



The Effects of Investment on Financial Performance of Ethiopian Commercial Banks

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ABSTRACT

This study investigates the effects of investment activities on the financial performance of Ethiopian commercial banks. The study used 8 public and private Ethiopian commercial banks out of a total of 31 commercial banks during 2006 to 2020. Financial performance is measured by the return on equity while investment is indexed by investments in the National Bank of Ethiopia bill, foreign bank deposit, equity, and fixed assets. The study further controlled firm level variables such as capital adequacy and country-level variables such as inflation and GDP. The fixed effect regression result shows that investments in foreign bank deposit and equity have a strong positive effect on Ethiopian commercial banks' financial performance. However, investments in National Bank of Ethiopia bill and fixed assets have significant negative effects on Ethiopian commercial banks' financial performance. The result further reveals that capital adequacy has a significant positive effects and both inflation and GDP have insignificant but positive effect on financial performance of Ethiopian commercial banks. The result implied that investing in bills and fixed assets hinders the current operation of commercial banks thereby hinders their financial performance. Hence, the study finally suggested that Ethiopian commercial banks should invest more in equity and foreign bank deposits to enhance their financial performance than investing in government bills and fixed assets.

KEY WORDS

Investment, Performance, equity, government bills, fixed assets

1. Introduction

The financial system is essential for economic development in any country, as it ensures domestic resource mobilization, savings, and investments in critical sectors. A well-functioning financial system serves as a productive base for future growth (Abate & Mesfin, 2019). Banks are crucial components of a nations' financial system and play a critical role in the economy

(Ongore & Kusa, 2013). Banks are not only responsible for shifting funds from savers to investors but also for ensuring the sectors that need funding and facilitating investment that fuel growth in the economy.

Despite their vital role in the economy, banks are susceptible to failure in the global market. Bankruptcy can have far-reaching implications, especially for large banks (Alslehat & Altahtamouni, 2014). For this reason, investment decisions such as acquiring, modernizing,

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extending, and even replacing long-term assets are critical for banks (Virlics, 2013).

Theories advocated that investment derives banks' financial performance. For example the Q theory asserts that a firm invests when it expects the investment to bear profit. Similarly, the resource based theory (Barney, 1991) depicted that firms launch unique investment which are hardly imitable and substitutable to accumulate competitive advantage in the industry they are in. Moreover, Demis Hailegebreal (2022b), Demis Hailegebreal, Wang, Ayalew, and Dinberu (2018), Demis Hailegebreal, Wang, Ibrahim, and Ayalew (2020), Demis Hailegebreal, Wang, Molla Ayalew, and Dagnew Dinberu (2019), and Demis Hailegebreal (2022a) argued firms optimal investment on R&D definitely boost their performance.

Commercial banks act as intermediaries in collecting and distributing financial resources that boosts economic development. In doing so, they need to perform well and sustain their competitive advantage in the industry. Good financial performance rewards shareholders for their investment leading to economic growth (Ongore & Kusa, 2013). In today's competitive global banking industry, banks focus their energies on investment to create value for shareholders and survive the intense competition (Macharia & Gatuhi, 2013). Investment decisions are subjective and can be risky with uncertainty about whether the cost incurred to invest will be recovered and profit gained within the specified time period (Virlics, 2013).

In Ethiopia, commercial banks dominate the financial sector. Ethiopia's banking sector has experienced a significant transformation in terms of investment and geographic distribution based on the financial reform and liberalization act of 84/1994. The industry has undergone significant transformations in recent years with increased regulatory requirements and pressure to innovate and diversify their revenue models. Consequently, investment opportunities have emerged as a significant factor in improving the financial performance of commercial banks in the country. However, commercial banks in Ethiopia have pressure to invest due to mandatory purchase of national bank bills (NBE, 2004). They were required to use their 27 percent of deposit mobilized to buy the government bill with a very little interest income. To the contrary, they have shown an amazing movement on their fixed asset investment during the recent periods. Therefore, it is urgent and essential to consider the effects

of Ethiopian commercial banks investment on their performance to scientific research work.

In addition to the above arguments, previous empirical works confirmed inconsistent findings. For instance, while study of Abdikadir (2017) showed a positive effect of equity investment on financial performance, Akalu and Eskedar (2016) and Biniyam. (2018) reported a negative effect of equity investment on financial performance of commercial banks. Moreover, little is known about how investment of Ethiopian commercial banks influence their performance empirically. Therefore, conducting this study is found to be urgent and timely. The main purpose of this study is to explore the effects of investment on financial performance of Ethiopian commercial banks. More specifically, it aimed at examining (1) the effects of Investment in NBE's bill on commercial banks' financial performance; (2) the effects of foreign deposit investment on financial performance of commercial banks; (3) the effects of fixed assets investment on commercial banks' financial performance; and (4) the effects of equity investment on commercial banks' financial performance.

2. Literature review and Hypothesis

2.1 Theories

(a) The neo-classical theory of investment

This theory originates from the capital theory and investment behaviour of Jorgenson (1963). The theory draws its fundamental from the maximization of utility and wealth of a firm over time (Warström & Niemelä, 2015). In this theory, investment is seen as a distributed lag function of variations in the required capital. The required or desired capital here acts as a function to the output level, user capital cost and output price (Twine, Kiiza, & Bashaasha, 2015). The theory presupposes that investment is a function of cost of capital and the firms output. Additionally, the theory contends that the capital and labour ratios adapt to the relative changes in price (Virlics, 2013). The neoclassical theory of investment is premised on preposition that agents can make numerical probabilities and probability distribution of the expected returns. In the investment models, the firm is seen to be neutral to risks, and capital cost causes the risk (Virlics, 2013). The neoclassical arguments assume that firm managers act in the best interest of firms stakeholders. It also assumes managers and external suppliers of funds have the same information regarding the quantity and quality of investment opportunities available to the firms. These assumptions serve as a point of departure for

models that demonstrate the potential importance of internal funds in the investment decision (Ismail, 2010).

(b) The Q Theory of investment

This theory originated from Tobin (1969) which is an extension of the neoclassical theory since it incorporates the adjustment costs as explanations for outputs losses. According to this theory, firms choose investment levels, which maximize the estimated current firm value (Twine et al., 2015). The theory presupposes that the market estimation of equities is the major element of investment by firms. Thus, investment decision is stirred when financing sources are highly priced in the market place than it would cost to create it (Erickson & Whited, 2000).

This theory relates to investment rate as Q function where Q refers to market value ratio of new added investment resource to their replacement cost. This investment theory suggests the metric q which is the ratio between a unit of physical capitals market value and its value of replacement done to recap the existence or absence of opportunities for investments for a precise firm (Eklund, 2013). Tobin reason that when the capital adds marginal units to a firm value more than it costs to obtain it, that is, q is greater than 1; installing new capital will be profitable to the precise firm. Hence, $1 > q$ indicates that the firm should accrue more capital (i.e., embark on extra investment) and vice versa (Balfoussia & Gibson, 2016). According to this theory, investment decision depends on the marginal Q level, defined as the imminent investment marginal returns over the existing marginal investment cost. The Q theory also argue that if the firms value of the market is more than the cost of replacement of capital, firms will choose to invest until the value of capital equals the replacement costs, thus optimizing capital stock (Warström & Niemelä, 2015). In this study, the Q theory of investment used to explain whether the investment levels chosen by a firm maximizes its current value.

(c) The accelerator model of investment

The model originated from Clark (1917) but its application in business cycle was advanced by Samuelsson (1939). The model shows investment to be a function of growth of output only assuming that the wanted capital stock is achieved in every period of time. The model assumes that capital demand depends on the acceleration of that demand and not with the demand volume for the finished product (Twine et al., 2015). The arithmetical value between the increases in investment relations as result of income increases. If national income

or output remaining constant, the net investment that is induced will be positive (Lööf & Heshmati, 2008).

The accelerator is an advanced model of the neoclassical investment theory which the price changes have been cut to the constant coefficients (Eklund, 2013). The accelerator model shows the relationship between capital and output as determined by a production function, and the cost of effects of capital that captures the substitutability among the capital and other production factors. The accelerator model focus on growth output as the main element of investment choice (Twine et al., 2015). This model shows that, a firm plan to add to the capital stock per period, that is, invest so as to make partial alterations account for the gap between the wanted stock of capital and the current stock of capital Eklund (2013). For this study, the accelerator model will be applied to explain whether investments accelerate the value of the firm.

(d) The Agency Theory

Jensen and Meckling (1976) were the first to suggest the agency theory in a theory of the firm based upon conflicts of interest between various parties such as shareholders, corporate managers and debtors. However since then, the finance theory has developed both theoretically and empirically to allow a fuller investigation of the problems caused by divergences of interest between shareholders and corporate managers.

The agency theory indicates that agency problems arise because of the impossibility of perfectly contracting for every possible action of an agent whose decisions affect both his own welfare and the welfare of the principal. Despite its faults, with respect to agency conflicts, the modern corporation appears to be the most popular form of corporate organization. Perhaps this can largely be attributable to the evolution of governance mechanisms designed to limit the scope of these problems. Pension schemes may be considered as agents of the members. They are entrusted with money that belongs to the members for them to manage on their behalf. This theory implies that the pension schemes are only agents who need to act for the benefit of the owners who are the contributors to the pension schemes. The pension schemes may have other divergent interests to pursue but the main purpose of their existence is to create value for the contributors. The contributors have a right to decide how their savings into pension schemes are invested and accessed including early ace.

(e) Resource Dependency Theory

This theory was developed by Salancik and Pfeffer (1978). The theory is based on the assumption that environments are the source of scarce resources and organizations are dependent on these finite resources for survival. A lack of control over these resources thus acts to make uncertainty for firms operating in that environment. Organizations must develop ways to exploit these resources, which are also being sought by other firms, in order to ensure their own survival. They established factors that have significant influence on the level of dependence an organization has on particular resources. The first factor relates to overall importance of the resource to the firm; second is the scarcity of the resource.

The scarcer a resource is that the more dependent the firm becomes. Finally, another factor influencing resource dependence is the competition between organizations for control of that resource. Together, all three of those factors act to influence the level of dependence that an organization has for a specific resource. Resource dependence theory also infers that a firm's strategic options are determined to a great extent by the environment. Since firms are dependent on the environment for resources, they need to enact strategies that would allow them to acquire these resources. Therefore, the external environment has already been determined for these firms, and they experience little strategic choice (Salancik & Pfeffer, 1978).

(f) The Capital Asset Pricing Model

The background of CAPM was the study of the influence of investor behaviour on asset prices. The result of that study was a theory of asset valuation in an equilibrium situation, drawing together risk and return, which is the CAPM (Lintner, 1966). Several authors such as Sharpe (1964) and French (2003) have contributed to the model. The CAPM is the first model to introduce the notion of risk into the valuation of assets. It evaluates both asset returns in connection to market returns and the sensitivity of the security to the market (Amenc & Le Sourd, 2005). CAPM is in principle a method to calculate the rate of return which it is normal to demand of an asset of a certain nature. The search for the normal rate of return is divided into two parts according to CAPM. On the one hand, a risk-free rate is found. On the other hand, the rate of return on a risky asset is found, constituting the risk premium.

In CAPM the standard deviation of a single asset does not matter greatly, rather the effect of the asset on the systematic risk of the portfolio to which the asset is added. The main concern is the conjunction between the rate of

return of the efficient portfolio and a single asset. If the conclusion of the CAPM is that the correlation between the rate of return of the portfolio and an asset is high, then it is appropriate to demand a high risk premium of that asset. If the correlation is low, on the other hand, only a low risk premium should be demanded (Sciubba, 2006).

2.2 Empirical literature review

Akalu and Eskedar (2016) examined the effect of investment on banks performance in Ethiopia and interprets the result by relating with the regulations. The study used balanced panel model in examining the regression model and collect data from eight commercial banks covering the period of eleven consecutive years, 2005-2015. The study used one dependent variable ROE, four independent variables that are fixed asset investment, foreign deposit, equity investment and NBE Bill purchase and one control variable capital adequacy. The regression result show that fixed asset investment and foreign deposit had a positive and significant effect on performance of banks. On the other side NBE Bill purchase had a negative and significant effect on the performance of commerce banks. The control variable also had a negative and significant effect on the performance of commercial banks. One of the independent variable equity investments had negative and insignificant effect on banks performance. The research concluded that investment plays a significant role on the performance of Ethiopian commercial banks.

Franciso (2010) investigated the effect of equity investment on banks profitability using a panel data of 24 OECD countries. The result shows that bank equity investments have a positive effect on net interest income and on net income. This positive influence remains the same after controlling for the potential increase of bank risk that higher equity investments can originate. Thus, the highest profitability that portfolio theory suggests for banks with higher equity investments does not disappear after considering the highest provisions and capital ratios that these banks are obliged to keep. The positive influence on net interest income is consistent with the view that banks can use their shareholder position in non-financial firms to obtain benefits in the lending relationship that they usually keep with firms in which they also take equity. In fact, the positive influence on banks interest margin is the main benefit of the bank equity investments because we do not observe differences in banks' profitability caused by capital losses or gains derived from equity transactions.

Olatunji and Adegbite (2014) evaluated the effects of Investment in fixed asset on firm profitability using a panel data of Nigerian banking industry. The study showed that investment in fixed assets has significant positive relationship to the performance of the sampled banks. Investments in fixed assets have strong and statistical positive impact on the profitability of banking sector in Nigeria.

Biniyam (2018) evaluated the effect of investment on financial performance of insurance company in Ethiopia by using a sample of 9 insurance companies covering the panel date from 2006 to 2016. The study finds that insurance performance measurement i.e. ROA has a strong and significant relationship with Investment in fixed asset and investment in government securities. On the other hand investment in equity has a negative and insignificant effect on return on asset. Investment in government security and fixed assets has also shown significant and positive effect. However, investment in fixed time deposit has a positive and insignificant effect on return on asset. Shibiru (2014) assesses the implication of NBE bill purchase directive to private commercial banks performance. The study found that NBE bills purchase negatively influenced private commercial banks' performances.

Several studies evaluated the influence of capital adequacy on banks' financial performance and found mixed results. For example, Margono, Wardani, and Safitiri (2020), Olalekan and Adeyinka (2013), and Okafor, Ikechukwu, and Adebimpe (2010) found that banks' financial performance is highly driven by capital adequacy. To the contrary, Barnor and Odonkor (2012) evidenced that capital adequacy hinders banks' profitability or financial performance. With this inconsistency empirical evidence, this study controls capital adequacy.

Existed literature evaluated the effects of GDP on financial performance of banking industry in different nations or regions and found inconsistent result. For example, Tan and Floros (2012a) revealed that GDP growth adversely influenced Chinese banks' profitability. To the contrary, Hong and Abdul Razak (2015) depicted the favourable influence of GDP on the financial performance of Malaysian Islamic banking industry. Literature also examined the effect of inflation on financial performance of banking industry in different nations. accordingly, Umar, Majjama'a, and Adamu (2014), Hong and Abdul Razak (2015), and Boyd, Levine,

and Smith (2001) found that inflation hinders banking sector financial performance. however, (Tan & Floros, 2012b) confirmed a favourable effects of inflation on financial performance of Chinese banking industry, which is unusual. The inconsistent results in the existed literature reading the influence of GDP and inflation forced us control these macroeconomic variables in our study. Because both GDP and Inflation might have an influence on financial performance of Ethiopian banking sector.

2.3 Hypothesis

The National Bank of Ethiopia's bill purchased by Ethiopian commercial banks might hinder their current operation as its purpose is to regulate their operation. Some studies such as Akalu and Eskedar (2016), Shibiru (2014), Tesfaye (2014) revealed this fact. The result of these researchers found a negative influences of the investment in NBE's bill by Ethiopian commercial banks has a negative influences on their current operation thereby hinders their financial performance. Hence, we postulate the following hypothesis.

Hypothesis 1: investment in NBE's bill has a negative effect on commercial banks' financial performance.

Foreign deposit investment might improve commercial banks performance by eliminating issues related to foreign currency crunch to commercial banks. Because a foreign deposit investment is aimed at keeping a foreign currency for absorbing opportunity the actually requires a foreign currency. The study of Akalu and Eskedar (2016) has shown that foreign deposit investment has a positive effect on commercial banks' performance. Based on the above argument and the results of empirical studies, we developed the following hypothesis.

Hypothesis 2: Foreign deposit investment has a positive effect on financial performance of commercial banks.

Investment on fixed affect hinders the current operation of companies thereby harms their annual financial performance. this argument is evidenced by empirical studies of Olatunji and Adegbite (2014), Akalu and Eskedar (2016), Biniyam. (2018). These authors found that fixed assets investment hinders financial performance of commercial banks. Therefore, we developed the following hypothesis.

Hypothesis 3: Fixed assets investment has a negative effect on commercial banks' financial performance.

Equity investment is a long term investment in its nature which might harm the current operations of the firm thereby hinders its performance. Studies found a mixed result on the influence of equity investment on financial performance of commercial banks. For example, while Abdikadir (2017) evidenced the positive influence of equity investment, Biniyam. (2018) and Akalu and Eskedar (2016) found a negative effects of equity investment on financial performance of commercial banks.

We inclined to studies which revealed the negative effects of equity investment on commercial banks' performance. Our argument, in this regard, is that as equity investment

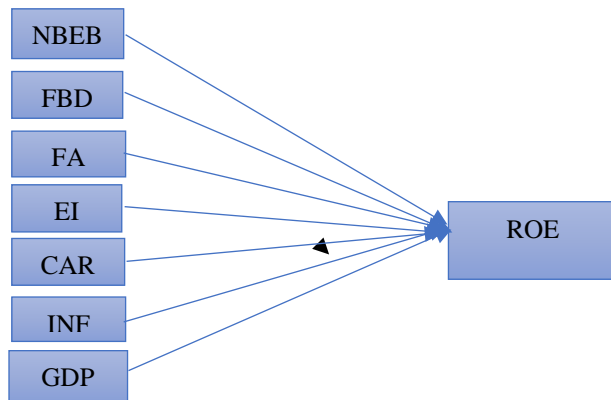


Figure 1. Conceptual framework

3. Data and method

3.1 Data & sources

The study used secondary data which was collected from eight commercial banks covering 15 years; from 2006 to 2022. Thus, equity, bill, and fixed assets investment of sample commercial banks are extracted from their annual report. Similarly, the net income and owner's equity which are used to compute the return on equity (i.e., financial performance) are extracted from the annual report of eight commercial banks. The data of macro-economic variables namely inflation and GDP are collected from the national bank of Ethiopia.

3.2 Research Design and Approach

The research design used in the study is the explanatory research design that goes beyond mere observation and description of the phenomenon and attempts to identify the cause and effect relationship between variables. This design is well-suited for examining the effect of investment on commercial banks' financial performance.

is long-term, it might have a harmful effect on firms' short term operation. Ultimately, equity investment hinders commercial banks' financial performance at the end of the year. Hence, we developed the following hypothesis.

Hypothesis 4: Equity investment has a negative effects on commercial banks' financial performance.

2.4 Conceptual Framework

Based on the theories and empirical literatures reviewed in the above section, we developed the following conceptual framework.

The research approach used in the study is quantitative in nature aimed to obtain numerical data used to explain the effects of investment on commercial banks' financial performance in Ethiopia.

3.3 Sample selection criteria

There are a total of thirty one commercial banks in Ethiopia as of 2023 (one public and thirteen private banks). However, only eight commercial banks who have 15 years (2006 to 2022) data for the purpose of examining the effects of commercial banks' investment on their financial performance are purposely included as a sample. The sample banks are Commercial Bank of Ethiopia, Awash International Bank, Bank of Abyssinia, Dashen Bank, Wegagen Bank, United Bank, Nib International Bank, and Cooperative Bank of Oromia.

3.4 Data analysis techniques

The dataset used in this study is combination of time series and cross sectional which panel in its nature. There

are several panel data analysis methods such as OLS, fixed effect and random effect models. However, the appropriateness of one of these models to our dataset is tested via a Hausman fixed-random specification test. The test result (P-value=0.008) finally suggested that a fixed effect model is appropriate to our dataset. Therefore, fixed effect regression model is employed to examine the effects of investment on financial performance of commercial banks in Ethiopia.

3.5 Variables description and measurements

3.5.1 Dependent Variable

The dependent variable of this study is financial performance which has lots of proxies such as return on assets, Tobin's q, earning per share, return on equity, etc. however, we measured financial performance of commercial banks in Ethiopia via return on equity (ROE). The argument to use this metrics is that; first it can capture more the short-term or current and market performance of commercial banks; second it might have better implication to investment as compared to the rest performance measures. More importantly, return on equity measures how much profit a company earned compared to the total amount of shareholder equity invested. We computed return on equity as net income after tax divided by owner's equity based on prior studies (Demis Hailegebreal, 2022a, 2022b; Demis Hailegebreal et al., 2020; Demis Hailegebreal et al., 2019).

3.5.2 The Independent Variables

(a) NBE Bill Purchase

NBE-Bill was introduced in April 4, 2011 where National Bank of Ethiopia issued new directive which requires private commercial banks to allocate assets amounting to 27% of their total disbursement for priority sector financing. The banks are forced to redirect their disbursement to the purchase of NBE bill which earns 3% interest. This represent amount of forced bill purchase by a bank, which is measured as total amount of investment in NBE-Bills.

(b) Equity Investment

National bank of Ethiopia gave permission to commercial banks to invest their income on different non-banking companies share with limited percentage. These companies can be insurance company or other share companies. The banks invest on this business to obtain an

additional income from interest payment. It is measured by the total amount of investment on insurance company share and other share companies stock.

(c) Fixed Asset Investment or property investment

National bank of Ethiopia has allowed banks with limited percentage of amount to invest on fixed assets, this refer to the business of buying and developing properties consistence of houses and other building for facilitating their own operation or for resale. It is measured by the total amount of investment on fixed asset. This research was examine the effect of investment in fixed asset on profitability.

(d) Foreign Bank Deposit

Banks are permitted to deposit their excess cash in other foreign banks in order to facilitate their services and also to generate an additional interest income. Deposit is measured by the total amount of money that the bank's deposit in foreign banks in a given time. This study was examine on the effect NBE regulation on the banks foreign deposit and the interest income they generate on bank's performance.

3.5.3 Control Variables

(a) Capital Adequacy

Capital adequacy measures capital strength of commercial banks. The ratio of equity to total assets is employed as a measure for bank capital adequacy. This measures the percentage of the total asset that is financed with equity capital. Capital adequacy therefore describes the sufficiency of the amount of equity that can absorb shocks that banks may experience. It is expected that the higher the equity to asset ratio, the lower the need for external funding and therefore the higher the profitability of the bank. Bank with higher capital to asset ratio are considered relatively safer and remained profitable even during economically difficult times. Conversely, banks with lower capital adequacy are considered riskier relative to highly capitalized banks (Sufian & Chong, 2008). Considering the fact that capital adequacy may have an ambiguous effect on profitability, theoretical expectation of capital adequacy remains a puzzle to be answered by empirical investigation.

(b) Inflation

Inflation reduces the purchasing power of each unit of currency, which leads to increases general price of goods and services over time. Inflation is a general increase in the overall price level of the goods and services in the economy. Expected inflation is taken into account when actuaries set actuarially fair premiums and in this case inflation itself is unlikely to seriously impact on the performance of commercial banks. Nevertheless, if inflation is significantly greater than expected, it could cause commercial banks financial difficulty. For instance, unexpected inflation makes real returns on fixed-rate bonds lower than expected. As a result, profit margins of commercial banks are compressed and financial performance is impaired (Browne, Carson, & Hoyt, 1999). The inflation could affect commercial banks’ financial performance by influencing both their liabilities and assets.

(c) Economic growth (GDP)

Growth domestic product is a macroeconomic variable and tells the total value of goods and services produced in a given nation over a specified period of time usually a year. GDP growth is indicative of overall business conditions and hence capacity to insurers. Economic growth is an increase in the production of economic goods and services, compared from one period of time to another. The poor economic conditions can reduce investment of once country. This will have effect on the performance of corporations such commercial banks (Biru, 2017).

We summarized the variables and their measurements in Table 1. The table comprises the measurements of dependent, independent, and control variables.

Table 1. Variable description and Measurement

Variable	Proxy	Measurement
Dependent	Return on Equity (ROE)	Net profit before tax/total equity
Independent	National bank of Ethiopia bill (NBEB)	Natural log total NBE investment
	Foreign deposit (FBD)	Natural logarithm of total foreign bank deposit investment
	Fixed asset (FA)	Natural logarithm of total fixed asset
	Equity investment (EI)	Natural logarithm of total equity investment
Control	Capital adequacy (CAR)	Equity to total asset ratio
	Inflation (INF)	Yearly average rate
	Gross Domestic Product (GDP)	Yearly GDP

3.6 Model Specification

The following mathematical model represents the effects of investment on financial performance of Ethiopian banking industry.

$$ROE_{i,t} = \beta_0 + \beta_1 NBEB_{i,t} + \beta_2 FBD_{i,t} + \beta_3 FA_{i,t} + \beta_4 EI_{i,t} + \beta_5 CAR_{i,t} + \beta_6 INF_{i,t} + \beta_7 GDP_{i,t} + \varepsilon_{i,t};$$

where $ROE_{i,t}$ is Return on Equity of bank i at time t, $NBEB_{i,t}$ is National Bank of Ethiopia bill purchase of bank i at time t, $FBD_{i,t}$ is foreign deposit of bank i at time t, is investment on fixed assets of bank i at time t, $FA_{i,t}$ $EI_{i,t}$ is equity investment of bank i at time t, $CAR_{i,t}$ is capital adequacy ratio of bank i at time t, $INF_{i,t}$ is

inflation, and $GDP_{i,t}$ is GDP, $\beta_0 = intercept$, $\beta_1 - \beta_7$ are coefficients, $\varepsilon_{i,t}$ is error term.

4. Result and discussion

4.1 Descriptive Statistics

The descriptive statistics used in the study are presented in 1. The table provides information on the mean, standard deviation, minimum, and maximum values of the financial performance measured by return on equity (ROE), as well as the natural logarithm of different types of investments made by commercial banks in Ethiopia, such as national bank bill investment, foreign deposit investment, equity investment, and fixed asset

investment. The table also includes information on external variables like inflation, GDP, and capital adequacy.

The mean of the ROE is 20.7%, with a maximum of 60.25% and a minimum of 1.5%. The standard deviation value shows that the value of ROE deviates from its mean by 11.8%, indicating there was low variation from the mean. Regarding the investment variables, the natural logarithm of total national bank bill investment had a

mean value of 20.37, with a standard deviation of 1.9. The natural logarithm of total foreign deposit investment had a mean value of 20.02, with a standard deviation of 1.63. The natural logarithm of total equity investment had a mean value of 18.30, with a standard deviation of 2.73. Finally, the natural logarithm of total fixed asset investment had a mean value of 19.64, with a standard deviation of 2.12.

Table 2. Descriptive statistics

Variable	Mean	Std. deviation	Minimum	Maximum
ROE	0.207	0.118	0.015	0.603
NBE BILL	20.375	1.902	14.650	22.997
FBD	20.028	1.638	15.607	23.995
EI	18.303	2.732	14.267	26.980
FAI	19.640	2.126	15.429	25.998
INF	0.158	0.094	0.028	0.364
GDP	0.098	0.155	0.061	0.118
CAR	8.141	4.370	0.799	24.135

4.2 Correlation Analysis

Table 3 reports the correlation matrix of independent variables. As indicated in the table, national bank bill investment shows a negative relationship with GDP.

Foreign deposit investment has a positive relationship with fixed asset investment. Equity investment has a positive relationship with fixed asset investment while fixed asset investment has a negative relationship with GDP.

Table 3. Correlation Analysis

	NBEB	FBD	EI	FAI	INF	GDP	CAR
NBEB	1.000						
FBD	0.264	1.000					
EI	0.429	0.589	1.000				
FAI	0.378	0.620	0.478	1.000			
INF	-0.231	0.004	-0.161	-0.044	1.000		
GDP	-0.639	-0.165	-0.409	-0.358	-0.127	1.000	
CAR	-0.146	0.424	0.391	0.421	0.039	0.063	1.000

4.4 Result and Discussion

We employed a Hausman fixed random specification test that helps us choose the appropriate regression method for our dataset. The test result suggested a fixed effect regression model (with p-value of 0.008) and we used a fixed effect regression model in this study. The fixed effect regression result shows that national bank bill investment has a significant negative effect on the financial performance of Ethiopian commercial banks. This result implies that NBE bill limits banks' capacity to provide loans thereby hinders their capacity to generate interest income.

Similarly, this study found that Ethiopian commercial banks' investment on fixed assets has an adverse effect on their return on equity or current financial performance. This result might be associated with the mismatch of the short-term nature of financial performance; measured by return on equity and the long term nature of fixed assets. Moreover, the result might implied that, as fixed assets are subjected to maintenance and economic obsolesce, the maintenance cost and depreciation expenses might consume the working capital of banks thereby hinders their financial performance. This result is contradicted with prior studies of Akalu and Eskedar (2016), Olatunji and Adegbite (2014), and Biniyam. (2018).

However, the result depicted a strong positive effects of foreign deposit investment on return on equity (financial performance) of Ethiopian commercial banks. This implied that foreign deposit investment by commercial banks improves their financial performance as they can use it to exploit an opportunity which used up foreign currencies.

Moreover, the result implied that the freedom allowed for Ethiopian commercial banks to deposit their excess cash in foreign banks helps them generate additional interest income. This increased performance can provide Ethiopian banks with increased liquidity, which may help reduce risk and absorb opportunity.

Similarly, this study revealed a significant positive effect of Ethiopian commercial banks' equity investment on their financial performance. The possible reason of favourable effect of equity investment on financial performance of Ethiopian commercial banks. Moreover, equity investment allows banks to take advantage of their lending relationship with firms. Furthermore, equity positions in non-financial firms strengthen the banks' ability to extract surplus from borrowers.

The study further depicted an interesting result regarding the effects of control variables on Ethiopian commercial banks' financial performance. Accordingly, capital adequacy has a significant positive effect on Ethiopian commercial banks' financial performance which is consistent with the results of the study of Ayele (2012) and Rao and Lakew (2012). Similarly, inflation has a positive and significant effect of Ethiopian commercial banks' performance which is consistent with the result of the study of Ongore and Kusa (2013). The study further revealed a significant positive effects of GDP on Ethiopian commercial banks' financial performance which is in line with results of Ongore and Kusa (2013), Rao and Lakew (2012) and Ramadan, Kilani, and Kaddumi (2011).

Table 4. Regression Result

Variable	Coefficient	Std.error	t statistic	p>(t)	(95% conf. interval)
NBE bill	-0.010	0.004	-2.770	0.028	-0.018 -0.001
FBD	0.012	0.004	2.960	0.021	0.002 0.022
EI	0.011	0.004	2.760	0.028	0.002 0.020
FAI	-0.008	0.005	-1.640	0.146	-0.020 0.004
INF	0.052	0.057	0.910	0.393	-0.083 0.187
GDP	0.875	0.475	1.840	0.108	-0.249 2.000
CAR	0.024	0.002	9.870	0.000	0.018 0.030

CONS	-0.202	0.211	-0.960	0.369	-0.699	0.295
Adjusted R- Squared	0.78					
F-statistic	61.41					
prob (F-statistic)	0.00					

5. Conclusion, Implication, and Future Research Direction

5.1 Conclusion

The financial system is essential for economic development by ensuring domestic resource mobilization, savings, and investments in critical sectors. Banks are crucial components of a nation's financial system and play a critical role in the economy by shifting funds from savers to investors and ensuring the sectors that need funding and facilitating investment that fuel growth in the economy. Despite their vital role in the economy, banks are susceptible to failure in the global market. Tobin's q and resource dependency theories advocated that investment derives banks' financial performance. Similarly, empirical studies found evidences of favourable influence of investment on banks' financial performance in different times across regions. Ethiopian financial system is dominated by commercial banks which experienced a significant transformation in terms of investment in accordance with financial reform and liberalization act of 84/1994. The industry had pressure to invest due to mandatory purchase of national bank bills (NBE, 2004). To the contrary, they have shown an amazing movement on their fixed asset investment during the recent periods. Therefore, it is urgent and essential to consider the effects of Ethiopian commercial banks investment on their performance to scientific research work.

Previous empirical works confirmed inconsistent findings regarding the effects of investment on the financial performance of commercial banks. Moreover, little is known about how investment of Ethiopian commercial banks influence their performance empirically. Therefore, conducting this study is found to be urgent and timely. The main purpose of this study is to explore the effects of investment on financial performance of Ethiopian commercial banks.

The study used fifteen years firm level secondary data obtained from eight purposely selected Ethiopian

commercial banks. The data for country level variables were extracted from the national bank of Ethiopia. Explanatory research design followed with quantitative approach was employed to explore the effects of investment on commercial banks' performance over the last fifteen years. Hausman fixed-random specification test was employed that suggested fixed effect model for the dataset. Commercial banks' investment is proxied by government bill purchase, equity investment, fixed asset investment, and foreign bank deposit while banks' financial performance is measured by the return on equity (ROE). Capital adequacy, inflation, and GDP were controlled believing that they might significantly influence banks' financial performance.

The study found that investment on national bank (government) bill and fixed assets adversely influenced Ethiopian commercial banks' financial performance. Contrarily, the study found a favourable effects of foreign bank deposit and equity investment on Ethiopian commercial banks' performance. The study further depicted an interesting result regarding the effects of control variables on Ethiopian commercial banks' financial performance. Accordingly, capital adequacy, GDP, and inflation favours Ethiopian commercial banks' performance. The study finally suggested Ethiopian commercial banks to strongly consider their short-term performance while they are investing in long-term or fixed assets so that they can avoid the mismatch between their short term performance and long-term investment.

5.2 Implication

The result of this study depicted that investment of Ethiopian commercial banks' in NBE's bill hinders their financial performance. Understanding this, the national bank of Ethiopia already exempted the requirement of NBE's bill purchase by commercial banks. The result of this study further shows that the decision of NBE of exempting the bill purchase requirement of commercial banks was quite right and timely.

This study further found that Ethiopian commercial banks' investment on fixed assets has an adverse effect on their financial performance. This result might be due to the mismatch of long-term nature of fixed assets and the short-term nature of financial performance. Hence, this is an implication that Ethiopian commercial banks need to consider their short-term performance while they are investing in long-term or fixed assets so that they can avoid the mismatch between their short-term performance and long-term investment.

5.3 Contribution of the study

This study will contribute to the policy by providing insights regarding investment and its effect on financial performance of Ethiopian commercial banks. More importantly, this study will have managerial implication on which investment alternative is preferable and profitable in the short-run to commercial banks in Ethiopia. Hence, managers of commercial banks will focus on more important investment that can enhance banks' operation thereby their performance. The study further will contribute to the literature or knowledge by providing theoretical applications regarding investment and its influence on the financial performance of commercial banks in developing nations. The study provides a theoretical perspective on commercial banks' investment in developing countries which is exposed to different national government regulation. Moreover, the close-door policy of Ethiopia on banking industry is clearly seen when it comes to the investment of Ethiopian commercial banks on government bill.

5.4 Limitation and Future Research Direction

The following are the limitations associated to this study. First, this study is limited to the effects of investment on financial performance with special emphasis on Ethiopian commercial banks. Second, this study considers only the effects of overall investment on the financial performance of commercial banks. However, investment might have a time horizon implication on the financial performance. For example, investment might have different effect on financial performance in the short-run and long run. Third, the sample of this study comprises both private and public commercial banks in Ethiopia and didn't run the categorical analysis. However, the investment nature of private commercial banks might be very different from public commercial banks. Therefore, future researchers should:

- (a) Consider other Ethiopian financial institutions such insurance companies and microfinance institutions so that it will bring a full picture of the effects of investment on financial sectors' financial performance in Ethiopia.
- (b) Examine the effects of investment on financial performance of commercial banks in the short run and long run.
- (c) Split the sample as private and public commercial banks and run categorical analysis that can clearly shows the effects of investment on public and private commercial banks' financial performance in Ethiopia.

Conflict-of-interest statement

The authors have no conflicts of interest to declare and all co-authors have seen and agree with the contents of the manuscript. We assure that the submission is original work and is not under review at any other publication. Finally, the authors sincerely acknowledge the support of Jimma University for the completion of this research work.

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