
THE IMPACT OF FINANCIAL INTERMEDIATION ON BANK PERFORMANCE

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Abstract

This study is about the impact of financial intermediation on bank performance using data from sixteen (16) universal banks in Ghana. The study employed annual time series data from 1996 to 2018. Unit root test was employed utilizing the Augmented Dickey-Fuller (ADF) test to assess the stationarity in the data. Multiple regression analysis was employed to evaluate the influence of the explanatory variables on bank performance. What is unique about this paper is that it is the first of its kind especially concerning the independent variables investigated. Results suggest that bank performance in Ghana is significantly influenced by the operating cost, reserve and bank borrowing rate. Increase in operating cost would enhance bank efficiency, while a lower reserve would improve performance and an increase in borrowing rate would increase profitability. The paper's findings are important for central banks, universal banks and policy makers in Government for efficiency and effectiveness.

Keywords: Ghana, Financial Intermediation, Deposit Mobilisation, Loans, Bank Performance.

1.0 Introduction and Background

Financial intermediation is a process in which a financial institution incurs liabilities on its own account for the purpose of acquiring financial assets by engaging in financial transactions on the market. The role of financial intermediaries is to channel funds from lenders to borrowers by intermediating. Banks are financial intermediaries because they stand between savers and borrowers. Savers place deposits with banks, and then receive interest payments and withdraw money as and when they desire. Borrowers receive loans from banks and repay the loans with interest. Savers are regarded as surplus spending units who have funds in excess of their needs while borrowers are deficit spending units who spend more than they have. The purpose of this paper is to investigate factors that represent financial intermediation and how they impact bank performance measured in terms of loan performance (i.e., solvency index) and return on Asset (ROA) calculated as the ratio of Profit Before Tax to Bank Total Assets. Following the work of Akoto and Nabieu (2014) this paper investigated deposit mobilization, and loan to customers and also extended their work to include the reserve requirement, interest rate on deposits and interest rate on loans using unbalanced panel data of sixteen (16) universal banks in Ghana between the period 1996 and 2018.

Research on financial intermediation and its impact on bank performance has received limited attention in the extant literature. While there have been a number of studies on the impact of financial intermediation on economic growth and development, there has not been much work on the relationship between financial intermediation and bank performance. Akoto and Nubieu (2014), however, did their work on the impact of financial intermediation on bank profitability using data on Ghana. Also, most of the few existing works have been done outside Sub Saharan Africa (SSA). Again, most papers examine the extent of financial deepening of the banking sector by analysing financial deepening indicators. In this research, bank performance is measured using two criteria: the health status of banks and return on assets. The health status is measured, by using the solvency index which is determined by the provision for loan loss as a percentage of total loans and advances. This is understood to represent how efficient banks are in recovering their loans and advances which is expected largely to influence bank profitability. Non-performing loan levels is one of the key measures of banking industry performance. When lenders record large percentage of their outstanding loans as non-performing loans, it hurts the financial performance of the lender. A rising non-performing loan can lead to deterioration or decline in bank profitability when interest incomes are not recovered and loan principal has to be written off. The return on assets is a ratio of Profit before Tax to Total Bank assets (PBT/Total Bank Assets).

According to pwc 2019 Ghana Banking Survey Report, a total of 23 banks remained in the banking industry of Ghana after the 31 December 2018 deadline for the recapitalisation exercise. These comprised of 14 foreign-controlled banks and nine domestically-controlled banks. This research used the unbalanced panel data of sixteen (16) of these remaining banks for the period 1996 to 2018. The following are the banks categorised in to local and foreign banks: Agricultural Development Bank, CAL Bank, Fidelity Bank, GCB Bank Ghana Limited, Universal Merchant Bank, and Prudential Bank are the local banks and Access Bank, Barclays/absa Bank, Ecobank Ghana Limited, Guaranty Trust Bank, Ghana Limited, Société General, Ghana (formerly SSB, SG-SSB), Stanbic Bank, Ghana, Standard Chartered Bank, Ghana, United Bank of Africa, Bank of Africa, Ghana and Zenith Bank, Ghana.

The rest of the paper is organized as follows: Section 2 reviews the literature, Section 3 presents the methodology, Section 4 which is about the empirical findings, discusses the data and the results of the econometric analysis, while Section 5 concludes the study with its implications.

2.0 Literature Review

2.1 Theoretical Literature

According to Akoto and Nabieu (2014), a true liberalised financial system is the one in which enough deposits are efficiently mobilised and sufficient loans and advances granted to credit worthy customers coupled with the “independence” of the financial system from government interference. The primary function of a bank is to mobilize financial savings and invest them in appropriate credit and other goods and services so that it can benefit and indirectly support economic growth and development A strong banking sector boosts economic productivity, encourages investment, and boosts growth. Economic growth is supported by the financial

system, according to development economists. Most significantly, they believe that the financial system acts as an intermediary, ensuring that savings are allocated to investment in the most efficient manner possible.

Theoretically, studies by Schumpeter (1934), Goldsmith (1969), McKinnon (1973) and Shaw (1973) have established a clear connection between financial intermediation and economic growth. Intermediation, according to Park (1994), aids aggregate investment by transferring non-diversifiable risks from risk-averse savers to risk-neutral entrepreneurs and bankers. Studies by Chan (1983), Diamond (1984), Ramakrishnan and Thakor (1984) and Boyd and Prescott (1986) find that financial intermediation reduces monitoring costs arising from information asymmetry between borrowers and lenders. Supporting this assertion, Park (1994) points out that, the traditional belief is that the value of banking derives from cost efficiency in financial intermediation. What a financial system should be able to provide according to Frankel (2001) is the ability to function efficiently, to support adequate levels of investment smoothly, and to withstand adverse economic shocks.

Allen and Santomero (1998) add to this theory by stating that, theories of intermediation are built on the models of resource allocation based on perfect and complete markets and that it is frictions such as transaction costs and asymmetric information that are important in understanding intermediation. Building upon the earlier works, Sologoub (2006) postulates that efficient financial intermediation is an important factor in the economic development process as it has implications for effective mobilization of investible resources.

Financial Intermediation Theory

According to Akoto and Nabieu (2014), the effectiveness of financial intermediation reposes in how successfully surplus funds are matched against deficit funds, or how well surplus funds are used to make up for deficit funds. Kolb and Rodriguez (1993) argue that a financial intermediary, such as a commercial bank, eliminates mismatches between the firm and savers by performing four types of intermediation, which are: size intermediation, maturity intermediation, risk intermediation, and information intermediation. Kindleberger (1984), however, identifies three aspects of financial intermediation: borrowing at retail and lending at wholesale, lending long and borrowing short, and diversification of risks.

Commenting on the intermediation fee for banks, Ngugi (2001) maintains that since the receipts of deposits and loans are not synchronized, intermediaries incur certain costs. They charge a price for the intermediation services offered under uncertainty and set the interest rate levels for deposits and loans. The intermediary costs are described as the difference between the gross borrowing costs and the net return on lending. The efficiency of the intermediation process is also proxied by the wedge between lending and deposit rates. Unlike Kolb and Rodriguez (1993) and Brownbridge (1998), who believe that the size of the interest rate spread is determined by the risk of a bank's deposits and loans, Ngugi (2001) believes that the form of business (perfect or imperfect) is a contributing factor.

2.2 Empirical Literature

In their research, Akoto and Nabieu (2014) used descriptive statistics such as tables and bar graphs, as well as time trend analysis, averages, and percentage growth, to investigate the financial intermediation role and profitability of eight (8) Ghanaian banks. From 2004 to 2010, secondary data from eight of Ghana's largest banks was collected from their financial reports. They discovered that banks that mobilized the most deposits also posted the most loans and advances on average. However, the study discovered that banks that made the most loans and advances did not actually make the most money.

Financial intermediation, according to Akoto and Nabieu (2014), entails mobilizing deposits from surplus units of an economy and channeling such funds as loans and advances to deficit units of the economy, allowing for efficient financial resource distribution in the financial system. The finance literature additionally provides another strand of argument in support of the view that countries with efficient financial systems grow faster, while those with inefficient financial systems stand the perils of bank failures and lags behind in economic growth and development (Shaw, 1973). Shaw (1973), observes further that the cost and speed at which deposits are mobilized and credit facilities are extended to consumers determines the efficiency of a financial system.

2.3 Definition of Variables

Financial Sector Performance

Financial Sector Development, according to Creane, Goyal, Mobarak, and Sab (2004), entails a number of steps that must be taken to ensure that institutions function in a stable and viable macro policy environment with a strong legal, regulatory, and financial infrastructure. Adopting appropriate macroeconomic policies, encouraging competition within the financial sector, and developing a clear and open institutional and legal structure for financial sector activities are just a few of the moves. Prudential legislation and oversight, good creditor protection, and contract compliance are among the others. Again, according to Creane, Goyal, Mobarak, and Sab (2004), policies aimed at improving financial sector performance would result in lower information, transaction, and monitoring costs, resulting in increased allocative efficiency and production. Ngugi (2001) agrees with this theory, claiming that inefficiency in the intermediation process is a sign of a repressed financial system. This is because in a control policy regime, limited credit policies with high administrative costs and fixed interest rates do not represent the true cost of capital. Such a policy regime restricts the financial system's growth in terms of institution diversity and financial assets while encouraging non-price competition.

Recent authors such as Entrop, Memmel, Ruprecht, and Wilkens (2012) add new dimensions to the debate by claiming that the competitive structure of the industry is dictated by how inelastic the market for loans and deposit supply is in relation to the intermediation fees charged. In their study of Nigerian commercial banks, Ikapel, Namusonge, and Sakwa (2019) used return on assets and return on equity as the dependent variables. Financial management performance, as measured by capital adequacy, liquidity, financial leverage, and market capitalization, was used as a predictor variable. In this current research the performance of the financial sector is

determined by its profitability which is represented by return on assets (ROA) and the solvency index measured as the ratio of loan loss provision to credits and advances (LLP/Loans and Advances).

Bank Customer Deposit

Bank customer deposits consist of money placed into banking institutions for safekeeping. These deposits are made to deposit accounts such as savings accounts, checking accounts and money market accounts. The account holder has the right to withdraw deposited funds, as set forth in the terms and conditions governing the account agreement. The deposit itself is a liability owed by the bank to the depositor (i.e., the account is a liability to the bank). Bank deposits refer to this liability rather than to the actual funds that have been deposited. When a person opens a bank account and makes cash deposit, he surrenders the legal title to the cash, and it becomes an asset of the bank. Obamuyi (2013) contends that for the banking sector to remain profitable, banks must efficiently mobilize more deposits in order to issue more loans and advances. This implies that deposit mobilization and bank lending are related. Banks that can effectively execute the mobilization role are more likely to be profitable. The ratio of bank customer deposits to Gross Domestic Product (GDP) is used in this study.

Bank Credit to Customers

The increase in the intermediation process would increase the availability of credit and vice versa. Majority of bank assets take the form of loans, so credit decisions represent a critical bank function. When bank deposits are mobilized and borrowers are not eligible to contract loans, the cost of the deposits becomes too much for the banks to bear. In most developing countries the option left for investing surplus funds is Government securities whose returns are lower compared to loans. Investing in Government securities does not support the development of the financial sector. Loanable funds theory assumes that interest rates are determined by supply of loanable funds and demand for credit (Fry, 1995). As stated above, recent writers like Entrop, Memmel, Ruprecht and Wilkens (2012) add new dimensions to the discussion and suggest that the industry's competitive structure is determined by the extent to which the demand for loans and deposit supply are inelastic with respect to the intermediation fees charged. In this research, the ratio of credit to total deposits is used as a variable for measuring the ability and willingness by banks to advance credit to their customers, an aspect of the development of the financial sector. A higher ratio is an indication of improved financial sector development.

Operating Cost

Operating costs are explained by the cost of financial intermediation. Applying the financial intermediation theory and the loanable funds theory would explain how increase in operating costs leads to increase in intermediation cost, resulting in high interest rate spread as a result of high cost that is experienced by lending financial institutions in their daily operations. Since improved management of the operating expenses would increase efficiency and therefore raise profits of banks, the ratio of these expenses to total assets is expected to be negatively related to profitability (Said and Tumin, 2011). Athanasoglou, Brissimis and Delis (2005) clearly indicate that operating expenses are negatively and strongly linked to profitability.

The Reserve Requirement

The place of reserve requirements in financial intermediation of banks, is important because of the role it plays in influencing the liquidity of banks. Raising reserve requirements, forces banks to withhold a larger portion of their funds, thereby reducing the money supply, while lowering requirements works the opposite way to increase the money supply. Economic theory dictates that the reserve requirement negatively impacts financial sector development as it directly limits the bank's ability to grant new loans, limits deposit creation possibilities and increases lending rates (Schiller 2003; Colander 1995). The reserve requirement sets the minimum reserves each bank must hold to demand deposits and bank notes. The reserve/deposits variable is defined as the banking system's aggregate central bank reserves divided by the aggregate banking system deposits. Fama (1980), one of the early writers, theorises that the reserve requirement is a direct tax on deposit returns since it lowers the return on deposits by the fraction of deposits that must be held as reserves. High liquidity reserve requirements act as an implicit financial tax by keeping interest rates high. Fama (1985) indicates that it is bank borrowers who bear the burden of the implicit tax due to reserve requirement.

The reserve requirement in the banking sector, may, therefore constrain credit supply and for that matter bank profitability. Navneet, Boopen, Sawkut, Shalini, and Binesh (2009) observe that increase in non-interest-bearing reserve requirements results in a widening of banking spread as banks face reduced liquidity. Sarpong, Winful and Ntiamoah (2011) also confirm that in Ghana, banks respond to increases in reserve requirements by increasing the margin between lending and deposit rates. Supporting Fama's position, Chirwa and Mlachila (2004) note that the opportunity cost of holding reserves increases the economic cost of funds above the recorded interest expenses that banks tend to shift to customers. Francis and Osborne (2009) propose that the imposition of higher reserve requirements reduces lending. Studies by Demiguc-Kunt and Huizinga (1999), indicate that the reserve requirement may also affect the portfolio holding of banks as they try to avoid funds which attract large reserves. It may also influence the availability of funds, the expectation of the people concerning the cost of funds, the market segment in which investors want to operate, volatility of the economy, efficiency of the market and the liquidity preference of customers. All these analyses indicate that the reserve requirement dampens financial sector development and for that matter performance.

Bank Interest Rate

As indicated above, loanable funds theory assumes that interest rates are determined by supply of loanable funds and demand for credit (Fry, 1995). Liquidity preference was introduced by Keynes in his *General Theory*. According to this theory, the interest rate is the reward for parting with liquidity for a specified period, rather than a return to saving or waiting; as such, it is a monetary phenomenon rather than a real phenomenon. Economic theory postulates that low real interest rates serve as a disincentive to savings, and therefore economists are of the view that a liberalisation of the financial sector would increase real interest rates thus encouraging the intermediation function. Lower prices, on the other hand, are thought to fuel investment by today's economists who believe in a private-sector-led economy. Even though this may seem to be a contradiction between proponents of low interest rates and proponents of high interest rates,

the truth is that each side is right, although on opposite sides of the same coin. What they don't mention is the spread, which is the contrast between the two sides. Deposit rates should be high enough to draw depositors, while lending rates should be low enough to promote business borrowing, resulting in the spread narrowing. According to Rose and Hudgins (2008), the spread tests a financial firm's intermediation function's effectiveness and efficiency in borrowing and lending capital, as well as the level of competition in the firm's market. In his seminal work, Samuelson (1945) demonstrated that, in general, increasing interest rates increase bank profits. Although Molyneux and Thornton (1992) and Demircuc-Kunt and Huizinga (1998) found a positive link between interest rates and bank profitability, Naceur (2003) and Lehmann and Manz (2004) found a negative link. In this study, the average lending rate and average borrowing rate are used.

3.0 Research Methodology

Model Specification

The causal research design was used in this analysis. Causal research looks at the interaction between variables, or the impact of one thing on another, and more precisely, the impact of one variable on another (Mugenda and Mugenda, 2003). The study's target population was sixteen (16) universal banks in Ghana.

The unit root was estimated using the Augmented Dickey Fuller (ADF) test. ADF tests are often used to verify the stationarity of a series, with the null hypothesis of unit root in the series being dismissed if the ADF statistics surpass the critical value. The relationship between the dependent and independent variables was also determined using basic statistics tests and multiple regression analysis. For this analysis, the following model has been developed:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \mu$$

where Y stands for the dependent variables of solvency index (LLP/Total Credit) and return on assets (ROA), β_s stand for the coefficients of the different independent variables, and X1 to X6 stands for the independent variable values: deposit (BDEP), Credit (CCREDIT), Operating Cost (OCOST), Reserve Requirement (RESERVE), Borrowing rate (BRATE), Lending Rate (LRATE) and μ are the residual terms.

4.0 Data Presentation and Analysis of Findings

4.1 Descriptive statistics

The results of the descriptive statistics of the dependent and independent variables are shown in table 1 below. The variables are grouped under bank performance measures, which are loan loss provision (LLP), and return on assets (ROA). The descriptive statistics of the data are shown in eight columns containing the variables, LLP, ROA, BDEP, CCREDIT, OCOST, RESERVE, BRATE, and LRATE. In the table LLP obtained a mean of 8.04% with a maximum of 15.20% and a minimum of 2.45%. The mean of ROA is 5.56%, with a maximum of 8.95%, and a minimum of 2.29%. LLP produces the highest maximum point at 15.20%.

However, BDEP obtained a mean rate of 15.08%, a maximum of 17.23%, and a minimum at 12.05%. The mean of CCREDIT was 14.48% with a maximum of 17.06% and a minimum rate of 10.89%. OPCOST obtained a mean rate of 12.74%, with a maximum of 15.43% and a minimum of 9.39%. The mean of RESERVE was 2.70%, with a maximum of 3.47%, with a minimum rate of 2.18%. BRATE obtained a mean rate of 13.20%, with the maximum rate of 15.97%, with a minimum of 9.95%. Lastly LRATE achieved a mean rate of 3.42%, a maximum of 3.85% and a minimum of 3.17%. BDEP and CCREDIT show the highest maximum point at 17% as compared with the other explanatory variables.

Table 1: Result of Descriptive Statistics

	LLP	ROA	BDEP	CCREDIT	OCOST	RESERVE	BRATE	LRATE
Mean	0.080458	0.055647	15.07819	14.58305	12.73771	2.702178	13.20300	3.422612
Median	0.080130	0.050738	15.31199	15.03012	12.87138	2.564949	13.43507	3.335770
Maximum	0.152310	0.089521	17.22933	17.05715	15.42604	3.467297	15.96936	3.850147
Minimum	0.024504	0.022950	12.05446	10.89909	9.389574	2.184927	9.915416	3.167583
Std. Dev.	0.038888	0.018755	1.688858	1.893656	1.894104	0.433156	1.838828	0.221838
Skewness	0.341506	0.274634	-0.328659	-0.370779	-0.221228	0.719204	-0.251353	0.661580
Kurtosis	2.123236	2.238969	1.798683	1.959184	1.789280	2.117446	1.954029	2.017123
Observations	23	23	23	23	23	23	23	23

4.2 Correlation Matrix

The correlation analysis was performed to measure the strength and the direction of the linear relationship between two variables. In this study, there is strong multi-collinearity among variables as reflected by the coefficient of 0.40 which is less than 1. The correlation tests show a weak positive relationship between the bank performance variables under study, which are LLP and ROA. The explanatory variables have a strong negative relationship between the bank performance indicators except RESERVE and LRATE which have a strong positive relationship with them. While LLP is a negative measure of bank performance ROA stands for a positive measure of same. With an upward movement in the explanatory variables LLP declines and this signifies an improved performance for banks but a poor performance in terms of ROA.

Table 2: Result of Correlation Matrix

	LLP	ROA	BDEP	CCREDIT	OCOST	RESERVE	BRATE	LRATE
LLP	1.000000	0.402163	-0.692670	-0.693022	-0.705239	0.434583	-0.656565	0.548076
ROA	0.402163	1.000000	-0.702001	-0.716323	-0.700717	0.852434	-0.710300	0.799431
BDEP	-0.692670	-0.702001	1.000000	0.988520	0.987333	-0.769710	0.975082	-0.797292
CCREDIT	-0.693022	-0.716323	0.988520	1.000000	0.995309	-0.758875	0.991709	-0.797166
OCOST	-0.705239	-0.700717	0.987333	0.995309	1.000000	-0.753847	0.994207	-0.796283
RESERVE	0.434583	0.852434	-0.769710	-0.758875	-0.753847	1.000000	-0.746109	0.934494
BRATE	-0.656565	-0.710300	0.975082	0.991709	0.994207	-0.746109	1.000000	-0.790413
LRATE	0.548076	0.799431	-0.797292	-0.797166	-0.796283	0.934494	-0.790413	1.000000

4.3 Stationarity Tests

The stationarity or unit root test of the data used in this study was conducted using Augmented Dickey-Fuller Test and the results are shown below.

The study compared test statistic value with that of test critical value at 5% significance level and considering p-value. It has been indicated that all the variables had unit-roots except LLP, CCREDIT, and OCOST. This is because the absolute values of the ADF test statistic for each of these variables was less than the absolute variables of the test critical values at 5%. In addition, the p-values corresponding to each of the ADF test statistics for these variables were greater than 5% (0.33, 0.25, 0.44, 0.43, and 0.50), respectively. In this case, the null hypothesis of no unit roots in the data series could not be rejected and therefore accepted. However, the variables with unit root have been transformed into first difference to bring stationarity in these data, thereafter, the modified data was used in the regression model in the study.

Table 3 Result of Augmented Dickey-Fuller (ADF) Stationarity Tests

	ADF Test Statistics	Test Critical Value at 5%	*P-Value
LLP	3.969183	3.673616	0.0291
ROA	1.881608	3.004861	0.3341
BDEP	2.080008	3.004861	0.2538
CCREDIT	3.225325	3.004861	0.0320
OCOST	3.317928	3.004861	0.0264
RESERVE	1.639063	3.004861	0.4460
BRATE	1.668200	3.012363	0.4327
LRATE	1.527213	3.004861	0.5015

**Mackinnon (1996) one-sided p-values*

Table 4 Result of Augmented Dickey-Fuller (ADF) Stationarity Tests 1st Difference

	ADF Test Statistics	Test Critical Value at 5%	*P-Value
ROA	3.857460	3.012363	0.0086
BDEP	4.373366	3.012363	0.0028
RESERVE	6.920773	3.012363	0.0022
BRATE	4.487980	3.012363	0.0000
LRATE	4.341772	3.012363	0.0030

**Mackinnon (1996) one-sided p-values*

4.4 Regression Analysis

Result of the Impact of Explanatory Variable on Solvency Index (LLP)

The results of the regression analysis in Table 5 below indicate that only two of the variables have a significant relationship with solvency index. These are, operating cost and reserve. Whereas operating cost has a negative relationship with solvency index, the reserve has a positive relationship. As a result, as operating costs rise, loan loss decreases. This indicates that additional expenditures, such as loan monitoring and the hiring and training of additional workers, are required in order for banks to minimize loan loss. Again, if the reserve and solvency index have a positive relationship, it means that as banks hold more money in reserves, loan loss provisions are likely to rise, limiting bank profitability. Since the two factors are ratios, bank deposits must be low in order for the solvency index to rise. When bank deposits are low, bank credits are limited, resulting in an increase in loan loss provision. The central bank is effectively taking money out of the money supply, raising the cost of credit and making it more difficult for customers to repay their loans by increasing the reserve requirement.

With regard to the other variables, bank deposits and lending rates have a positive relationship with solvency index, while customer credit and borrowing rates have a negative relationship with solvency index, despite the fact that the relationships are not statistically significant at the 5% significance level. The relationship indicates that as bank deposits and lending rates rise, banks would be worse off in terms of loan recovery or loan performance. If bank deposits rise, there would be more loanable funds available, and banks would be more reckless and less cautious in granting loans to customers. In other words, loan management would be inefficient.

Table 5: Result of the Impact of Explanatory Variable on Solvency Index (LLP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BDEP	0.031242	0.022660	1.378751	0.1869
CCREDIT	-0.028000	0.030336	-0.922985	0.3697
OCOST	-0.117206	0.036439	-3.216522	0.0054
RESERVE	0.105929	0.028187	3.758070	0.0017
BRATE	-0.057550	0.031626	-1.819686	0.0876
LRATE	0.097345	0.065430	1.487763	0.1563
C	-0.065603	0.208833	-0.314142	0.7575
F-statistic	8.838060	Durbin-Watson stat		2.076367
Prob(F-statistic)	0.000237			

Notes: Estimation period is 1996 to 2018. “***”, “**” and “*” are the levels of significance.

Result of the Impact of Explanatory Variable on Bank Performance (ROA)

Table 6 shows that the borrowing rate is the only variable that has a 5 percent significance level effect on bank efficiency, and the relationship is positive. This suggests that as the rate of interest on bank deposits rises, banks become more profitable. Interest rates and bank profitability are related, with higher interest rates benefiting banks. Banks make more money when interest rates are higher because they can profit from the difference between the interest they pay to customers and the interest they can gain from investing. This indicates that banks must provide high interest rates to their customers in order to draw more funds into their fold, which can then be invested in loans and other debt instruments. According to research, borrowing rates in Ghana are very low, while lending rates are very high, resulting in wide interest rate spreads, which has a negative effect on financial intermediation because surplus fund holders tend to keep their funds outside the banking sector. When borrowing rates are poor, bank profitability suffers as a result. Customer credit, lending rate and reserve even though not significant at 5% significance level have negative impact on ROA whiles Operating cost and bank deposit also though not significant have positive impact on ROA. An increase in customer credit, leading to low profitability, means banks, even though credit is one of their most important business activities, may have a lot of cost implications which may result in losses. It implies that profitable banks are not necessarily the ones with high loan portfolios supporting the position taken by Akoto and Nabieu (2014) in their studies. Again, high lending rate may discourage customer borrowing whiles high reserves may constrain banks from generating more income on deposits mobilised.

Table 6: Result of the Impact of Explanatory Variable on Bank Performance ROA)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BDEP	0.005584	0.010847	0.514785	0.6137
CCREDIT	-0.013977	0.014522	-0.962479	0.3501
OCOST	0.016017	0.017443	0.918242	0.3721
RESERVE	-0.008842	0.013493	-0.655276	0.5216
BRATE	0.036683	0.015139	2.423023	0.0276
LRATE	-0.009597	0.031321	-0.306417	0.7632
C	0.021722	0.099968	0.217291	0.8307
F-statistic	9.010925	Durbin-Watson stat		1.060193
Prob(F-statistic)	0.000212			

Notes: Estimation period is 1996 to 2018. “***”, “**” and “*” are the levels of significance.

5.0 Implication of the Findings and Conclusion

The aim of this study is to see how financial sector development activities affect bank performance as measured by the solvency index and return on assets. The relationship between the dependent and independent variables was determined using a basic statistics test and multiple regression analysis. The results of the analysis reveal that the operating cost and reserve have significant relationship with bank performance measured by the solvency index. Whereas operating cost has a negative relationship, the reserve has a positive relationship. Banks are required to inject more money into the management of loans to achieve efficiency. When the reserve, however, increases, loan loss also increases, confirming the assertion that the reserve hurts the banks. Again, the borrowing rate impacts bank performance measured as return on assets and the relationship is positive. This means that when the borrowing rate increases banks become more profitable.

The findings suggest that banks must spend more money to become more efficient in managing loans and for that matter enhance loan quality, and be more solvent. Problem loans result from increased inefficiency. Second, eliminating or reducing the reserve requirement would have a positive impact on bank solvency and profitability. As indicated above, economic theory postulates that low real interest rates serve as a disincentive to savings, and therefore a liberalisation of the financial sector would increase real interest rates thus encouraging the intermediation function. When banks borrow at a higher rate, they are more likely to be stringent and meticulous in managing their affairs resulting in higher profitability.

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