# THE IMPACT OF BANK FUNDING STRATEGIES ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN GHANA

**[1]FRANCIS AYENSU, [2]DANIEL KWESI MENSAH**

[1]Faculty of IT Business, Ghana Technology University College, Accra, Ghana
[2]Branch Manager, Akuapem Rural Bank, Ghana
E-mail: [1]fayensu@gtuc.edu.gh, [2]danielkwesimensah@gmail.com
Corresponding Author: Francis Ayensu

**Abstract -** The study investigated the effect of bank funding strategies on bank performance in Ghana. Panel data methodology was used to estimate the relationship between bank funding metrics (cost-income ratio, Equity/Assets, Demand deposit divided by total deposit ratio, Non-deposit divided by total deposits, Equity Funding, Inflation rate, Real GDP) and performance (Return on Asset, Return on Equity and Net Interest Margin). The study covered 22 banks over sixteen (16) years period (2000 to 2015). The study finding revealed that bank size, Equity/TA, Demand deposit/Deposits, Non-deposit/Deposit, Deposits/TA, and Inflation positively affect banks' performance (ROA). However, cost to income ratio has negative relationship with bank performance (ROA) as well as Demand deposit/TA, Non-deposit/TA, GDP Growth, and Per capita GDP negatively affect bank performance. Further, the study finding revealed that bank size, Cost-Income, Equity/TA, Demand deposit/Deposits, Non-deposit/Deposit, Deposits/TA, and Inflation positively affect banks' performance (ROE). However, cost to Demand deposit/TA has negative relationship with bank performance (ROE) as well as Non-Demand deposit/TA, GDP Growth, and Per capita GDP negatively affect bank performance (ROE). The study finding revealed that bank size, Equity/TA, Non-deposit/Deposit, Deposits/TA, Inflation, and GDP Growth positively affects banks' performance (ROA). However, cost to income ratio has negative relationship with bank performance (ROA) as well as Demand deposit/Deposits, Deposit/TA, Non-deposit/TA, and Per capita GDP negatively affect bank performance. The study therefore recommends that commercial banks in Ghana should device appropriate funding strategy preferably more of deposit funding which is relatively cheaper and more profitable. Deposits could come more as a result of commercial banks making deposits attractive to customers like making promotions on them.

**Keywords -** Bank Funding Strategies, Financial performance, Commercial Banks, Ghana

## I. INTRODUCTION

The funding structure of the banking industry is basically a mix of funds which a bank deems as appropriate to enhance its operations. Thus, theory point out that high leverage or low equity/asset ratio reduces agency cost of outside equity and thus increases firm value by compelling managers to act more in the interest of shareholders, (Berger & Bonaccorsi di Patti, 2006). Therefore funding strategy is deemed to have an impact on a firm financial performance against the position held by Modigliani and Miller. Modigliani and Miller (1958) argue on the basis of the following assumptions existence of perfect capital market; homogenous expectations; absence of taxes; and no transaction cost, that, capital structure is irrelevant to the value of a firm.

During the past decade, the Ghanaian banking sector witnessed major transformations which sought to strengthen the industry. However, recent happenings in the bank industry have questioned the solvability of most banks and the sustainability of the whole financial system of Ghana. The collapse of two major indigenous banks, UT Bank and Capital Bank in August 2017 and the takeover of Management of UniBank by KPMG in March 2018 under the direction of the Bank of Ghana have put an indictment on the soundness of the whole banking system. Upon this happenings, it has been hinted that more banks are to go down in the coming years.

In this regard, the Bank of Ghana under new regulations required all commercial banks in Ghana to maintain a minimum paid up capital of GHC 400 Million (Bank of Ghana, 2017). This was the third time the sector regulator has reviewed the minimum capital. The second was in 2015 when it reviewed it upwards to GHC 120 million (Bank of Ghana, 2017). This new capital regime is very crucial in shaping funding strategies of banks to the extent that this new requirement will affect bank financing. However, research that links bank funding strategies and bank performance in Ghana after this new minimum capital requirement is nonexistent. This study therefore seeks to fill this gap by investigating the relationship between funding strategies and financial performance of Ghanaian banks.

## II. LITERATURE REVIEW

### 2.1 Theories related to the study

Table 2.1 below summarizes the theories related to financial structure of firms.

**Table 2.1 Summary of theories related to the study**

| Author | Theory | Theme |
|---|---|---|
| **Myers and Majlufkets (1984)** | Pecking order theory | Retained earnings; Debt; Equity |
| **Modigliani & Miler, 1958).** | Static Trade-Off Theory | Interest expense reduces the amount of corporate tax firms |

| | | |
|---|---|---|
| | | must pay. |
| **Jensen & Meckling (1986)** | Agency theory | Funds providers (principals) hire the services of managers (agents) These agents may act in ways that are not in the best interest of the equity or the debt holder. |

**2.2 Bank funding strategies**

Bank funding strategies include deposit funding, non-deposit funding, and equity financing.

**Deposits funding** includes demand deposit (current account), savings deposit and time deposit (fixed deposit account) cited in Amidu & Wolfe (2012).

**Non-deposits funding** represents borrowed or purchased funds from other financial institutions usually on short term notice (Amidu & Wolfe, 2012).

**Equity financing** represents share capital provided by shareholders to the company.

**2.2.3 Bank performance**

Three measurement tools are considered. These are Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin (NIM).

## III. RESEARCH METHOD

**3.1 Research design**

Research Design chosen for this study follows quantitative approach. This because, it largely depends on using data from secondary sources in the form of annual financial statements

**3.2 Sources of data**

The source of data is secondary data from the selected commercial banks annual financial statements from 2000 to 2015. The table below shows the banks and the respective years data was collected on.

**3.3 Number of observation**

The population for this study involves all commercial banks that are operating within the jurisdiction of the country Ghana. Currently, there are 35 commercial banks in Ghana (Bank of Ghana, 2017).

**3.4 Model specification**

The general objective of this study is to examine the effect of bank funding strategies on profitability among Ghanaian commercial banks. The relationship between bank funding strategies and profitability of commercial banks can be expressed in the following general model:

$$ROAit = \alpha o + \beta 1(DFit)it + \beta 2(NDFit)it + \beta 3EFit + \beta 4(Size)it + \beta 5\left(\frac{E}{A}\right)it + \beta 6INFit + \beta 7RGDPit + \beta 8(costincome)it + \varepsilon it(1)$$

$$ROEit = \alpha o + \beta 1(DFit)it + \beta 2(NDFit)it + \beta 3EFit + \beta 4(Size)it + \beta 5\left(\frac{E}{A}\right)it + \beta 6INFit + \beta 7RGDPit + \beta 8(costincome)it + \varepsilon it(2)$$

$$NIMit = \alpha o + \beta 1(DFit)it + \beta 2(NDFit)it + \beta 3EFit + \beta 4(Size)it + \beta 5\left(\frac{E}{A}\right)it + \beta 6INFit + \beta 7RGDPit + \beta 8(costincome)it + \varepsilon it(3)$$

ROA = Return on Asset
ROE = Return on Equity
NIM = Net Interest Margin (NIM).
SIZE = log of total assets,
Cost-Income = overhead divided by operating income
Equity/Assets = the capital assets ratio,
DF = Demand deposit divided by total deposit ratio and
NDF = Non-deposit divided by total deposits
EF = Equity Funding,
INF = Inflation rate
RGDP = Real GDP
$\boldsymbol{\varepsilon}$ = error term

**3.4 Method of estimation**

In this study, ordinary least squares (OLS) estimation was used to estimate the regression model. In this work the researcher believes there are no firm specific and time effects, even if they exist are statistically insignificant hence we could pool all of the data and run an ordinary last square regression model.

**3.5 Data description**

**3.5.1 Dependent variables**

**Return on assets (ROA)**

$$ROA = \frac{Profit\ after\ Tax\ \ X\ 100}{Total\ \text{Asset}}$$

**Return on equity (ROE)**

$$\text{ROE} = \frac{\text{Profit after Tax}\ \ \text{X}\ 100}{\text{Total Shareholders'Fund}}$$

**Net interest margin (NIM)**

$$\text{NIM} = \frac{[\text{Interest received} - \text{interest paid}]\ \text{X}\ 100}{\text{Total Assets}}$$

**3.5.2 Independent variables**

**Deposits funding** (DF) = Deposits / Total Assets

**Non-deposits funding** (NDF) = Non-Deposits / Total Assets

**Equity financing:** This represents share capital provided by shareholders to the company.

**3.5.3 Control variables**

**Bank size = log (Total Asset):** More precisely, the log of total assets is used to proxy for bank size. Bank

size has important implication on performance due to economies of scale.

**Inflation:** Annual inflation rate is used because inflation affects bank performance and could influence bank decisions to diversify into fee income-generating activities.

**Real GDP:** The GDP per capita was also used as an indicator of the overall level of economic development which could affect bank performance and risk.

### 3.6 Methods of data analysis

The method of analysis that is used for this study is based on panel data analysis where the issues of interest are observed on a set of commercial banks for16 years period. The data analysis also involve both correlation and regression analysis. Correlation analysis was used to examine the relationship between bank funding strategies and performance whereas the regression analysis was used to determine the effect of bank funding strategies on profitability. These are done using tables and figures. The data was analysed using statistical software known as Stata.

## IV. RESULT AND DISCUSSION

This section examines the regression analysis for the effect relationship between the dependent variables and the independent variables. Three (3) estimations were performed using as dependent variables: ROA, ROE, and NIM. The ROA, ROE and NIM are bank profitability (performance) measures had been explained earlier.

### 4.1 Effect of bank funding strategies on return on asset (ROA)

From the results presented in the Table 4.1, bank size (0.0032), Equity/TA(0.1023), Demand deposit/Deposits (0.0182), Non-deposit/Deposit (0.0266), Deposits/TA (0.0211), Inflation (0.0002) positively affects banks' performance (ROA).On the other hand, cost to income ratio (-0.0919) has negative relationship with bank performance (ROA) as well as Demand deposit/TA (-0.0240), Non-deposit/TA (-0.0429), GDP Growth (-0.0003), and Per capita GDP (-0.0056) negatively affect bank performance.

Except for Demand deposit/Deposits (0.261), Non-deposit/Deposit (0.256), Demand deposit/TA (0.260), Non-deposit/TA (0.204), Deposits/TA (0.191), Inflation (0.286), GDP Growth (0.557), all other variables are statistically significant at the same time.

$R^2$ represents the coefficient of determination which measures the fraction of the total variation in the dependent variable that is explained by the independent variable. The $R^2$ of 70.27% (0.7027) signifies that (cost-income ratio, Equity/Assets, Demand deposit divided by total deposit ratio, Non-deposit divided by total deposits, Equity Funding, Inflation rate, Real GDP) as the "independent variable" explains the performance of bank (ROA) by 70.27%. This shows a more robust regression model. Standard Error of Estimate (SEE) measures the level of uncertainty surrounding the regression model.

**Table: 4.1 Effect of Bank funding strategies on return on asset (ROA)**

| Dep. Variable: ROA | Coef | Std. Error | t-value | P>[t] |
|---|---|---|---|---|
| Size | 0.0032 | 0.0011 | 2.98 | 0.006 |
| Cost-Income | -0.0919 | 0.0054 | -16.92 | 0.000 |
| Equity/TA | 0.1023 | 0.0189 | 5.43 | 0.000 |
| Demand deposit/Deposits | 0.0182 | 0.0112 | 1.62 | 0.261 |
| Non-deposit/Deposit | 0.0266 | 0.0160 | 1.67 | 0.256 |
| Demand deposit/TA | -0.0240 | 0.0146 | -1.64 | 0.260 |
| Non-deposit/TA | -0.0429 | 0.0251 | -1.71 | 0.204 |
| Deposits/TA | 0.0211 | 0.0112 | 1.88 | 0.191 |
| Inflation | 0.0002 | 0.0002 | 1.02 | 0.286 |
| GDP Growth | -0.0003 | 0.0004 | -0.61 | 0.557 |
| GDPC | -0.0056 | 0.0017 | -3.34 | 0.001 |
| Constant | 0.0770 | 0.0142 | 5.42 | 0.000 |
| N | 268 | 268 | 268 | 268 |
| Prob(F-Statistics) | 0.0000 | | | |
| R-squared | 0.7027 | | | |

**Source: STATA Analysis (2017)**

**Note: ROA=return on assets, ROE=return on equity, NIM=net interest margin, Dd=demand, Deposit=total deposits, TA=total assets, Overheads/TA=Overheads/total assets, GDP=Gross Domestic Product, GDPC=Gross Domestic Product per capita.**

### 4.2 Effect of Bank funding strategies on return on equity (ROE)

From the results presented in the Table 4.2, bank size (0.0440), Cost-Income (0.5386), Equity/TA (0.2081), Demand deposit/Deposits (0.2923), Non-deposit/Deposit (0.3934), Deposits/TA (0.3787), Inflation (0.0016) positively affects banks' performance (ROE).On the other hand, cost to Demand deposit/TA (-0.3629) has negative relationship with bank performance (ROE) as well as Non-Demand deposit/TA (-0.5656), GDP Growth (-0.0066), and Per capita GDP (-0.9006) negatively affect bank performance (ROE).

Except for Equity/TA (0.394), Demand deposit/Deposits (0.033), Non-deposit/Deposit (0.048), Demand deposit/TA (0.066), Non-deposit/TA (0.103), Deposits/TA (0.048), Inflation (0.211), all other variables are statistically significant at the same time.

$R^2$ represents the coefficient of determination which measures the fraction of the total variation in the dependent variable that is explained by the

independent variable. The $R^2$ of 44.69% (0.4469) signifies that (cost-income ratio, Equity/Assets, Demand deposit divided by total deposit ratio, Non-deposit divided by total deposits, Equity Funding, Inflation rate, Real GDP).as the "independent variable" explains the performance of bank (ROE) by 44.69%. This shows a less robust regression model. Standard Error of Estimate (SEE) measures the level of uncertainty surrounding the regression model.

**Table 4.2 Effect of Bank funding strategies on return on equity (ROE)**

| Dep. Variable: ROE | Coef | Std. Error | t-value | P>[t] |
|---|---|---|---|---|
| Size | 0.0440 | 0.0131 | 3.36 | 0.001 |
| Cost-Income | 0.5386 | 0.0825 | -6.53 | 0.000 |
| Equity/TA | 0.2081 | 0.2441 | 0.85 | 0.394 |
| Demand deposit/Deposits | 0.2923 | 0.1370 | 2.13 | 0.033 |
| Non-deposit/Deposit | 0.3934 | 0.1992 | 1.97 | 0.048 |
| Demand deposit/TA | -0.3629 | 0.1973 | -1.84 | 0.066 |
| Non-deposit/TA | -0.5656 | 0.3466 | -1.63 | 0.103 |
| Deposits/TA | 0.3787 | 0.1654 | 2.29 | 0.022 |
| Inflation | 0.0016 | 0.0022 | 0.71 | 0.048 |
| GDP Growth | -0.0066 | 0.0052 | -1.25 | 0.211 |
| GDPC | -0.9006 | 0.0203 | -4.45 | 0.000 |
| Constant | 0.6590 | 0.1806 | 3.65 | 0.000 |
| N | 268 | 268 | 268 | 268 |
| Prob(F-Statistics) | 0.0000 | | | |
| R-squared | 0.4469 | | | |

**Source: STATA Analysis (2017)**
**Note: ROA=return on assets, ROE=return on equity, NIM=net interest margin, Dd=demand, Deposit=total deposits, TA=total assets, Overheads/TA=Overheads/total assets, GDP=Gross Domestic Product, GDPC=Gross Domestic Product per capita.**

### 4.3 Effect of bank funding strategies on net interest margin (NIM)

From the results presented in the Table 4.3, bank size (0.0096), Equity/TA(0.0797), Non-deposit/Deposit (0.1051), Deposits/TA (0.0584), Inflation (0.0004), and GDP Growth (0.0002) positively affects banks' performance (ROA).On the other hand, cost to income ratio (-0.0318) has negative relationship with bank performance (ROA) as well as Demand deposit/Deposits (-0.0514), Deposit/TA (-0.0224), Non-deposit/TA (-0.1527), and per capita GDP (-0.0146) negatively affect bank performance. Except for Demand deposit/TA (0.0520), Non-deposit/TA (0.204), Deposits/TA (0.317), Inflation (0.182), GDP Growth (0.688), all other variables are statistically significant at the same time.

$R^2$ represents the coefficient of determination which measures the fraction of the total variation in the dependent variable that is explained by the independent variable. The $R^2$ of 39.63% (0.3963) signifies that (cost-income ratio, Equity/Assets, Demand deposit divided by total deposit ratio, Non-deposit divided by total deposits, Equity Funding, Inflation rate, Real GDP).as the "independent variable" explains the performance of bank (ROE) by 39.63%. This shows a less robust regression model. Standard Error of Estimate (SEE) measures the level of uncertainty surrounding the regression model.

**Table 4.3 Effect of bank funding strategies on net interest margin (NIM)**

| Dep. Variable: NIM | Coef | Std. Error | t-value | P>[t] |
|---|---|---|---|---|
| Size | 0.0096 | 0.0017 | 5.59 | 0.000 |
| Cost-Income | -0.0318 | 0.0069 | -4.61 | 0.000 |
| Equity/TA | 0.0797 | 0.0232 | 3.44 | 0.001 |
| Demand deposit/Deposits | -0.0514 | 0.0233 | -2.20 | 0.028 |
| Non-deposit/Deposit | 0.1051 | 0.0364 | 2.89 | 0.004 |
| Demand deposit/TA | 0.0584 | 0.0301 | 1.94 | 0.052 |
| Non-deposit/TA | -0.1527 | 0.0503 | -3.03 | 0.002 |
| Deposits/TA | -0.0224 | 0.0224 | -1.00 | 0.317 |
| Inflation | 0.0004 | 0.0003 | 1.33 | 0.182 |
| GDP Growth | 0.0002 | 0.0006 | 0.40 | 0.688 |
| GDPC | -0.0146 | 0.0026 | -5.67 | 0.000 |
| Constant | 0.1420 | 0.0234 | 6.06 | 0.000 |
| N | 268 | 268 | 268 | 268 |
| Prob(F-Statistics) | 0.0000 | | | |
| R-squared | 0.3963 | | | |

**Source: STATA Analysis (2017)**
**Note: ROA=return on assets, ROE=return on equity, NIM=net interest margin, Dd=demand, Deposit=total deposits, TA=total assets, Overheads/TA=Overheads/total assets, GDP=Gross Domestic Product, GDPC=Gross Domestic Product per capita.**

### 4.4 Discussion of findings

From the findings ROA ratio is positively and strongly associated to customer Deposits. This implies that customer deposits influences financial performance of banks. Further, from the regression analysis, customer deposits have a positive beta coefficient on financial performance of the banks. A proportionally larger deposit base as a percentage of total assets will typically lead to an overall lower cost of funds. The higher the ratio, the more the bank must rely on borrowing (external funding), which is often a more costly source of funding and lead to low ROA. The findings concurred with Hollis, and Sweetman, (2007) who found that commercial banks may also effectively use local depositors as in the case of Irish loan funds not just for funding, but also because of the important discipline that depositors can impose on expenses management which has an impact on profitability.

From the findings equity/TA is positively correlated to ROA. In addition, a unit increase in equity/TA

would lead to increase in ROA by a factor 0.1023. Mohamad (2014) found that equity size is negatively related to firm's profitability. Nikolaos (2006) in an attempt to investigate the relationship between debts-to equity ratio and firm's profitability, taking into consideration the level of firms' investment and the degree of market power found that there is negative and statistically significant relationship between debt-to-equity ratio and profit margin.

A reasonable interpretation of regression results is that a proportionally larger deposit base will typically lead to an overall lower cost of funds for the commercial banks with an implication of improved profitability assuming that the deposits program is cost efficient. Consistent with Cull et al (2011), commercial banks should therefore broaden their services toward offering (more) deposits. This is important as it would also broaden the lending capacity of commercial banks. These results are however contrary to García-Herrero, (2009) who do not find significant results in the banking industry in China.

## CONCLUSION AND RECOMMENDATIONS

Based on the findings above, the following policy recommendations are offered: Commercial banks in Ghana should device appropriate funding strategy preferably more of deposit funding which is relatively cheaper and more profitable. Deposits could come more as a result of commercial banks making deposits attractive to customers like making promotions on them.

Also, banks relying so much on non-deposit funding to augment their funding strategy should balance its usage with an efficient and effective credit risk management policy to avert credit risk. For instance, making risk transfer policy through the use of insurance which could take care of any unexpected credit risk issues that may arise as a result of their operations. Bank managers should however diversify their activities into non-interest interest earning businesses to be able to generate more revenues to enhance their profitability.

Finally, bank managers should also endeavour to manage their expenses well in order to be more efficient thereby enhancing their profitability and returns to shareholders.

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