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# Firm Specific and Macroeconomic Determinants of Financial Institutions' Profitability: Evidence from Banks and Insurances in Ethiopia

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## Abstract

Now a day's financial institutions play a significant and irreplaceable role in the growth of financial services which ultimately leads to the overall success of the economy of a country. The very aim of this study was to investigate the key firm specific and macroeconomic determinants of profitability of financial institutions in Ethiopia using balanced panel data from 25 financial institutions (14 banks and 11 insurance companies) covering 12 years of period from 2008 to 2019. Quantitative approach and explanatory design was employed to realize the stated objective. In order to achieve the study objective, secondary data were collected from annual audited financial statements of sampled financial institutions for the stated period. The model results of the study revealed that liquidity ratio, asset tangibility and leverage have positive and statistically significant effect on profitability of financial institutions while firm age and inflation rate have negative and statistically significant effect on the profitability of financial institutions in Ethiopia. However, capital adequacy, size and real GDP growth rate were found to have insignificant effect on the profitability of the sector. Future studies are suggested to be conducted on this research area by incorporating variables that are other than variables used in this study and unlike this particular study, all other financial institutions need to be included.

**Keywords:** Financial Institution, Determinants, Profitability, Bank, Insurance

## 1. Introduction

A financial institution is a company engaged in the business of dealing with financial and monetary transactions such as deposits, loans, investments, and currency exchange. Among others, some of the roles played by this sector include provision of indispensable financial services to the economy, contributing to economic growth, efficient resource allocation, reduction of transaction costs, creation of liquidity, facilitation of economies of scale in investment, and spread of financial losses (Haiss and Sümegi, 2008).

According to Barney (1997) as quoted by (Peter, 2013), performance has been the most important issue for every organization whether it is for profit or non-profit one. Performance is used to indicate the hard work to attain a particular goal and it is a matter not only of what people achieve but how they achieve it. The attainments of goal include combination of human, fiscal and natural resources (Armstrong, 2006). The performance is an activity applied to a part or all of performance of actions in a time period, often with connection to previous or proposed expenditure efficiency, management responsibility or accountability. Financial performance management is a part of total performance management of an organization (Muhammad *et al.*, 2015). According to (Armstrong, 2006), financial performance is a subjective measure of how well a firm can use assets for its primary mode of business and generate revenue. This term is also used as a general measure of a firm's general financial health over a given period of time, and can be used to compare similar firms across the same industries or sectors in aggregation. The best financial performance of the firm not just plays the function to raise the market value of that particular organization but also leading towards the growth of the whole industry which ultimately leads to the overall success of the economy.

According to Hifza (2011) profitability is one of the most important objectives of financial management since one of the goals of financial management is to maximize the owners' wealth, and profitability is the very important measure of performance. A business that is not profitable cannot survive whereas a business that is highly profitable has the ability to reward its owners with a large return on their investment. Hence, the ultimate goal of a business entity is to earn profit in order to make sure the sustainability of the business in prevailing dynamic business conditions.

Measuring the profitability of financial institutions has gained the relevance in the corporate finance literature because as intermediaries, these companies in the sector are not only providing the mechanism of saving money and transferring risk, they are also helping to channel funds in an appropriate way from surplus economic units to deficit economic units so as to support the investment activities in the economy (Hifza, 2011 and Weldeghiorgis, 2004).

Over the years, there have been variations in profit as reported in financial statements of financial institutions in Ethiopia. This suggests investigating the factors responsible for the profitability of financial institutions overtime. Moreover, much of the extensive empirical literature on the determinants of profitability of this sector is mostly focused on the banking industry excluding other financial institutions such as microfinance institutions and insurance companies (Vejzagic and Zarafat, 2014 and Williams, 2003), and very little studies are conducted on the profitability of the financial industry in Ethiopia. Thus, this study aimed at filling this gap by identifying determinants of profitability of financial institutions in Ethiopia.

## **2. Literature Reviews**

### ***2.1. Concept of Profitability***

The term profit can take either its economic meaning or accounting concept which shows the excess of income over expenditure viewed during a specified period of time. Michael (2011) argued that profitability is the most important and reliable indicator of performance as it gives a broad indication of the ability of an institution to raise its income level (Kaur and Kapoor, 2007). The existence, growth and survival of a business organization mostly depend upon the profit which an organization is able to earn. According to Hamad Ahmed Ali Al-Shami (2008) there are different ways to measure profitability such as: return on asset, return on equity and return on asset is an indicator of how profitable a company is relative to its total assets whereas return on equity measures a company's profitability which reveals how much profit a company generates with the money shareholders have invested.

## **2.2. Theories of Profitability**

There are various theories of profit which have been advanced from time to time regarding the nature of profit in a competitive economy. Almost all of them differ basically from one another and are inadequate (not capable enough) to explain the actual role of profit in the operation of free economy. The most important theories are:

### **1) Dynamic theory of profit:**

The dynamic theory of profit was formulated by J.B. Clark (Clark, 1908). According to him profit accrues because the society is dynamic by nature. Since the dynamic nature of society makes future uncertain and any act, the result of which has to come in future, involves risk. Thus profit is the price of risk taking and risk bearing. It arises only in a dynamic society which means in a society where changes does not occur i.e. it is static by nature the risk element disappears and hence the profit element does not exist there. Actually, a society is said to be dynamic when there is a change in its population, change in trends of the people, change in stock of the capital, change in the supply of entrepreneurs etc. when all these factors becomes constant, the future also becomes certain and the risk element disappears from the society. According to Clark, there are certain changes which are of a recurring and calculable nature. They can be anticipated and the output can be adjusted according to that. The profits do not arise on those regular changes but on those which are unforeseen or unpredictable. Thus, he observes that: "It is not dynamic changes or any changes as such which cause profits but he divergence the actual conditions from those which have been expected and on the basis of which business arrangements have been made."

### **2) Uncertainty bearing theory of profit**

The theory of uncertainty bearing was developed by Prof. F.H. Knight in 1921. According to him, profits are the reward for uncertainty bearing rather than risk taking. He has divided the risk into insurable risks and non-insurable risks. Non-insurable risk is also known as uncertainty.

#### **a. Insurable risk**

The risk whose statistical probability can always be computed like the risk of fire, theft and accident are known as insurable risks. These risks can be insured and the entrepreneur can reduce such risks. No entrepreneurs feel fear on this type of risk because such risk can be transferred to insurance agency by paying suitable premium.

#### **b. Non-insurable risk**

The risk which is neither definite nor foreseen is called non-insurable or uncertainties risk. It cannot be guarded against because no insurance companies afford an insurance against such uncertainties. Its statistical probability also cannot be computed. Non-insurable risk arises due to business cycle, technological changes, unhealthy competition among business firms, change in government policy etc. According to Prof. Knight the main function of the organization is to bear such non-insurable risks or uncertainties and profit is the reward for bearing such risks.

### **3) Risk bearing theory of profit**

The risk bearing theory of profit was developed by F.B Hawley in 1907 A.D. According to him, profit is a reward of risk bearing. The main function of entrepreneur is to bear risk. Production involves various kinds of risks and other emergency expenses. Nobody will bear risk unless there is expectation of profit. Profit is the main motive for taking risk. Thus, profit is reward for taking risk. Risk differs from industry to industry. Some productive activities are more risky while others are less. The rate of profit is also different from industry to industry. Profit is the reward for taking risk. Higher the risk, higher will be the profit and vice versa (Nabraj Lama, 2013).

### **4) Monopoly theory of Profit**

This theory is established by Kalecki (942) and he said that there is no doubt that profits arise from dynamic changes, innovations and from making a correct estimate of future economic conditions. However in his point of view, monopoly and monopolistic competitions in the market also give rise to profits. The firms under monopoly or monopolistic competition have greater control over the price of the product. They are the price makers rather

than the price takers. As such they raise prices by restricting the level of output and thus keep profit at higher level. Monopoly power, thus, is the basic sources of business profits. Nevertheless, this theory is also criticized because, monopoly is no doubt an important cause and source of monopoly profits but it does not replace other theories. Monopoly power only supplements other theories (www.economicsconcepts.com).

### **2.3. Determinants of Profitability and Research Hypothesis**

#### **1. Firm Size**

An important factor employed in determining firm performance is the size of a firm and this is attributable to economies of scale as found in the traditional neo-classical view of the firm. A firm size influences its financial performance in several ways. Firms with large size have the advantage of economies of scale thereby leading to efficiency in comparison to firms with small size. Small firms are likely to face difficulty as it relates to competing with large firms in highly competitive markets due to the fact that smaller firms are likely to have lesser power (Hailegebreal, 2016)). The empirical findings as it relates to size and performance of financial institutions have been mixed. Mazviona *et al.*, (2017), Kazeem (2015) and Mwangi and Murigu (2015) found negative relationship between size and performance. On the other hand, Alomari and Azzam (2017); Dey *et al.* (2015); Bawa and Chattha (2014) and Charumathi (2012) found positive relationship between size and profitability.

**H1:** *There is positive relationship between size and profitability*

#### **2. Leverage**

Leverage is an important determinant of performance (Mehari and Aemiro, 2013). Leverage reveals the extent at which borrowed funds are being utilized by a firm. A risk of bankruptcy exists when a company that is highly levered finds it difficult to make debt payments; difficulty in finding new lenders in future may also arise. The impact of financial leverage on the performance of a firm can be positive this is due to the fact that leverage can be used as a tool for disciplining the management of a company. Leverage can function as a disciplinary tool that guides management of a company from wasting company resources (Grossman & Hart, 1982). Findings revealed that, the effect of financial leverage on performance have been mixed. Mazviona *et al.* (2017); Mwangi and Murigu (2015); Burca and Batrinca (2014); and Boadiet *et al.* (2013) found a positive association between leverage and performance. However, Alomari and Azzam (2017); Hailegebreal (2016); Kazeem, (2015); and Dey *et al.* (2015) found that leverage has a negative effect on profitability.

**H2:** *There is positive relationship between leverage and profitability*

#### **3. Age**

The age of the company is one of the most influential characteristics in organizational studies and is an important determinant of financial performance. Newly established companies are not particularly profitable in their first years of operation, as they place greater emphasis on increasing their market share, rather than on improving and maintaining financial healthiness (Athanasoglou *et al.*, 2005). The empirical findings with respect to age and company's performance were mixed. Berteji and Hammami (2016); Kaya (2015) and Derbali (2014) in their respective studies found that age has a significant positive impact on performance. On the other hand, Mwangi and Murigu (2015) and Malik (2011) found positive relationship between age and performance.

**H3:** *There is positive relationship between age and profitability*

#### **4. Liquidity**

Liquidity ratios measure the firm's ability to fulfill short-term commitments out of its liquid assets. Companies with more liquid assets are less likely to fail because they can realize cash even in very difficult situations. It is therefore expected that financial institution with more liquid assets will outperform those with less liquid assets. Daniel and Tilahun (2013) confirmed that there is a positive relationship between liquidity and profitability of financial institutions. However, Pasiouras & Kosmidou (2007) hypothesized a negative relationship liquidity and profitability.

**H4:** *There is positive relationship between liquidity and profitability*

## 5. Asset Tangibility

Tangibility of assets ratio measures the share of fixed assets from total assets, this allows the firm to get a borrowing access easily, due to it is serving as collateral to get sufficient loan. According to Asnakew (2011), tangible assets are likely to have an impact on the borrowing decisions of a firm because they are less subjected to informational asymmetries and usually have a greater value than intangible assets in case of bankruptcy. Therefore, it is considered that the availability of such borrowing capacity will affect the profitability of the financial institutions. A study by Daniel and Tilahun (2013); Hifza (2011) and Naveed *et al.*, (2011), found positive and significant relationship between asset tangibility and profitability of financial institutions. On the other hand, a high ratio of asset tangibility may indicate an inefficient use of working capital which reduces the firm's ability to carry receivables and maintain inventory and usually means a low cash reserve. This may often limit the ability of the firm to respond to increased demand for products or services (Liargovas and Skandalis, 2008). This concept also supported by the findings of Abdelkader (2014); Yuvaraj and Gashaw (2013) and Abate (2012).

*H5: There is positive relationship between asset tangibility and profitability*

## 6. Capital Adequacy

Capital adequacy also known as volume of capital is a measure of financial strength or financial soundness of financial institutions, in terms of its ability to withstand operational and abnormal losses. Capital is seen as a tool to protect, insure and promote the stability and efficiency of financial system, it also indicates whether the company has enough capital to absorb losses arising unforeseeable circumstances. Capital adequacy (volume of capital) also indicates the ability of a firm to undertake additional business (Tanveer, 2004). Regarding its relationship with profitability, finding by Yuvaraj and Gashaw (2013); Gashaw (2012); Imad *et al.*, (2011) and Hifza (2011) stated that capital adequacy has positive relationship with financial institutions' profitability.

*H6: There is positive relationship between capital adequacy and profitability*

## 7. Real GDP Growth rate

GDP is one of the primary indicators used to gauge the health of a country's economy. Fadzlan and Royfaizal (2008) states that GDP is the most commonly used macroeconomic indicator to measure total economic activity within an economy, its growth rate reflects the state of the economic cycle. A significant change in GDP, whether up or down, usually has a significant effect on the stock market. It's not hard to understand why a bad economy usually means lower profits for companies, which in turn means lower stock prices. Investors really worry about negative GDP growth, which is one of the factors economists use to determine whether an economy is in a recession ([www.investopedia.com](http://www.investopedia.com)). There are also empirical evidences that found, real GDP has a positive effect on profitability of financial institutions, such as Cecila (2014), Doreen (2013) and Doumposet *al.*, (2012).

*H7: There is positive relationship between real GDP and profitability*

## 8. Inflation

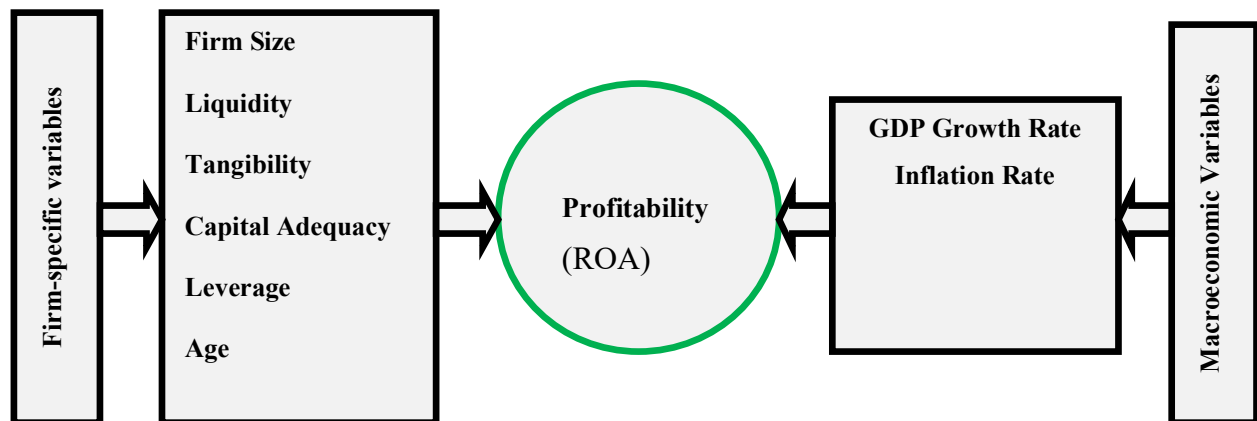
The term inflation refers to the sustained rate of depreciation of the purchasing power of a unit of local currency over time or simply, it is the rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling. It is measured on a continuously compounded rate basis (differences in the natural logarithms) or as an annual percentage increase as reported in the Consumer Price Index (CPI). Inflation, to one degree or another, is a fact of life. High rate of inflation negatively effects the real economic growth and thus causes adverse consequences for economic performance at the aggregate level. However, the nature of relationship between inflation and economic growth and the channels through which inflation affects real economic activities is still a debatable issue (Li, 2006). Godfrey (2012) suggested that "there was drop in performance (profitability) of financial institutions not due to poor management but it was due to inflation". According to John (2011) inflation tends to raise investors' required real rate of return on equity and to lower real capital income for tax-related reasons. As a result, there is a strong negative correlation between inflation, real income, and real and nominal stock prices.

*H8: There is negative relationship between inflation and profitability*

## 2.4. Conceptual framework of the study

Conceptual framework helps to clearly identify the variables that are used in the research process and shows how particular variables are connected with each other in the study. The conceptual framework presented both internal and external variables used in this study in figure 1 below;

Figure 1. Theoretical model on determinants of profitability



Source: Developed based on literatures

## 3. Materials and Methods

The major objective of the study was to investigate the determinants of profitability of financial institutions in Ethiopia. This study has employed quantitative approach and an explanatory research design to realize the stated objectives. The sample constitutes 14 banks and 11 insurance companies out of 18 commercial banks and 17 insurance companies in Ethiopia. The study employed purposive sampling technique to include all public as well as private banks and insurance companies, which have been in operation from 2008 to 2019 based on the availability of data. The study used secondary data which includes the audited annual financial reports of insurance companies and banks under study. The data were strong balanced panel type, which captured both cross-sectional and time series behaviors.

### 3.2. Methods of Data Analysis

The study used both descriptive statistics and econometric tools to analyze the data and address the predefined objective. The former one includes simple descriptive methods such as: mean, maximum, minimum, standard deviations and other simple statistical tools that enable to better understand the existing situation and analyze the general trends of the data. The study substantiated the descriptive analysis through manipulating econometric models to examine causal relationship between the explanatory and dependent covariates. In this regard, the study employed Random Effect Model to identify the explanatory variables that are significantly affecting profitability of financial institutions.

### 3.3. Variable Measurement and Model Specification

Several important factors need to be considered in specifying an empirical model. These include choice of suitable dependent and explanatory variables, measurement of these variables, and model specifications.

#### 3.3.1. The Dependent Variable

In accordance with previous studies that have investigated the determinants of profitability of financial institutions, this study employed one of the most commonly used measure of profitability; that is return on total assets (ROA). Return on Assets (ROA) measures the overall profitability and reflects both the profit margin and how the institution is efficient in using the total assets to generate revenue (Brealey *et al.*, 2006). ROA is calculated as net profit after tax divided by total assets. This is probably the most important single ratio in

comparing the efficiency and financial performance of financial institutions as it indicates the returns generated from the assets that firm owns. The formula for the profitability measure is given as follows:

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

### 3.3.2. Independent Variables

The choice of explanatory variables used in this study is based on their theoretical relationship with the dependent variable. Depending on the research hypothesis the explanatory variables used to determine the profitability of financial institutions in Ethiopia are firm size, liquidity, asset tangibility, capital adequacy, leverage and age as firm-specific variables and GDP and inflation as macroeconomic variables. Those variables are used and reported significant by various studies as determinants of financial institutions profitability with different combinations (Hongxing, 2018; Mazviona *et al.*, (2017); Muhammad *et al.*, 2015 and Hifza, 2011). Table 1 presents the summary of variables and their expected effect on the financial institutions profitability.

Table 1. Summary of variables and their expected relationship

Categories	Variables Name and Notations	Measurement	Expected Effect
<b>Dependent Variables</b>	Profitability (ROA)	Net Income/ Total Asset	NA
<b>Independent Variable</b>	Firm Size (SIZE)	Natural Log of Total Asset	+
	Liquidity (LQ)	Current Asset/Current Liability	+
	Leverage (LEV)	Total debt / total equity	+
	Capital Adequacy (CA)	Equity/Total Asset	+
	Asset Tangibility (TNG)	Fixed Asset / Total asset	+
	Firm Age (AGE)	Number of years firms operated	+
	Real GDP Growth Rate (GDPG)	Real GDP Growth Rate	+
	Inflation Rate (INFR)	Annual Inflation Rate	-

Source: Developed based on the literatures

To identify effect of determinant variables on profitability of financial institutions, this study formulated the following econometric models.

$$ROA_{it} = \alpha + \beta_1(SIZE)_{it} + \beta_2(LQ)_{it} + \beta_3(TNG)_{it} + \beta_4(CA)_{it} + \beta_5(LEV)_{it} + \beta_6(AGE)_{it} + \beta_7(INFR)_{it} + \beta_8(GDPG)_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Where, ROA is Profitability, SIZE is the Firm Size, LQ is the Liquidity, TNG is Asset Tangibility, CA is Capital Adequacy, LEV is Leverage, AGE is the Firm Age, INFR is Annual Inflation Rate and GDPG is the Real GDP Growth Rate, *i* is the *i*<sup>th</sup> Financial Institutions, *t* is the time period,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$  and  $\beta_8$  are the coefficients for each explanatory variables in the model,  $\varepsilon_{it}$  is the error term.

## 4. Result and Discussions

### 4.1. Descriptive Statistics

As presented in Table 2, the average value of ROA is 0.11(11.48%) with a minimum value of -0.23 and a maximum value of 9.49. This result implies that, sampled financial institutions on average generate 0.11 cents from a birr invested in their asset which ranges from 0.23 cents to a profit of 9 birr and 49 cents during the study period with the high standard deviation of 0.56 (56%) from the mean.

Regarding explanatory variables, the size of the financial institutions which is measured by natural logarithm of total asset has an average value of 9.35 while the minimum and maximum values were 6.21 and 11.75 respectively and a standard deviation of 0.88. Liquidity measured as a ratio of current asset to current liability



has average value of 22.08 with a minimum and maximum value of 0.13 and 400.44 respectively. The standard deviation is 50.41, which indicates the existence of large variation among the sampled firms with respect to their liquidity position. The average value of asset tangibility is 0.10 with the minimum and maximum value of 0.008 and 5.05 respectively. The standard deviation is 0.31, which indicates that the asset tangibility of the sampled institutions deviates from the mean up to 0.31. The average value of capital adequacy is 0.48 with minimum and maximum values of 0.004 and 35.44 respectively and a standard deviation of 2.32, which shows the existence of high variation among the sampled institutions in Ethiopia. The average value of leverage is 5.76 with maximum and minimum values of 85.53 and 0.06 respectively and large standard deviation value of 6.82 from the mean. This result signifies that in Ethiopia, most of financial institutions were financed through borrowed funds compared to funds raised by owners' contributions. The average age of the financial institutions in Ethiopia is 26.87 (26 years and 10 months). The maximum age of the institutions is 58 years while the minimum age is 13 years with the standard deviation of 9.75 (9 years and 8 months).

Regarding macro-economic variables, the average value of real GDP growth rate is 9.77% with minimum and maximum values of 7.7% and 11.4% respectively, which indicates that, during the study period the economic growth were reasonably stable. Finally, the average value of inflation rate for the period was 15.87% with a standard deviation of 1.13%.

Table 2. Descriptive statistics for the dependent and explanatory variables

Variable	Obs = 300	Mean	Std. Dev.	Min	Max
ROA		0.1148	0.5691119	-0.2323	9.4978
SIZE		9.3572	0.8862787	6.2137	11.7544
LQ		22.0867	50.41024	0.1368	400.4407
TNG		0.1013	0.3104362	0.0082	5.0599
CA		0.4853	2.325927	0.0046	35.4439
LEV		5.7660	6.825035	0.0628	85.5347
AGE		26.8712	9.753559	13	58
INFR		15.875	10.3339	2.8	36.4
GDPG		9.7725	1.133033	7.7	11.4

Source: own competition, 2020

#### 4.2. Regression Result

Table 3 presents the random effect regression results to identify determinants of financial institutions profitability in Ethiopia. The variables included in the model explained about 84% of the total variation on profitability which is reasonably a good fit. This implies that the explanatory variables (such as, liquidity, asset tangibility, leverage, firm age and inflation rate) jointly explained about 84% of the total variation in the profitability.

The model result shows that, **Liquidity**, which measures the ability of a firm to meet its short term obligations, has a positive and statistically significant effect on the profitability of financial institutions in Ethiopia. The result shows that, an increase in liquidity leads to increased profitability. The result is in line with the prior expectation and consistent with the findings of Suheyli (2015), Abate and Yuvaraj (2013), John *et al.*, (2013) and Agnes (2012) argued that, the greater the amount of the resources that are tied up to meet the liquidity position, the higher is the profitability but in contrast with the findings of Berhe(2017), who has concluded that liquidity is negatively related to profitability.

**Asset Tangibility** has positive and statistically significant effect on profitability of financial institutions. The result implied that, an increase in asset tangibility leads to an increased profitability, due to the fact that companies with more tangible assets tend to be profitable because more investment in the long term assets, research and development and innovation are highly associated with companies' position in generating large volume of profit. This result is consistent with the prior expectation along with findings by Boadiet *al.* (2013), Ahmed *et al.* (2011) and Nucci (2005) found a positive relationship between tangibility and performance of

financial institutions. In contrast to this, findings of Abdelkader (2014), Yuvaraj and Gashaw (2013) and Abate (2012) documented that profitability is negatively associated with asset tangibility.

**Leverage** which is measured as the ratio of debt to equity has positive and significant effect on the profitability of financial institutions, which shows that the higher the leverage ratio the better is the profitability of financial institutions in Ethiopia. The result is in congruent with Baye (2011) and Navee *et al.*, (2010) who found positive and significant relationship between leverage and profitability but against with the findings of Alomari and Azzam (2017), Hailegebreal (2016) and Kazeem, (2015) found that leverage has negative effect on profitability.

The **Age** of companies has negative and statistically significant effect on profitability of financial institutions, which implies when firm's age increases, performance of the company decreased since younger firms are more focused on maximization of their profit through adaptation of new technology, quality of service, good management and efficient resource utilization. The result is against from the prior expectation but consistent with the findings of Malik (2011) and Ahmed *et al.*, (2011) found negative relationship between age and profitability. However, the result is against with the findings of Berteji and Hammami (2016), Kaya (2015), and Derbali (2014) who found that age has a significant positive impact on profitability in their respective studies because older firms can gain experience based on economy of learning and can avoid the liabilities of newness.

Finally, **Inflation Rate** is the key macro-economic parameter that has negative and statistically significant impact on financial institutions' profitability. This negative correlation between inflation and profitability is in agreement with the prior expectation and the findings of Andres & Stephen (2017), Teklit&Jasmindeep (2016) and Asrat and Tesfahun (2016) found negative association between inflation and firms' profitability.

Table 3. Random Effect model result for Return on asset (ROA)

Explanatory Variables	Coefficient	Std. Err.	Z-Value
SIZE	-0.01393	0.0257	0.54
LQ	0.0006***	0.0002	3.19
TNG	1.2409***	0.4714	2.63
CA	0.0627	0.0726	0.86
LEV	0.0063***	0.0024	2.64
AGE	-0.1503***	0.0674	2.23
GDPG	-0.0095	0.0092	1.04
INFR	-0.0024***	0.0008	3.54
_cons	0.3639	0.2766	1.32
R <sup>2</sup> Within	0.8451	sigma_u	0
R <sup>2</sup> Between	0.9277	sigma_e	0.2269
<b>R<sup>2</sup> Overall</b>	<b>0.8477</b>		

\*\*\* and\*\* implies significant at 1 and 5% level of significance, respectively.

Source: Own computation, 2020

### Conclusions and Recommendations

The rationale of this study was investigating the major determinants of profitability of financial institutions in Ethiopia that were in operation over the periods of 2008 to 2019. For the purpose of analysis, the researchers used return on assets (ROA) as a measure of profitability against which a number of internal and external variables were regressed. Results of the analysis indicated that liquidity, leverage and asset tangibility has positive and statistically significant effect on profitability of financial institutions while age and the annual inflation rate have negative and statistically significant affect on profitability of financial institutions in Ethiopia. However, factors such as capital adequacy, size and real growth rate of GDP were found to be insignificant variables on profitability. Lastly, we suggest future investigation on factors influencing profitability of financial

institutions in Ethiopia by including variables such as economic and fiscal policy of the country and financial system regulation etc.

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**Appendix**

## Multi-collinearity test

Variable	VIF	1/VIF
CA	5.60	0.178444
TNG	5.57	0.179571
SIZ	1.15	0.870338
AGE	1.05	0.948529
LIV	1.04	0.957693
LQ	1.04	0.958203
GDPG	1.02	0.978283
INFR	1.01	0.988749
Mean VIF	2.19	

## Model specification test for ROA

Breusch	and Pagan Lagrangian multiplier test for random	Effects
ROA[ <i>YEAR,t</i> ] = $Xb + u[YEAR] + e[YEAR,t]$		
Estimated results:		
	Var	sd = sqrt(Var)
ROA	0.3238883	0.5691119
e	0.0514891	0.2269122
u	0	0
Test: Var(u) = 0		
chibar2(01) = 0.00		
Prob > chibar2 = 1.0000		