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THE EFFECT OF THE COVID-19 PANDEMIC ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN GHANA

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ABSTRACT

This study examines the effect of the covid-19 pandemic on the profitability of commercial banks in Ghana. The study sampled 24 commercial banks over a 5-year study period from 2017 to 2021. The study collected data from the annual report of these banks. The study measured bank profitability using return on assets and return on equity. The main dependent variable was the covid-19 pandemic, measured as a dummy variable. The study relied on descriptive statistics, correlation analysis, and panel regression analysis to realize the research objectives. The correlation analysis, as well as the panel regression analysis, revealed that there is a positive coefficient between covid-19 pandemic and the return on assets of commercial banks in Ghana. The positive coefficient between covid-19 pandemic and return on assets is statistically significant at a 1% significance level which implies that covid-19 is a significant determinant of the increase in return on assets among commercial banks in Ghana. The correlation and panel regression analysis showed a positive relationship between covid-19 pandemic and returned on equity. However, the positive relationship between covid-19 pandemic and return on equity is not statistically significant, implying that the covid-19 pandemic is not a significant predictor of the changes in return on equity among commercial banks in Ghana.

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INTRODUCTION

The covid-19 pandemic that became a major global health crisis in almost all parts of the world affected various areas such as healthcare delivery, international trade, financial markets, and banking systems in a way never seen before in recent history (Beck & Keil, 2021; Elnahass, Trihn, & Li, 2021; Borri & Giorgio, 2021). The pandemic affected almost all economies to the point that international organizations such as the World Bank and the International Monetary fund argued that there was going to be about a 3.1% reduction in the growth of economies around the world. They stated that there was going to be about an 8.2% drop in global trade volume as a result of the pandemic (Borri & Giorgio, 2021; Berger, Demirgüç-Kunt, Moshirian, & Saunders, 2021). The pandemic resulted in lockdown in most parts of the world and the introduction of social distancing rules that affected the way most businesses were conducted (Balboula & Metewea, 2021; Kozak, 202). The effect of the pandemic on the business environment was huge as there was a disruption in the global supply chain which harmed businesses around the world (Demirgüç-Kunt, Pedraza, & Ruiz-Ortega, 2021). These measures presented a huge shock to the business sector as most sectors began to have liquidity problems largely on account of revenue shortfalls.

The banking sector was supposed to play a critical role in the economies of many countries by absorbing the shocks in the economy through the supply of the much-needed liquidity to support the business sector (Beck & Keil, 2021; Demirgüç-Kunt et al., 2021; Borri & Giorgio, 2021; Elnahass et al., 2021; Acharya & Steffen, 2020). Central banks also came up with enhanced policy interventions to support government efforts at fighting the pandemic and also support private sector businesses and also reduced tight monetary measures to bank easily to businesses (Alabbad & Schertler, 2022; Demirgüç-Kunt et al., 2021; Mirzaei, Saad, & Emrouznejad, 2022).

Banks are the main source of liquidity insurance for numerous economies (Musah, Padi, & Baah, 2021; Barattieri,

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Eden, & Stevanovic, 2020), and in times of turmoil such as the pandemic, it is argued that banks play an especially key role in absorbing shocks (Acharya & Steffen, 2020; Alvarez-Botas, Fernández-Méndez & Gonzalex, 2022; Demirgüç-Kunt et al., 2021). Consequently, the resilience of the banking sector is an important driver of the recovery of the global economy (Demirgüç-Kunt et al., 2021; Elekdag, Malik, & Mitra, 2020). In this respect, the International Monetary Fund (2021) expects a positive growth rate of 5.9% and 4.9% for the world economy in 2021 and 2022, respectively, given the supportive conditions of the banking and financial sectors. Therefore, the critical requirement for this supporting condition is for the global banking sector to maintain and even improve its efficiency and productivity during and after the COVID-19 crisis.

The covid-19 pandemic even though affected almost all countries, did not have the same impact on the economies of these countries due to differences in the severity of the pandemic, government response and the level of resilient of the countries (Katusiime, 2021; Yan & Jia, 2022; Nguyen, 2022). For instance, the pandemic was not as severe in Africa as it was in Europe, America, Asia and the Middle East (Katusiime, 2021). However, the disruption of the global supply chain and transportation network meant that all countries that are involved in international trade will be severely affected and Ghana is not an exception. The pandemic resulted in a slowdown in many economies whiles others even went into recession (Yan & Jia, 2022). Ghana's economic growth had reduced from 6.5% in 2019 to 0.51% in 2020 as a result of the covid-19 pandemic.

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The Ghana Statistical Service (GSS) and the World Bank released a report titled the business racker which evaluated the impact of the covid-19 pandemic on various sectors of the Ghanaian economy and concluded that the pandemic had a considerable negative impact on private sector businesses in Ghana (GSS, 2021). The report showed that 46% of private sector businesses reduced workers' wages with just 1.4% of businesses surveyed laying off some workers. The pandemic also accelerated the adoption of a digital platform to conduct business, especially for the banking sector in Ghana. It is also instructive to indicate that not all sectors of the economy suffered from the pandemic as some sectors are a bit immune to the negative consequence of the pandemic. This means that not all sectors will have negative effects from the pandemic as envisaged. The banking sector in Ghana is seen as the most profitable sector which makes a significant part of its revenue from lending to the government (Musah, 2020; Musah, et al., 2021; Musah & Adutumwaah, 2021). This suggests that the effect of the pandemic on the banking sector in Ghana cannot be predicted based on mere assumptions but through empirical research such as this one.

Several studies have examined the impact of the pandemic on the banking sector in many parts of the world and produced mixed results (Demirgüç-Kunt et al., 2021; Katusiime, 2021). For instance, Yan and Jia (2022) found that the covid-19 pandemic threatened the sustainability of the banking sector in China but had a positive effect on the development of fintech. Katusiime (2021) in a related study in Uganda found evidence to the effect that the covid-19 pandemic has a negative effect on bank profitability in the long run. Alabbad and Schertler (2022) also found evidence of a decline in bank net income during the pandemic suggesting that the pandemic reduced bank performance using a sample of Islamic banks. Kozak (2021) in a related study found that resilient banks were not severely affected by the pandemic and that larger banks were more profitable amid the pandemic. In effect, the majority of the studies reported a negative association between the covid-19 pandemic and bank performance.

Given that the pandemic did not have the same effect on economies and also even sectors, it is imperative to understand how the covid-19 pandemic affected Ghanaian bank performance. Besides, to the best of our knowledge, no study has examined the effect of the pandemic on the performance of Ghanaian banks. Moreover, there is limited research on the impact of the pandemic on banks in Africa and other developing countries. This study addresses these discrepancies in literature by empirically testing the impact of the pandemic on Ghanaian banks' financial performance.

The study makes a significant contribution to the literature on the impact of the global covid-19 pandemic on various sectors of the economies, especially within the context of a developing country in Africa. The study provides new evidence that supports the argument that the pandemic did not have the same impact on businesses especially those in the financial sector in the same way across the world. The study is currently the only empirical research that has examined the impact of the covid-19 pandemic on the profitability of banks and hence will provide the basis for the conduct of similar studies in different aspects of the Ghanaian economy and other African countries as well. The result of the study is useful to the Bank of Ghana in its policy framework for the banking sector towards making the sector more resilient to global shocks.

LITERATURE REVIEW

Financial Sector and the Covid-19 pandemic

The covid-19 pandemic caused major disruptions in major sectors of many economies including the financial sector. Government and policymakers have tried various policy interventions to help reduce the impact of the pandemic on their economies (Sang, 2022). Researchers have examined how the policy interventions in various countries affected the economic recovery and growth of the various economies (Yan & Jia, 2022; Katusiime, 2021). For instance, Feyen, Gispert,

Kliatskova, and Mare (2021) examine the factors that influence policymakers' responsiveness and activity in emerging markets and developing economies. The findings reveal that nations with larger levels of private debt tend to take banking, liquidity, and finance measures early and that policymakers in richer and more populous countries reacted quicker and adopted more policy measures. They further assert that the COVID-19 outbreak, macroeconomic fundamentals, and political environments appear to have no bearing on the response and activity of policymakers. Feyen et al. (2021) draw attention to various policy decisions that are at odds with the tenets of international financial standards and recent guidelines from standard-setting bodies like the IMF and the World Bank, such as loosening the classification and treatment of non-performing loans. According to Wei and Han (2021), the emergence of a pandemic has made it more difficult for monetary policy to reach the financial sector. However, they think that conventional monetary policy can be utilized to boost the financial market and stop the post-pandemic economic collapse.

Berger et al. (2021) assert that Basel III reforms and several nation-specific enhancements to bank supervision and regulation have strengthened the banking sector's resistance to COVID-19 shocks. They contend that national government actions have helped to stabilize the financial sector and, in some countries, have lessened the pandemic's negative economic effects on the sector's main activities. In their study of the role of various policy initiatives in resolving bank stress, Demirgüç-Kunt et al. (2021) evaluate the impact of liquidity support, prudential measures, borrower aid, and monetary policy measures on anomalous bank returns. They discover that liquidity support and borrower assistance policies have the biggest positive effects on atypical bank returns and that liquidity support is particularly beneficial to banks with less liquidity.

Furthermore, Demirgüç-Kunt et al. (2021) assert that interest rate policy decreases primarily benefit banks with less liquidity, demonstrating that monetary policy has played a significant role in this global crisis. Although these regulatory changes have lessened the pandemic's negative impact on some banks, this is not the case for all institutions. Elgin, Yalaman, Yasar, and Basbug (2021) make an interesting point about the relationship between economic policy and central bank independence (CBI), and they assert that in nations with more independent central banks, the reduction of monetary policy interest rates and deposit reserve ratios is more constrained, whereas their fiscal and macro-financial packages are relatively larger.

An unprecedented global epidemic stressed financial markets by threatening not just people's health but also the whole economy (Goldstein, Koijen, & Mueller, 2021). According to Guo, Li, and Li (2021), the lockdown and the work suspension measures put the actual economy into a recession, which led to the financial markets' limited liquidity and increased volatility. The COVID-19 pandemic has had a detrimental effect on the global financial system, which heightens tail risk spill-overs in the global financial market, according to an analysis of the tail risk contagion between international financial markets during the pandemic. In a similar vein, Izzeldin, Muradoğlu, Pappas, and Sivaprasad (2021) looks into how the COVID-19 financial crisis affected stock markets in G7 nations and 10 different business sectors. Their findings indicate that the financial markets in the US and the UK have been hurt the most. This finding contrasts with that of Nguyen (2022) who contends that the systematic shock had a particularly negative impact on the utilities, energy, and real estate sectors as well as the consumer discretionary sector, which includes the travel and luxury goods industries, and the industrial sector, which includes the airline industry.

In March 2020, the U.S., according to Goldstein, Koijen, and Mueller (2021) treasury bonds, corporate bonds, and money market funds all underwent significant stress. They think that the Fed's quick intervention to avert a major financial catastrophe is responsible for at least some of the quick recovery of the U.S. financial market. The Coronavirus Aid, Relief and Economic Security (CARES) Act has reduced the likelihood of specific shocks and defaults to some amount, although there are still big disparities between sectors, according to Kwan and Mertens (2020). Falato, Goldstein, and Hortacsu (2021) note that the Fed's bond purchase program aids in reversing outflows, particularly for the most vulnerable funds, and that the liquidity assistance trickles down through funds to the real economy. In their report, they look at the pandemic-related fragility that these funds experienced and analyze how the Federal Reserve's actions helped to resolve it. According to their explanation, sector exposure, fire-sale vulnerability, and asset illiquidity are the key causes of fragility. The findings demonstrate that the Federal Reserve's asset purchase program, which provides liquidity support for its bond holdings, aids in reducing fragility.

The risk of the complete collapse of the banking system, which is viewed as financial instability, is the typical definition of systemic risk, according to Borri and Di Giorgio (2021). The rationale is that a few unique occurrences have contributed to the situation's decline and eventual catastrophe. According to Duan, El Ghoul, Guedhami, Li, and Li (2021), shocks like the 2008 global financial crisis boost banks' tail co-movements, which ultimately causes entire financial systems to collapse. The systemic risk of major European banks is examined by Borri and Di Giorgio in 2021, taking into account the previous 20 years and three crises (the Great Financial Crisis, the European sovereign debt crisis, and the COVID-19 crisis). They focus on the banks in 64 nations in 2020 as they investigate how the COVID-19 pandemic will affect systemic risk. The findings are consistent with those made public by Duan et al. (2021), which demonstrate that the pandemic increases the systemic risk posed by large, highly leveraged, riskier banks with high loan-to-asset ratios.

MATERIALS AND METHODS

Hypothesis Development

Covid-19 Pandemic and Bank Profitability

The Ghana Statistical service business tracker report revealed that the covid-19 pandemic negatively affected the business sector in Ghana (GSS, 2021). The report however did not evaluate the effect of the pandemic on the banking sector. Some

studies have examined the effect of the covid-19 pandemic on the financial performance of commercial banks in other countries. The majority of these studies conclude that the covid-19 pandemic reduced bank stability and reduced their financial performance as well (Yan & Jia, 2021; Elnahass et al., 2021; Kozak, 2021; Katusiime, 2021; Barua, 2020). Kozak (2021) found that banks in central, and eastern south European countries experienced increased non-performing loans during the pandemic and that negatively affected their profit. Katusiime (2021) in a study on the effect of the covid-19 pandemic on the profitability of commercial banks in Uganda reported a negative coefficient between the pandemic and return on assets, return on equity and net interest margin. Similarly, Yan and Jia (2022) found evidence that the covid-19 pandemic affected the sustainability of the banking sector in China. On the contrary, Sang (2022) reported that the covid-19 pandemic pushed commercial banks in Vietnam to improve their efficiency above the pre-pandemic efficiency level which resulted in improved financial performance. Demirgüç-Kunt et al. (2021) in a policy paper for the World Bank concluded that the pandemic brought high stress on the banking sector as banks were called upon to provide liquidity support to private sector businesses and sometimes government which will affect their financial performance negatively. The paper argued that most of these financial supports were at a discounted rate which does not enhance the profit margins of the banks. Similarly, Surahman, Kamal, Rosari, Susilowati, and Cakranegara (2022) reported that the covid-19 pandemic affected the risk profile of commercial banks in Indonesia thereby resulting in reduced financial performance. Alabbad and Schertler (2022) also reported a negative effect of the impact of the pandemic on commercial banks. The review so far suggests that the majority of the results from other countries show that the covid-19 pandemic reduced the financial performance of banks. However, the impact depends on the severity of the effect of the pandemic in the particular jurisdiction and opportunities for commercial banks to still make a profit. Given the negative impact of the covid-19 pandemic on general business performance in Ghana as per the review from the Ghana Statistical Service business tracker report, it can be reasonably predicted that the pandemic negatively affected the profits of commercial banks in Ghana. Based on the above analysis, the study hypothesizes that;

H_1: There is a negative relationship between covid-19 pandemic and the return on assets of commercial banks

H_2: There is a negative relationship between covid-19 pandemic and the return on equity of commercial banks

Data Source and Sample

The study adopted the quantitative research design consistent with the research objective. The study relied on secondary data from the annual report of commercial banks in Ghana. The study sampled all 24 commercial banks currently operating in Ghana. The study adopted five years from 2017 to 2021to allow the impact of the pandemic to be examined since the pandemic started in 2020 in Ghana. The data collected was first coded in Microsoft excel before it was exported into STATA 14 for the analysis to be conducted.

Empirical Model Estimation

The main objective of the study is to estimate the effect of covid-19 on the financial performance of commercial banks in Ghana. The dependent variables for the study are bank profitability which is measured as return on assets and return on equity. The main independent variable is covid-19 pandemic as well as macroeconomic factors such as economic growth and interest rate. The measurement of the variables and their definition as well as some control variables that were sampled from previous studies as potential determinants of bank profitability are shown in Table 1.

The study adopted two econometric models for the two dependent variables. The first model estimates the impact of the covid-19 pandemic on return on assets among commercial banks in Ghana. The estimated regression model is presented below

$$ROA_{it} = \beta_0 + \beta_1 Deposit_{it} + \beta_2 Banksize_{it} + \beta_3 Covid-19_{it} + \beta_4 FOWN_{it} + \beta_5 GDP_{it} + \beta_6 INT_{it} + \varepsilon_{it} \quad (eqn\ 1)$$

The second model estimated the effect of the covid-19 pandemic on return on equity among commercial banks in Ghana. The estimated model is presented below

$$ROE_{it} = \beta_0 + \beta_1 Deposit_{it} + \beta_2 Banksize_{it} + \beta_3 Covid-19_{it} + \beta_4 FOWN_{it} + \beta_5 GDP_{it} + \beta_6 INT_{it} + \varepsilon_{it} \quad (eqn\ 2)$$

The details of the variables are presented in table 1 below

Table 1. Variable definition and Measurement

Variable	Definition	Measurement
ROA	Return on Assets	Profit before tax divided by total assets
ROE	Return on Equity	Profit after tax divided by Equity
Deposit	Customers Deposit	Natural logarithm of total customers deposit
Banksize	The Size of the bank	Natural logarithm of total assets
Covid-19	Covid-19 pandemic	Dummy, 1 for the covid-19 pandemic year,0 otherwise
FOWN	Foreign ownership	Dummy,1if the bank is foreign-owned and 0 otherwise
GDP	Economic Growth	GDP Growth rate for the year
INT	Interest rate	Bank of Ghana prime rate

In our estimation of the models shown above, the assumption of the cross-sectional independence of the error terms in panel regression was very unrealistic and was violated. Literature has proven that considerable size distortions can arise when cross-sectional dependencies exist but are not accounted for. In addition to the above, the p-values from the Hausman test were statistically significant at 5% and 10% respectively for the first and second equation which implies that the random effect model was not appropriate. The study, therefore, executed the fixed effect regression by employing the panel corrected standard errors (PCSE) which is capable of correcting the cross-sectional dependencies of the error term.

RESULTS

Descriptive Analysis

The first part of the analysis looks at a description of the dependent variables, independent variables and control variables. The section looks at the mean score for each variable, the maximum score and the minimum score as well as the standard deviation of all the dependent and independent variables. The goal is to describe all the variables used for conducting the correlation and regression analysis. The details of the descriptive analysis are presented in table 2 below.

Table 2. Descriptive Statistics

Variable	Mean	Std.Dev	Min	Max
ROA	4.00303	2.590706	-1.56	9.48
ROE	17.00182	10.26267	-11.14	36.69
Deposit	5.873758	0.2837747	5.094	6.406
Size	6.661258	0.3264986	5.737	7.262
Covid-19	0.3636364	0.4847319	0	1
FOWN	0.5909091	0.4954337	0	1
GDP	5.339394	2.674961	0.51	8.13
INT	16.40909	2.167787	14	20

The first variable in table 2 is one of the dependent variables that measured bank financial performance. Return on assets is one of the most popular profitability ratios used in literature which was adopted for this study. Return on assets as a profitability ratio measures the percentage return on the total assets of the bank over the study period. The results of the descriptive statistics show that the average return on assets over the study period is 4%. The bank with the maximum return on assets had 9.5% whiles the one with the least profitability performance in terms of return on assets is negative 1.6%. The return on assets of 4% is higher than that reported by Mirzaei et al. (2022) on Islamic banks where the average return on assets was about 2%. The mean return on assets of 4% is lower than the result of Tuffour, Owusu and Boateng (2018) who reported a mean ROA of 8%. Their study however reported a minimum return on assets of 1.17% and a maximum of 14.87% which is lower than the maximum of 48% reported in this study. Furthermore, the return on assets of 5% is however higher than the findings of Boadi, Li, and Lartey (2016) study on rural banks in Ghana where the mean return on assets was 2.85% with a minimum of negative 27% and a maximum of 119%. The result is however similar to the findings of Charmler, Musah, Akomeah, and Gapketor (2018) study using commercial banks where they reported a mean return on assets of 5.2%. The second variable in Table 2 is the return on equity which examined the returns to equity holders of commercial banks in Ghana generated on shareholders' funds in their company. The study reported a mean return on equity of 17% over the study period with a minimum of negative 11% and a maximum return on equity of 37%. The result is similar to the findings of Tuffour et al. (2018) who reported a mean return on equity of 22.9% in their study based on a sample of listed banks in Ghana. The result is however higher compared to the findings of Charmler et al. (2018) where a study based on commercial banks in Ghana reported a mean of 8.24% and a maximum of 54%. This suggests that the average return on equity for listed commercial banks in Ghana is higher than the totality of all commercial banks.

The study reported that the natural logarithm of total assets of commercial banks ranges from 5.57 to 7.27 with a mean of 6.67.

The next variable from table 2 is customer deposits and the result shows an average deposit of 1,942,082,236.68 Ghana cedis over the study period. The bank with the highest deposit mobilization from customers over the study period is 8,062,228,000 Ghana cedis whiles the minimum deposit is 90,000,000.00.

The descriptive statistics also show that 36% of the study period falls under the period of the covid-19 pandemic period. This means that the data collected covers periods with the pandemic and periods without the pandemic.

The next variable examined foreign ownership of banks and how that can influence bank profitability in Ghana. The descriptive statistics show that 59% of the banks sampled for the study are foreign banks whiles the rest are Ghanaian-owned banks. The results suggest that majority of the banks operating in Ghana are foreign-owned. The study also showed that the average economic growth over the study period is 5.3%. The study examined how economic growth contributes to the profitability of commercial banks in Ghana. The last macroeconomic variable in the model is the interest rate which was measured as the prime rate of the Bank of Ghana at the end of the government financial year over the study period. The results of the descriptive statistics show that the average interest rate was16%.

Correlation Analysis

The study used correlation analysis to examine the relationship between the various independent variables and the dependent variable. The study conducted correlation analysis for the two dependent variables for return on assets and return on equity. The study also used correlation analysis to help determine the possibility of multicollinearity to adopt the best panel

regression model to help improve the credibility and reliability of the results. The panel regression interpretation is based on the type of relationship or correlation between the independent variable and return on assets and return on equity. The results of the correlation analysis are presented in Tables 3 and 4 below.

Table 3. Correlation analysis between ROA and independent variables

	ROA	Deposit	Size	COVID	Covid	FOWN	GDP	INT
ROA	1							
Deposit	0.4616	1	1					
Size	0.264	0.8928	0.311					
Covid	0.1587	0.4078	-0.2057	1	1			
FOWN	0.544	0.0359	-0.2529	0.0524	0.0524	1		
GDP	-0.0402	-0.3239	-0.3313	-0.7022	-0.7022	0.0002	1	
INT	-0.0688	-0.4673		-0.7001	-0.7001	-0.0352	0.8049	1

Table 4. Correlation Analysis between ROE and Independent variables

	ROE	Deposit	Size	Covid	Covid	FOWN	GDP	INT
ROE	1							
Deposit	0.5657	1						
Size	0.5903	0.8928	1					
Covid	0.1152	0.4078	0.311	1	1			
FOWN	0.2373	0.0359	-0.2057	0.0524	0.0524	1		
GDP	-0.0154	-0.3239	-0.2529	-0.7002	-0.7002	0.0002	1	
INT	0.0342	-0.4673	-0.3313	-0.7001	-0.7001	-0.0352	0.8049	1

The results of the correlation analysis show that there is a positive correlation between covid-19 pandemic and return on assets and return on equity. The correlation coefficient in both models is below 0.5 which shows a weak correlation between the dependent variable (covid-19 pandemic) and the independent variables (return on assets and return on equity).

Regression Analysis

Regression analysis was the main tool used to answer the research questions to achieve the objectives of the study. The study conducted two regression analyses to examine the effect of the independent variables of each of the two dependent variables. The probability of the F-statistics of both regression models was significant at a 1% significance level suggesting that both models are well fit. The results of the regression analysis are presented in Tables 5 and 6 below.

Table 5. Regression Analysis between ROA and independent variables

Variable		Coefficient	Std Err	Z
DEPOSIT		8.3321***	1.7053	4.89
SIZE		2.9626**	1.3618	2.18
COVID		0.9455**	0.4494	2.1
FOWN		2.299***	0.2741	8.39
GDP		-0.03518	0.0497	0.71
INT		-0.43069***	0.0985	4.37
CONS		-34.1645***	3.9088	8.74
R- squared	**= 0.5439**	0.5605		
Wald chi 2(6)	**= 377.45**	331.7		
Prob > chi 2	**= 0.0000**	0.0000		

Note *** means significant at 1%, ** means significant at 5% and * means significant at 10% significance level.

The main dependent variable is covid-19 pandemic and how it influences the financial performance of commercial banks. The study first examined how covid-19 pandemic predicts return on assets. The regression analysis in table 5 above shows that there is a positive coefficient between covid-19 pandemic and return on assets. The positive coefficient between covid-19 pandemic and return on assets is statistically significant at a 5% significance level which suggests that the pandemic resulted in the improved financial performance of banks in Ghana contrary to the expectations of the study. Concerning the control variables, the study found that customers' deposits, bank size, and foreign ownership are statistically significant and directly associated with return on assets while economic growth and interest rate are inversely associated with return on assets.

Table 6. Regression Analysis between ROE & Independent variables

Variable	Coefficient	Std Err	Z
DEPOSIT	7.903437	5.651902	0.14
SIZE	23.54277***	4.239374	5.55
COVID	6.568062	1.898522	0.35
FOWN	8.520234***	1.337948	6.37

GDP	-2844982*	1511953	-1.88
INT	1.570464***	3723041	4.22
CONS	-174.0793***	15.33821	-11.35
R- squared	**= 0.5439**		
Wald chi 2(6)	**= 377.45**		
Prob > chi 2	**= 0.0000**		

Note *** means significant at 1%, ** means significant at 5% and * means significant at 10% significance level.

The main independent variable in this second model is covid-19 pandemic where the study seeks to examine its influence on return on equity among commercial banks in Ghana. The regression analysis showed a positive relationship between covid-19 pandemic and return on equity. The positive relationship between covid-19 pandemic and return on equity is statistically insignificant which implies that the pandemic does not significantly predict the return on equity of commercial banks in Ghana. On the control variables, the results in table 6 show that bank size, foreign ownership, interest rate and economic growth rate are significant predictors of the changes in return on equity among commercial banks in Ghana whiles customers' deposit does not significantly influence return on equity. On the variables that are significant with return on equity, bank size, interest rate and foreign ownership are directly associated with return on equity whiles economic growth (GDP) is inversely associated with return on equity.

DISCUSSION

The first objective of the study examined the effect of the covid-19 pandemic on the return on assets of commercial banks in Ghana. The correlation analysis as well as the panel regression analysis revealed that there is a positive coefficient between covid-19 pandemic and the return on assets of commercial banks in Ghana. The positive coefficient between covid-19 pandemic and return on assets is statistically significant at a 1% significance level which implies that covid-19 is a significant determinant of the increase in return on assets among commercial banks in Ghana. The results imply that even though the pandemic negatively affected the business sector of most economies, the case in Ghana is different as banks' profitability in terms of return on assets increased during the pandemic. The positive and statistically significant association between covid-19 and return on assets is contrary to the first hypothesis of the study which predicted a negative association between covid-19 pandemic and returns on assets. The results are contrary to evidence from previous studies in other jurisdictions. For instance, Yan and Jia (2022) found that the covid-19 pandemic threatened the sustainability of the banking sector in China but had a positive effect on the development of fintech. Katusiime (2021) in a related study in Uganda found evidence to the effect that the covid-19 pandemic has a negative effect on bank profitability in the long run. Alabbad and Schertler (2022) also found evidence of a decline in bank net income during the pandemic suggesting that the pandemic reduced bank performance using a sample of Islamic banks. Kozak (2021) in a related study found that resilient banks were not severely affected by the pandemic and that larger banks were more profitable amid the pandemic. The justification for the positive effect of the covid-19 pandemic on commercial banks in Ghana can be attributed to the high government borrowing during the pandemic which commercial took advantage of. For instance, the Price Water House (PWC) annual banking survey for 2020 showed that most banks made about 50% of their income from lending to the government through the purchase of government instruments. Furthermore, because of the recent financial sector clean-up undertaken by the Bank of Ghana, it can be argued that commercial banks in Ghana are more resilient which explains why they were able t withstand the shock of the pandemic.

The second objective of the study examined the effect of the covid-19 pandemic on return on equity among commercial banks in Ghana. The correlation and panel regression analysis showed a positive relationship between covid-19 pandemic and return on equity. However, the positive relationship between covid-19 pandemic and return on equity is not statistically significant which implies that the covid-19 pandemic is not a significant predictor of the changes in return on equity among commercial banks in Ghana. The results suggest that commercial banks in Ghana were resilient and that the pandemic did not have a negative impact on their financial performance which is consistent with the results of Kozak (2021) who argued that more resilient banks were not severely affected by the impact of the pandemic.

CONCLUSIONS

The covid-19 pandemic is predicted to have a significant negative effect on businesses across the globe. The financial sector especially banks had a major role to play in the revival of businesses through the provision of soft loans to these businesses that were having liquidity challenges as a result of the pandemic. The above argument suggests that the pandemic presented a bigger opportunity for banks in most countries to increase credit to businesses and the government. In a country like Ghana where banks make over 40% of their income lending to the government, it was imperative to examine whether the pandemic still had a negative impact on banks' profitability despite the opportunities the pandemic presented to the banks. The results of the regression analysis revealed that there was a positive and statistically significant relationship between the covid-19 pandemic and the return on assets of commercial banks in Ghana. The study further reported a positive but statistically insignificant association between the covid-19 pandemic and return on equity. The combined effect of these two results suggests that the covid-19 pandemic did not have a negative impact on commercial banks in Ghana. The pandemic rather provided an opportunity for banks in Ghana to improve their financial performance. The improvement in the financial performance of commercial banks amid the pandemic suggests that the Ghanaian banking sector is resilient which allowed banks to survive the test of the pandemic. The study has geographical limitation since the study sampled only commercial banks in Ghana. Also, the study relied on only accounting measures for the financial performance of banks without the

inclusion of market-based performance measures since majority of the banks are not listed on a public stock exchange. Based on the above findings and conclusions, the study makes the following recommendations.

The result suggests that efforts should be put in place to ensure the continued resilience of the banking sector to insulate the sector from future pandemics. Second, the government must take steps to reduce the interest rate and its local borrowing to allow the private sector other than financial institutions to also grow. Finally, the study recommends that future studies should examine the impact of the pandemic on the profits of non-financial firms in Ghana. Also, a cross-country study on banks in the sub-region on how the pandemic affected their profits will help to make a more generalized conclusion on the pandemic's impact on Africa's financial sector.

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