specific factors, it was possible to improve the financial performance of insurance companies by giving more attention on the identified company's specific factors particularly; size of company and firm growth. Since, they were found to be positive and statistically significant variables that affect profitability of insurance companies measured by both ROA and ROE.

Keywords: Insurance Company, Financial Performance, Return on Asset and Return on Equity.

Introduction

The financial system comprises of financial institutions, financial instruments and financial markets that provide an effective payment, credit system and risk transfer and thereby facilitate channelizing of funds from savers to the investors of the economy. According to Mishkin and Stanley (2009), financial markets and institutions not only affect our everyday life but also involve huge flows of funds–trillions of

dollars-throughout our economy, which in turn affect business profits, the production of goods and services, and even the economic well-being of countries other than the United States. Indeed, a well-functioning financial markets and institutions like insurance companies are one of the most important key factors in producing high economic growth, and poorly performing financial markets and institutions are one of the reasons that many countries in the world remain desperately poor.

Insurance companies are not only providing the mechanism of risk transfer but also helps to channelizing the funds in an appropriate way to support the business activities in the economy. Insurance companies have importance both for businesses and individuals as they indemnify the losses and put them in the same positions as they were before the occurrence of the loss. In addition, insurers provide economic and social benefits in the society i.e. prevention of losses, reduction in anxiousness, fear and increasing employment. Therefore, the current business world without insurance companies is unsustainable because risky businesses have not a capacity to retain all types of risk in current extremely uncertain environment. Every firm is most concerned with its profitability. One of the most frequently used tools of financial ratio analysis is profitability ratios which are used to determine the company's bottom line. Profitability measures are important to company managers and owners alike. If a small business has outside investors who have put their own money into the company, the primary owner certainly has to show profitability to those equity investors. There has been a growing number of studies recently that test for measures and determinants of firm profitability. Financial industry's profitability has attracted scholarly attention in recent studies due to its importance in performance measurement. However, in the context of the Insurance sector particularly in developing countries or emerging markets, based on literature reviews, it has received little attention and also the existing studies consider only firm specific factors they ignored the effects of macroeconomic factors.

Statement of the Problem

To maximize the insurance companies' profitablity, it is necessary to identfy the major factors affecting their profitablity. In ethiopian insurance industry context, there are few studies conducted which incorporated only the internal factors. Mehari and Aemiro(2011) conducted a research on firm specific factors that affect insurance companies profitablity in ethiopia using ROA as dependent variable to proxy the profitability of the insurance companies ; besides age of the company , size of the company , leverage , loss ratio , tangiblity of asset , liquidity , premium growth where used as explanetory variables. Then they conclude that company size , leverage , loss ratio and tangiblity were statistically significant variables; whereas age of the company , liquidity and premium growth have no statistically significant relationship with profitability of insurance companies.

On the other hand, Gashew (2013) used performace which is represented by ROA as dependent variable and age of the company, size of the company, leverage, growth of the company, volume of capital, tangiblity of asset and liquidty was used as independent variable. Then he conclude that size of the company,, leverage , volume of capital, growth of the company and liquidity are the most importannt determinants of performance of insurance sector, whereas tangiblity of asset and age of the company are not considered as powerful explanatory variables to determine the performance of the insurance companies. Studies mainly conducted on the determinantes of profitablity on banking industries. Very little studies were conducted on the determinants of insurance companies profitablity, some of the studies focused on the area of internal determinents for instance Meaza (2014), Mistre (2015) and Muhaba (2016) as a recent studies, hence this study is diffrent from the previous studies by examining internal as well as external facrors that affect profitability which represented by ROA and ROE as dependent variables. As a result , there is a need for additional study which adds value to the insurance industries in Ethiopia. Therefore, this study includes external factors (economic growth and Inflation) which affect insurance companies' profitablity and ROE as measures of profitability to fill the gap of the inconsistent results of the study.

Objectives of the Study

The main objective of the study is to investigate the factors that determine the profitability of insurance companies in Ethiopia. The specific objectives of the study are determining the relationship between the profitability and independent factors such as company size, leverage, tangibility of asset, liquidity, loss ratio, firm growth, premium growth, economic growth and inflation on the insurance companies of Ethiopia and to measure the effect of internal and external factors on profitability of insurance firms in Ethiopia.

Research Hypotheses

Based on the reviewed literatures and theories, the researcher has been developed and tested the following null hypothesis to address the objectives of this study.

Hypothesis 1: Firm size has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 2: Leverage has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 3: Tangibility of asset has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 4: Liquidity has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 5: Loss ratio has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 6: Firm growth has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 7: Premium growth has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 8: Inflation has positive impact on profitability of insurance companies in Ethiopia.

Hypothesis 9: Economic growth has positive impact on profitability of insurance companies in Ethiopia.

Literature Review

Insurance serves a number of valuable economic functions that are similar and largely distinct from other types of financial intermediaries. According to Malik (2011) insurance plays a crucial role in development commercial and infrastructural businesses. From the latter perspective, it promotes financial and social stability; mobilizes and channels savings; supports trade, commerce and entrepreneurial activity and improves the quality of the lives of individuals and the overall wellbeing in a country. Michael Koller (as cited in Abate 2012) suggests that insurance companies are playing the role of transferring risk and channeling funds from one unit to the other (financial intermediation). This implies that insurance companies are helping the economy of a country one way by transferring and sharing of risk which can create confidence over the occurrences of uncertain event and in another way insurance companies like other financial institutions plays the role of financial intermediation so as to channel financial resources from one to the other. Even if there are numerous type of insurances it can be divide in to two broad categories based on their role to the economy. Those are general insurance companies and life insurance companies. General insurance companies and life insurance companies are different each other in terms of operation, investment activities, vulnerability and duration of liabilities. Life insurers are said to function as financial intermediaries while general insurers function as risk takers (Chen and Wong 2004).

Profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner` s wealth and profitability is very important determinants of performance (Malik 2011). Profitability ratios are an indicator for the firm's overall efficiency (Kabajeh and et al 2012). It's usually used as a measure for earnings generated by the company during a period of time based on its level of sales, assets, capital employed, net worth and earnings per share. Profitability ratios measures earning capacity of the firm, and it is considered as an indicator for its growth, success and control. Accordingly, the term 'profitability' is a relative measure where profit is expressed as a ratio, generally as a percentage.

Insurance profitability is influenced by both internal and external factors. Whereas internal factors focus on an insurer's specific characteristic, the external factors concern both industry features and macroeconomic variables. However, in most literatures, profitability with regard to insurance companies frequently expressed in as a function of internal determinants. Besides internal determinants, in this research the researcher was included a set of macroeconomic determinants. The relevant literature may be categorized as: the effects of firm specific factors on profitability and the effects of macroeconomics factors on profitability. The following are the variables used in researches concerning profitability of insurance companies and related financial institutions.

Several studies have been conducted to examine the effect of firm size on firm profitability. Malik (2011); Abate Gashaw (2012); Daneiel and Tilahun (2013); and Sumaira and Amjad (2013) are among other researchers who investigate effect of size on firm profitability. However, the results are inconsistence. In many literatures, it has been suggested that company size is positively related to financial performance. For instance, B. Charumathi (2012) examined the factors determining the profitability of life insurers operating in India taking return on asset as dependent variable and the results of the study indicate that profitability of life insurers is positively and significantly influenced by size.

The trade of theory suggests a positive relationship between profitability and leverage ratio and Justified by taxes, agency costs and bankruptcy costs push more profitable firms towards higher leverage. Hence more profitable firms should prefer debt financing to get benefit from tax shield. In contrast to this pecking order theory of capital structure is designed to minimize the inefficiencies in the firms' investment decisions. Due to asymmetric information cost, firms prefer internal finance to external finance and, when outside financing is necessary, firms prefer debt to equity because of the lower information costs. The pecking order theory states that there is no optimal capital structure since debt ratio occurs as a result of cumulative external financing requirements. Insurance leverage could be defined as reserves to surplus or debt to equity.

Methodology

Research approach

The methodology of carrying out this research is based on the objectives of the study and the availability of relevant information. Therefore to comply with the objective of this research, the study is primarily based on quantitative research, an econometric model is constructed to identify and measure the determinants of profitability.

Data type and data sources

To comply with the research objectives, the researcher was focused on secondary data, which are obtained from financial statement of selected individual insurance companies, National bank of Ethiopia (NBE) and financial publication of Ministry of Finance and Economic Development of Ethiopia (MOFED). The researcher was analyzed a balanced panel data of ten insurance companies in Ethiopia operating over the last ten years.

Total Population and Sampling Mechanism

To achieve the research objectives purposive sampling was used so as to include all insurance companies established and serving with in the specified period of time from 2010 - 2019 as show in table 1. In order to that, the size for samples are ten insurance companies operating over the period of ten years. The rest of insurance companies were not having a chance to be included. Ten years is assumed to be relevant because five years and above is the recommended length of data to use in most finance literatures (Abate 2012).

The researcher considered the insurance companies with more thann ten years of operational experience. These are Ethiopian Insurance Corporation, National Insurance Company S.C, Awash Insurance Company S.C, Lion Insurance Company S.C, Nyala Insurance Company S.C, Nile Insurance Company S.C, Global Insurance Company S.C, The United Insurance S.C, NIB Insurance Company and Africa Insurance Company S.C

Data analysis

To analyze the collected data the researcher was used regression analysis and diagnostic tests. The collected data would be analyzed by using E-views 10 during the study period (2010 -

2019). This study is show that how variables are related with each other. The results of this analysis was represented the nature, direction and significance of the correlation of the variables considered under this study.

Model specification

The result of a regression analysis is an equation that was represents the best prediction of a dependent variable from several other independent variables.

The following regression equation is estimated as follow:

$ROA_{i,t} = \alpha + \beta_1 Size_{i,t} + \beta_2 Lev_{i,t} + \beta_3 ToA_{i,t} + \beta_4 LQ_{i,t} + \beta_5 Los_{i,t} + \beta_6 GR_{i,t} + \beta_7 PRG_{i,t} + \beta_8 IR_{i,t} + \beta_9 EG_{i,t} + \varepsilon_{i,t}$……………………………………………… ……..……………………..(1)

$ROE_{i,t} = \alpha + \beta_1 Size_{i,t} + \beta_2 Lev_{i,t} + \beta_3 ToA_{i,t} + \beta_4 LQ_{i,t} + \beta_5 Los_{i,t} + \beta_6 GR_{i,t} + \beta_7 PRG_{i,t} + \beta_8 IR_{i,t} + \beta_9 EG_{i,t} + \varepsilon_{i,t}$……………………………………… …………..……………..…(2)

The sign in the model reveal the expected relationship between the dependent variable and explanatory variables.

Where:

$ROA_{i,t}$: the profitability in insurance company (i), at time (t), dependent variable return on assets (ROA) defined as the insurance companies net profit over total assets is used to measure profitability.

$ROE_{i,t}$: the profitability in insurance company (i), at time (t), dependent variable return on equity (ROE) defined as the insurance companies net income over shareholder's equity is used to measure profitability.

Size : Size of companies;

Lev : Leverage;

TOA : Tangibility of assets;

LQ : Liquidity;

Loss : Loss ratio

GR : Firm Growth

PRG :Premium growth

IR : Inflation rate

EG : Economic growth

$\beta_1...\beta_9$: coefficient of independent variables

ε represents error term or disturbance term.

i represents insurance companies 1 to 10

In this model, all independent variables enter the regression equation at once to examine the relationship between the whole set of predictor (explanatory variables) and dependent variable.

Variable description and measurements:

The variables described with their measurements presented in the following table.

Table 1: The measurements of variables:

Variables	Symbol	Measurement of variables
Return on Asset	ROA	$ROA = \dfrac{\text{Net income}}{\text{Total asset}}$
Return on Equity	ROE	$ROE = \dfrac{\text{net income}}{\text{shareholder's equity}}$
Company Size	SIZ	$SIZE = Natural\ logarithim\ of\ total\ assets$
Leverage Ratio	LEV	$LEV = \dfrac{\text{Total debt}}{\text{Total equity}}$
Tangibility	TOA	$TOA = \dfrac{\text{fixed asset}}{\text{total asset}}$

Liquidity ratio	LQ	$LQ = \dfrac{Current\ asset}{Current\ liablity}$
Loss Ratio	LOSS	$LOSS = \dfrac{Net\ claims\ incurred}{Net\ earned\ premium}$
Firm growth	GRI	GR $= percentage\ change\ in\ total\ asset\ of\ insurance\ companies$
Premium growth rate	PGR	$PGR = \dfrac{GWPt - GWP(t-1)}{GWP(t-1)}$
Inflation Rate	IR	$IR = Annual\ inflation\ rate\ was\ used$
Economic growth	EGR	$EGR = The\ yearly\ real\ GDP\ growth\ rate\ was\ used$

Source: Fundamental financial management book, 4th Edition

Diagnostic tests

Therefore, in these model diagnostic tests was performed to ensure whether these assumptions of the CLRM are violated or not.

Correlation Analysis

The following tables show the result of correlation analysis to determine the relationship between dependent variables (ROA and ROE) and explanatory variables.

Result and Discussion

Table 2 Pearson's correlation coefficient matrix of ROA and explanatory variables

Correlation									
	ROA	SIZ	LEV	TOA	LQ	LOSS	GRI	PGR	IR	EGR
ROA	1.000000									
SIZ	0.51538	1.000000								
LEV	-0.0639	-0.20130	1.000000							
TOA	0.32498	-0.09924	0.29783	1.000000						
LQ	-0.16396	0.020923	-0.16582	-0.42064	1.000000					
LOSS	-0.36853	-0.12150	0.601350	0.15968	0.09217	1.000000				
GRI	0.411039	-0.21341	-0.23275	-0.54570	0.318110	0.04270	1.000000			
PGR	0.29530	0.07490	-0.15420	0.32107	-0.1087	-0.03196	0.20052	1.000000		
IR	-0.10629	-0.27380	0.13397	0.30621	-0.05130	0.077144	-0.27426	-0.18820	1.000000	
EGR	0.32417	-0.19892	0.026188	0.048239	-0.11970	-0.14002	-0.17055	-0.1496	0.29930	1.000000

Source: Computed from E-views 10 result (2020)

As shown in the table 2 above, Correlation test shows that return on assets (ROA) has positive correlation between size of insurance companies with the value of (0.51538), growth of insurance companies with the value of (0.411039), tangibility of asset with the value of (0.32498), economic growth with the value of (0.32417), and premium growth with the value of (0.29530). This implies that as size, firm growth, tangibility of asset, premium growth and economic growth increases return on asset moves on the same direction. Return on asset (ROA) has negative correlation between Leverage ratio with the value of (-0.0639), Loss ratio with the value of (-0.36853), Liquidity with the value of (-0.16396) and inflation with the

value of (-0.10629). This implies that, as the leverage ratio, liquidity, inflation and loss ratio increases return on asset moves to opposite direction.

Table 3 Pearson's correlation coefficient matrix of ROE and explanatory variables

	ROE	SIZ	LEV	TOA	LQ	LOSS	GRI	PGR	IR	EGR
Correlation										
ROE	1.000000									
SIZ	0.31897	1.000000								
LEV	-0.15849	-0.30835	1.000000							
TOA	0.06378	0.100725	0.53728	1.000000						
LQ	-0.24036	0.063492	-0.16582	-0.32130	1.000000					
LOSS	-0.19860	-0.32377	0.481300	0.19935	-0.00942	1.000000				
GRI	0.411039	0.42820	-0.11286	-0.11922	0.542168	-0.34500	1.000000			
PGR	0.32612	0.17104	-0.02621	0.17012	-0.12072	0.31602	0.15010	1.000000		
IR	-0.10629	-0.17033	0.52019	0.20411	-0.31171	0.10166	-0.00495	-0.34900	1.000000	
EGR	0.22926	-0.09351	0.181037	0.009410	-0.32613	-0.09422	-0.30233	-0.41720	0.683531	1.000000

Source: Computed from E-views 10 result (2020)

As shown in the table 3 above, size of companies with correlation coefficient of 0.31897, firm growth with coefficient value of 0.411039, premium growth of the companies with coefficient value of 0.32612, tangibility of asset with coefficient value of 0.06378 and economic growth with coefficient value of 0.22926 were positively correlated with return on equity (ROE). This correlation sign shows that, when the size of companies, firm growth, premium growth of the companies, tangibility of asset and economic growth increases, the return on equity moves on the same direction. Liquidity, loss ratio, inflation and Leverage ratio were negatively correlated with ROE with a correlation coefficient of, -0.24036, -0.19860, -0.10629 and -0.15849 respectively. This implies that, when the liquidity, loss ratio, inflation and leverage increases, the return on equity moves to opposite direction.

OLS Regression Results

The following table's presents the OLS regression analysis results for ROA and ROE model respectively. In this model the independent variables are size, leverage, tangibility of asset, liquidity, loss ratio, firm growth, premium growth, inflation and economic growth.

Table 4. OLS regression results for ROA model

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2010 2019
Included observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.237708	0.094887	2.505175	0.0140
SIZ	0.014446	0.010444	1.383161	0.0000
LEV	-0.006912	0.009266	-0.746019	0.0476
TOA	0.062238	0.067056	0.928147	0.0858
LQ	-0.026175	0.039241	-0.667031	0.5065
LOSS	-0.072638	0.139390	-0.521113	0.0036
GRI	0.052976	0.046934	0.128752	0.0120
PGR	0.076551	0.052432	1.460003	0.1027
IR	-0.176537	0.426452	-0.758898	0.0070
EGR	0.597371	0.508836	1.173995	0.2435

R-squared	0.711620	Mean dependent var		0.074480
Adjusted R-squared	0.672783	S.D. dependent var		0.065120
S.E. of regression	0.060643	Akaike info criterion		-2.672981
Sum squared resid	0.330983	Schwarz criterion		-2.412464
Log likelihood	143.6491	Hannan-Quinn criter.		-2.567546
F-statistic	20.68424	Durbin-Watson stat		1.647898
Prob(F-statistic)	0.000000			

Source: Computed from E-views 10 result (2020)

The estimation result of the panel regression model used in this study was presented in table 4 above. R-squared was measured the goodness of fit of the explanatory variables in explaining the variations in profitability of insurance companies measured by ROA. As shown in the table above, the R-squared and the adjusted-R squared statistics of the model were 71.16 and 67.27 percent respectively. This result indicates that 67.27 percent of variation in the dependent variable is explained by the explanatory variables. That means the explanatory variables jointly explain about 67.27 percent of the variation in the return on asset. The remaining 32.73 percent of the variation in the profitability of companies measured by return on asset explained by other variables which are not included the model. From table 4 above, the researcher found the following estimated regression equation;

ROA=0.24+0.014(SIZ)it-0.007(LEV)it+0.062(TOA)it-0.026(LQ)-0.073(LOSS)+0.053(GRI)it+0.076(PGR)it-0.176(IR)it+0.6(EGR)it+εit..……(1)

The F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit. The regression F-statistic takes a value of 20.68 which is greater than 5 hence the model was fit for estimation. F-Statistics (20.68) which is used to test the overall significance of the model was presented and null hypothesis can be clearly rejected at 1 percent level of significant, since the p-value was (0.0000) which was sufficiently low, indicates the reliability and validity of the model at 1 percent significant level and the model is well fitted at 1 percent significance level.

Table 5 OLS regression results for ROE model

Dependent Variable: ROE

Method: Panel Least Squares

Sample: 2010 2019

Included observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.280095	0.089965	3.113384	0.0025
SIZ	0.010778	0.009902	1.088425	0.0000
LEV	-0.012424	0.008785	-1.414247	0.0207
TOA	0.021336	0.063578	0.335583	0.7380
LQ	-0.034945	0.037206	-0.939228	0.0801
LOSS	-0.350691	0.132160	-2.653529	0.0094
GRI	0.055944	0.044499	1.257197	0.0119
PGR	0.117799	0.049712	2.369599	0.2199
IR	-0.119190	0.404331	-2.768003	0.0068
EGR	0.905075	0.482442	1.876027	0.0639

R-squared	0.898361	Mean dependent var		0.054680
Adjusted R-squared	0.838198	S.D. dependent var		0.065448
S.E. of regression	0.057498	Akaike info criterion		-2.779511
Sum squared resid	0.297537	Schwarz criterion		-2.518994
Log likelihood	148.9755	Hannan-Quinn criter.		-2.674075
F-statistic	24.25235	Durbin-Watson stat		1.368044
Prob(F-statistic)	0.000000			

Source: Computed from E-views 10 result (2020)

The estimation result of the panel regression model used in this study was presented in table 5 above. As shown in the table above, the R-squared and the adjusted-R squared statistics of the model were 90.00 and 83.82 percent respectively. This result indicates that 83.82 percent of variation in the dependent variable is explained by the explanatory variables. That means the explanatory variables jointly explain about 83.82 percent of the variation in the return on equity. The remaining 16.18 percent of the variation in the profitability of companies measured by return on equity explained by other variables which are not included the model. From table 5 above, the researcher found the following estimated regression equation;

$ROE=0.28+0.010(SIZ)it-0.012(LEV)it+0.021(TOA)it-0.035(LQ)-0.35(LOSS)+0.056(GRI)it+0.118(PGR)it-0.119(IR)it+0.905(EGR)it+\varepsilon it\ldots(1)$

The F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit. The regression F-statistic takes a value of 24.25 which is greater than 5 hence the model was fit for estimation. F-Statistics (24.25) which is used to test the overall significance of the model was presented and null hypothesis can be clearly rejected at 1 percent level of significant, since the p-value was (0.0000) which was sufficiently low, indicates the reliability and validity of the model at 1

percent significant level and the model is well fitted at 1 percent significance level.

Random versus Fixed Effect Model

To examine whether individual effects are fixed or random, a Hausman specification test was conducted providing evidence in favor of the random effect model (Baltagi, 2005). The null hypothesis for this test is that unobservable

heterogeneity term is not correlated with the independent variables or random effect model is appropriate. If the null hypothesis is rejected then we employ Fixed Effects method.

H0: Random Effects model is appropriate

H1: Fixed Effects model is appropriate

Decision Rule: Reject H0 if p-value less than significance level 0.05. Otherwise, do not reject.

Table 6 Correlated Random Effects - Hausman Test for ROA

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.865237	9	0.0697

Source: Computed from E-views 10 results (2020)

As shown from the Hausman specification test tables 6 above, the P-value for ROA model was (0.0697), which is more than 0.05. Hence, the null hypothesis of the random effect model is appropriate and failed to reject at 5 percent of

significant level. This implying that, random effect model is more appropriate than fixed effect model in order to make robust the OLS regression results and gives more valid results.

Table 7 Correlated Random Effects - Hausman Test for ROE

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.761923	9	0.9264

Source: Computed from E-views 10 results (2020)

As shown from the Hausman specification test tables 7 above, the P-values for ROE model was (0.9264), which is more than 0.05. Hence, the null hypothesis of the random effect model is appropriate and failed to reject at 5 percent of significant level. This implying that, random effect model is more appropriate than fixed effect model in order to make robust the OLS regression results and gives more valid results.

Tables below present the REM regression analysis results for ROA and ROE models. In the analysis result the dependent variables were ROA and ROE. While, size of company, leverage, tangibility of asset, liquidity, loss ratio, growth of insurance company, premium growth, inflation and economic growth were the independent variables.

Table 7 Random effect regression results for ROA model

Dependent Variable: ROA				
Method: Panel EGLS (Cross-section random effects)				
Total observations: 100				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.721431	0.122460	3.743960	0.0094
SIZ	0.030260	0.068939	3.792086	0.0000*
LEV	-0.082811	0.001103	-2.991007	0.0050*
TOA	0.067636	0.089502	2.908023	0.0531***
LQ	-0.003100	0.003721	-0.304216	0.7998
LOSS	-0.140264	0.012250	-3.003521	0.0374**

GRI	0.085921	0.001747	2.646341	0.0162**
PRG	0.013047	0.004508	8.957990	0.0642***
IR	-0.010620	0.005131	-0.030676	0.0058*
EGR	0.316100	0.381864	0.8062605	0.2497
Weighted Statistics				
R-squared	0.817290	Mean dependent var		0.015743
Adjusted R-squared	0.785374	S.D. dependent var		0.057534
S.E. of regression	0.033107	Sum squared resid		0.004242
F-statistic	28.07556	Durbin-Watson stat		1.573205
Prob(F-statistic)	0.000000	-		-

Source: Computed from E-views 10 result (2020)

*, **and *** denotes significances at 1 percent, 5 percent and 10 percent respectively.

The estimation result of the panel regression model used in this study was presented in table 8 above. R-squared was measured the goodness of fit of the explanatory variables in explaining the variations in profitability of insurance companies measured by ROA. As shown in the table above, the R-squared and the adjusted-R squared statistics of the model were 81.73 and 78.53 percent respectively. This result indicates that 78.53 percent of variation in the dependent variable is explained by the explanatory variables. That means the explanatory variables (such as, size of the companies, leverage, tangibility of asset, liquidity, loss ratio, growth of companies, premium growth, inflation and economic growth) jointly explain about 78.53 percent of the variation in the return on asset. The remaining 21.47 percent of the variation in the profitability of companies measured by return on asset explained by other variables which are not included in the model. For panel data R2 greater than 50 percent is still large enough for reliable conclusion (Nyamsodoro 2004). Since the R2 and Adjusted-R2 of the model was more than 50 percent, these variables jointly have more explanatory power of the variation in the profitability of insurance companies in the study period. From table 4.13 above, the researcher found the following estimated regression equation;

ROA=0.72+0.030(SIZ)it-0.083(LEV)it+0.0676(TOA)it-0.003(LQ)-0.14(LOSS)+0.086(GRI)it+0.013(PGR)it-0.01(IR)it+0.316(EGR)it+εit...…..(1)

The F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit. The regression F-statistic takes a value of 28.07 which is greater than 5 hence the model was fit for estimation. F-Statistics (28.07) which is used to test the overall significance of the model was presented and null hypothesis can be clearly rejected at 1 percent level of significant, since the p-value was (0.0000) which was sufficiently low, indicates the reliability and validity of the model at 1 percent significant level and the model is well fitted at 1 percent significance level..

Table 8 Random effect regression results for ROE model

Dependent Variable: ROE				
Method: Panel EGLS (Cross-section random effects)				
Total observations: 100				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.318390	0.123460	3.049963	0.0019
SIZ	0.020174	0.010933	7.274900	0.0000*
LEV	-0.047633	0.035764	-1.505481	0.0330**
TOA	0.080320	0.001685	4.115233	0.0531***
LQ	-0.016152	0.003721	-0.304216	0.2610
LOSS	-0.113200	0.006380	-2.746322	0.0063*
GRI	0.177333	0.009331	6.526003	0.0039*
PRG	0.023100	0.004508	8.957990	0.4382
IR	-0.143341	0.006299	-1.273333	0.0083*
EGR	0.221141	0.611031	0.4979653	0.7969

Weighted Statistics			
R-squared	0.849933	Mean dependent var	0.062173
Adjusted R-squared	0.831300	S.D. dependent var	0.003728
S.E. of regression	0.033107	Squared Sum resid	0.064330
F-statistic	35.00993	Durbin-Watson stat	2.022480
Prob(F-statistic)	0.000000	-	-

Source: Computed from E-views 10 result (2020)

*, **and *** denotes significances at 1 percent, 5 percent and 10 percent respectively.

The estimation result of the panel regression model used in this study was presented in table 4.14 above. R-squared was measured the goodness of fit of the explanatory variables in explaining the variations in profitability of insurance companies measured by ROE. As shown in the table above, the R-squared and the adjusted-R squared statistics of the model were 84.99 and 83.13 percent respectively. This result indicates that 83.13 percent of variation in the dependent variable or ROE is explained by the independent variables. That means the explanatory variables (such as, size of the companies, leverage, tangibility of asset, liquidity, loss ratio, growth of companies, premium growth, inflation and economic growth) jointly explain about 83.13 percent of the variation in the return on asset. The remaining 16.87 percent of the variation in the profitability of companies measured by return on equity explained by other variables which are not included in the model. For panel data R2 greater than 50 percent is still large enough for reliable conclusion. Since the R2 and Adjusted-R2 of the model was more than 50 percent, these variables jointly have more explanatory power of the variation in the profitability of insurance companies in the study period. From table 4.10 above, the researcher found the following estimated regression equation;

$ROE=0.318+0.020(SIZ)it-0.047(LEV)it+0.080(TOA)it-0.016(LQ)i-0.113(LOSS)+0.177(GRI)it+0.023(PGR)it-0.14(IR)it+0.221(EGR)it+\varepsilon it$.……(1)

The F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit. The regression F-statistic takes a value of 35.00 which is greater than 5 hence the model was fit for estimation. F-Statistics (35.00) which is used to test the overall significance of the model was presented and null hypothesis can be clearly rejected at 1 percent level of significant, since the p-value was (0.0000) which was sufficiently low, indicates the reliability and validity of the model at 1 percent level of significance and the model is well fitted at 1 percent significance level.

Table 9 Summary of expected and actual impact of explanatory variables on the dependent variables

Explanatory Variables	Hypothesized Impact	Actual Impacts	
		ROA	ROE
SIZ	Positive	Positive &failed to reject	Positive &failed to reject
LEV	Positive	Negative &has been rejected	Negative & has been rejected
TOA	Positive	Positive & failed to reject	Positive & failed to reject
LQ	Positive	Negative & has been rejected	Negative & has been rejected
LOSS	Positive	Negative & has been rejected	Negative & has been rejected
GRI	Positive	Positive & failed to reject	Positive & failed to reject
PGR	Positive	Positive &failed to reject	Positive &failed to reject

| IR | Positive | Negative &has been rejected | Negative &has been rejected |
| EG | Positive | Positive &failed to reject | Positive &failed to reject |

Source: Model output summary, 2020

Conclusions and Recommendations

Conclusions

Based on the findings from the regression analysis, the researcher can be conclude that profitability of Ethiopian insurance companies was best explained by the explanatory variables included in the model and it was also conclude that profitability was highly affected by the company factors and the external factors has also an impact on profitability of Ethiopian insurance companies.

The adjusted value of R2 of ROA and ROE (0.7854) and (0.8313) respectively indicates the independent variables such as size, leverage, liquidity, tangibility of asset, loss ratio/ risk, firm growth, premium growth, economic growth and inflation rate are jointly explain about 78.54 and 83.13 percent of the variation in the profitability of insurance companies measured by ROA and ROE respectively.

Size of insurance companies: As per the result from regression response, size of insurance companies has positive and statistically significant impact on profitability of insurance companies in Ethiopia. The positive relationship between size and dependent variables (ROA&ROE) implies that size is used to capture the fact that larger insurance companies are better placed than smaller once in joining economies of scale in transactions and enjoy a higher level of profits.

Leverage ratio: Negative and significant impact for ROA and ROE of leverage on profitability of insurance companies in Ethiopia. It is implied that highly profitable insurance companies are more likely relied on internally generated funds and equity capital than debt capital as the source of financing.

Loss ratio: Negative and significant impact of loss ratio on profitability of insurance companies which implies insurance companies operating in Ethiopia with less risk will generate more profit than higher risk.

Firm growth: The positive and statistical significant relationship between firm growth and profitability of insurance companies in Ethiopia implies that insurance companies operating in Ethiopia with higher firm growth will generate more profit than lower firm growth.

Inflation rate: Regarding macroeconomic variables inflation rate of Ethiopia has negative and statistically significant impact on profitability of insurance companies which implies insurance companies operating in Ethiopia with lower inflation rate will generate more profit than higher inflation rate.

Tangibility of asset: The analysis suggest that a positive relationship between tangibility of asset and profitability of insurance companies in Ethiopia. It implies that insurance companies with high rate of fixed asset are in a better position of being profitable.

Liquidity:-Thus from the results it can be concluded that the Ethiopian insurance companies investment has been affected with high liquidity ratio, exists negative relationship between liquidity and profitability of insurance companies in Ethiopia.

Recommendations

Based on the study findings, the profitability of insurance companies measured by ROA and ROE, since the company's management has control over the insurance company's specific factors, it was possible to improve the financial performance of insurance companies by giving more attention on the identified company's specific factors particularly; size of company and firm growth. Since, they were found to be positive and statistically significant variables that affect profitability of insurance companies measured by both ROA and ROE.

Company size is positive to have high consideration of increasing the company assets because the size of the company is an important factor as it influences its competitive power. Small companies have less power than large ones; hence they may find it difficult to compete

with the large firms particularly in highly competitive markets.

Great attention should be paid to leverage. Companies that are highly leveraged may be at risk of bankruptcy if they are unable to make payments on their debt; they may also be unable to find new lenders in the future. On the other hand, leverage can increase the profitability when their investment and make good use of the tax advantages associated with borrowing at optimum level.

Tangibility of the company is positive to have increasing investment in fixed asset to total asset with decreasing the liquidity level, so the companies better consider to giving great attention to investing in fixed asset than high liquidity of the insurance companies in Ethiopia.

Finally, the empirical results provide evidence that the profitability of Ethiopian insurance companies is shaped by firm-specific factors that are affected by firm-level management. So the insurance managers and policy makers should give high considerations to firm-specific determinants of profitability.

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