
Determinants of insurance companies' profitability Analysis of insurance sector in Ethiopia

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Abstract

Insurance business now a day plays a significant role in the growth of the financial services which ultimately leads to the overall success of the economy. The purpose of this study was to identify the key factors that affect profitability of insurance companies in Ethiopia. Specifically, it investigates the internal or firm specific variables (size of insurance companies, capital adequacy, leverage ratio, liquidity ratio, and loss ratio) and external or macro variables (market share, growth rate of GDP and inflation rate). In order to achieve this objective, the fixed effect model was used instead of random effect model following the result of hausman test. Panel data covering 10 years period from 2005-06 to 2014-15 were analysed for seventeen (17) insurance companies. Results of the regression analysis revealed that size of insurance, capital adequacy, liquidity ratio and growth rate of GDP were the major factors that significantly affect the profitability of insurance companies. On the other hand, leverage ratio, loss ratio, market share and inflation rate were found to have insignificant effect on insurance companies profitability. Finally, the study suggested that managers of insurance companies as well as the policy makers in the country should take crucial measures by framing policies and strategies that aimed in improving the overall profitability of insurers.

Key Words; Financial services, Insurance company, Profitability.

1. Introduction

Insurance companies provide unique financial services to the growth and development of every economy. In Ethiopia, the business of insurance plays significant intermediary roles in terms of risk transferring, enhancing private investment, creation of job opportunities and ensuring various development related projects. For insurance companies to be sustainable in the competitive globalized environment, earning profit is a pre requisite. In the absence of profit, insurers can't attract outside capital so as to meet their objectives. The profitability of insurance companies can be affected by a number of factors such as age, size, leverage ratio, premium growth, capital growth, tangibility ratio, liquidity ratio, loss ratio, market share, GDP growth and inflation rate. Some of these factors might have a positive impact on the insurers' profitability while others

could have a negative effect. Furthermore, some of these factors that affect insurers' profitability could be under the control of the insurers' management (internal factors) whereas others might be out of its control (external factors). Understanding the internal and external factors that can have an impact on the profitability of insurers is essential not only for the insurance managers and supervisors but also for policy makers and regulators. Therefore, the purpose of this paper is to clearly identify the key determinants of profitability of insurance companies in the country.

2. Review of related literature

The previous related literatures in relation to the factors that affect the profitability of insurance companies were reviewed as follows;

Hifza (2011), in her research article, analysed the various factors affecting profitability of insurance companies in Pakistan for the period 2004-05 to 2008-09. The researcher included a sample of 35 listed life and non-life insurance companies and specifically examined the effects of firm specific factors such as age of company, size of company, volume of capital, leverage ratio and loss ratio on profitability. The findings of the study showed that there was no relationship between profitability and age of the company but there was positive association between size of the company and profitability. The study also showed that the volume of capital was positively related with profitability whereas loss ratio and leverage ratio indicated negative relationship with profitability. The researcher suggested that there should be a reverse and significant relationship between leverage ratio and loss ratio as independent variables so that profitability can be improved.

Amal et al. (2012), in their research article, investigated various factors that affect financial performance of twenty five Insurance Companies in Jordan during the period 2002-03 to 2007-08. The results showed that variables such as leverage ratio, liquidity, Size of company, and management competence have a positive statistical effect on the financial performance of insurance Companies. However, age of the company was found to have no influence on their performance that encourages new entrants into insurance industry. The researcher suggested that insurance companies should have high consideration of increasing assets and well qualified employees in the top managerial positions that leads to a better financial performance.

Olajumoke (2012), in his paper, examined the determinants of the profitability of micro life insurers in Nigeria over the period of 2003-04 to 2007-08. Results of the study indicated that profitability of micro-life insurers is not influenced by factors such as the ownership structure, leverage and size of firms. However, profitability is found to be negatively related to the level of reinsurance suggesting that reinsurance in the micro-life insurance sector of the Nigerian market may be highly priced to reflect the increased risk associated with insuring the lives of low income groups. Furthermore, the profitability of micro-life insurers operating in Nigeria is found to be positively influenced by the level of interest rates in the economy.

Abate and Yuvaraj (2013), in their research article, examined the effects of firm specific factors

such as age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets on the performance of nine insurance companies in Ethiopia for the period of nine years i.e. from 2002-03 to 2010-11. The researcher revealed that variables such as growth, leverage, volume of capital, size, and liquidity were identified as most important determinant factors of profitability. However, age of the companies and tangibility of assets were not significantly related with profitability. Lastly, the study suggested that insurance companies should focus on not only firm specific variables but also macroeconomic factors so that profitability should improve.

John et al. (2013), in their research article, investigated how profitability of insurance firms was influenced by working capital management and leverage in Ghana using eighteen firms for the period 2001-02 to 2010-11. The current ratio was taken as representative of the result of working capital management policy and financial leverage and operating leverage as the bench mark for capital structure. Panel data was employed to determine whether profitability of insurance companies was related to selected indicators in accordance with the accepted finance theory or not. The research results showed that degree of financial leverage and liquidity were inversely related to profitability while operating leverage was positively related to profitability.

Mwangi and Murigu (2015), in their research paper, studied about the determinants of financial performance in general insurance companies in Kenya for the period 2009-10 to 2012-13. The study aimed to establish the factors that affect the profitability of general insurers in the country by employing multiple linear regression analysis, with return on assets as the dependent variable. It study found that the contribution of the general insurance industry to the gross domestic product was at 2.08%. Profitability was positively related to leverage, equity capital, management competence index and negatively related to size and ownership structure. The study did not find a relationship between performance and retention ratio, liquidity, underwriting risk and age. Finally, they recommend that for general insurers in Kenya to perform better, they should increase leverage, equity capital and quality of staff.

3. Objectives of the study

The objective of this study is to identify the key factors that affect profitability of insurance companies in Ethiopia.

4. Research methodology

In this study, the researcher used secondary type of data which was obtained from annual reports of the National Bank of Ethiopia and insurance companies. The study covers all insurance companies, public as well as private, which have been in operation under the period of 2005-06 to 2014-15. It incorporated 17 insurance companies based on the availability of data for achieving the stated objectives. For analysing the data, the fixed effect model was used instead of random effect model following the result of hausman test.

5. Operational definitions of independent variables

In this study, the return on assets (ROA) is used as a measure of insurance companies' profitability against which various internal and external variables were regressed. Internal variables are those that managers of insurance company have control over them. In another words, these are factors that are often influenced by policies and decisions of the insurers' management. External variables are those that are beyond the control of management of insurance companies. The operational definitions of those variables are provided below;

Insurer's size (isz) – Size of an insurance company is one of the most important variables considered by the study. Because it is too difficult to precisely measure the size of insurance companies, then the logarithm of total assets is used as a proxy for insurers' size. The main reason for considering insurers' size as a major determinant of profitability is that firstly, large insurers usually have greater capacity for dealing with adverse market fluctuations than smaller ones and the second is that insurers with large size can take advantages of economies of scale in terms of labour cost. Regardless of the above facts, however, there is no consensus among the different researchers as long as the relationship between size of insurers and profitability is concerned in the literature. As a result, the sign of insurers' size and profitability is subject to further empirical study.

Leverage ratio (Lvr) – the leverage ratio of an insurance company is defined as the ratio of debt to equity. It indicates the amount of debt used to finance the assets of a given firm. An insurance company with significantly more debt than equity is considered to be highly leveraged. The risk of an insurer may increase when it increases its leverage. Literatures in capital structure confirm that a firm's value will increase up to optimum point as leverage increases and then declines if it is further increased beyond that optimum level. For instance, Renbao and Wong (2004) stated that leverage beyond the optimum level could result in higher risk and low value of the firm. Harrington (2005) also stated that the relationship between leverage and profitability has been studied extensively to support the theories of capital structure and argued that insurance companies with lower leverage will generally report higher return on assets (ROA). Therefore, the leverage ratio is expected to have a negative relationship with profitability.

Capital adequacy ratio (cpa) – this refers to the excess of the value of assets over that of liabilities of insurance companies. In the context of finance literature, equity to asset ratio is used as a proxy for capital adequacy. It is an important indicator of the financial strength of an insurer and also shows its ability to survive in the long run. Insurance companies with greater equity to asset ratio are considered to be financially more sound and thereby capable of attracting various policyholders. In another words, insurance companies with higher capital adequacy ratio are relatively assumed to be safe in times of loss and bankruptcy. On the other hand, the higher the ratio of equity to asset of insurers, the lower is the risk and this could pave a way to increase their credit worthiness. Consequently, insurers will have lower cost of funding. Furthermore, insurance companies with higher equity to asset ratio will have less demand to raise funds from external sources. However, it is very difficult to confirm what relationship exists between equity

to asset ratio and profitability and as a result, it is subject to empirical study.

Liquidity ratio (lqr) – this refers to the ability of an insurer to meet its short term obligations when it is due. It is commonly measured by the ratio of current assets to current liabilities. It also shows the ability of an insurer to convert its assets in to cash as quickly as possible. An insurer can use liquid assets in order to finance its activities and investments in times when there is less availability of external sources of funds. Low liquidity ratio indicates that an insurer is facing difficulties in meeting its short term obligations. On the other hand, an extremely high ratio of liquidity could also mean that the insurer is keeping idle cash that could have generated income by investing in profitable areas. Therefore, this makes the sign of liquidity ratio and profitability to be unpredictable and consequently, subject to further investigation.

Loss ratio (lsr) - is the ratio of total losses incurred (paid and reserved) in claims plus adjustment expenses divided by the total premiums earned. This ratio is one of the most important profitability indicators for insurance companies. Loss ratio, which is also expressed as the underwriting risk in the relevant literature, shows the effectiveness of the underwriting activities of insurance companies. In this study, loss ratio is calculated by dividing the incurred claims with the earned premiums. Insurance companies that consistently experience high loss ratios may be in bad financial health. It is an indication that they are not collecting enough premiums to pay claims, expenses, and still make a reasonable profit. Accordingly, it is expected that loss ratio will have a negative impact on the profitability of insurance companies.

Market share (Mrs) – market share is measured by the ratio of an insurer's total assets to the total assets of the insurance sector as a whole. It constitutes how much is the percentage of the asset of a given insurance company in comparison to the total asset of the insurance industry. The higher the percentage of an insurer's asset to the total asset of the insurance sector, the greater is the market share and thereby better profitability. However, not all studies have found an evidence that support market share and profitability are always positively related. As a result, the anticipated sign is subject to empirical examination.

Real GDP growth rate (GDPr) – this reflects the economic activities and level of development of a particular country over a specified time period, usually a year. It is one of the most primary macroeconomic indicators which is used to measure the economic health of a country. Poor economic conditions can worsen the quality of the finance portfolio, thereby reducing profitability. If GDP grows, the likelihood of selling insurance policies also grows and insurers are likely to benefit from that in form of higher profits. Maja (2012) also studied that GDP growth positively affects insurers profitability i.e. growth of overall economic activity encourage demand for insurers services and indirectly result in harvesting higher profit. Therefore, it is expected that growth rate of GDP will have a positive impact on insurers' profitability.

Inflation rate (infr) – Based on Peter (1992), the association between inflation rate and insurance companies' profitability relies up on the nature of inflation. i.e. whether the inflation is anticipated or unanticipated. Therefore, the expected impact of inflation up on insurers' profitability is subject

to further empirical study.

Table 1.1

Operational definition and expected signs of independent variables

Independent variable	Description of measurement	Expected sign
Insurers' size (Isz)	The natural logarithm of total assets of the insurance companies.	+/-
Leverage ratio (Lvr)	Measured by the ratio of debt to equity.	-
Capital adequacy (Cpa)	Measured as the ratio of equity to total assets.	+/-
Liquidity ratio (Lqr)	Measured as the ratio of current assets to current liabilities.	+/-
Loss ratio (Lsr)	Measured as the ratio of incurred claim to net earned premiums.	-
Market share (Mrs)	Measured by the ratio of an insurer's total assets to the total assets of the insurance sector	+/-
GDP growth rate (GDPr)	The real GDP growth rate of country	+
Inflation rate (Ifr)	The country's annual inflation rate	+/-

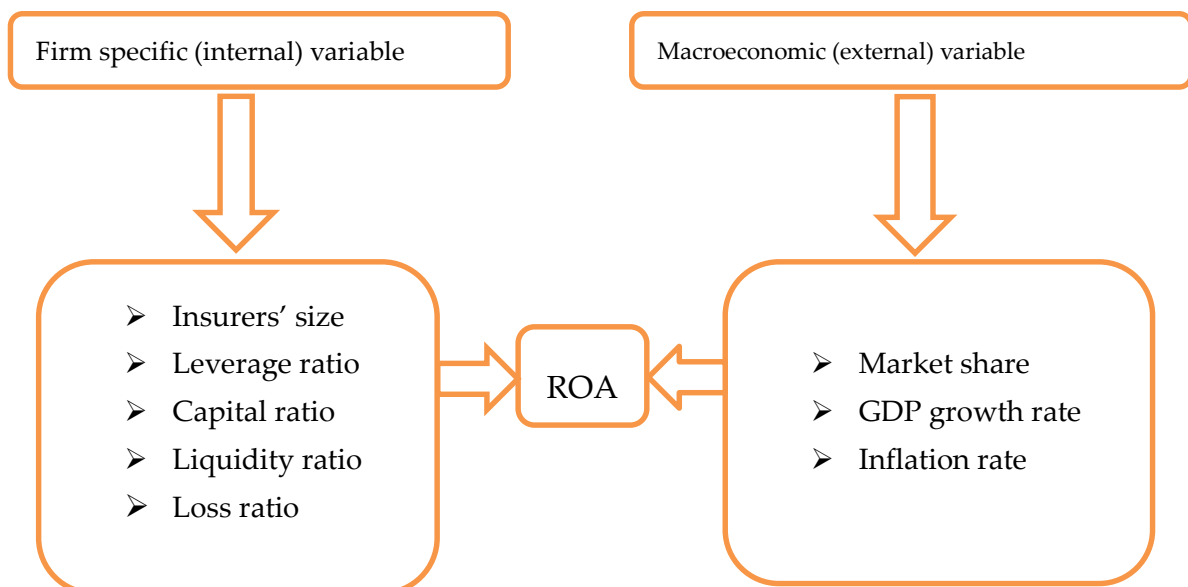
Source; (Own compiled from literature)

6. Conceptual framework of the variables used in the model

Conceptual framework is a map which shows how particular variables are connected with each other in the study. That is, it helps to clearly identify the variables that are used in the research process. In this study, the conceptual framework of both internal and external variables is presented in figure 3.1 below;

Figure 1.1

Conceptual framework of variables used in the fixed effect model



Sources; Own compiled from literatures

7. Model specification

In order to examine the effects of internal as well as external factors on the profitability of insurance companies, then the following model is specified as shown below:

$$\pi_{it} = x_0 + x_1Isz_{it} + x_2Lvr_{it} + x_3Cpa_{it} + x_4Lqr_{it} + x_5Lsr_{it} + x_6Mrs_{it} + x_7GDP_r_t + x_8Infr_t + \mu_{it} \dots\dots\dots (1)$$

Where;

π_{it} = after tax profit of an insurer i at time t measured in terms of ROA

x_0 = constant coefficient

i = signifies a specific insurance company

t = represent the time period for the study

$x_1, x_2, x_3, x_4, x_5, x_6, x_7,$ and x_8 = the coefficient of independent variables

Isz_{it} = size of insurer i at time period t

Lvr_{it} = leverage ratio of insurer i at time period t

Cpa_{it} = capital adequacy of insurer i at time period t

Lqr_{it} = liquidity ratio of insurer i at time period t

Lsr_{it} = loss ratio of insurer i at time period t

Mrs_{it} = market share of insurer i at time period t

GDP_r_t = GDP growth rate at time t

$Infr_t$ = Inflation rate at time period t

μ_{it} = The idiosyncratic error and is independently identically distributed

However, because the study makes use of cross-sectional time series data, the ordinary least square (OLS) estimates specified in the above equation highly suffer from endogeneity bias in the form of omitted variable. This is so due to the fact that there may be certain unobserved time-invariant insurers specific characteristics such as managerial practices, quality and technological sophistication which may correlate with the dependent variable and the independent variables. For this reason, by taking in to account the footprints of previous studies, the following linear model is specified to consider for the unobserved insurers specific effect:

$$\pi_{it} = x_0 + x_1Isz_{it} + x_2Lvr_{it} + x_3Cpa_{it} + x_4Lqr_{it} + x_5Lsr_{it} + x_6Mrs_{it} + x_7GDP_r_t + x_8Infr_t + \varepsilon_{it} \dots\dots\dots (2)$$
$$\rightarrow \varepsilon_{it} = \delta_{it} + \mu_{it}$$

Where;

ε_{it} = The disturbance error term

δ_{it} = The unobserved insurer's specific effect

The linear regression model specified in the above equation (2) is referred to as fixed effects regression model, and it exploits within group variation over time.

8. Pair wise correlation analysis between independent variables

The pair wise correlation analysis is often used as a preliminary technique to discover the relationships or associations between variables. More precisely, correlation analysis is the measure of the linear relationship between two variables. Table 6.3 presented below indicates the correlation analysis between the independent variables that were used in the study. In general, the matrix witnessed that the analysis of correlation between the independent variables was not severe showing that the problem of multicollinearity was either not strong or not existing. The problem of multicollinearity is said to be severe whenever the correlation analysis between two variables is found to be more than 80 per cent (Kennedy, 2008).

Table 1.2

Pair wise correlation matrix between explanatory variables

	lvr	prg	cpg	lqr	lsr	mrs	gdpr	infr
lvr	1.0000							
prg	0.0935	1.0000						
cpg	0.1465	0.4082	1.0000					
lqr	0.1581	0.2194	-0.0186	1.0000				
lsr	-0.0509	0.2013	0.1825	-0.0106	1.0000			
mrs	0.0011	0.4251	0.5268	0.0825	0.1418	1.0000		
gdpr	-0.2222	-0.0277	-0.0068	-0.2408	-0.0352	0.0951	1.0000	
infr	0.0569	0.6821	0.4933	0.2457	0.1499	0.5756	-0.0007	1.0000

Source; Own computations

9. Empirical results

Panel data can be analysed using various models. However, the most appropriate models are the fixed effects model and random effects model. Fixed effect model is a model that highly suffers from endogeneity bias or problem in the form of omitted variables, whereas random effect model is a model that has no the problem of endogeneity, i.e. there is no omitted variable. In this study, the selection of the fixed effect model over that of random effect model was made after the result of Hausman test was obtained as shown in table 6.4 below;

Table 1.3

Hausman test result

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. hausman fixed random
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	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
isz	.039143	.0557386	-.0165956	.0030952
lvr	.0541432	.0068814	.0472618	.0239468
cpa	.0263435	.0259178	.0004257	.002955
lqr	-.0479944	-.0433111	-.0046832	.
lsr	-.0048832	.0017241	-.0066073	.0035263
mrs	.0569143	.0396282	.0172861	.0294755
gdpr	-.6334913	-.5349991	-.0984922	.
infr	-.0037885	-.0026396	-.0011489	.

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(8) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 29.70 \\ \text{Prob}>\text{chi2} &= 0.0002 \\ &(\text{V}_b\text{-V}_B \text{ is not positive definite}) \end{aligned}$$

Source; Own computation

Following the preference of the fixed effect model to random effect model, table 6.5 provided below summarizes the overall results of the fixed effect model by considering the return on assets (ROA) as dependent variable. The study showed that the R-squared-within, R-squared-between and R-squared-overall were examined to be 46.46 per cent, 36.11 per cent and 39.97 per cent respectively. This indicates that the variables which were considered in the study are capable of explaining about 46.46 per cent of the variation within the insurer's profitability, 36.11 per cent of the variation between the insurers' profitability and 39.97 per cent of the variation among all the insurers' profitability. Furthermore, the main findings of the study regarding the factors that affects the financial performance of insurance companies are discussed below;

The first variable which the researcher considered to be an important determinant of insurers' profitability was the size of insurance companies. The size of an insurer (isz) is proxied by the log of its total assets and it was found to have a positive and significant influence on the profitability of insurance companies. The positive coefficient signifies that insurance companies with larger sizes were highly likely to earn maximum profits in comparison with those that have lower sizes. The result of this study goes in line with the relative market power hypothesis theory which states that those companies that have large sizes are usually capable of exercising their market power in utilizing their products so as to earn maximum profits.

Furthermore, findings of this study is also consistent with the findings of various previous researchers such as Daniel and Tilahun (2013), Abate and Yuvaraj (2013), Amal et al. (2012),

Hamdan (2008), Naveed (2010), Hafiz (2011) and Charumati (2012) despite the fact that Bayeh (2011) and Mwangi and Murigu (2015) found an inverse relation between size and profitability. As it is cited by Abate and Yuvaraj (2013), Hamdan (2008) provides two important results regarding the positive correlation between insurers' size and their profitability. The first result is in connection with the fact that large insurers normally pay less cost for their resources or inputs and the second one is that there may be increasing returns to scale by prioritizing of the fixed costs over a higher volume of services or through acquiring efficiency from the skilled man power. Therefore, the positive correlation between insurers' size and profitability of insurance companies in Ethiopia implies two significant implications, i.e. one is large size insurance companies may be advantaged from the economies of scale and another is that they can exert market power by introducing different techniques such as creating new technologies which facilitates them to harvest maximum amount of profit.

Another factor or determinant of insurers' profitability considered by the study is leverage ratio. Leverage ratio, which is measured as the ratio of debt to equity, is revealed to be positively and insignificantly associated with the profitability of insurance companies. A positive and insignificant association between debts to equity ratio and profitability implies that insurance companies in Ethiopia over the period of the study (2005-06 to 2014-15) were not significantly affected as a result of whether increasing or decreasing the level of leverage ratio. In contrast with Navee, Zulfqar and Ishfaq (2010) and Baye (2011) who found significant relationship between leverage and profitability, empirical result of this study is, however, similar with those findings which were obtained by scholars such as Muhammed (2012), Hifza (2011), John et al. (2013), Kamrul and Firoja (2013), and Ansah et al. (2010).

Capital adequacy (cpa) is also among the key determinant factors that can influence the profitability of insurance companies. It is measured by the ratio of equity to total assets. Results of the study witnessed that the capital adequacy has a positive and significant relationship with the profitability of insurance companies. This implies that the Ethiopian insurance companies with adequate amount of capital can have a great number of investment alternatives and thereby higher tendency of harvesting profit. However, those insurance companies which are poorly capitalized can have less investment opportunities and therefore their profitability might be highly influenced. Some of the previous researchers whose findings were in line with this study were Hamdan (2008), Hifza (2011), Abate (2012), and Abate and Yuvaraj (2013). From this point of view, it is important for the Ethiopian insurance companies to strengthen their capital since this can enable them to resist financial crises as well as to ensure safety to the customers in times of economic instability and crisis.

The ratio of current assets to current liabilities, which measures the degree of liquidity, is found to have a negative and significant association with the profitability of insurance companies. The estimated coefficient which is related to this specific variable provides that liquidity and profitability have an inverse relationships, i.e. an increase in liquidity of insurers will result in a decrease in profitability and vice versa. One of the many possible reasons for this might be misallocation of the resources or the inefficient utilization of the idle resources. The result of this

study is consistent with Agnes (2012), John et al. (2013), Abate and Yuvaraj (2013), and Suheyli (2015). The implication of this finding is that the greater the amount of the resources that are tied up to meet the liquidity position, the lesser is the profitability. Therefore, the study suggests that managers of insurance companies should take greater care or responsibility in optimizing the level of liquidity since higher liquidity may also result in cash idleness and thereby decreases profitability.

The loss ratio (l_{sr}), which is proxied by the ratio of incurred claims to earned premium, is another parameter which is considered in the determinants of insurance companies' profitability. As far as this ratio is concerned, it is found to have negative and insignificant relationships with the insurers' profitability. The negative coefficient of this variable signifies that as the amount of claims increased in comparison to the earned premium, then this can definitely negatively affect the profitability of the insurers since it can also increase the amount of expenses. Despite the fact that this variable was found to be statistically insignificant, its negative coefficient requires a great and especial attention from the managers of the insurers as well as other responsible bodies. This means that the level of loss ratio must be maintained to be as minimum as possible so as to reduce the possible problems that are associated with it. The previous scholars who found a negative and insignificant correlation between loss ratio and profitability were Peter (2013), Hifza (2011), and Wasike and Andrew (2016).

As long as the market share (m_{rs}) is concerned, the study witnessed a positive and insignificant correlation between market share and profitability of insurance companies. The positive coefficient indicates that an increase in the market share of insurance companies will have a positive impact up on profitability even though the impact is found to be insignificant. In contrast to Peter (2011) and Tekeste (2013) who came up with negative association between market share and profitability, previous researchers such as Bajtelsmit and bouzouita (1998), Robert and Stephen (2009), Alireza and Mojtaba (2010) and Jayawardhana (2016) found out a direct and positive relationship between these two variables.

With regard to macro variables, the study showed that the Gross Domestic Product (GDP) was revealed to have a positive and significant correlation with profitability of Ethiopian insurers. Similar to this finding, the previous researchers who confirmed a positive and significant association between GDP and profitability were Suheyli (2015), Doreen (2013), Infuero and Chijuka (2014) and Qinhua and Meiling (2014). The estimated positive coefficient of the variable signifies that economic growth and profitability are highly directly related, i.e. economic growth can facilitate the profitability of insurance companies mainly through increasing the need for financial services, thereby increasing insurers' cash flows and profit margins. Whenever the economy gets prosperous, then the need for insurance service will definitely increase and this can ultimately results in high return or profit margin to the insurers.

Another key macro-economic parameter considered by the study is inflation rate (in_{fr}). The study found that inflation has negative and insignificant impact on insurers' profitability. Since policies are not adjusted periodically, then inflation can affects results of underwriting premiums. For example, whenever the prices of automobiles or properties increased from time to time, and if the

price for the insurance or premium is not adjusted accordingly, then this can result in increasing the cost and thereby lowering the profit margin. This negative correlation between inflation and profitability is also further approved by the previous scholars such as Cristina and Peter (2011), Boubaker and Sghaier (2012), Infuero and Chijuka (2014), and Nnado and Ugwu (2016).

Table 1.4

Results of fixed effect mode (using ROA as dependent variable)

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. xtreg roa isz lvr cpa lqr lsr mrs gdpr infr, fe
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Fixed-effects (within) regression
Group variable: insurer

Number of obs = 127
Number of groups = 17

R-sq: within = 0.4646
between = 0.3611
overall = 0.3997

Obs per group: min = 2
avg = 7.5
max = 10

corr(u_i, xb) = -0.0962

F(8,102) = 11.06
Prob > F = 0.0000

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
isz	.039143	.0113187	3.46	0.001	.0166923	.0615937
lvr	.0541432	.1231051	0.44	0.661	-.1900352	.2983216
cpa	.0263435	.0118663	2.22	0.029	.0028067	.0498802
lqr	-.0479944	.0090181	-5.32	0.000	-.0658816	-.0301071
lsr	-.0048832	.0128276	-0.38	0.704	-.0303267	.0205603
mrs	.0569143	.0376009	1.51	0.133	-.0176669	.1314955
gdpr	-.6334913	.1214917	-5.21	0.000	-.8744694	-.3925132
infr	-.0037885	.0061513	-0.62	0.539	-.0159896	.0084127
_cons	6.960905	1.899725	3.66	0.000	3.19281	10.729
sigma_u	1.4486281					
sigma_e	.95897941					
rho	.69529779	(fraction of variance due to u_i)				

F test that all u_i=0: F(16, 102) = 6.11 Prob > F = 0.0000

Source; Own computation

10. Conclusions

The purpose of this study was to identify the major determinants of profitability of insurance companies in Ethiopia that were in operation over the periods of 2005-06 to 2014-15. It used return on assets (ROA) as a measure of profitability against which a number of internal and external variables were regressed. The internal variables were size of insurance companies, capital adequacy, leverage ratio, liquidity ratio and loss ratio and the external variables were market share, real growth rate of GDP, and inflation rate. Results of the analysis indicated that size of insurance, capital adequacy, liquidity ratio and the real growth rate of GDP were the key determinants that significantly affect the profitability of insurance companies. However, factors such as leverage ratio, loss ratio, market share and annual inflation rate were found to have insignificant impact on profitability.

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