

A Service of

ZBW

Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

Isayas, Yonas Nigussie

## Article

# Determinants of banks' profitability: Empirical evidence from banks in Ethiopia

**Cogent Economics & Finance** 

**Provided in Cooperation with:** Taylor & Francis Group

*Suggested Citation:* Isayas, Yonas Nigussie (2022) : Determinants of banks' profitability: Empirical evidence from banks in Ethiopia, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 10, Iss. 1, pp. 1-15, https://doi.org/10.1080/23322039.2022.2031433

This Version is available at: https://hdl.handle.net/10419/303578

#### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.



https://creativecommons.org/licenses/by/4.0/

#### Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.









**Cogent Economics & Finance** 

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oaef20

# Determinants of banks' profitability: Empirical evidence from banks in Ethiopia

Yonas Nigussie Isayas

To cite this article: Yonas Nigussie Isayas (2022) Determinants of banks' profitability: Empirical evidence from banks in Ethiopia, Cogent Economics & Finance, 10:1, 2031433, DOI: 10.1080/23322039.2022.2031433

To link to this article: https://doi.org/10.1080/23322039.2022.2031433

© 2022 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



0

Published online: 21 Feb 2022.

Submit your article to this journal 🖸

Article views: 11651



View related articles 🗹

View Crossmark data 🗹



Citing articles: 28 View citing articles 🖸





Received 12 May 2021 Accepted 14 January 2022

\*Corresponding author: Yonas Nigussie Isayas, College of Business & Economics, Haramaya University. P.O. Box: 138, Dire Dawa, Ethiopia E-mail: nsnigussie983@gmail.com

Reviewing editor: David McMillan, University of Stirling, UNITED KINGDOM

Additional information is available at the end of the article

# FINANCIAL ECONOMICS | RESEARCH ARTICLE Determinants of banks' profitability: Empirical evidence from banks in Ethiopia

Yonas Nigussie Isayas\*

Abstract: In today's economy, banks play significant and irreplaceable roles in the growth of financial services, which ultimately leads to the overall success of the economy of a country. The very objective of this study was to investigate the key firmspecific and macroeconomic determinants of profitability of commercial banks in Ethiopia. The empirical analysis is carried out using the generalized method of moments (GMM) estimation of dynamic panel data from 14 banks covering 12 years of operation from 2008 to 2019. A quantitative approach and explanatory design were employed to realize the stated objectives. To achieve the study objective, secondary data were collected from annual audited financial statements of sampled banks for the stated period. The model results of the study revealed that firm size, liquidity ratio, asset tangibility, capital adequacy, leverage and real GDP growth rate have a positive and statistically significant effect on the profitability of banks, while firm age and the inflation rate have a negative but statistically insignificant effect on the profitability of banks in Ethiopia. Future studies are suggested to be conducted in this research area by incorporating variables that are other than variables used in this study and unlike this study, all other financial institutions need to be included.

Subjects: Finance; Business, Management and Accounting; Industry & Industrial Studies

Keywords: Bank; determinants; profitability; Ethiopia; inflation; economy

## 1. Introduction

ABOUT THE AUTHOR

Yonas Nigussie Isayas is a lecturer in the

Haramaya University, Ethiopia. Besides teaching activities, he engages in different research and

community services. He is currently working as

a business analyst at one of Ethiopia's most pro-

Department of Accounting and Finance,

minent manufacturing companies.

A bank is an institution 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 the provision of indispensable financial services to the economy, contributing to economic growth, efficient resource allocation, reduction of transaction costs,



Yonas Nigussie Isayas





© 2022 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



This paper examines the firm specific and macroeconomic variables that determine the profitability of commercial banks in Ethiopia. It is meant to identify variables, which are impacting the performance of banks and thereby drawing attention of managements those banks towards proper handling of the relationships between performance and these variables. Therefore, it is paramount to understand how firm specific as well as macroeconomic variables such as firm size, capital adequacy, asset tangibility, GPD, inflation, etc. affects the commercial banks in Ethiopia. creation of liquidity, facilitation of economies of scale in investment, and spread of financial losses (Haiss & Sümegi, 2008). Considering the vital role this sector plays, it is indispensable that it must maintain a certain level of performance.

According to Barney (1997), as cited in (Peter, 2013), performance has been the most important issue for every organization whether it is profit-making or non-profit making one. Performance is used to indicate the efforts to attain a particular goal, and it is a matter not only of what people achieve but also how they achieve it. The attainment of the goal includes a combination of human, fiscal, and natural resources (Armstrong, 2006). Performance is an activity applied to part or all of the performance of actions at a time, often with a connection to previous or proposed expenditure efficiency, management responsibility, or accountability. Financial performance management is a part of the total performance management of an organization (Khan 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 and can be used to compare similar firms across the same industries or sectors in aggregation. The best financial performance of a firm not just plays the function to raise the market value of that organization but also leads towards the growth of the whole industry, which ultimately leads to the overall success of the economy.

According to Hifza (2011) performance (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 a very important measure of performance. A business that is not profitable cannot survive, whereas a highly profitable business can reward its owners with a large return on their investment. Hence, the goal of a business entity is to earn profit to ensure sustainability of the business in prevailing dynamic business conditions.

Measuring the profitability of banks has gained due attention in the corporate finance literature because as intermediaries, these companies in the sector are not only providing the mechanism of saving money but also helping to channel funds appropriately from surplus economic units to deficit economic units 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 the financial statements of banks in Ethiopia. This suggests an investigation of the factors responsible for the profitability of banks over time. Moreover, much of the extensive empirical literature on the determinants of profitability of this sector is mostly focused on the insurance companies, excluding other financial institutions such as microfinance institutions and banks (Vejzagic & Zarafat, 2014; B. Williams, 2003), and very few studies were conducted on the profitability of banking industry in Ethiopia. Thus, this study is conducted to fill this gap by assessing the profitability condition of commercial banks in Ethiopia and identifying determinants of profitability of banks in Ethiopia.

## 2. Literature reviews

#### 2.1. Banking industry and its regulations in Ethiopia

15 February 1906 marked the beginning of banking in Ethiopia when the first Bank of Abyssinia was inaugurated by Emperor Menelik II. It was a private bank whose shares were sold in Addis Ababa, New York, Paris, London, and Vienna. One of the first projects financed by the bank was the Franco-Ethiopian Railway, which reached Addis Ababa in 1917. In 1931, Emperor Haile Selassie introduced reforms into the banking system. The Bank of Abyssinia was liquidated; the newly established Bank of Ethiopia, a fully government-owned bank, took over management, staff, and premises of the ceased bank. The Bank of Ethiopia provided central and commercial banking services to the country (Mauri, 2010). The Italian invasion in 1935 brought the demise of one of the earliest initiatives in African banking. During the Italian occupation, Italian banks were active in Ethiopia.

In 1963, the Ethiopian government split the State Bank of Ethiopia (est. 1942) into the National Bank of Ethiopia, the Central Bank, and the Commercial Bank of Ethiopia (CBE) (Brimmer, 1960). In 1958, the State Bank of Ethiopia established a branch in Sudan that the Sudanese government nationalized in 1970 (Mauri, 2008). The government later merged Addis Bank into the Commercial Bank of Ethiopia in 1980 to make CBE the sole commercial bank in the country. The government created Addis Bank from the merger of the newly nationalized Addis Ababa Bank, and the Ethiopian operations of Banco di Roma and Banco di Napoli. Addis Ababa Bank was an affiliate that National and Grindlays bank had established in 1963 and of which it owned 40%. At the time of nationalization, Addis Ababa Bank had 26 branches.

The Ethiopian banking sector is currently comprised of a central bank (The National Bank of Ethiopia or NBE), a state-owned development bank, a government-owned commercial bank, and 16 private banks. Banking in Ethiopia is governed by an overarching banking law, the Banking Business Proclamation (Federal Negarit Gazeta Proclamation 592/2008) that has been in place since August 2008 and that confers to the NBE the full range of powers of the banking regulator. The Banking Business Proclamation addresses mandatory requirements with respect to: (1) the licensing of new banks; (2) share registry and shareholders; (3) Director and senior management qualifications; (4) banks' financial obligations and limitations; (5) financial record-keeping and audits; (6) disclosure and inspection; and (7) other miscellaneous areas. The Proclamation also designates that detailed Directives shall be regularly put out and revised as deemed appropriate by the central bank (NBE) in all the above areas.

### 2.2. Concept of profitability

The term profit can take either its economic meaning or accounting concept, which shows the excess of income over expenditure incurred during a specified period. Michael (2011) argued that profitability is the most important and reliable indicator as it gives a broad view 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 can earn. According to Hamad Ahmed Ali Al-Shami (2008), there are different ways to measure profitabilities such as return on asset and return on equity. Return on asset is an indicator of how profitable a company is relative to its total assets, whereas the return on equity measures a company's profitability, which reveals how much profit a company generates with the money shareholders have invested.

#### 2.3. Theories of profitability

There are various theories of profit that 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 a free economy. The most important theories are:

#### (1) The dynamic theory of profit

The dynamic theory of profit was formulated by J.B. Clark (Clark, 1908). According to him, profit accrues because society is dynamic by nature. Since the dynamic nature of society makes the future uncertain and any act, the result of which has to come in the 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 do not occur, i.e., it is static by nature the risk element disappears and hence the profit element does not exist there. Truly, a society is said to be dynamic when there is a change in its population, change in trends of the people, change in the stock of the capital, change in the supply of entrepreneurs, etc. when all these factors become constant, the future also becomes certain and the risk element disappears from the society. According to Clark, certain changes are of a recurring and calculable nature. They can be anticipated, and the output can be adjusted according to that. 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 the divergence of the actual conditions from those which have been expected and based on which business arrangements have been made."

#### (1) 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

Risks 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 entrepreneur fears this type of risk because such risk can be transferred to an insurance agency by paying a suitable premium.

#### (a) Non-insurable risk

The risk, which is neither definite nor foreseen, is called non-insurable or uncertainty risk. It cannot be guarded against because no insurance company can afford insurance against such uncertainties. Its statistical probability also cannot be computed. Non-insurable risk arises due to business cycles, technological changes, unhealthy competition among business firms, changes 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.

#### (1) 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 for risk-bearing. The main function of an entrepreneur is to bear risk. Production involves various kinds of risks and other emergency expenses. Nobody will bear risk unless there is an expectation of profit. Profit is the main motive for taking a risk. Thus, profit is the reward for taking a risk. Risk differs from industry to industry. Some productive activities are riskier, while others are less. The rate of profit is also different from industry to industry. Profit is the reward for taking a risk. The higher the risk, the higher the profit and vice versa (Nabraj Lama, 2013).

#### (1) Monopoly theory of profit

This theory was 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. 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 a higher level. Monopoly power, thus, is the basic source 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.economicscon cepts.com).

#### 2.4. 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 neoclassical 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 since smaller firms are likely to have less power (Hailegebreal, 2016). The empirical findings, as they relate to the size and performance of banks, have been mixed. Mazviona et al. (2017), Kazeem (2015), and Mwangi and M (2015) found a 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 a positive relationship between size and profitability.

H1: Firm Size affects Profitability of banks in Ethiopia

#### 2. Leverage

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

H2: Leverage affects Profitability of banks in Ethiopia

#### 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 concerning age and company 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 M (2015) and Malik (2011) found a positive relationship between age and performance.

H3: Company age affects Profitability of banks in Ethiopia

#### 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 institutions such as banks 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 and Kosmidou (2007) hypothesized a negative relationship between liquidity and profitability.

H4: Liquidity affects Profitability of banks in Ethiopia

#### 5. Asset Tangibility

The tangibility of assets ratio measures the share of fixed assets from total assets, this allows the firm to get access easily to borrowings, due to it serving as collateral to get sufficient loans. 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 a positive and significant relationship between asset tangibility and profitability of financial institutions. On the other hand, a high ratio of asset tangibility may indicate 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 is also supported by the findings of Abdelkader (2014); Yuvaraj and Gashaw (2013) and Abate (2012).

H5: Asset Tangibility affects Profitability of banks in Ethiopia

#### 6. Capital adequacy

Capital adequacy, also known as the volume of capital, is a measure of financial strength or financial soundness of financial institutions, in terms of their ability to withstand operational and abnormal losses. Capital is seen as a tool to protect, ensure, and promote the stability and efficiency of the financial system, it also indicates whether the company has enough capital to absorb losses arising from 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, the findings by Yuvaraj and Gashaw (2013); Gashaw (2012); Imad et al., (2011) and Hifza (2011) stated that capital adequacy has a positive relationship with financial institutions' profitability.

H5: Capital adequacy affects Profitability of banks in Ethiopia

#### 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) state that GDP is the most commonly used macroeconomic indicator to measure total economic activity within an economy, and that 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 is not hard to understand why a bad economy usually means lower profits for companies, which in turn means lower stock prices. Investors 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). There are also empirical shreds of evidence that found, real GDP has a positive effect on the profitability of financial institutions, such as Cecila (2014), Doreen (2013), and Doumpos et al., (2012).

H7: Real GDP affects Profitability of banks in Ethiopia

#### 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. This 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. A high rate of inflation negatively affects real economic growth and thus causes adverse consequences for economic performance at the aggregate level. However, the nature of the relationship between inflation and economic growth, and the channels through which inflation affects real economic activities, is still a debatable issue (Li & Godzik, 2006). Godfrey (2012) suggested that "there was a decline 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: Inflation affects Profitability of banks in Ethiopia

### 2.5. Conceptual framework of the study

The conceptual framework helps to identify the variables that are used in the research process and shows how particular variables are connected in the study. The conceptual framework is presented for both internal and external variables used in this study in Figure 1.

#### 3. Materials and methods

The major objective of the study was to investigate the determinants of profitability of banks in Ethiopia. This study has employed a quantitative approach and an explanatory research design to realize the stated objectives. The sample taken constitutes 14 banks out of 18(16 private & 2 public) commercial banks in Ethiopia. The study employed a purposive sampling technique to include two (2) public banks and twelve (12) private banks, which have been in operation from 2008 to 2019 based on the availability of data. The remaining four banks were dropped for they were established recently and do not fulfill the data requirement for the study purpose. The study used secondary data which includes the audited annual financial reports of banks under study. The data were strong balanced panel types, which captured both cross-sectional and time-series behaviors.

## 3.1. Methods of data analysis

The study used both descriptive statistics and econometric tools to analyze the data and address predefined objectives. The former includes simple descriptive methods such as mean, maximum, minimum, standard deviations, and other simple statistical tools that enable us to better understand the existing situation and analyze the general trends of the data. This study substantiates the descriptive analysis by manipulating econometric models to examine the causal relationship between explanatory and dependent covariates. The dynamic nature of the model incapacitates



Figure 1. Theoretical model on determinants of profitability. Source: Developed based on pieces of literature the application of standard Ordinary Least Squares (OLS) estimators, which might be biased and inconsistent due to the correlation between the unobserved panel-level effects and the lagged dependent variable (Hasanović & Latić, 2017). Thus, the use of panel data with fixed or random effects does not solve econometric problems inherent in dynamic models. To overcome the problem of endogeneity that gives biased results and unobserved heterogeneity between banks that cannot be accurately measured, Arellano and Bond (1991) proposed a new generalized method of moments (GMM) estimator for dynamic panel models. They proposed to include additional instruments in the dynamic panel model and to use different transformations. Later, Arellano and Bover (1995) and Blundell and Bond (1998) proposed an improvement of the Arellano and Bond estimator by imposing additional restrictions on the initial conditions, which allow the introduction of more instruments to improve efficiency. It combines the first difference in equations with equations at the level in which the variables are instrumented by their first differences. It builds a system of two equations (System GMM), the original and transformed one.

The System GMM approach corrects endogeneity by introducing more instruments for the lagged dependent variable and any other endogenous variable to dramatically improve efficiency, and it transforms the instruments to make them uncorrelated (exogenous) with fixed effects. The system GMM also uses orthogonal deviation instead of what Differenced-GMM does, subtracting the previous observation from the contemporaneous one; it subtracts the average of all future available variable observations (Roodman, 2009). Thus, this study employed System GMM to examine causation between the explanatory and dependent variables.

#### 3.2. Variable measurement and model specification

Several important factors need to be considered in specifying an empirical model. These include a choice of suitable dependent and explanatory variables, measurement of these variables, and model specifications. To check the fitness of the model, the researchers performed normality test, Heteroskedasticity test as well as multi- co-linearity test. According to the test results, the model is found to be suitable for the data under study. The software outputs for these tests were put in the appendix part of the paper.

Additionally, endogeneity test was conducted to identify the existence of endogeneity problem in the variables, and we found that there is no such problem in the data. Endogeneity test output is found in the appendix.

#### 3.2.1. The dependent variable

Following previous studies that investigated the determinants of profitability of banks, this study employed one of the most used measures of profit ability, that is the 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 banks as it indicates the returns generated from the assets that the firm owns. The formula for the profitability measure is given as follows:

ROA = Netprofitaftertax(t) / TotalAssets(t)

#### 3.2.2. 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 banks in Ethiopia are firm size, liquidity, asset tangibility, capital adequacy, leverage, and age as firm-specific variables and GDP and inflation as macroeconomic variables. These variables were used and reported significant by various studies as determinants of banks profitability with different combinations (Hongxing, 2018; Mazviona et al., 2017; Khan et al.,

Table 1. Summary of variables and their expected relationship			
Categories	Variables Name and Notations	Measurement	Expected Effect
Dependent Variables	Profitability (ROA)	Net Income/ Total Asset	NA
Independent Variable	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 literature

2015 and Hifza, 2011). Table 1 presents the summary of the variables and their expected effect on the profitability of the banking sector in Ethiopia.

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

$$\begin{aligned} \mathsf{ROA}_{it} &= \alpha + \beta_1(\mathsf{SIZE})_{it} + \beta_2(\mathsf{LQ})_{it} + \beta_3(\mathsf{TNG})_{it} + \beta_4(\mathsf{CA})_{it} + \beta_5(\mathsf{LEV})_{it} + \beta_6(\mathsf{AGE})_{it} + \beta_7(\mathsf{INFR})_{it} \\ &+ \beta_8(\mathsf{GDPG})_{it} + \varepsilon_{it} \end{aligned} \tag{1}$$

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> banks, t is the period,  $\theta_1$ ,  $\theta_2$ ,  $\theta_3$ ,  $\theta_4$ ,  $\theta_5$ ,  $\theta_6$ ,  $\theta_7$  and  $\theta_8$  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 banks on average generate 0.11 cents from a birr invested in their asset, which ranges from a loss of -0.23 cents to a profit of 9 birr and 49 cents during the study period, with a high standard deviation of 0.56 (56%) from the mean.

Regarding explanatory variables, the size of the banks, which was measured by the natural logarithm of the total asset has an average value of 9.35 with 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 the current asset to current liability has an 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 a large variation among the sampled firms concerning their liquidity position. The average value of asset tangibility is 0.10 with the minimum and maximum values 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 by 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

Table 2. Descriptive statistics for the dependent and explanatory variables					
Variable	Obs = 168	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

result signifies that in Ethiopia, most of the banks were financed through borrowed funds compared to funds raised by owners' contributions. The average age of the banks 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 a standard deviation of 9.75 (9 years and 8 months).

Regarding macro-economic variables, the average value of the 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 was reasonably stable. Finally, the average value of the inflation rate for the period was 15.87% with a standard deviation of 1.13%.

#### 4.2. The two-step system GMM estimation result

Table 3 below presents the model results to identify the determinants of commercial banks' profitability in Ethiopia. Based on the analysis, the F-test statistics indicated the goodness-of-fit of the model, the Hansen statistics result shows that the instrumental variables are valid, the Sargan test for the validity of the over-identifying restrictions in the GMM estimation is accepted for all specifications, and the second-order autocorrelation is rejected by the test for AR (2) which shows absence of secondorder autocorrelation.

The significant coefficient of the lagged dependent variable proves the dynamic nature of the model. The lagged value of profitability (ROA) has a positive impact on the current level of profitability and would appear to be a suitable instrument for profitability. This is consistent with expectations as it is assumed that banks will tend to maintain higher levels of profitability from the past into the forthcoming period.

As in the regression results, **firm size** affects the profitability of commercial banks in Ethiopia in a statistically significant way. This implies that a firm with large size has the advantage of economies of scale thereby leading to efficiency in comparison to firms with small size. A large bank will tend to attract additional clients through the crowding-in effect, therefore increasing the overall performance of the bank (Roman & Sargu, 2015). This result is in line with the prior expectation and consistent with the findings of Khanal (2019), Assfaw (2019), Sopan and Dutta (2018), Teshome (2017), Zaghdoudi and Hakimi (2017), Singh and Sharma (2016), Deléchat et al. (2012), and P. Vodová (2013) who found that bank size has a significant positive effect on banks' profitability.

The model results showed that **Liquidity**, which measures ability to cover current obligations using current assets has a positive and statistically significant effect on the profitability of banks 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

Table 3. The two-step system GMM estimation results			
Explanatory Variables	Coefficient	Std. Err.	t-value
L.ROA	0.00939***	0.00168	2.05
SIZ	0.177**	0.0712	1.87
LQ	0.000944**	0.000375	-0.10
TNG	6.981***	1.852	-3.06
CA	1.185***	0.277	2.38
LIV	0.0107***	0.00250	-8.04
AGE	-1.277	1.534	0.31
INFR	-2.19e-05	0.00186	-3.73
GDPG	0.0126***	0.00398	-2.26
_cons	3.460***	1.663	7.22
Number of Observations	154	AR(2) test	0.889
Number of Instruments/ Groups	14/14	Sargan test	0.463
F statistics	3305.95	Hansen test	0.780
Prob > F	0.000		

\*\*\*p < 0.01, \*\* p < 0.05, \* p < 0.1 implies statistically significant at 1%, 5% level respectively.

Source: Own computation, 2021

resources that are tied up to meet the liquidity position, the higher is the profitability but in contrast with the findings of Berhe and Kaur (2017), who has concluded that liquidity is negatively related to profitability.

Asset Tangibility has a positive and statistically significant effect on the profitability of banks. The result implied that an increase in asset tangibility leads to increased profitability because 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 a large volume of profit. This result is consistent with the prior expectation along with findings by Boadi et al. (2013), Ahmed et al. (2011) and Nucci (2005) found a positive relationship between tangibility and performance of banks. 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 a positive and significant effect on the profitability of banks, which shows that the higher the leverage ratio the better is the profitability of banks in Ethiopia. The result is in congruence with Baye (2011) and Naveed et al. (2010) who found a positive and significant relationship between leverage and profitability, but against the findings of Alomari and Azzam (2017), Hailegebreal (2016), and Kazeem (2015) found that leverage hurts profitability.

As it was reflected on the regression result, **capital adequacy ratio (CA)** is positively correlated with the return on asset and statistically significant at 1%. This implies that banks with larger capital have the potential to spread their business operations by strengthening their ability to assume risk, which in turn will enhance their profitability position (Ermias, 2016). Capital is seen as a tool to protect, ensure, and promote the stability and efficiency of the financial system, it also indicates whether the company has enough capital to absorb losses arising from unforeseeable circumstances. Capital adequacy (volume of capital) also indicates the ability of a firm to undertake additional business (Tanveer, 2004). This result is in line with prior expectation as well as findings by Yuvaraj and Gashaw (2013); Gashaw (2012); Imad et al., (2011) and Hifza (2011) which have stated that capital adequacy has a positive relationship with financial institutions' profitability.

Finally, **the real GDP growth rate** found to have positive and statistically significant impact on profitabil.ity of commercial banks in Ethiopia. This finding agrees with theory and empirical evidence that; the relationship between real GDP growth rate and banks' profitability could be pro-cyclical. This would imply that when GDP growth rate is positive, the effect to bank profitability is positive and when GDP growth rate is negative, the effect on profitability is negative. An important finding from this study is that, in recent years Ethiopia's economy experienced positive economic growth that could have impacted positively the banks' profitability in the country. This finding is supported by researches of (Athanasoglou and Staikouras, 2006; Demirguc-Kunt and Huizinga, 1999, Flamini, et al 2009; Naceur, 2003).

#### 5. Conclusions

The rationale for this study was to investigate the major determinant factors affecting the profitability of banks in Ethiopia that were in operation throughout 2008 to 2019. For the purpose of the analysis, the researchers used return on assets (ROA) as a measure of profitability against several internal and external variables that were regressed. From the results of the analysis, it appears evident that profitability and financial performance of a firm is affected by the firm-specific factors such as firm size, liquidity, leverage, capital adequacy, and asset tangibility, which have a positive and statistically significant effect on the profitability of commercial banks in Ethiopia. On the other hand, even if statistically insignificant, there is a negative relationship between financial performance and the age of the commercial bank and this further solidifies the argument that a firm that operates for longer period will be conservative to any changes that may lead to the better financial performance of a firm. Hence, the local commercial banks should be concerned with the effect this factor brings on the firm's financial performance of the commercial banks in Ethiopia.

Regarding the macroeconomic variables, the regression result shows that inflation has a negative but insignificant effect on profitability of commercial banks in E Ethiopia, while GDP growth rate is found to have positive and significant impact on Ethiopian commercial banks 'financial performance

Based on the findings, discussions, and conclusions made in this research, it appears evident that this research could have improved its objectivity by including many other variables and also incorporating a qualitative research approach. This is because the interview process presents an opportunity for the researcher to cross-examine the interviewee and ensure on the validity of the information provided by checking vital non-communication cues that are provided by the interviewee. Therefore, future studies on this topic should seek to leverage on mixed research approaches that utilize both quantitative and qualitative research studies.

#### Funding

The author received no direct funding for this research.

#### Author details

Yonas Nigussie Isayas E-mail: nsnigussie983@gmail.com College of Business & Economics, Haramaya University, Dire Dawa, Ethiopia.

#### **Disclosure statement**

No potential conflict of interest was reported by the author(s).

#### **Citation information**

Cite this article as: Determinants of banks' profitability: Empirical evidence from banks in Ethiopia, Yonas Nigussie Isayas, *Cogent Economics & Finance* (2022), 10: 2031433.

#### References

- Abate, G., & Yuvaraj, S. (2013). A study on performance of insurance companies in Ethiopia. International Journal of Marketing, Financial Services and Management Research, 2(7), 138–150.
- Ahmed Bertejiand SouadHammami. (2016). The determinants of the performance of the life insurance

companies in Tunisia. International Journal of Economics, Commerce and Management, United Kingdom, IV(7).

- Al-Shami, H. A. A. (2008). Determinants of insurance companies' profitability in UAE [Doctoral dissertation]. Universiti Utara Malaysia).
- Almajali, A. Y., Alamro, S. A., & Al-Soub, Y. Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman stock exchange. *Journal of Management Research*, 4 (2), 266–289. https://doi.org/10.5296/jmr.v4i2.1482
- Alomari, M. W., & Azzam, I. A. (2017). Effect of the micro and macro factors on the performance of the listed Jordanian insurance companies. *International Journal of Business and Social Science*, 8(2), 66–73.
- Anjad, S., & Tufail, S. B. (2013). Determinants of capital structure: Evidence from banking sector of Pakistan. *Elixir Finance Management A*, 57, 14368–14376.
- Andres, C., & Stephen, J. (2017). Determinants of profitability in life insurance companies: Evidence from the Philippine. *Essays in Economics and Business Studies*, 5, 165–175.
- Armstrong, M. (2006). Human resource practice. Koganpage limited publishers.

- Asrat, L., & Tesfahun, T. (2016). Determinants of profitability in private insurance companies in Ethiopia. *Journal of Poverty, Investment, and Development, 26* (No page number).
- Ayele, A. G. (2012). Factors affecting the profitability of insurance companies in Ethiopia: Panel Evidence [An Unpublished M.Sc Thesis]. Addis Ababa University http://etd.aau.edu.et
- Bawa, S. K., & Chattha, S. (2013). Financial performance of life insurers in the Indian insurance industry. *Pacific Business Review International*, 6(5), 44–51.
- Berhe, T. A., & Kaur, J. (2017). Determinants of insurance companies' profitability Analysis of insurance sector in Ethiopia. International Journal of Research in Finance and Marketing (IJRFM), 7(4), 124–137.
- Brealey, R. A., Myers, S. C., & Allen, F. (2006). Corporate finance.
- Brimmer, A. F. (1960). Credit conditions and price determination in the corporate bond market. The Journal of Finance, 15(3), 353–370.
- Burca, A. M., & Batrinca, G. (2014). The determinants of financial performance in the Romanian insurance market. International Journal of Academic Research in Accounting, Finance and Management Sciences, 4(1), 299–308. https://doi.org/10.6007/IJARAFMS/v4-i1/637
- Chalmers, K., Godfrey, J. M., & Lynch, B. (2012). Regulatory theory insights into the past, present, and future of general-purpose water accounting standard-settingf. Accounting, Auditing & Accountability Journal, 25(6), 1001–1024. https://doi.org/10.1108/ 09513571211250224
- Chancharat, N. (2008). An empirical analysis of financially distressed Australian companies: The application of survival analysis. A thesis was submitted to the University of Wollongong. http://ro.uow.edu.au/theses/ 401/
- Clark, J. B. (1908). The distribution of wealth: A theory of wages, interest, and profits. Macmillan.
- Cohen, S., Doumpos, M., Neofytou, E., & Zopounidis, C. (2012). Assessing financial distress where bankruptcy is not an option: An alternative approach for local municipalities. *European Journal of Operational Research*, 218(1), 270–279. https://doi.org/10.1016/j. ejor.2011.10.021
- Daare, W. J. (2016). Determinants of Non-Life insurance companies profitability: An empirical study in India. International Journal of Innovative Research and Advanced Studies, 3(13), 6–11.
- Derbali, A., & Jamel, L. (2018). Determinants of performance of Tunisia insurance companies: Case of life insurance.
- Dey, N. B., Adhikari, K., & Bardhan, R. (2015). Factors determining the financial performance of life insurance companies of India: An empirical study. EPRA International Journal of Economic and Business Review, 3(8), 42–48.
- Fisher, I., Knight, F. H., & Parry, C. E. (1921). Traditional economic theory-Discussion. *The American Economic Review*, 11(1), 143–147.
- Grossman, S., & Hart, O. D. (1982). Corporate financial structure and managerial incentives. In J. McCall (Ed.), The Economics of Information and Uncertainty (pp. 107–140). National Bureau of Economic Research.
- Hailegebreal, D. (2016). Macroeconomic and firm-specific determinants of profitability of insurance industry in Ethiopia. Global Journal of Management and Business Research: C Finance, 16(7), 26–36.
- Haiss, P., & Sümegi, K. (2008). The relationship between insurance and economic growth in Europe: A theoretical and empirical analysis. *Empirica*, 35(4),

# 405-431. https://doi.org/10.1007/s10663-008-9075-2

- Hawley, F. B. (1907). Enterprise and the Productive Process: A Theory of Economic productivity Presented from the Point of View of the Entrepreneur and Based upon Definitions, Secured through Deduction (and Presumably, Therefore, Precise and Final) of the Scope and Fundamental Terms of the Science of Economics. GP Putnam's Sons.
- Hifza, M. (2011). Determinants of Insurance Companies' Profitability in Pakistan. Journal of International Academic Research, 1(3), 315–320.
- Kalecki, M. (1942). A theory of profits. The Economic Journal, 52(206/207), 258–267. https://doi.org/10. 2307/2225784
- Kaya, E. O. (2015). The effects of firm-specific factors on the profitability of non-life insurance companies in Turkey. International Journal of Financial Studies, 3 (4), 510–529. https://doi.org/10.3390/ijfs3040510
- Kazeem, H. S. (2015). Firm-specific characteristics and financial performance of listed insurance firms in Nigeria [An Unpublished M.Sc Thesis] Ahmadu Bello University
- Khan, M. K., Nouman, M., & Imran, M. (2015). Determinants of financial performance of financial sectors. https://mpra. ub.uni-muenchen.de/81659/MPRA Paper No. 81659, posted 30 Sep 2017 10:50 UTC
- Koller, M. (2011). Life insurance risk management essentials. Springer Science & Business Media.
- Lama, N. (2018). An analysis of poverty and inequality among indigenous nationalities of Nepal. *International Journal*, 4, 23.
- Li, W., & Godzik, A. (2006). Cd-hit: A fast program for clustering and comparing large sets of protein or nucleotide sequences. *Bioinformatics*, 22(13), 1658–1659. https://doi.org/10.1093/bioinformatics/ btl158
- Malik, H. (2011). Determinants of insurance companies profitability: An analysis of insurance sector of Pakistan. Academic Research International, 1(3), 315.
- Mazviona, B. W., Dube, M., & Sakahuhwa, T. (2017). An analysis of factors affecting the performance of insurance companies in Zimbabwe. *Journal of Finance and Investment Analysis*, 6(1), 1–21.
- Meaza, M. (2014). determinants of insurance companies profitability in Ethiopia. Addis Ababa University.
- Mehari, D., & Aemiro, T. (2013). Firm-specific factors that determine insurance companies' performance in Ethiopia. European Scientific Journal, 9(10), 245–255.
- Mwangi, M., & M, J. W. (2015). The determinants of financial performance in general insurance companies in Kenya. 11(1), 288–297.
- Naveed, A., Zulfqar, A., & Ishfaq. (2010). Determinants of capital structure; A case of life insurance sector of Pakistan. European Journal of Economics, Finance and Administrative Sciences, 7(28), 83–104.
- Olaosebikanm, O. (2012). The determinants of Profitability of Micro-Life insurers in Nigeria [An Unpublished M.Sc Thesis]. University of Bath. United Kingdom. https://researchportal.bath.ac.uk/en/publi cations/ba419bb8-3d57-4e84-8644-7b201c37ad21
- Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance*, 21(2), 222–237. https://doi.org/10.1016/j.ribaf.2006.03.007
- Peter, D. (2013). Comparative analysis of the financial performance of Saving and CreditCooperatives societies in Kisarawe District [MSc dissertation]. Open University of Tanzania.
- Sufian, F., & Chong, R. R. (2008). Determinants of bank profitability in a developing economy: Empirical evidence

from the Philippines. Asian Academy of Management Journal of Accounting & Finance, 4(2).

Tatom, J. A. (Ed.). (2011). Financial market regulation: Legislation and implications. Springer Science & Business Media.

Vejzagic, M., & Zarafat, H. (2014). An analysis of macroeconomic determinants of commercial banks profitability in Malaysia for the period 1995-2011. Journal of Asian Economy and Financial Review, 4(1).

Weldeghiorgis, K. Y. (2004). Performance measurement practices in selected Eritrean manufacturing enterprises [M.Com. Dissertation]. University of the Free State.

Williams, J. (1987). Perquisites, risk, and capital structure. Journal of Finance, 42(1), 29-49.

Williams, B. (2003). Domestic and international determinants of bank profits: Foreign banks in Australia. Journal of Banking & Finance, 27(6), 1185–1210.

# Appendix

Skewness /KurtosisSkewness/Kurtosis tests for Normality						
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj	chi2(2)	Prob>chi2
Residual	168	0.3754	0.163	8.	0.	2376

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			

#### Heteroskedasticity test for ROA

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity Ho: Constant variance Variables: fitted values of ROA chi2(1) = 0.43 Prob > chi2 = 0.5097



#### © 2022 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Under the following terms: Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. No additional restrictions You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

# *Cogent Economics & Finance* (ISSN: 2332-2039) is published by Cogent OA, part of Taylor & Francis Group. Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com