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FACTORS AFFECTING PROFITABILITY OF INSURANCE COMPANIES IN ETHIOPIA

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Abstract:
The study was attempted to examine factors affecting profitability of insurance companies in Ethiopia for the period of 2014-2018, employed descriptive research design. The target populations were 17 insurance companies taken by census method. The study employed secondary sources of data from audited financial statement of National bank of Ethiopia. The study was used multiple regression models. The regression was run by using random effect model through Stata software version 14. The researchers found that the positive and significant relationship between ROA and liquidity, capital adequacy, real GDP as well as real effective exchange rate. Contrary, ROA has negative and significant relation with leverage, underwriting risk, premium growth. Besides, ROA has positive and insignificant relation with age and size whereas negative and insignificant relation with inflation. Thus, Insurance industry should give emphasis on liquidity ratio, and capital adequacy ratio to sustain its profitability.

Keywords:
Insurance, profitability, return on asset

JEL Classification:
G2, G21 and N2

1. Introduction

Insurance is serving as a means of saving money, transferring risk and channel finances in an appropriate way from surplus economic units to deficit economic units so as to support the investment activities in the economy of the country. To perform accordingly the insurance industry is expected to be financially solvent, strong enough to take risks and profitable in its operation. Since, profitability is the most important objectives of financial management to maximize the owner's wealth and profit in determining performance of company (Malik, 2011).

Profitability is defined as the level of returns from profit (Boadi etal, 2013). Profit is a very important precondition for increasing the competitiveness of a company operating in global market. Besides, profit attracts investors and improves the level of solvency, and increases the consumers' confidence (Pjanic etal, 2018).

Measuring the financial performance of insurance industry is important. In the absence of profit, insurers can't attract outside capital so as to meet their objectives. The duty of this sector is not only providing the means of saving money and transferring risk but also helps channeling funds from surplus economic units to deficit economic units so as to investment activities in a country can be promoted. The Ethiopian economy is highly supported by insurance industry followed from the banking industry (Demis, 2016). And there is a lot of complains encountered from the side of investors on the performance of Ethiopians insurance .thus, the financial soundness of insurance industry in Ethiopia is not a compromising issue and evaluating the factors affect profitability of the industry is highly researchable area. Insurer-specific factors significantly affect profitability while macroeconomic indicators like

gross domestic product and inflation had no significant effect on profitability of insurance firms in Philippine (Datu, 2016).

Lee, (2014) investigated the relationship between firm specific factors and macroeconomics on profitability in Taiwanese property-liability insurance industry and established that firm specific factors had a significant influence on profitability in both operating ratio and ROA models while economic growth rate had a significant influence on profitability in operating ratio model but insignificant influence on profitability in ROA model.

Profitability of general insurance companies in India is affected by both internal factors like; company size, capital adequacy, liquidity ratio and premium growth and by external factors of GDP and inflation rate of the country by using ROE as proxy variable to measure profitability of the firm (Wondwossen, 2016). According to Malik, (2011) investigated some factors that affecting profitability in insurance sectors were internal factors like age, size, volume of capital, and liquidity growth rate. However, others also arguing that there are external factors affecting profitability like GDP, inflation and interest rate in a given country at a national level (Daniel and Tilahun, 2013)

Charumathi (2012) defines profitability as the ability of the developing business to utilize its assets in order to generate revenues in an efficient manner. As many researches revealed that companies profitability affecting by both the internal and external variables like working capital management efficiency (Jibra etal, 2016); (William, 2012) and (Fadzlan, 2009) liquidity ratio, capital adequacy, firm's growth rate, size of the company and external factors like GDP and Inflation.

Teklit and Kaur (2017), Asrat and Tesfahun (2016), Demis (2016), Suheyli (2015), Hanna (2015), Mistire (2015) and Hadush (2015) all were studied by using both firm specific factors and macroeconomic variables on profitability of insurance companies, Most studies do not address all insurance companies in Ethiopia and do not include external factors. Thus researchers intend to study this issue.

The main objective of the study was to examine factors affecting profitability of insurance industry in Ethiopia. Specifically,

1. To identify factors that influences profitability of insurance companies.
2. To determine the effect of identified factors on profitability of insurance industry.
3. To show the direction and significant effect of the variables in the study.

The following research hypothesis was used for the study

H0; Three is insignificant relationship between age of the company, size of the company, liquidity ,capital adequacy, leverage, underwriting risk, premium growth, real GDP, real effective exchange rate ,inflation and profitability of insurance companies.

2. Data and Methods

Secondary data obtained from financial statements of the companies for the period of 2014-2018 was used for this study. The target populations of the study were all insurance companies registered by NBE and under operation in Ethiopia. Currently, there are 17 types of insurance companies in operation both publicly and private owned in Ethiopia. The researchers employed census sampling technique. Census approach enables the researcher to effectively generalize the findings (Mark, 2009). The researcher wants to use census method is to eliminates the sampling error or sampling bias and to get accurate data. Thus, the researcher used quantitative research approaches to obtain data and discuss the results

2.1. Model Specification

A panel data regression model can be estimated in different ways depending on regression coefficients, and error term. Accordingly, the fixed effects model, and the random effects model were widely used models in panel data analysis. The researchers used to select appropriate model by using Hausman test. Since, the Hausman test is used to test or identify appropriate model to be carried out for estimation. On the other hand, it helps in identifying whether fixed effect model is appropriate or random effect model is appropriate.

The researchers employed a general model form based on empirical evidence as follow:

$Y_{it} = \beta_0 + \beta_K X_{it} + \varepsilon_{it}$

Where:

Y_{it} - represents the dependent variables (ROA) of insurance i for time period t.

β_0 - is the intercept

β_K - represents the coefficients of the X_{it} variables
X_{it} - represents the explanatory variables of insurance i for time period t.
ε_{it} - is the error term

$$ROA_{it} = \beta_0 + \beta_1 AGC_1 + \beta_2 SZC_2 + \beta_3 LQR_3 + \beta_4 CAR_4 + \beta_5 LVR_5 + \beta_6 UR_6 + \beta_7 PG_7 + \beta_8 GDP_8 + \beta_9 RER_9 + \beta_{10} INF_{10} + \varepsilon_{it}$$

Where:

ROA =Return on asset
AGC= Age of company
SZC=size of company
LQR= liquidity ratio
CAR = Capital adequacy
LVR = leverage ratio
$\beta_{1,2...10}$ = coefficient
UR = underwriting risk
PG= premium growth
GDP = real GDP growth rate
RER = Real effective exchange rate
INF = inflation rate
β_0 = constant
ε_{it} = error term

Table 1: Variables and Their Measurement

No.	*Variables*	*Measurement*
1	*Return on Asset (ROA)*	$\frac{\text{Net income}}{\text{Total assets}}$
2	*Age of company (AGC)*	$Current\,year - previous\,year$
3	*Company size (SZC)*	*Log value of total assets*
4	*Liquidity ratio (LQR)*	$\frac{\text{Current assets}}{\text{Current liabilities}}$
5	*Capital adequacy ratio (CAR)*	$\frac{Equity}{Total\ asset}$
6	*Leverage ratio (LVR)*	$\frac{\text{Total debt}}{\text{Total assets}}$
7	*Underwriting risk (UR)*	$\frac{\text{Annual loss}}{\text{annual premium earn}}$
8	*Premium growth (PG)*	$\frac{GwPt - Gwpt - 1}{Gwpt - 1}$
9	*Real GDP (GDP)*	$\frac{GDPt - GDPt - 1}{GDPt - 1}$
10	*Real effective exchange rate (RER)*	*Annual real effective exchange rate*
11	*Inflation (INF)*	*Annual general inflation*

12	ε_{it}	*Error term*

Source- previous studies and own calculations

2.2. Method of Data Analysis

The collected data were analyzed through different analysis techniques and the researcher used Stata 14 version software. Thus, collected data would be analyzed through descriptive analysis, correlation analysis and regression analysis to determine the relationship between dependent and independent the variables. The regression results were also employed to test the study hypotheses. It provides the descriptive analysis of the panel data or variables for the study in collaboration with some important tests such as multi co linearity, Heteroscedasticity, and normality of data. The correlation analysis between dependent and independent variables deals the results of the linear regression and data analysis that constitute the main findings of this study.

3. Results and Discussion

This section shows results and discussion after all diagnostic tests on the data associated with insurance companies in Ethiopia.

3.1. Descriptive Analysis

This section concerns with the overall summary of all the Variables involved in the model aimed to understand their distinct behavior independently through computing their mean value, standard deviation and related statistics whereas the joint behavior of each variable with the rest of the others are also assessed using correlation analysis. This part of the analysis aimed in providing supportive evidences for the econometric model as well as simultaneously checks if there exist unusual values such as out layer in the data.

The mean values, standard deviation, the minimum values and the maximum values for each variable under consideration is computed aimed to measure the extent of the deviations (disparities) of the insurance companies under investigation, in terms of their company specific variables.

Descriptive statistics provides the mean, standard deviation minimum, and maximum values for each variable. This part discusses the implication of the descriptive statistics as reported in the table 2 below.

Table 2: Descriptive statistics

Variables	*Mean*	*Std. Deviation*	*Min*	*Max*
ROA	*0.196*	*0.271*	*-0.113*	*0.989*
AGC	*14.47*	*10*	*1*	*43*
SZC	*8.67*	*0.565*	*7*	*10*
LQR	*1.582*	*1.161*	*0.37*	*5.973*
CAR	*0.285*	*0.133*	*0.08*	*0.49*
LVR	*0.525*	*0.239*	*0.051*	*0.781*
UR	*0.521*	*0.256*	*0.042*	*0.88*
PG	*0.118*	*0.045*	*0.038*	*0.21*
GDP	*0.460*	*0.477*	*0.077*	*1.094*
RER	*158.28*	*10.109*	*140.8*	*171.9*
INF	*0.099*	*0.025*	*0.075*	*0.147*

Source: Stata 14 reg (2019)

The mean values of all the variables involved in the model are limited within the range of 0.099 to 158.28. The lowest minimum value registered by capital adequacy ratio whiles the highest maximum value by real exchange rate of external factor.

The profitability of the companies (ROA) on average is estimated to be around 0.196 for insurance industry of Ethiopia during the study period and standard deviation of 0.271 implies that there is relatively low variability of the profit in industry with minimum and maximum values ranged from -0.113 up to 0.989. This shows there is a significant difference among insurance industry in Ethiopia in terms of their profitability and the most profitable insurance industry among earned was 0.989 of profit after tax for a single birr invested in the assets of the firm with regarding to standard deviation of 0.271 which indicate there is relatively variation from the mean of profit. This implies that insurance companies need to optimize the use of their assets to increase their return on assets.

The mean value of age is 14.47 years and the standard deviation of 10 years indicates that there is a variation of companies in terms of their establishment year along with minimum and maximum value ranged from 1 up to 43.

The size of the insurance company is measured as logarithmic value of total assets over the period of 2014 to 2018 with the mean value of 8.67 ranging from 7 up to 10 with standard deviation of 0.565. This indicates the size of insurance companies was highly dispersed from its mean value with the standard deviation of 0.565. Size of company should be increase to raise profitability of insurance companies in Ethiopia through expanding branches which is not opened area. Since, branch expansion is the way to have high market share and maximizing profit. Therefore, the size of the company is important determinants of profitability of the insurance companies in Ethiopia. Since, larger size of company has the better profitability. In other word, profitability is likely to increase in size because large insurance companies have greater capacity for dealing with adverse market fluctuations than small insurance companies and have more economies of scale. As increase in total assets forced to establish more branches and the adoption of new technologies enhance an insurer to underwrite more policies which may increase the underwriting profit and the total net profit.

Similarly the mean value of liquidity ratio was 1.582 and standard deviation of 1.161 with minimum and maximum values of 0.37 and 5.973. Standard deviation 1.161 indicates that there is high variation of liquidity ratio among insurance companies in Ethiopia. The Ethiopian insurance companies should high have liquidity to cover short term obligation or unexpected risk or financial loss of insured's.

Capital adequacy ratio on average is 0.285 with min and max value of 0.08 up to 0.49 respectively. The standard deviation of 0.133 indicates that there is relatively low variation of capital adequacy ratio among insurance companies of Ethiopia.

The mean value of leverage ratio of insurance was 0.522 with range of 0.0513 to 0.827 and standard deviation of 0.247.

The average value of underwriting risk was 0.521. This shows the most insurance companies paid 0.521 loss incurred out of the total premium earned per year. The minimum and maximum values of the underwriting risk were 0.042 and 0.88 respectively. The standard deviation of underwriting risk overall deviate was 0.256. This indicates there was relatively low variation in underwriting risk in insurance companies of Ethiopia during the study period.

The mean value of the premium growth rate as proxy by change in gross written premium was 0.118. This implies that on average, the insurance companies gross pre increased by 0.118 over the study period. While the minimum and maximum values of premium growth were 0.038 and 0.21 respectively. The standard deviation of the premium growth was 0.045. This shows there is low premium growth in study period for the company.

The mean value of real GDP growth rate was 0.460 which indicate the average value of real GDP growth rate of the country's economy was recorded over last five years. The standard deviation of 0.477 indicates there is moderate variation of real GDP growth in the country. The maximum value (1.094) and minimum value (0.077) of RGDP growth rate recorded in study period of 2017 and 2018 respectively.

The real exchange rate on average was 158.28 and standard deviation of 10.109 with minimum and maximum values range of 140.8 to 171.9 respectively.

The mean score of inflation rate was 0.099 and standard deviation of 0.025 with minimum and maximum value of 0.075 up to 0.147 respectively.

3.2. Correlation analysis

This section of the study presents the result of Pearson correlation analysis of explained and explanatory variables in the model, since the correlation analysis shows only the degree of association.

Pearson's correlation coefficients are used to determine the strength of the relationship between dependent and independent variables. The Pearson correlation scale ranges from -1 to +1, any value greater than zero indicates a positive direct relationship between the two variables, which implies that every increase in the independent variable led to the increase dependent variable whereas, any value less than zero indicates a negative relationship between the two variables, that means that every increase in the independent variable could led to the decrease in dependent variable.

The correlation among the variables in the model is computed in order to give a supportive evidence for the relationship between different variables like explanatory variables that are expected to influence the profitability of a firm.

Generally, when the value of the coefficient is zero, then there is no correlation between two observed variables. The coefficient value of +1.0 indicates that the correlation is complete and positive, while the coefficient -1.0 indicates that the correlation is complete and negative.

The correlation coefficients show the extent and direction of the linear relationship between profitability of insurance companies and Age, Size, liquidity, capital adequacy ratio, Leverage, underwriting risk, Premium Growth, Real GDP growth, Real exchange rate and inflation.

According to Pjanic etal, (2013) correlation coefficient indicates the strength of the relationship between the two observed variables. The negative sign implies that the four variables under consideration move to the opposite direction and vice versa.

Table 3 Correlation Analysis

Variables	*ROA*	*AGC*	*SZC*	*LQR*	*CAR*	*LVR*	*UR*	*PG*	*GDP*	*RER*	*INF*
ROA	*1.000*										
AGC	*0.156*	*1.000*									
SZC	*0.300*	*0.647*	*1.000*								
LQR	*0.68*	*-.149*	*0.075*	*1.000*							
CAR	*0.342*	*0.140*	*0.343*	*0.158*	*1.000*						
LVR	*-.746*	*-.069*	*-.068*	*-.744*	*-.080*	*1.000*					
UR	*-.452*	*-.319*	*-.337*	*-.242*	*-.069*	*0.285*	*1.000*				
PG	*-.091*	*0.067*	*0.141*	*-.067*	*-.137*	*0.122*	*-.179*	*1.000*			
GDP	*0.411*	*0.058*	*0.135*	*0.414*	*-.009*	*-.358*	*-.153*	*0.435*	*1.000*		
RER	*0.167*	*0.112*	*0.249*	*0.145*	*-.003*	*-.071*	*-.292*	*0.508*	*0.159*	*1.000*	
INF	*0.251*	*0.077*	*-.040*	*0.249*	*-.099*	*-.257*	*-.316*	*0.067*	*0.216*	*0.074*	*1.000*

Source: own computation Stata 14 reg (2019)

Based on above table the correlation test shows ROA has positive relationship with age of company, size of company, liquidity ratio, capital adequacy ratio, real GDP growth rate, real effective exchange rate and inflation of the country. Liquidity has strongly positive association (0.68) to return on asset whereas age, size, capital adequacy ratio, real GDP growth rate, real exchange rate and inflation of the country have moderate positive association with return on asset.

On the other hand, ROA is negatively related with leverage, underwriting risk, and premium growth. Leverage ratio (-0.746) of the company has strong negative association with profitability of insurance company proxy by ROA. Underwriting risk has moderate negative correlation with ROA whereas; premium growth has weak negative association with profitability of insurance company in Ethiopia.

3.3. **Regression Analysis**

The regression analysis examines the relationship between the profitability of insurance industry as a dependent variable and independent variables. Regression is actually a statistical technique that predicts the value of a dependent variable based on one or more independent variables.

A panel data regression model would be estimated in different ways depending on the assumptions made about the intercept, regression coefficients, and error term. Accordingly, the pooled regression model, the fixed effects model, and the random effects model were widely used models in panel data analysis. The researcher used to select appropriate model by using Hausman test; random effects model was selected and the most appropriate in the variation of the dependent variable (ROA) through the variation of the independent variables.

	Coefficients			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
agc	.0977528	.0021434	.0956094	.0427607
szc	-.0431981	.0081096	-.0513077	.0319919
lqr	.113221	.0928087	.0204123	.0118722
car	.3760917	.3447265	.0313652	.0931195
lvr	-.1816943	-.2018305	.0201362	.0269325
ur	-.1955363	-.2064353	.010899	.0323428
pg	.000951	-2.968599	2.96955	.9391111
gdp	-.032661	.1726103	-.2052713	.0708805
rer	-.0091528	.0101936	-.0193464	.0070932
inf	-.111908	-.0185383	-.0933696	.0653089

Chi2 (10) = 15.35
Prob > chi2 = 0.12

According to Hausman test result p-value is greater than 5 percent (Prob>chi square = 0.12) so, the random effect model was appropriate and the researcher concluded that the random effects estimator was the more efficient model against fixed effect model. Thus, the regression analysis was done by using random effect model. The reason to be random effect model for panel data analysis was due to the error term is not systematically correlated with any of the explanatory variables involved in the model or any variation in the error term is subject to chance.

This study was used Generalized Least Squares (GLS) regression because GLS would turn out to be asymptotically more efficient than OLS system.

Table 4. Estimated Result of Random Effect Model

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
agc	.0021434	.0018049	1.19	0.235	-.0013941	.0056808
szc	.0081096	.0326547	0.25	0.804	-.0558925	.0721117
lqr	.0928087	.0200231	4.64	0.000	.0535642	.1320532
car	.3447265	.1015311	3.40	0.001	.1457291	.5437238
lvr	-.2018305	.0840548	-2.40	0.016	-.3665748	-.0370862
ur	-.2064353	.0565542	-3.65	0.000	-.3172795	-.0955911
pg	-2.968599	.7661447	-3.87	0.000	-4.470215	-1.466983
gdp	.1726103	.0453126	3.81	0.000	.0837994	.2614213
rer	.0101936	.0030213	3.37	0.001	.0042719	.0161153
inf	-.0185383	.1802717	-0.10	0.918	-.3718644	.3347877
_cons	-1.276034	.4444546	-2.87	0.004	-2.147149	-.4049185

R – Sq: within = 0.8749
Between = 0.4926

Number of observation = 85
Wald chi2 (10) = 425.41

Over all = 0.8518 Prob > chi2 = 0.000

Table4, Presents the findings from the regression results on factors affecting profitability of insurance companies in Ethiopia. Based on random effect regression result the model was as follow:

$ROA_{it} = -1.276 + 0.002AGC_1 + 0.008SZC_2 + 0.093LQR_3 + 0.345CAR_4 - 0.202LVR_5 - 0.206UR_6 - 2.968PG_7 + 0.173GDP_8 + 0.010RER_9 - 0.018INF_{10}$

The Wald Chi-square statistics indicated that the calculated value (425.4) is greater than the table value (18.7) at degree of freedom 10 which shows the individual betas significant at 5 percent significant level. On other hand Wald chi-square is larger, the p value (0.0) is smaller which ensures that individual estimated coefficients were significant at 5 percent significance level but, they were differing from zero.

The profitability of insurance companies in Ethiopia was explained by model variables with R- square of 85%. This indicates 85% of variation in Return on Asset was explained by explanatory variables of the model and the remaining 15% was explained by other variables which is not included in the model. The factors that influence profitability of insurance industry were identified as age, size, liquidity ratio, capital adequacy ratio, leverage ratio, underwriting risk, premium growth, real GDP, real effective exchange rate, and inflation rate.

Based on above regression result report shows that age of the company, size of company, liquidity, capital adequacy ratio, real GDP, and real effective exchange rate were positively associated with profitability proxy by return on asset where as leverage ratio, underwriting risk, premium growth, and inflation were negatively direction with return on asset.

The age and size of the companies were statistically insignificant and positive effect on profitability of insurance companies in Ethiopia while inflation is statistically insignificant and negative effect on ROA. The leverage ratio of the company, underwriting risk, and premium growth were negatively related with profitability of the companies and statistically significant at 5 percent significance level.

The major findings of this study for hypotheses test were discussed as follow:

3.3.1. Age of the Company (AGC)

Age of the company is positively related with profitability of insurance companies in Ethiopia. This result is in line with theory because the years of operations increases both their experiences in the sector would increase as well as the company is expected to get enough time to conduct research and development so as to increase its market share, adapting environment and customers to increase the company's profitability. The estimation result of the random effect model reveals that there is a weak positive and insignificant (p value 0.235) relation between profitability and age of the company with the estimated coefficient of 0.0021. This implies when age of company increased by one year, the profitability of insurance company also will be increased by 0.0021 units. This is may be due to experience in operation system; familiar with customers or have high market share to enhance profit. This finding was in line with previous findings of Mingizem, (2017); Demis, (2016); Burca and Batrinca, (2014) were found that positive relationship between age and profitability. The current finding was contradict with the findings of Aster and Meseret, (2016); Sambasivam and Abate, (2013) found that inverse relation between age and profitability. The researchers conclude that there is weak positive and statistically insignificant effect between age and profitability of insurance companies since it has less effect on profitability of insurance industry in Ethiopia through creating strong customer relation with company.

Accept null hypothesis since there is statistically insignificant relationship between age of company and profitability of insurance industry.

3.3.2. Size of the Company (SZC)

Size of the company is measured in logarithmic value of total asset of insurance industry which is positively and statistically insignificant (p value 0.804) effect on the profitability of insurance company. The regression result of coefficient 0.0081 implies that one percent increase in the size of the company causes 0.81 percent increase in the profitability. The finding was in line with both theory and expectation supporting the fact that both economies of scale and market power would be built as size increases. Thus, the finding was supported by previous findings of Burca and Batrinca, (2014); Lee (2014) in Taiwan; Wani and Showket, (2015); Emine (2015) in Turkey; Datu (2016); Bahilu (2016); Asrat and Tesfahun (2016); Ortynski (2016) in Kenya; Kramaric etal, (2017) in selected central and

eastern European countries; Aster and Meseret, (2017) found that positive relationship between size and profitability proxy ROA. This finding was against with the findings of previous literature of Mwangi, and Murigu, (2015) in Kenya; Simon, (2016); Cudiamat and Siy, (2017); Mazviona etal, (2017) were found that size has negative impact on profitability of company due to difficulty to manage larger company efficiently and effectively. The researchers conclude that size of the company has less positive effect on profitability insurance industry in Ethiopia since larger size insurers had ability to diversify risk rather than generating profit.
Accept null hypothesis since there is statistically insignificant relationship between size of company and profitability of insurance industry.

3.3.3. Liquidity ratio (LQR)
Liquidity ratio is a measured in terms of current asset and current liability. It shows capability of an insurance company to fulfill their immediate commitment or pay their liabilities to policyholders and other creditors without having liquidate financial assets when they due. Good liquidity helps an insurance industry to meet policyholder's obligations punctually. An insurer's liquidity was required to satisfy its financial obligations by holding cash and investments were sound, diversified and liquid through operating cash flows. A high degree of liquidity enhances an insurer to meet the unexpected loss or cash requirements without untimely sale of investments which may cause losses due to temporary market conditions. The study found that a positive relationship between liquidity ratio and profitability since, the positive coefficient of 0.0928 with a p-value of 0.000 shows significant relationship at 5% significant level. It means that an increase in liquidity ratio by 1 unit would lead to increase 0.0928 units in profitability proxied by ROA of insurance company. This finding is consistent with the previous findings of Aster and Meseret, (2019); Gemachis, (2017); Mazviona etal, (2017) found positive relationship between liquidity and return on asset.
But, this finding was inconsistent with the findings of Hadush, (2015); Mwangi, and Murigu, (2015); Wondwossen, (2016); Simon, (2016) found negative relationship between liquidity and return on asset. Generally, the researchers conclude that, the increment of liquidity would cause to increase profitability of insurance companies in Ethiopia. Liquidity ratio indicates an insurer's ability to settle its current obligations without prematurely selling long term investments or to borrow money.
Reject null hypothesis since there is statistically significant relationship between liquidity ratio and profitability of insurance industry.

3.3.4. Capital adequacy ratio (CAR)
Capital adequacy shows soundness of finance or financial strength in insurance companies of Ethiopia which is measured as equity over total asset. The capital adequacy ratio and profitability proxy as ROA have positive association with coefficient of 0.3447 and statistically significant (p value 0.001) at 5% significance level. This implies capital adequacy ratio increased by 1percent will cause to increase 0.1percent on profitability of insurance company of Ethiopia. This indicates the company has more capital adequacy would provide better profitability. This finding is in line with previous studies of Aster and Meseret, (2019); Wondwossen, (2016); Sambasivam and Ayele, (2013) found that positive relationship between capital adequacy ratio and profitability proxy ROA. This finding was contrary with Charumathi, 2012 who found negative relation with return on asset. Thus, researchers concluded that capital adequacy ratio was major determinants of profitability of insurance companies since, it shows financial strength of company, better ability to attract potential policy holders and able to hold the specified underwriting guidelines.
Reject null hypothesis since there is statistically significant relationship between capital adequacy ratio and profitability of insurance industry.

3.3.5. Leverage Ratio (LVR)
Leverage ratio is measured in total debt divided by total asset. There is a statistically significant and negative relationship between leverage ratio and the profitability of insurance industry in Ethiopia at significant level of 5%. According to regression result, the coefficient of leverage was negative (0.2018) and statistically significant (p value 0.016) at 5 percent significant level. When one unit increase in the leverage ratio of the company would cause decrease 0.2018 units in the profitability of insurance industry. This finding has conformity with previous studies like Aster and Meseret, (2019); Demis, (2016); Behailu, (2016); Simon, (2016); Lee, (2014); Sambasivam and Abate,

(2013) were found that negative relationship between leverage and return on asset. This finding was contrary with the findings of Mwangi, and Murigu, (2015) in Kenya; Gemachis (2017) and Mazviona etal (2017) found positive relation between leverage and return on asset. Generally, leverage was negatively and statistically significant effect on profitability proxy return on asset. This shows, when leverage of insurance companies increased, the profitability of the industry will move to the opposite direction. On the other hand, company's assets more financed with leverage made low performance of the company due to lower the capital required for an insurer to operate business and made lower market value thereby reducing the firm's profit and leading to solvency problem. Companies that are highly leveraged may be at risk of bankruptcy if they were unable to make payments on their debt and unable to find new lenders in the future.
Reject null hypothesis since there is statistically significant relationship between leverage ratio and profitability of insurance industry.

3.3.6. Underwriting risk (UR)
Underwriting risk is the risk of loss and adverse changes in the value of insurance liabilities which occur due to inadequate pricing, inadequate amount of premium written by the companies and lack clear determination in their provisioning. It is measured by loss ratio which measures the productivity of the underwriting activity undertaken in insurance company. Underwriting risk is negatively and statistically significance impact on profitability proxy return on asset of insurance company in Ethiopia. The regression result shows negative coefficient (-0.2064) and statistically significant at 5 percent since p value (0.000) is less than 5percent. This indicates underwriting risk increased by one percent would cause 2.7 percent decline on profitability proxy return on asset of insurance companies. This finding was consistent with previous findings of Aster and Meseret, (2019); Gemachis, (2017); Asrat and Tesfahun, (2016); Demis, (2016); Ullah etal, (2016); Suheyli, (2015); Mistire, (2015); Hadush, (2015); Burca and Batrinca (2014) and Lee, (2014) were found negative and significant relationship between profitability and underwriting risk. But, this study was inconsistent with the findings of Mwangi, and Murigu, (2015), who found that positive and insignificant relation with return on asset. Thus, the researcher concluded that underwriting is negatively affect profitability of insurance company in Ethiopia because higher underwriting risk leads the insurers to pay higher unexpected payments or expenses. Usually, high underwriting risk implies the premium rates are too low for the level of risk and the company profitability would be endangered. Therefore, reducing underwriting risk leads to increase the profitability of insurance firms in Ethiopia as result of its negative relationship with return on asset (ROA).
Reject null hypothesis since there is statistically significant relationship between underwriting risk and profitability of insurance industry.

3.3.7. Premium growth (PG)
Premium growth indicates growth in business undertaken by the insurance entity. Premium growth rate (PG) has negative and significant (p value 0.0) impact on profitability of the insurance companies with the estimated coefficient of (-0.9686) which was significant at 5% level of significance. The regression implies that one percent increase in the premium growth rate of the company causes 96.86% decrease in the profitability. The finding was consistent with the previous findings of Charumathi, (2012) who found negative relationship between premium growth and profitability. Contrary, Asrat and Tesfahun, (2016); Demis (2016) were found that positive relationship between premium growth and profitability of insurance company. Thus, the researchers conclude that premium growth has negative and significant effect on profitability of insurance industry in Ethiopia since; insurers with more premium growth would have low profitability due to its direct relation with risk.
Reject null hypothesis since there is statistically significant relationship between premium growth rate and profitability of insurance industry.

3.3.8. Real GDP Growth (GDP)
Real GDP measures the total monetary value of goods and services at a constant price over a particular period of time. Growth rate of GDP reflects economic activity as well as level of economic development and various factors related to the supply and demand for insurance products and services. In short RGDP measure or show the adjusted economy of the country.

According to the regression result there is positive association between RGDP and profitability proxy ROA with positive coefficient of 0.1726 and statistically significant (P value 0.000) indicates that one percent of real GDP growth rate would cause 17.26 percent increase on return on assets of insurance companies in Ethiopia. The current finding is in line with previous findings of Asrat and Tesfahun, (2016); Demis, (2016); Wondwossen, (2016); Ortynski, (2016) were found positive relationship between GDP and profitability of insurance industry.

Contrary, Aster and Meseret, (2019); Behailu, (2016); Suheyli, (2015); were found that negative relationship between real gross domestic product and profitability of insurance company.

Thus, the researcher found that real GDP growth rate has positive and statistically significant impact on the profitability of insurance companies in Ethiopia. When economy of the country was increased, the society wants also increased towards insurance product. On the other hand economic growth of Ethiopia is high, the citizens' demand for luxury goods, automobile insurance, and home owner insurance would be increased which maximize the profitability of the industry.

Reject null hypothesis since there is statistically significant relationship between real GDP and profitability of insurance industry.

3.3.9. Real effective exchange rate (RER)

An increase in RER enhances the relative profitability of the tradable sector causes to increase. The real effective exchange rate has positive and significant relation with profitability with coefficient = 0.0102 and p value =0.001. This indicates when real effective exchange rate increased by 1 unit, the ROA also would be increased by 0.1 units. This may be due to encourage investors to invest in many areas and motivate them towards insurance contract.

Therefore, the researcher concluded that real effective rate is the major determinants of profitability of insurance industry in Ethiopia since, it can be used to measure the equilibrium value of a country's currency, identify the underlying factors of a country's trade flow, and analyze the impact that other factors, such as competition and technological changes on a country and ultimately the trade-weighted index. RER show trade capabilities of the country.

Reject null hypothesis since there is statistically significant relationship between real effective exchange rate and profitability of insurance industry.

3.3.10. Inflation (INF)

Inflation could affect insurance companies' profitability influencing both their liabilities and assets. Inflation increases, claim payments increases and consequently reduce technical result and profitability. The coefficient of inflation was negative (0.0815) and statistically insignificant (p-values 0. 918) which exceeds 5% significance level. The regression result suggested that inflation hasless negative impact onprofitability insurance industry in Ethiopia. This result was consistent with the findings of Gemachis, (2017); Demis, (2016); Wondwossen, (2016); Kemuma, (2015) in Kenya; Lee, (2014); were found negative relationship between inflation and profitability proxy by ROA. Contrary, Hadush (2015) found positive relationship between inflation and profitability of the insurance company. Generally, the researcher concluded that inflation has negative and insignificant effect on insurance profitability due to the effect on assets and ability to pay its obligation. It also affects the client's willingness due to weakening their purchasing power which allows entering into contract.

Accept null hypothesis since there is statistically insignificant relationship between inflation and profitability of insurance industry.

4. Conclusions and Recommendations

From the result of the regression, the researchers found that the positive and significant relationship between ROA and liquidity, capital adequacy, real GDP as well as real effective exchange rate. Contrary, ROA has negative and significant relation with leverage, underwriting risk, premium growth. Besides, ROA has positive and insignificant relation with age and size whereas negative and insignificant relation with inflation.

Insurance companies should have sufficient amount of liquidity ratio to discharge its responsibility for the time of accident and cover its short term obligation. However, the liquidity ratio should not be too high or too low so, as to keep companies' profitability and build public confidence. Capital adequacy ratio should be enough to attract investors, and create goodwill to the insurance companies, Leverage ratio should be low in insurance company

because to create good image to the companies. If leverage ratio is high, it is bad for the performance of company since, it creates lack public confidence to customers, and it also may face difficulty to get external equity. Premium growth is not necessarily possible way to increase profitability of insurance industry. Since premium growth increase, the new customers may not enter into contract. So without customer, it is difficult ensure and sustain profitability of the company. Therefore, premium growth should be low because premium growth declines the demand of society towards insurance contract. Generally, insurance industry should give emphasis on liquidity ratio, and capital adequacy ratio to sustain its profitability. While, insurance companies should be careful on leverage ratio, underwriting risk, and premium growth to keep its profitability. On the hand policy makers in insurance industry should give attention on the result of negative impact of profitability of insurance companies in order to reverse the negative effect from the companies and sustain its profitability

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