

FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN THE EMERGING MARKETS

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Abstract

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In the economic growth of a country, the banking sector plays a significant role (Alam, Rabbani, Tausif, & Abey, 2021). The overall objective of the study is to investigate the financial performance of commercial banks in emerging markets. The study tried to see the impact of governance, exchange rate volatility, trade openness, and internet access on the financial performance of commercial banks in Ethiopia during the years from 2014 to 2019. The study employed a random-effects model using balanced panel data. The result indicated that composite governance index, trade openness, and internet access have a positive and statistically significant effect on the financial performance of commercial banks as measured by their return on assets. However, the exchange rate volatility has a negative and statistically significant effect on the financial performance of commercial banks. On the other hand, the result of bank-specific variables considered in the study such as profit margin, asset utilization, net interest margin, overhead efficiency, and numbers of branches have a positive and statistically significant effect on the financial performance of commercial banks. Contrarily, the equity multiplier ratio has a negative and significant effect on the financial performance of commercial banks.

Keywords: Commercial Bank, Ethiopia, Exchange Rate Volatility, Financial Performance, Governance, Trade Openness

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1. INTRODUCTION

In the economic operation and sustainable economic development of a country, the banking sector plays a significant role (Alam, Rabbani, Tausif, & Abey, 2021; Hunjra, Mehmood, Nguyen, & Tayachi, 2020) and is considered the backbone of the economy (Rehman, Khan, Khan, & Rahman, 2018). Moreover, serving as financial intermediaries through converting deposits into productive investments, the sector

plays an important economic function for an economic acceleration (Menicucci & Paolucci, 2016). In channeling funds from savers to spenders in several financial systems, banks are more or equally important than markets (Garcia & Guerreiro, 2016). Aiming at supplying necessary funds for the development of a country, banks serve as a catalyst through converting savings into investments (Nageswararao, Challa, & Venkataramanaiah, 2020).

A strong and financially sound banking sector is one of the foundations of long-term economic growth (Menicucci & Paolucci, 2016). Financial performance is used to assess a company's ability to earn revenue from its principal operations as well as its overall financial health and strength (Kiaritha, 2015). Financial performance can also be used to assess a company's financial capabilities and to compare financial performance across industries or sectors (Ene & Bello, 2016). Financial performance is the key measure of profitability for any company organization, hence profitability is the ratio used to quantify financial performance (Bansal, Singh, Kumar, & Gupta, 2018; Vij & Bedi, 2016).

The financial performance of a company can have a significant impact on resource suppliers' decision-making (Yesmine & Bhuiyah, 2015). Profitability is the primary purpose and condition of commercial organizations' existence. Furthermore, profitability is one of the markers of a bank's administrative and institutional success (Güneş, 2014). The ability of banks to generate profits can be used to gauge their financial performance. Their financial performance will improve as their ability to generate profits improves. If the banking industry's financial performance deteriorates, it will have an influence on the economy as a whole (Khalifaturafi'ah, 2021). Banks must monitor both micro and macroeconomic aspects to measure and manage risks; otherwise, as shown in the Asian banking crisis and the global financial crisis, a bank failure could escalate to a systemic failure (Hunjra et al., 2020).

However, due to both the internal and external factors, most banks face the difficulty of meeting their expectations. According to Kamande, Zablou, and Ariemba (2017) and Staikouras and Wood (2004), the performance of banks can be determined by both the external and internal economic environment.

Because the banking sector is so important to the country's economic stability, financial analysts, policymakers, bank managers, and academics are more interested in studying bank financial performance. Many academics have attempted to investigate the factors that influence bank profitability (Bansal et al., 2018; Rani & Zergaw, 2017; Merin, 2016; Güneş, 2014), but they did not take into account or incorporate composite governance index, exchange rate volatility, trade openness, or internet access in their research. Thus, this study is unique in that it considers external factors such as bank equity multiplier, profit margin, asset utilization ratio, net interest margin, overhead efficiency ratio, equity to total liability ratio, bank size, and the number of bank branches alongside internal factors such as bank equity multiplier, profit margin, asset utilization ratio, net interest margin, overhead efficiency ratio, equity to total liability ratio, bank size, and the number of bank branches as determinant factors of banks financial performance. To investigate how the six proxies of the World Governance Indicators, as well as their dimensions, affect bank performance in Ethiopia, a composite governance index was created.

The empirical investigations that have been conducted have primarily focused on industrialized economies. As a result, in Ethiopia, where

the secondary market is unavailable, it is critical to examine and determine the factors of banks' financial performance. As a result, the goal of this study was to add to the existing literature by giving evidence on current financial performance in Ethiopia, as well as bank-specific and macroeconomic factors of bank financial performance. Furthermore, employing innovative data, this study will significantly contribute to the views of bank profitability, potentially opening a new consideration in the banking literature. Within these parameters, research into the effects of governance, exchange rate volatility, trade openness, and internet availability on bank performance in Ethiopia is required.

The following is how the rest of the paper is structured. The existing relevant literature on financial performance, its metrics, and the bank-specific and macroeconomic factors were discussed in Section 2. The methodology of the study was described in Section 3, which included the type and sources of data, model specification, and data analysis methodologies. The findings of both the descriptive and regression analyses are shown in Section 4. Section 5 contains talks summarizing and interpreting the findings in light of what was previously known about the bank-specific and macroeconomic variables influencing banks' financial performance, while Section 6 contains conclusions, recommendations, and future research directions.

2. LITERATURE REVIEW

Financial performance is a broad indicator of a company's overall financial health, strength, and capacities throughout time (Kiaritha, 2015). It is a monetary measurement of the outcomes of an organization's policies and operations (Adam, 2014). Bank financial performance is the cornerstone and objective of any banking activity (Ferrouhi, 2018), and firms' financial performance is judged by their profit-earning capacity (Al-Homaidi, Tabash, Farhan, & Almaqtari, 2018; Ebenezer, Omar, & Kamil, 2017). The return on assets is a real-world indicator of financial performance (Ledhem, 2021).

Previous studies focused on bank-specific and macroeconomic determinants when studying the financial performance of the banking industry (Khalifaturafi'ah, 2021; Amene & Alemu, 2019; Al-Homaidi et al., 2018; Javaid, 2016; Ebenezer et al., 2017). According to Parvin, Chowdhury, Siddiqua, and Ferdous (2019), Al-Homaidi et al. (2018), Shamim, Aktan, Abdulla, and Sakhi (2018), Menicucci and Paolucci (2016), and Merin (2016), bank size has a favorable and considerable impact on profitability. Tharu and Shrestha (2019) and Scott and Ovufeyen (2014), on the other hand, found that bank size had no substantial impact on bank profitability.

The number of bank branches has a large and beneficial effect on profitability (Al-Homaidi et al., 2018; Nyatika, 2017; Al-Abedallat, 2017). Bank profitability suffers as a result of overhead efficiency (Merin, 2016). A bank's risk increases as the equity multiplier ratio (EMR) rises, indicating that a smaller EMR is recommended (Abdi, 2010; Attefah & Darko, 2016). The asset utilization ratio has a large and favorable effect on the success of businesses

(Yesmine & Bhuiyah, 2015; Datta, Ghosh, & Tuhin, 2011; Akinleye & Dadebo, 2019; Herdinata, 2019). Similarly, the net interest margin (NIM) has a statistically significant positive impact on bank profitability (Sunaryo, 2020; Yudha, Chabachib, & Pangestuti, 2017).

From the macroeconomic variables, inflation rate and exchange rate resulted in a negative relationship with profitability (Al-Homaidi, et al., 2018). Moreover, the study conducted by Moyo and Tursoy (2020) indicated that there is an inverse and significant relationship between inflation and bank financial performance. The study conducted by Shamim et al. (2018) and Scott and Ovuefeyen (2014) indicated that inflation was not significant in impacting the profitability of banks. Exchange rate volatility negatively and significantly affects banks' performance (Keshtgar, Pahlavani, & Mirjalili, 2020). The study done by Kairu (2016), on the other hand, found a positive and substantial association between exchange rate volatility and bank performance. Furthermore, the currency rate and bank financial performance have a shaky link (Moyo & Tursoy, 2020).

According to Ashraf (2018), the greater a country's trade openness, the greater its bank development will be, as the amount of bank credit increases while the cost and risk of bank credit decrease. On the other hand, research undertaken by Okoro and Ezeudu (2017) and Scott and Ovuefeyen (2014) found that trade openness has no substantial impact on bank profitability. The banking business is undergoing a global transition as a result of advances in information technology. As a result, banks are embracing internet banking to remain competitive and achieve increased productivity, efficiency, cost reduction, and profit (Islam, Kabir, Dovash, Nafee, & Saha, 2019). Increased development of internet finance has a good impact on banks' profitability, security, and expansion (Dong, Yin, Liu, Hu, Li, & Liu, 2020). The impact of internet banking on bank earnings, operating costs, loan books, and consumer deposits is beneficial (Mateka, Gogo, & Omagwa, 2016). Internet banking impacted bank profitability by raising revenue from service operations (Van & Le, 2015).

Furthermore, according to Ngungi's (2013) research, online banking has a good and significant impact on bank financial performance. However, according to the findings of Yasin (2018), online banking has no substantial impact on the financial performance of Ethiopian banks. The composite governance index has favorable and statistically significant benefits on bank profitability, according to a study done by Barth, Bertus, Hartarska, Phumiwasana, and Jaing (2007). Furthermore, Athari and Bahreini (2021) discovered that governance, together with its dimensions, has a beneficial impact on bank profitability.

2.1. Measurements of bank financial performance

The banks' financial performance is highly affected by the financial ratios (Khalifatufofi'ah, 2021). Thus, the bank's financial performance can be measured by its capacity to generate sustainable profit relative to the bank's assets invested (Ferrouhi, 2018), which is denoted by ROA used as a proxy measure of bank

performance (Islam et al., 2019; Bikker, 2010). The ROA is the best option because the bank was financed with deposits rather than capital, and the ROA evaluates the bank's efficiency in converting assets into net earnings (Rosly & Bakar, 2003). The ROA is a metric that measures the returns generated by the total assets provided by the owners and creditors (Rahman, Yousaf, & Tabassum, 2020). The higher the ROA, the more will be the banks' profitability (Derbali, 2021). As a result, ROA was used as a proxy indicator of bank financial performance in Ethiopia in this study. It is the net income to total assets ratio, which compares earnings to the assets that generate profits to determine the firm's capacity to use its assets to generate profits.

$$ROA = \frac{Net\ Income}{Total\ Assets} \quad (1)$$

The accounting and finance literature conducted on determinants of bank performance tried to see from two broad views, mainly bank-specific and macroeconomic determinants (Al-Homaidi et al., 2018; Ebenezer et al., 2017; Anbar & Alper, 2011; Lemi, Rafera, & Gezaw, 2020).

2.2. Bank-specific determinants and measurements

In this part, some of the financial ratios determining bank performance are used as bank-specific factors including the net interest margin, overhead efficiency ratio, equity multiplier, bank size, asset utilization ratio, profit margin, and equity to total liability ratio.

Net interest margin (NIM): Is a measure of the bank's earning assets' net return. It is calculated by dividing interest income minus interest expense by earning assets. The bank's health and efficiency are measured with the ratio of net interest margin (Angori, Aristei, & Gallo, 2019). To study the bank's effectiveness, efficiency, and stability in its operation, the net interest margin is the most appropriate measure (Puspitasari, Sudyatno, Aini, & Anindiansyah, 2021).

$$NIM = \frac{Net\ Interest\ Income}{Earning\ Assets} \quad (2)$$

$$= \frac{Net\ Interest\ Income}{Interest\ Income - Interest\ Expense} \quad (3)$$

Several studies, including Sunaryo (2020), Silaban (2017), Lartey, Antwi, and Boadi (2013), and Yudha et al. (2017), used NIM as one of the bank-specific determinants of bank performance.

Overhead efficiency ratio (OHE): The ability of banks in generating noninterest income to cover noninterest expenses can be measured by the OHE ratio. The higher the OHE ratio, the better will be the efficiency position of the bank (Kumar, 2014; Jiru, Jibrel, & Tesfaye, 2014).

$$Overhead\ Efficiency = \frac{Non\ Interest\ Income}{Non\ Interest\ Expense} \quad (4)$$

The equity multiplier ratio (EMR): Is a financial leverage measurement that is computed by dividing a company's total asset value by its shareholders' equity. An institution's financing alternatives are either equity or debt; hence, a high equity multiplier ratio indicates that debt accounts for a bigger part of asset financing, or that the institution has more debt in relation to its total assets (Nyoka, 2017; Kim, 2016). A higher equity multiplier ratio implies that a bank has converted more debt into assets than share capital, implying that the higher the EMR, the greater the risk for the bank (Abdi, 2010).

$$\text{Equity Multiplier} = \frac{\text{Total Asset}}{\text{Shareholders Equity}} \quad (5)$$

Bank size: Bank size is among the important factors used to affect bank profitability, which is

$$\text{Assets Utilization (AU)} = \frac{\text{Total Operating Income}}{\text{Total Assets}} = \frac{\text{Interest Income} + \text{Non Interest Income}}{\text{Total Assets}} \quad (7)$$

Profit margin (PM): Banks can raise the average ROA of banks through careful allocation of assets to the highest yielding loans and investments while avoiding excessive risks.

Profit margin measures the ability of banks in controlling expenses and thus its ability in producing the net income from their operating

$$\text{Profit Margin (PM)} = \frac{\text{Net Profit After Tax}}{\text{Interest Income} + \text{Non Interest Income}} \quad (8)$$

The ratio of equity to total liabilities (EQTL): It is used as a proxy measure of bank leverage. A bank with a low EQTL ratio indicates high leverage and vice versa. Banks having a low EQTL ratio may face difficulty in obtaining new capital; therefore, banks

$$\text{Equity to Total Liabilities (EQTL)} = \frac{\text{Total Equity}}{\text{Total Liability}} \quad (9)$$

2.3. Macroeconomic determinants and measurements

In addition to the bank-specific factors, the study included composite governance index, exchange rate volatility, trade openness, inflation, and access to the internet from the macroeconomic variables.

In this study, governance can be seen from different viewpoints. According to Haq and Arif (2006), there are six composite dimensions of governance grouped into three clusters with two indicators in each group. The first cluster is the economic dimension of governance, which summarizes various indicators such as government effectiveness, which measures the government's ability to formulate and implement sound policies, and regulatory quality, which includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreclosed homes. The political dimension of governance is the second cluster, which includes two indicators: "voice and accountability" and "political instability". The third dimension of governance is the institutional dimension, which includes measures such as the rule

measured by their total asset (Tharu & Shrestha, 2019; Gupta & Mahakud, 2020; Aladwan, 2015; Nyoka, 2017; Ghodrati et al., 2014). Bank size is measured by taking the natural legalisms of total assets during the study period. The rationale behind taking this factor is that banks having large amounts of assets may likely benefit from economies of scale.

$$\text{Bank Size} = \text{Logarithm of Total Assets} \quad (6)$$

Assets utilization (AU): It measures how effectively the bank converts its assets into gross operating revenues indicating the degree of efficiency in using assets to generate earnings. The greater the use of assets, the greater will be the bank's capacity in generating earnings from their assets (Balaj, 2015). Generally, the higher the AU, the better banks' performance (Ngu & Mesfin, 2009).

income (Subalakshmi, Grahalakshmi, & Manikandan, 2018). Generally, the higher the PM ratio, the more will be the efficiency of a bank is in reducing expenses. It is can be calculated by dividing the net profit after taxes by the total operating income (Rosly & Bakar, 2003).

are apt to have low leverage and high equity (Raharjo, Hakim, Manurung, & Maulana, 2014). A high EQTL indicates low leverages whereas a low EQTL signifies high leverage (Skully, Ahmad, & Ariff, 2009).

of law and corruption control. The researchers took these three dimensions of governance and created one composite governance index using the principal component analysis technique with the help of Stata software.

Likewise, through affecting the behavior and performance of depositors and borrowers, exchange rate volatility affects the banking risk and its performance (Keshtgar et al., 2020). In the face of exchange rate volatility, since Ethiopia is among import-oriented countries, it is experiencing price instability, thus, managing the foreign exchange market is necessary (Girum, 2020).

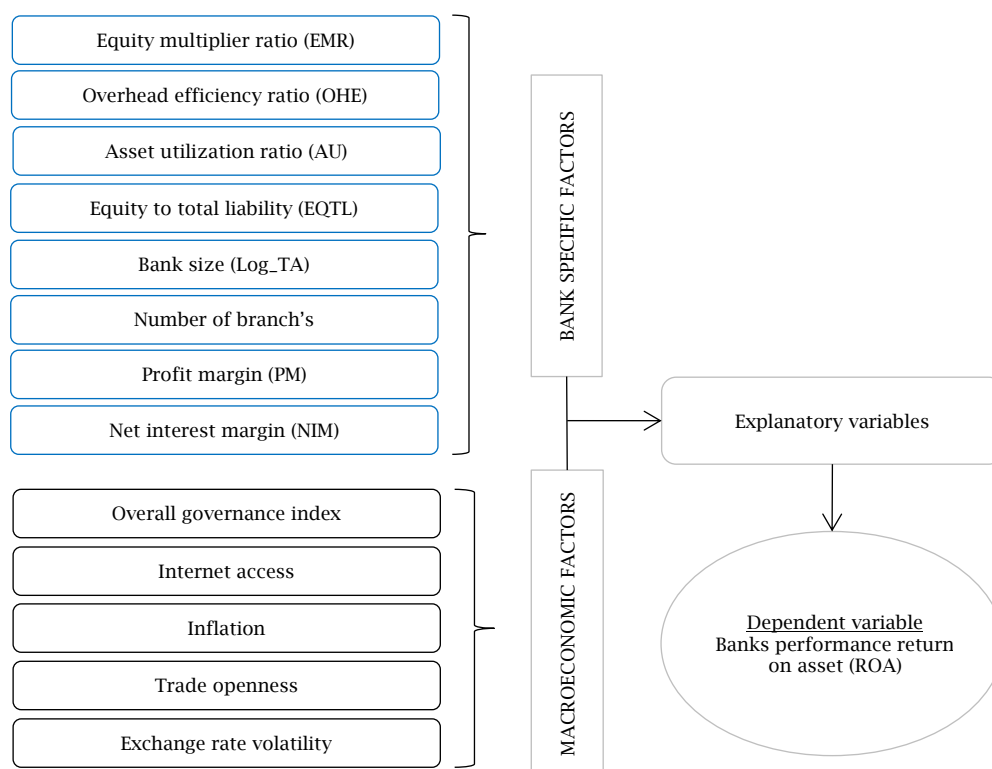
As we all know, with the development of technology, banks are providing their services with the support of the internet; thus, the use of the internet is a must which might have a significant impact on their performance. Consequently, the availability of internet access may affect banks' performance, which is not yet assessed in Ethiopia. With the support of internet banking, the financial transaction of banks will be faster. Moreover, it helps in reducing the time it takes in transaction processing. The operation of banks can certainly be affected by the development of internet finance

and it has supported the improvement of bank performance (Dong et al., 2020). According to Aljaber (2001), due to the constant changes in technology, the internet is boosting changes in the banking industry. Aiming at increasing efficiency and profitability, the distribution channel and customer reach can be increased with the support of the internet via internet banking. Furthermore, the study conducted by Ashraf (2018) indicated that the trade openness of a country can promote the

development of banks and result in an efficient, large, and safe banking sector. As a signal of the diversification benefit of trade openness banks operating in more open countries performs comparatively better during the crisis period (Rahman et al., 2020).

The study produced the following conceptual framework based on the literature review, which was utilized to show the relationship between the explanatory and explained variables in the study.

Figure 1. Conceptual framework



Source: Own computation (2021).

3. RESEARCH METHODOLOGY

3.1. Type and sources of data

The study examined the impact of governance, exchange rate volatility, trade openness, and internet access, as well as bank-specific variables, on the financial performance of commercial banks in

Ethiopia, using data from all seventeen (17) commercial banks operating in Ethiopia over a six-year period (2014-2019). Additional data was obtained from the Ethiopian National Bank and the World Bank. Table 1 below indicates an explanation of the variables used, their measures, and notations along with their expected signs in the study.

Table 1. Summary of variables and their expected relationship (Part 1)

<i>Dependent variable</i>				
<i>Name of variable</i>	<i>Measure</i>	<i>Notation</i>	<i>Expected sign</i>	
Return on asset	Net Income/Total Asset	ROA	NA	
<i>Independent variables</i>				
<i>Bank-specific variables</i>				
<i>S.N.</i>	<i>Names of variables</i>	<i>Measure</i>	<i>Notation</i>	<i>Expected sign</i>
1.	Equity multiplier ratio	Total Asset/Shareholders Equity	EMR	-
2.	Overhead efficiency	Non-interest Income/Non-interest Expense	OHE	+
3.	Net interest margin	Net Interest Income/Earning Assets	NIM	+
4.	Bank size	The Logarithm of Total Assets	LogTA	+
5.	Number of bank branches	Total Number of Bank Branches	Branch	+
6.	Assets utilization	(Interest Income + Non Interest Income)/Total Assets	AU	+
7.	Profit margin	Net Profit After Tax/(Interest Income + Non-interest Income)	PM	+
8.	Equity to total liabilities	Total Equity/Total Liability	EQTL	+

Table 1. Summary of variables and their expected relationship (Part 2)

Macroeconomic variables				
S.N.	Names of variables	Measure	Notation	Expected sign
9.	Exchange rate	Exchange rate volatility	<i>EXCH</i>	-
10.	Trade openness	The sum of imports and exports percentage of GDP	<i>Trade_Opp</i>	+
11.	Internet access	Individuals using the Internet (% of the population)	<i>Int_Access</i>	+
12.	Governance index	Composite governance index of individual governance indicators including voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption	<i>Gov_Index</i>	+
13.	Inflation	Inflation, consumer prices (Annual %)	<i>INF</i>	+/-

Source: Developed for the research (2021).

3.2. Model specification

This study developed the following econometric model to determine the impact of determinant variables on commercial bank financial performance:

$$\begin{aligned}
 ROA_{i,t} = & \beta_0 + \beta_1 EMR_{i,t} + \beta_2 OHE_{i,t} + \\
 & \beta_3 NIM_{i,t} + \beta_4 LogTA_{i,t} + \beta_5 Branch_{i,t} + \\
 & \beta_6 AU_{i,t} + \beta_7 PM_{i,t} + \beta_8 EQTL_{i,t} + \beta_9 EXCH_{i,t} + \\
 & \beta_{10} Trade_Opp_{i,t} + \beta_{11} Int_Access_{i,t} + \\
 & \beta_{12} Gov_Index_{i,t} + \beta_{13} INF_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (10)$$

where:

β_0 is constant and β is coefficient of variables while $\varepsilon_{i,t}$ is the residual error of the regression;

$EMR_{i,t}$: Equity multiplier ratio of the bank i at time t ;

$OHE_{i,t}$: Overhead efficiency of the bank i at time t ;

$NIM_{i,t}$: Net interest margin of the bank i at time t ;

$LogTA_{i,t}$: Logarithm of total assets of the bank i at time t ;

$Branch_{i,t}$: Number of bank branches of the bank i at time t ;

$AU_{i,t}$: Assets utilization of the bank i at time t ;

$PM_{i,t}$: Profit margin of the bank i at time t ;

$EQTL_{i,t}$: Total equity to total liabilities of the bank i at time t ;

$EXCH_{i,t}$: Exchange rate volatility of the country at time t ;

$Trade_Opp_{i,t}$: Trade openness of the country at time t ;

$Int_Access_{i,t}$: Internet access of the country at time t ;

$Gov_Index_{i,t}$: Governance index of the country at time t ;

$INF_{i,t}$: Internet access of the country at time t .

3.3. Methods of data analysis

The study used both descriptive and econometric methods to assess the quantitative data. Descriptive statistics such as mean, maximum, minimum, and standard deviations were used to understand the overall trends of the data. The panel data regression analysis approaches employing fixed- and random-effects models were used in the study to discover the factors of bank financial performance in Ethiopia. For this type of panel data, it is also

possible to analyze using the generalized method of moments (GMM) and system GMM, if the data is affected by the problem of endogeneity. But, our data is free from the problem of endogeneity, as a result; there is no need of applying the GMM, therefore, the study applied fixed- and random-effects models.

Even though there are many ways of panel data analysis in econometrics, the fixed-effects and random-effects models are the two most essential and extensively used models (Bilal, Khan, Tufail, & Sehar, 2013). In panel data regression approaches, the fixed- and random-effects models are two models (Gupta & Mahakud, 2020; Sarafidis, & Wansbeek, 2020). The difference between random-effects parameter estimators and fixed-effects parameter estimators should be analyzed to see if they are meaningful when choosing fixed-effects and random-effects models (Güneş, 2014). The Hausman test was used to determine if the effects were fixed or random (Zulfikar, 2018).

Table 2. Hausman test

Hausman test	Prob. > Chi²
ROA	0.0845

Source: Own computation (2021).

Accordingly, Hausman's specification test result gives an insignificant result of Prob. > Chi² = 0.0845 indicating the most appropriate model to use is a random-effects model (Table 2). The random-effects model is advantageous in that it eliminates the problem of heteroscedasticity (Zulfikar, 2018).

4. RESULTS

4.1. Result of descriptive statistics

The result presented in Table 3 indicates the results of the descriptive statistics of both the bank-specific and macroeconomic variables employed in the regression model.

Table 3. Summary of the result of descriptive statistics

Variable	Mean	Standard deviation	Minimum	Maximum
ROA	0.02477	0.00676	0.00365	0.04685
EMR	7.75214	3.47954	3.85333	26.9027
PM	24.7512	5.58275	4	40.39
AU	11.41	1.7763	7.32	16.9
NIM	5.37569	1.38776	2.38	8.79
OHE	86.618	32.9023	11.51	207.65
LogTA	23.3009	1.29378	20.5895	27.2926
INF	10.5733	3.39564	6.62813	15.8403
EXCH	0.0734	0.03353	0.04551	0.13916
Branch	258.863	312.474	7	1825
EQTL	0.17256	0.06119	0.03861	0.35047
Trade_Opp	34.4032	4.50043	28.82	40.7411
Int_Access	15.4634	3.95104	7.7	18.62
Gov_Index	0.000000333	1	-1.0318	2.11406

Source: Stata result (2021).

As indicated in Table 3, the mean return on asset (ROA) was 2.47% with a minimum of 0.36% and a maximum of 4.68%. The result indicated that commercial banks in Ethiopia generated an average of 2.47% of their total assets during the study period. The most profitable bank among the whole banks in Ethiopia earned 4.685% of profit after tax for every one Ethiopian birr (ETB) invested in the bank's assets. Whereas the least profitable bank of the whole banks in Ethiopia earned 0.365% of profit after tax for every one birr invested in the company's assets. Moreover, the standard deviation of 0.006 indicated that there is a small variation between banks during the period of study.

The equity multiplier ratio (EMR) is used as a measure of bank financial leverage determined by dividing the total assets of banks by their total shareholders' equity. The higher the ratio, the more will be the banks are being leveraged than equity financing. The average result of this variable is 7.75, indicating the commercial banks were leveraged 7.75% of their total asset with 3.8533 and 26.9027 minimum and maximum values, respectively. The standard deviation value of 3.47 indicated the existence of higher variation between banks during the study period.

The profit margin (PM) ratio indicates the effectiveness of the banks in managing expenses. The result showed that the average PM is 24.7512 with a maximum of 40.39 and a minimum PM of 4 indicating average banks in Ethiopia are efficient enough in reducing expenses or they are allocating assets to the highest yielding loans and investments while avoiding excessive expenses.

Assets utilization (AU) measures the degree of efficiency in using assets to generate income for the bank. As of Table 3, the AU ratio is 11.41 indicating on average banks are capable of generating earnings from their assets. Moreover, the standard deviation was 1.7763 with 7.32 and 16.9 as the minimum and maximum values, respectively.

Net interest margin (NIM) is one of the indicators of bank profitability measuring the net interest return on earning assets of the banks. As we can see from the above table, the average NIM of banks in Ethiopia during the study period is 5.37569 with a minimum of 2.38 and a maximum of 8.79 results. Since all the values of NIM indicated a positive result, it suggests that during the study period all the banks in Ethiopia are operating profitably.

The overhead efficiency ratio (OHE) measures the ability of banks in generating noninterest income to cover noninterest expenses. From the above table, we can infer that on average the OHE ratio of

Ethiopian banks is 86.618 with a maximum of 207.65 and a minimum of 11.51, indicating the banks are in an efficient position noninterest expenses through generating noninterest income.

The average value of total assets measured by its natural logarithm values (LogTA) is 23.3009 birr. The standard deviation of the total asset is 1.29378 birr with a maximum value of 20.5895 and a minimum value of 27.2926 during the study period. This tells us that, taking their natural logarithm, there is a reasonable dispersion among banks measured by their total assets. Moreover, the average number of bank branches is 258 with a standard deviation of 312.474. The minimum branch is 7 and the maximum is 1,825 branches indicating there is a high variation in the number of bank branches in Ethiopia.

Then again, the result of descriptive statistics for the macroeconomic variables indicated that trade openness as proxied by the ratio of total trade to GDP ((export + import)/RGDP) has an average result of 34.40 with a minimum of 28.8 and a maximum of 40.70 for the period from 2014 to 2019. This result depicts the extent of actual exposure to trade interactions. In other words, out of the total economic activities during the study periods, on average, 34.40% of it is directly or indirectly tied with the rest of the world. Internet access has an average value of 15.5 with a minimum of 7.7 in the year 2014 and a maximum of 18.62 in the year 2019. This uncovers the existence of a poor but significantly growing level of access to the internet in the country.

The mean value of the exchange rate volatility in the country is 7.34% during the study period ranging from 4.55% to 13.92%. This indicated that the existence of a higher level of exchange rate instability during the period. The average value of the inflation rate in the country is 10.57% for the period between 2014-2019. The minimum and the maximum values of this variable are 6.62% and 15.84%, respectively.

The standard deviation (SD) of inflation which is used to measure the desperation of the data with its mean is 3.39. Since the value of standard deviation is higher than 2 it can be considered as an indication of macroeconomic instability through inflation. Furthermore, the average governance composite index is 0.000000333 for the study period with a minimum value of -1.0318 (2017) and a maximum value of 2.11406 (2014). The standard measurement index of WGI ranges from -2.5 indicating a poor governance quality to positive 2.5 indicating a good governance quality. Therefore,

the result indicated that the country's level of governance index lies almost in the middle of the two extreme governance quality levels indicating there is room for further improvement.

4.2. Regression result

Table 4 indicates the results of the model used to identify the factors determining the financial performance of commercial banks in Ethiopia. The variables employed in the study explained about

95% of the total variation in the commercial bank's financial performance measured by their ROA. It is a reasonably good fit to explain the variables incorporated in the study implying that *EMR, OHE, NIM, LogTA, Branch, AU, PM, EQTL, EXCH, Trade_Opp, Int_Access, Gov_Index*, and *INF* jointly explained about 95% of the total variation in the financial performance of the commercial bank. However, the rest 5% of the changes in the ROA can be caused by factors other than those included in the model.

Table 4. Determinants of bank financial performance

Dependent variable: Return on asset				
Variable	Coefficient	Std. Err.	z	P > z
<i>EMR</i>	-0.0276***	0.0090	-3.05	0.002
<i>PM</i>	0.0816***	0.0054	15.06	0.000
<i>AU</i>	0.1019***	0.0148283	6.87	0.000
<i>NIM</i>	0.1560***	0.022018	7.09	0.000
<i>OHE</i>	0.0095***	0.0013418	7.06	0.000
<i>LogTA</i>	0.0168	0.0556157	0.30	0.762
<i>INF</i>	-0.0124	0.0097909	-1.27	0.205
<i>EXCH</i>	-3.6173***	1.117572	-3.24	0.001
<i>Branch</i>	0.0003*	0.0001539	1.89	0.058
<i>EQTL</i>	0.7175	0.707036	1.01	0.310
<i>Trade_Opp</i>	0.0469**	0.0183168	2.56	0.010
<i>Int_Access</i>	0.1637***	0.0509446	3.21	0.001
<i>Gov_Index</i>	0.2952***	0.1024034	2.88	0.004
_cons (C)	-6.49086	1.687248	-3.85	0.000
R ² within	0.9648			
R ² between	0.9213			
R² overall	0.9526			

Note: *** indicates a 1% significance level, ** indicates a 5%, and * at 10%.
Source: Own computation (2021).

Based on the regression result except for bank size and the ratio of equity to total liabilities, all the bank-specific variables had a statistically significant impact on bank financial performance. On the other hand, all macroeconomic variables, except inflation, had a statistically significant impact on the bank financial performance in Ethiopia.

5. DISCUSSION

Here in this portion, the study tried to describe and interpret the findings with reference to what was hitherto known about the variables determining banks' financial performance employed in the study.

The *equity multiplier ratio (EMR)* is used to measure the financial leverage, analyze its financial health, and ascertain the overall financial stability of the banks. The model result revealed that the equity multiplier ratio has a statistically significant and negative effect on bank financial performance, indicating an increase in equity multiplier ratio by 1% leads to a decrease in the bank profitability by 0.0276 holding the other variables constant. The outcome is consistent with the prior expectation that the higher the banks' equity multiplier, the lower will be the bank profitability and consistent with the findings of Attefah and Darko (2016) and Abdi (2010), who found that the higher the equity multiplier ratio, the greater will be the risk for a bank indicating a lower equity multiplier ratio is preferred. Thus, it can be concluded that a high equity multiplier ratio leads to low banks' financial performance.

Profit margin (PM) measures the ability of banks in controlling expenses and their ability in producing net income from their operating income.

Since banks are expected to generate income from each service they provide, the positive effect between profit margin and profitability of banks is expected. The model result indicated that profit margin has a statistically significant and positive effect on bank financial performance in Ethiopia which specifies that by keeping other variables constant, an increase in profit margin by 1% increases the bank's profitability by 0.0816. The outcome is in line with the forecasted outcome that the higher the banks' profit margin, the higher will be the bank's profitability and the finding of Tumanggor (2020) who found a positive association between profit margin and bank financial performance. Thus, it can be concluded that a high-profit margin ratio leads to an increase in the banks' financial performance.

Net interest margin (NIM) measures the soundness in the financial performance of banks. The result of the regression model indicated that net interest margin has a statistically significant and positive effect on the bank's financial performance which depicted that by keeping all other variables constant when the net interest margin increased by 1%, the profitability of Ethiopian banks will increase by 0.1560. The outcome is consistent with what was expected that the higher the banks' profit net interest margin, the higher will be the bank's profitability and findings of Sunaryo (2020), Silaban (2017), Lartey et al. (2013), and Yudha et al. (2017), who found that the net interest margin has a positive and statistically significant impact on the banks' profitability. Thus, we can conclude that a high net interest margin leads to an increase in the banks' financial performance.

Asset utilization ratio (AU) measures how the bank effectively converts its assets into gross operating revenues. The result indicated that asset utilization has a statistically significant and positive effect on the bank's profitability which depicted that keeping other variables constant; an increase in asset utilization by 1% will lead to an increase in the banks' profitability by 0.1019. The outcome is consistent with what was expected that the higher the asset utilization of banks, the higher will be the bank's profitability and findings of Yesmine and Bhuiyah, (2015), Datta et al. (2011), Akinleye and Dadebo (2019), and Herdinata (2019) who found that asset utilization has a positive and significant impact on banks performance. Thus, we can conclude that the high asset utilization ratio of banks leads to an increase in their financial performance.

The overhead efficiency ratio is used to measure the ability of banks in generating noninterest income to cover noninterest expenses. The result indicated that the overhead efficiency ratio has a statistically significant and positive effect on the bank's profitability indicating that by keeping other variables constant at their average value when the overhead efficiency ratio increase by 1%, the financial performance of the Ethiopian banks will increase by 0.0095. This result is in line with the previous expectation that, the higher the overhead efficiency ratio of banks, the higher will be the bank's profitability and finding of Kumar (2014) and Jiru et al. (2014) stating the higher the overhead efficiency ratio of banks, the better will be their efficiency. However, the result is against the finding of Merin (2016) who found overhead efficiency has a negative impact on banks' profitability. Thus, we can conclude that the high overhead efficiency ratio of banks leads to an increase in their financial performance.

The regression result revealed that the *numbers of branch banks* have a significantly significant effect and positively affect the bank profitability which depicted that holding other variables constant, an increase by 1% in the number of bank branches leads to increases the profitability by 0.0003. This finding is in line with the previous expectation that, the higher the number of branches, the higher will be the bank's profitability and consistent with the findings of Al-Homaidi et al. (2018), Nyatika (2017), and Al-Abedallat (2017) who found that the numbers of bank branches have a positive and significant impact on profitability. Therefore, it can be concluded that having large numbers of bank branches leads to an increase in the banks' financial performance.

Governance in this study is used to see the impact of composite governance index of individual governance indicators including voice and accountability, political stability and absence of violence, government effectiveness, and regulatory quality, rule of law, and control of corruption on the performance of banks in Ethiopia. The model result indicated that the overall governance composite index has a statistically significant and positive effect on the bank's financial performance in Ethiopia which depicted that keeping other variables constant, an increase by 1% in the composite governance index leads to increases in the bank's profitability by 0.2952. The result is in line with the prior expectation that, the higher the governance

index, the higher will be the bank's profitability, and consistent with the findings of Athari and Bahreini (2021) and Barth et al. (2007) who found that governance along with its dimensions positively affects banks' profitability. Thus, it can be concluded that the increase in the composite governance index leads to an increase in the banks' financial performance.

The model result revealed that *internet access* has a statistically significant and positive effect on the bank's financial performance, which indicates that holding the other variables constant, an increase in the access to the internet by 1% leads to an increase in the bank profitability by 0.1637. The outcome is consistent with what was expected indicating that the higher the internet access, the higher will be the bank's profitability, and consistent with the findings of Dong et al. (2020), Mateka et al. (2016), Ngungi (2013), and Van and Le (2015) who found that internet banking will increase the bank's profitability. Thus, it can be concluded that the increase in internet access leads to an increase in the banks' financial performance.

The model result indicated that *trade openness* has a statistically significant and positive effect on the bank profitability which indicates that keeping the other variables constant, an increase in the trade openness by 1% leads to an increase in the bank profitability by 0.0469. The outcome is consistent with what was expected indicating the higher the trade openness, the higher will be the bank's profitability, and consistent with the findings of Ashraf (2018) who evidenced that the higher the trade openness of a country, the higher will be the bank development through increasing the volume and decreasing the cost and risk of bank credit. Thus, it can be concluded that the increase in the trade openness of a country leads to an increase in the banks' financial performance. But, it is in contrast to the finding of Okoro and Ezeudu (2017) and Scott and Ovuefeyen (2014) who indicated that trade openness does not have a significant impact to affect bank profitability.

The model result indicated that *exchange rate volatility* has a statistically significant and negative effect on bank financial performance which depicted that keeping the other variables constant, an increase in the exchange rate volatility by 1% leads to a decrease in the bank profitability by 3.6173. The outcome is consistent with what was expected that the higher the exchange rate volatility, the lower will be the bank's profitability and supported by the findings of Al-Homaidi et al. (2018), Keshtgar et al. (2020) who evidenced that.

Exchange rate volatility negatively and significantly affects banks' performance. Thus, it can be concluded that the increase in the exchange rate volatility leads to a decrease in the banks' financial performance. But, this result is in contrast to the finding of Kairu (2016) who indicated that there was a positive and significant association between exchange rate volatility and the banks' financial performance.

6. CONCLUSION

The banking sector plays an important role in the sustainable economic operation and growth of a country. Although the finance and economic literature on the field studied bank financial

performance, they have been done mainly from developed economies and rare in developing economies. Some of the studies conducted so far mainly concentrated on the bank-specific variables. However, impacts of governance, exchange rate volatility, trade openness, and internet access on the performance of banks have not been examined particularly in the context of Ethiopia which is the study's major aim. Furthermore, the study also considered the bank-specific factors including the bank equity multiplier, the profit margin, net interest margin, asset utilization ratio, the overhead efficiency ratio, size of banks, and the bank branches as financial performance determinants. The study was conducted taking the whole 17 commercial banks in Ethiopia for the year from 2014 to 2019.

The result from the descriptive analysis indicated that on average the banks' profitability is 2.47, which indicated banks earned 2.47% of their total assets during the years 2014-2019. The regression model result revealed that the increase in asset utilization ratio, net interest margin, profit margin, overhead efficiency ratio, number of bank branches of banks leads to an increase in their financial performance. But, on the contrary, the increase in equity multiplier ratio leads to a decrease in banks' financial performance in Ethiopia. Moreover, the increase in composite governance index, internet access, and trade openness leads to an increase in the banks' financial performance. However, the financial performance of commercial banks will reduce with an increase in the volatility of the exchange rate.

Based on the findings of the study, the following recommendations were forwarded to the government, the national bank of Ethiopia, and policymakers for their intervention.

The study provides interesting insights into the financial performance of commercial banks in Ethiopia. Based on the findings, the following relevant suggestions for banks' management, the national bank of Ethiopia, shareholders, and policymakers in the field. To increase the financial

performance of banks, the management should attempt to increase their asset utilization ratio, improve net interest margin, profit margin, overhead efficiency ratio, and their numbers of branches. Concerning equity multiplier, the findings suggest that banks should focus on lowering the equity multiplier ratio to increase their financial performance. The government should formulate stringent strategies and innovative policies that will be very useful for enhancing the composite governance index of a country, its openness to trade, and internet access as they significantly affect banks' financial performance in Ethiopia.

Since the exchange rate volatilities have significantly affected the banks' financial performance in Ethiopia, the finding suggested that the governing bodies in general and the national bank of Ethiopia, in particular, should create a strong control mechanism used to stabilize the exchange rate volatilities. Finally, the study also recommended that more research be conducted into the effects of other bank-specific and macroeconomic variables affecting commercial banks' financial performance in Ethiopia.

Considering the time and establishments of some commercial banks, and aiming at taking balanced panel data for the study, we employed a limited time from 2014 to 2019. Moreover, the study tried to look at only 13 variables determining the financial performance of commercial banks in Ethiopia. But, there might also be other factors not included in the study. One of the deterrent factors during the study was a lack of previous research studies and access to sufficient literature on the topic, particularly in the Ethiopian context.

As the study used only six years of balanced panel data but, other researchers may test the result by using unbalanced data taking the previous year's data. Moreover, in this study only a few bank-specific and macroeconomic variables are considered, thus it is recommended that other researchers may also test the result using additional other variables determining bank financial performance in Ethiopia.

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APPENDIX

Table A.1. List of banks used in the study along with their years of establishment

No.	Name of the bank	Notation	Year of establishment
1.	Commercial Bank of Ethiopia	CBE	1963
2.	Awash International Bank	AIB	1994
3.	Dashen Bank	DB	1995
4.	Bank of Abyssinia	BoA	1996
5.	Wegagen Bank	WB	1997
6.	United Bank	UB	1998
7.	Nib International Bank	NIB	1999
8.	Cooperative Bank of Oromia	CBO	2005
9.	Lion International Bank	LIB	2006
10.	Oromia International Bank	OIB	2008
11.	Zemen Bank	ZB	2009
12.	Bunna International Bank	BuIB	2009
13.	Berhan International Bank	BrIB	2010
14.	Abay Bank	AB	2010
15.	Addis International Bank	AdIB	2011
16.	Debub Global Bank	DGB	2012
17.	Enat Bank	EB	2013

Source: National Bank of Ethiopia (2021, <https://nbebank.com/banks/>).

Table A.2. Correlation matrix

	<i>ROA</i>	<i>EMR</i>	<i>PM</i>	<i>AU</i>	<i>NIM</i>	<i>OHE</i>	<i>LogTA</i>	<i>INF</i>	<i>EXCH</i>	<i>Branch</i>	<i>EQTL</i>	<i>TO</i>	<i>INT</i>	<i>Gov</i>
<i>ROA</i>	1													
<i>EMR</i>	-0.2369	1												
<i>PM</i>	0.8419	0.1097	1											
<i>AU</i>	0.4802	-0.535	0.0438	1										
<i>NIM</i>	-0.1461	-0.0564	-0.2284	-0.1238	1									
<i>OHE</i>	0.727	-0.2176	0.6907	0.3403	-0.6377	1								
<i>LogTA</i>	-0.2858	0.763	-0.0056	-0.62	0.0911	-0.426	1							
<i>INF</i>	-0.1122	0.0371	-0.2885	0.1604	0.1393	-0.3522	0.3462	1						
<i>EXCH</i>	-0.2024	0.0248	-0.2934	0.0559	0.1039	-0.2945	0.2171	0.4979	1					
<i>Branch</i>	-0.3075	0.7626	-0.0316	-0.5428	-0.0208	-0.3984	0.8688	0.2161	0.1222	1				
<i>EQTL</i>	0.385	-0.7835	0.0915	0.587	-0.1046	0.4009	-0.8112	-0.1739	-0.1287	-0.6234	1			
<i>TO</i>	0.2099	-0.0538	0.4066	-0.1499	-0.1451	0.4164	-0.3724	-0.7796	-0.5627	-0.2375	0.1849	1		
<i>INT</i>	-0.2448	0.0637	-0.4321	0.1221	0.1293	-0.4248	0.3462	0.7257	0.6101	0.2157	-0.1894	-0.9073	1	
<i>Gov</i>	0.2244	-0.0576	0.3453	-0.0479	-0.0445	0.2966	-0.2157	-0.3794	-0.2888	-0.132	0.1362	0.5973	-0.8456	1