# Effect of Firm Characteristics on Financial Performance of Listed Commercial Banks in Kenya

## Rodah Mong'ina Nyabaga*, Joshua Matanda Wepukhulu

Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya. *Email: rnyabaga@gmail.com

**ABSTRACT**

A country's economy relies majorly on the banking sector. This study examined the effect of firm characteristics on financial performance with a focus on listed banks in the Nairobi Securities Exchange for the period from 2010 to 2018. The bank characteristics examined were: Capital adequacy, leverage, asset quality and bank size. The collected data was analyzed using STATA 11 and this was basically descriptive, correlation and regression analysis. The findings depicted a significant positive effect of capital adequacy on both returns on equity (ROE) and returns on assets (ROA). The findings further indicated a significant negative effect of asset quality on ROE but an insignificant negative effect on ROA. On leverage, the findings indicated a significant positive effect on ROE and an insignificant positive effect on ROA. The findings of this study indicated that bank size has a significant positive effect on both ROE and ROA. This study concluded that capital adequacy and bank size have a significant positive effect on performance. There were mixed findings on the effect of asset quality and leverage on performance. The study recommended that, listed commercial banks should maintain a considerable capital adequacy to be able to effectively absorb losses emanating from economic shocks.

**Keywords:** Firm Characteristics, Financial Performance, Commercial Banks
**JEL Classifications:** G2, G3

## 1. INTRODUCTION

### 1.1. Background of the Study

A country's economy depends on the banking sector majorly as far as lending is concerned. Therefore, their success and consistency is imperative. Ongore and Kusa (2013) highlight that commercial banks play a very important role in the allocation of economic resources by facilitating the channelling of funds from depositors to stockholders in a constant way.

It is important to understand the meaning of the term firm characteristics before probing further on the discussion. Dogan (2013) terms firm characteristics as factors that are mostly under the control of management. The firm characteristics include firm size, liquidity, leverage, sales growth, and firm age.

The value of the banking sector in propelling the economic growth cannot be underestimated. This was evident during the global financial crisis as the banking crisis greatly saw a deterioration of not only the US economy but also the global economy. Some of the systematically important banks had to be bailed out owing to their value in fostering economic growth. The domestic credit offered by the Kenyan banking sector in 2016 averaged 42.8% of GDP (Trading Economics, 2019). This highlights the value of the banking sector in promoting investments in the economy and hence economic growth. However, the Kenyan banking sector has been under severe difficulties with Charter House Bank (K) Limited being under statutory management, Chase Bank under receivership, Imperial Bank Ltd and Dubai Bank being under receivership.

The value of firm characteristics, notably those well espoused by the CAMEL framework (capital adequacy, asset quality, management efficiency, earnings and liquidity), greatly shapes the performance of banks. In 2007/8 crisis, most of the banks that collapsed were largely due to lack of adequate financial

strength to absorb losses emanating from the economic crisis (Kagecha, 2014).

## 1.2. Research Objectives
### 1.2.1. General objective
The study sought to determine the effect of firm characteristics on the financial performance of listed commercial banks in Kenya.

### 1.2.2. Specific objectives
- To determine the effect of capital adequacy on the financial performance of listed commercial banks in Kenya.
- To examine the effect of asset quality on the financial performance of listed commercial banks in Kenya.
- To assess the effect of leverage on the financial performance of listed commercial banks in Kenya.
- To establish the effect of bank size on the financial performance of listed commercial banks in Kenya.

# 2. LITERATURE REVIEW

## 2.1. Theoretical Review
### 2.1.1. Agency theory
This theory was advocated by Stephene Ross and Barry Mitnick in 1970. It was advanced by Jensen and Meckling in 1976. It is postulated on the assumption that the interests of firms' managers and stakeholders are not perfectly aligned (Jensen and Meckling, 1976). Managers are entrusted as the agents of the shareholders, however the management pursue their interests at the expense of the corporate owners. This leads to what is referred as an agency problem. But can be resolved through various approaches such as ownership structures, audit control and monitoring.

The management is entrusted with making all decisions on behalf of the principal and as such shape the firm characteristics of an organization. For instance, they make decisions on leverage levels of a firm and also the initiatives to hold enough capital to absorb potential losses from economic crises. The 2007/2008 financial crisis that came on the background of excessive lending by commercial banks was largely from decisions of corporate management in the banking institutions (Calabrese, 2011). The banks' management also makes liquidity management decisions and this influences the general banking operations and eventually the performance. Decisions on asset quality are also made by the management. The management ought to make these decisions with a focus on maximizing shareholders' wealth. However, this is not always the case. For instance, the management could pursue excessive leverage and misuse the cash raised to pursue risky ventures which could lead to massive loss of shareholders' wealth.

### 2.1.2. Trade off theory
According to Myres (2001), most managers prefer debt because the tradeoff theory emphasizes that a firm uses up to the point where the marginal value of tax shields on additional debt is just offset by the increase in the present value of possible cost of financial distress hence the value of the firm will decrease. This theory is also referred to as a tax based theory and bankruptcy costs, it assumes each source of money has its own cost and return and these are associated with the firm's earning capacity and its business

and insolvency risks (Awan and Amin, 2014). Therefore, firms with more tax advantage will issue more debt to finance business operations, and the cost of financial distress and benefit from tax shield are balanced (Chen, 2011).

The decisions on corporate financing as explained by trade off theory shape the firm's characteristics. Excessive leverage would affect the firm's cash flows as a lot of it will be directed towards paying outstanding debt and interest expense. This could adversely affect the firm's performance as the firm lacks residual cash flows to invest in prevailing business opportunities (Chen, 2011). While focusing on size as a firm characteristic, Gaud et al. (2005) puts forth that large firms are highly leveraged due to the large stability with cash flows that are less volatile and are likely to benefit from economies of scale that accrue after issue of securities at the market. However, the excessive leverage can cost the firm heavily during hard economic times when firms are not able to deliver adequate cash flows to repay debt (Mostafa and Boregowda, 2014). Further, the cash flows are constrained that the firm is unable to grow its operations, and hence the performance of the firm might remain stagnant. Smaller firms may not be able to acquire more debt as they lack collateral for high level debts.

### 2.1.3. Pecking order theory
This theory advocates that information asymmetry has necessitated firms to prioritize retained earnings as reducing the effective price of using debt relative to equity (Myres, 2001). Deposit finance has also played a role in the theory of banking. Where internal financing is not enough, firms issue debt from less risky to riskier convertible debts, preference stocks and equity in that corresponding order as a source of financing. The theory emphasizes that firms have a preference on source of capital used in financing their operations (Myres and Majluf, 1984).

The pecking order theory is an alternative explanation to predict organizational leverage which is one of the critical bank characteristics (Calabrese, 2011). At the core of pecking order theory is the notion that leverage decisions are driven by asymmetry between management and investors because investors will view equity (stock) issuances negatively, firms will prefer to finance capital from retained earnings, then debt and only having exhausted these options, new equity (Calabrese, 2011). Unlike the trade-off theory, increased profitability is expected to result in a decline in leverage because a more profitable firm is able to finance capital needs with internal financial resources such as retained earnings (Calabrese, 2011).

## 2.2. Conceptual Framework
The conceptual framework is a schematic presentation of variables, representing how the independent variables relate with the dependent variable. In this study the independent variables were: capital adequacy, asset quality, leverage and size. The dependent variable was firm performance as shown in Figure 1.

## 2.3. Empirical Review
### 2.3.1. Capital adequacy and financial performance
Capital adequacy is the level of capital required by the banks to enable them withstand risks such as credit, market and operational

**Figure 1:** Conceptual framework
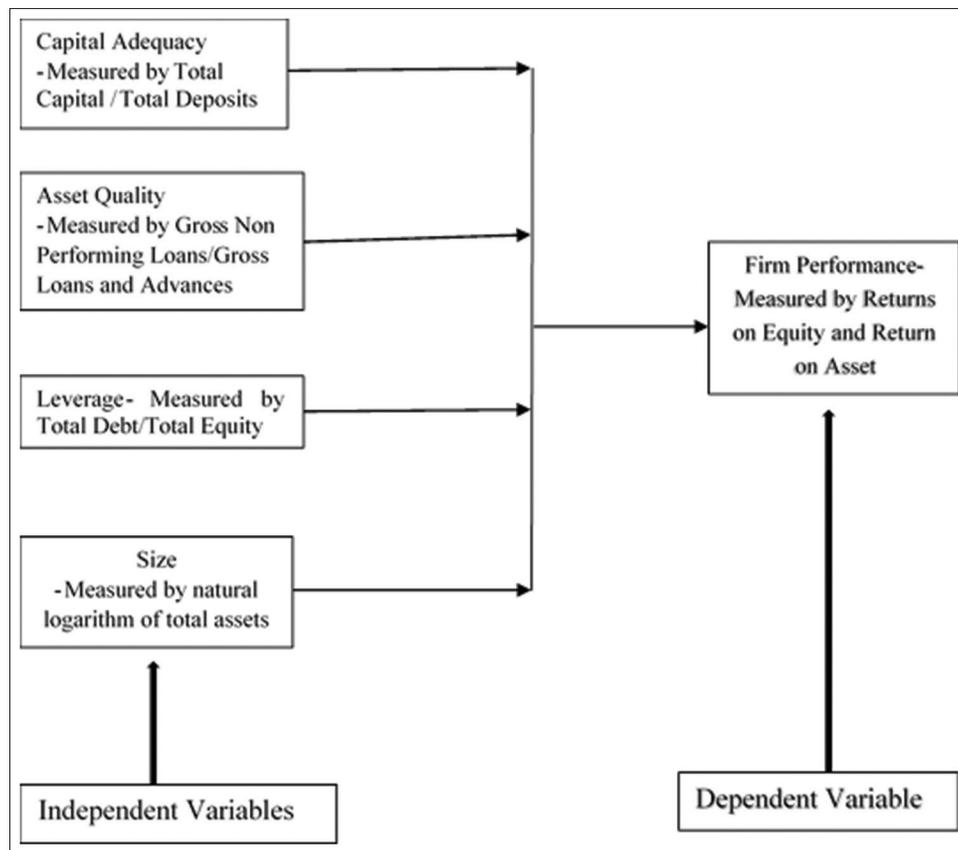


risks that they are exposed to in order to absorb the potential loses and protect the bank's debtors. The adequacy of capital is judged on the basis of capital adequacy ratio (Dang, 2011).

Olalekan and Adeyinka (2013) assessed the impact of capital adequacy on the financial performance of deposit taking institutions in Nigeria. This focused on both local and foreign banks. Data was collected through questionnaires from a sample of 518 employees in the banking sector and 76% of the questionnaires were successfully returned and well filled. Secondary data was also collected for the period from 2006 to 2010 largely from the bank statements. The findings in the study indicated a significant positive effect of capital adequacy on banks' profitability (ROE). The study concluded that capitalization is an indicator of bank risk management efficiency and cautions against losses that emanate from economic shocks.

The findings of Olalekan and Adeyinka (2013) agreed with those of Kamande et al. (2016) whose findings indicated a strong positive correlation between capital adequacy and the profitability of commercial banks in Kenya. In the study, however, return on assets was used as a proxy of banks' profitability. Data was collected for a period from 2001 to 2015. The study also focused on other bank specific factors such as asset quality, liquidity, earnings ability and management efficiency. The study focused on 11 banks listed on Nairobi Securities Exchange.

The findings of the above two studies concurred with a study by Barus et al. (2017) who assessed the effect of capital adequacy

on the performance of SACCOs in Kenya. Explanatory research was deployed in the study where 83 SACCOs were sampled out in the study and data collected from annual accounts focusing of 5 years' period (2011-2015). This study deployed both primary and secondary data. STATA and SPSS were used to support data analysis. The findings indicated a positive influence of capital adequacy on financial performance (ROA). The study recommends that the regulator of SACCOs need to enhance capital requirements to foster the stability of SACCOs in the country recognizing their pivotal role in SME financing and hence economic growth.

### 2.3.2. Asset quality and commercial bank performance
Asset quality refers to loan quality which is the overall risk which is attached to assets held by an institution or an individual (Mwengei, 2013). Adeolu (2014) examined the effect of bank asset quality and its impact on the performance of commercial banks in Nigeria. Secondary data was obtained from annual reports and accounts of the six largest banks listed in the Nigerian Stock Exchange for a period from 1999 to 2013. Bank performance was measured by ROA while asset quality proxies consisted of loan-loss ratio and total investment to total assets ratio. The research findings concluded that a statistically strong positive significant relationship existed between asset quality variables and bank performance.

However, the findings differed with that of Nyongesa (2017) which indicated a negative correlation between asset quality and financial performance. Nyongesa (2017) sought to determine the relationship between management efficiency, capital adequacy and asset quality on commercial banks performance in Kenya.

A descriptive research design was incorporated with cross sectional data obtained from 1st January 2011 to 31st December 2015 from a target population of 42 commercial banks. The research findings affirmed that a positive significant relationship at 0.01 level existed between ROA and management efficiency. Both capital adequacy and asset quality had a negative correlation with ROA.

Qin and Pastory (2012) evaluated commercial bank profitability position in Tanzania. Secondary data was obtained from three commercial banks from the year 2000 to 2009 with a descriptive research design adopted for the study. Bank profitability was measured by ROA while the independent variables comprised of asset quality, capital adequacy and liquidity position. Capital structure exhibited a negative relationship on bank profitability, asset quality ratios had a positive relationship with bank profitability except non-performing loans (NPL) that showed a negative relationship with bank profitability. Further, liquidity ratios had a positive relationship with bank profitability. This study concluded that most banks should work towards robust credit policies in a bid to reduce NPL given that lending is the main business of the commercial banks.

Muhmad and Hashim (2015) also assessed commercial bank performance in Malaysia using the CAMEL framework. Secondary data was obtained on financial ratios from Malaysian Banks, individual annual reports of banks and Bank scope database of Bureau van Dijk. Financial performance was measured by ROA and ROE. The asset quality ratio proxies were NPL to total loans, loan loss provision to total loans and total loans to total assets. The regression analysis showed that capital adequacy, asset quality, earning quality and liquidity had a significant impact on performance. A negative relationship existed between loan loss provisions to total loans with a positive relationship existing between total loans to total assets.

### 2.3.3. Leverage and commercial bank performance

Oketch et al. (2018) sought to investigate the effect of financial leverage on the performance of commercial banks listed at the NSE in Kenya. Performance was measured using ROA and ROE while the independent proxies consisted of firm size, credit risk and liquidity with secondary data obtained from the year 2010 to 2016. The research findings concluded that leverage had a negative significant effect on commercial bank performance.

Abubakar (2015) analyzed the relationship between financial leverage and financial performance of deposit money banks in Nigeria. A sample of 6 banks was selected from a population study of 23 deposit money banks in Nigeria as at 31st December, 2013. Secondary data was obtained from annual reports and financial statements of the deposit money banks from the year 2005 to 2013. A descriptive design was used for the study with firm performance being measured by ROE while the proxies for financial leverage used were debt to equity ratio and debt ratio. The study concluded that the correlation between debt ratio and ROE is not significant. The descriptive analysis portrayed that 84% of total assets are financed by debt confirming that banks are highly leveraged.

### 2.3.4. Firm size and commercial banks

Size is an important contributor within an organization's functional atmosphere and external environment because it enables an organization obtain a competitive edge over its rivals through the creation of opportunities and cost reduction mechanism enjoyed by larger firms due to the economies of scale (Dogan, 2013).

Gatete (2015) investigated the effect of bank size on the profitability of commercial banks in Kenya. The study adopted a descriptive research design with the target population consisting of the 43 commercial banks listed by the CBK as at 31st December 2013. Secondary data was obtained from the CBK website, individual financial statements of commercial banks and the Kenya National Bureau of Statistics reports from 2010 to 2015. The research findings established that firm size is statistically significant and moderately positively correlated to profitability of commercial banks in Kenya. Liquidity, operating efficiency and capital adequacy were found to be statistically insignificant.

Mbekomize and Mapharing (2017) conducted an analysis on the determinants of profitability of commercial banks in Botswana. Secondary data was obtained from Bank of Botswana reports with the independent variables consisting of bank liquidity, capital adequacy, credit risk, market opportunity, cost efficiency, market diversification, economic growth, inflation and bank interest. The profitability measures were ROA, ROE and net interest margin (NIM). The research findings established that a statistically insignificant relationship existed between bank size and all the three measures of profitability. A positive relationship existed between bank size and profitability as measured by NIM and ROA whereas a negative relationship existed between bank size and ROE.

Omar (2015) carried out a study on the relationship between firm size and financial performance of microfinance banks in Kenya. A descriptive research design was used for the study with a target population of 10 banks forming the study subjects. Secondary data was derived from the Association of Microfinance Institutions in Kenya and financial reports of individual microfinance institutions for a period of 5 years from 2010 to 2014. Firm performance was measured by ROA whereas the independent variables consisted of natural logarithm of total assets, customer deposit, operational efficiency and control variables. The research findings established that operational efficiency and natural logarithm of assets had a statistically significant relationship with financial performance of microfinance institutions in Kenya. Bank size, as measured by natural logarithm of total assets, had a weak positive relationship with bank performance.

## 3. METHODOLOGY

### 3.1. Introduction
This chapter focuses on the research design, data collection methods, and concludes with data analysis and data presentation methods that were used in the study.

### 3.2. Research Design
Cooper and Schindler (2014) define it as the blueprint for fulfilling research objectives and answering research questions. In this study,

the researcher adopted a descriptive research design. Descriptive research involves collecting data that answers questions about the participants of the study.

## 3.3. Target Population
The target population for this study was the 11 listed banks in Kenya as at the year ended December 2018.

## 3.4. Data Collection Instrument
The study used secondary data which was obtained from annual reports of the listed banks. Data was obtained from the year ended 31st December 2008 to 31st December 2018.

## 3.5. Data Processing and Analysis
Agreeing to Irwin (2013), data analysis involves converting the collected data into significant information to lure conclusions in a research study. A multiple linear regression model was used to examine the relationship between selected study variables. The obtained data was analyzed using STATA.

# 4. RESULTS AND DISCUSSION

## 4.1. Descriptive Statistics
Table 1 summarizes the various descriptive statistics on the bank characteristics and financial performance of the listed commercial banks in Nairobi Securities Exchange. The findings indicated the minimum ROA to be −0.00919 or −0.9% while the mean was established to be 0.032 or 3.2%. But the standard deviation was established to be 0.0448 meaning that the ROA of all the commercial banks is not much spread from the mean. However, the negative minimum ROA means that there are banks recording losses and hence negative return on assets. The mean ROE was determined to be 0.177 or 17.7% with a standard deviation of 0.07997 which means that the ROE for all commercial banks studied are not much dispersed from the established mean. However, there are banks posting extremely high ROE as the maximum ROE was established to be 34%.

The mean capital adequacy ratio was established to be 0.1813 or 18.13% which is higher than the required minimum by the central bank at 10.5% as the minimum core capital to risk weighted assets. The standard deviation was 0.05549 which means that the capital adequacy for all commercial banks studied are not much dispersed from the established mean.

## 4.2. Correlation Analysis
Table 2 summarizes the Pearson correlation coefficient between the distinct study variables together with the P value given a significance level of 5%. The findings indicate a significant positive correlation between return on assets and return on equity (ROE), as well as an insignificant positive correlation between capital adequacy and performance (ROA and ROE).

Focusing on asset quality, the findings indicated an insignificant negative correlation between NPL and ROA while it was found to have a significant negative correlation with ROE. Furthermore, NPL ratio was found to have an insignificant negative correlation with capital adequacy. Leverage was found to have an insignificant

**Table 1: Descriptive statistics of the study variables**

| Variable | Obs. | Mean | SD | Min. | Max. |
|---|---|---|---|---|---|
| ROA | 121 | 0.0328814 | 0.0447825 | −0.00919 | 0.498 |
| ROE | 121 | 0.1773041 | 0.0799674 | −0.104 | 0.34 |
| Capadeq | 121 | 0.1813496 | 0.0554893 | 0.037 | 0.41 |
| NPL ratio | 121 | 0.0781512 | 0.091744 | 0.009 | 0.663 |
| Bank size | 121 | 11.94385 | 0.7606916 | 9.567595 | 13.47908 |
| Leverage | 121 | 5.671863 | 1.952988 | 0.157523 | 15.47275 |

**Table 2: Correlation matrix**

| | ROA | ROE | Capadeq | NPL ratio | Leverage |
|---|---|---|---|---|---|
| ROA | 1.0000 | | | | |
| ROE | 0.3165* | 1.0000 | | | |
| | 0.0004 | | | | |
| Capadeq | 0.1384 | 0.0957 | 1.0000 | | |
| | 0.1301 | 0.2962 | | | |
| Nplratio | −0.1371 | −0.4658* | −0.1669 | 1.0000 | |
| | 0.1336 | 0.0000 | 0.0673 | | |
| Leverage | −0.0804 | −0.0255 | −0.3959* | 0.4032* | 1.0000 |
| | 0.3810 | 0.7810 | 0.0000 | 0.0000 | |

negative correlation on performance (ROA and ROE). Finally, the correlation analysis indicated a significant positive correlation between leverage and NPL.

## 4.3. Panel Diagnostic Test
Various tests were done to indicate the best model to be adopted in the study.

### 4.3.1. Testing for random effects
The research adopted Breusch-Pagan Lagrange multiplier (LM) to ascertain whether to adopt a simple ordinary least square or a panel model in the study. The LM test is pertinent to evaluate the viability of whether to deploy simple ordinary linear regression or random effects regression.

The P-value in the test was observed to be below 0.05. This evinces significant differences across non-financial entities listed in NSE which further justified a random effects model.

### 4.3.2. Testing for heteroscedasticity
This study deployed Modified Wald Test as a test of heteroscedasticity. Heteroscedasticity causes overestimation in the model. T statistic becomes less and this can lead to misleading results and hence misinformed conclusions and recommendations.

The findings on the test observed a P = 0.000 less than the significance level (5%). This basically means that there is no heteroscedasticity. Consequently, there are no doubts of biased standard errors and likelihood of overestimation in the research model.

### 4.3.3. Test for fixed or random effects
To make a verdict on whether the researcher could array either random or fixed effects, the study deployed Hausman test where the null hypothesis denotes random effects is the preferred model while the alternative hypothesis points to appropriateness of the fixed effects model. The tests ideally indicate whether the regressors are correlated with the unique errors. The results of

the test observed a P value higher than 0.05 for all the study variables indicating that random effect is the preferred model for data analysis.

### 4.3.4. Test for autocorrelation
This study adopted Wooldridge Drukker to examine any potential autocorrelation in the collected data. The findings of the test indicated a P = 0.3304, higher than the significance level 0.05. This essentially denotes no autocorrelation in the collected data.

### 4.3.5. Test for multicollinearity
Variance inflation factor (VIF) was deployed to indicate possible multicollinearity. Basically, a VIF of 1 denotes no correlation between predictor variables. Values between 1 and 5 means moderate correlation values, above 5 denotes that the independent variables are significantly correlated. The results depicted VIF of 1.307 which is close to one. This essentially means a modest correlation between the study predictor variables and hence absence of multicollinearity.

## 4.4. Regression Analysis
Conversant by the diagnostic test, the study used the random effects model for the analysis. The results are presented in Tables 3 and 4.

The first hypothesis indicated a significant positive effect of capital adequacy on the two measures of performance (ROE and return on asset). The findings of this study agreed with those of Olalekan and Adeyinka (2013) whose findings indicated a significant positive impact of capital adequacy on the financial

performance of deposit taking institutions in Nigeria. ROE was used as a proxy of performance in this study. Olalekan and Adeyinka (2013) concluded that capitalization is an indicator of bank risk management efficiency and cautions against losses that emanate from economic shocks. As such the firm with a higher capital adequacy will record positive returns all through even during economic shocks and may not collapse as it has adequate capital to absorb any losses emanating from economic shocks. This is especially given that banks are bound to lose massively during economic shocks as borrowers are not able to repay their loans as per schedule. The study also agreed with the findings of Kamande et al. (2016) whose findings indicated a strong positive effect of capital adequacy on profitability (ROA) of commercial banks in Kenya. Barus et al. (2017) also established a significant positive influence of capital adequacy on return on assets.

The second hypothesis established a significant negative influence of NPL ratio on ROE but an insignificant negative influence on ROA. These were mixed findings. The findings on the considerable negative influence of NPL ratio on ROE assented to those of Qin and Pastory (2012) whose results indicated a negative effect of NPL ratio on performance of banks. Nyongesa (2017) also established a negative effect of asset quality (NPL ratio) on performance. The results also corroborated with those of Muhmad and Hashim (2015) whose findings pointed to a negative link between NPL ratio and performance. The study used a CAMEL framework for analysis. The study concluded that increased rate of NPL has a negative effect on interest income and leads to a number of debts being written off. This has a negative implication

**Table 3: Random effect regression results using ROE as a proxy of performance**

| | Random-effects GLS regression | | | Number of obs. = | | 121 |
|---|---|---|---|---|---|---|
| | Group variable: Bank ID | | | Number of groups = | | 11 |
| | R-sq: | Within = 0.3525 | | Obs. per group: | | |
| | | | | Min = | | 11 |
| | | Between = 0.146 | | Avg. = | | 11.0 |
| | | Overall = 0.257 | | Max = | | 11 |
| | Random effects u_i ~ Gaussian | | | Wald χ² 2 (4) = | | 53.49 |
| | Corr(u_i, X) = 0 (Assumed) | | | Prob. > χ² = | | 0.0000 |
| **ROE** | **Coef.** | **SE** | **z** | **P>|z|** | **[95% Confidence interval]** | |
| Capadeq | 0.5408119 | 0.1264851 | 4.28 | 0.000 | 0.2929057 | 0.788718 |
| NPL ratio | −0.3643017 | 0.0675719 | −5.39 | 0.000 | −0.4967402 | −0.231863 |
| Banksize | 0.0210569 | 0.010061 | 2.09 | 0.036 | 0.0013378 | 0.040776 |
| Leverage | 0.0214675 | 0.0039677 | 5.41 | 0.000 | 0.013691 | 0.029244 |
| _Cons | −0.2655629 | 0.1435208 | −1.85 | 0.064 | −0.5468586 | 0.015733 |

**Table 4: Random effect regression results using ROA as a proxy of performance**

| | Random-effects GLS regression | | | Number of Obs. = | | 121 |
|---|---|---|---|---|---|---|
| | Group variable: Bank ID | | | Number of groups = | | 11 |
| | R-sq: | Within = 0.0237 | | Obs. per group: | | |
| | | | | Min = | | 11 |
| | | Between = 0.6508 | | Avg. = | | 11.0 |
| | | Overall = 0.1090 | | Max = | | 11 |
| | Random effects u_i ~ Gaussian | | | Wald χ² (4) = | | 13.74 |
| | Corr(u_i, X) = 0 (assumed) | | | Prob > χ² = | | 0.0082 |
| **ROA** | **Coef.** | **SE** | **z** | **P>|z|** | **[95% Confidence interval]** | |
| Capadeq | 0.2162905 | 0.0856382 | 2.53 | 0.012 | 0.0484428 | 0.384138 |
| NPL ratio | −0.062780 | 0.0469405 | −1.34 | 0.181 | −0.1547819 | 0.029221 |
| Banksize | 0.0181574 | 0.0058835 | 3.09 | 0.002 | 0.0066258 | 0.029689 |
| Leverage | 0.0032181 | 0.0025321 | 1.27 | 0.204 | 0.0017448 | 0.008181 |
| _Cons_ | −0.236558 | 0.0849219 | −2.79 | 0.005 | −0.4030018 | −0.070114 |

on performance. Qin and Pastory (2012) indicated that most banks are working towards robust credit policies with the main aim of reducing NPL as this could reduce the banks' interest income.

The third hypothesis showed a significant positive influence of leverage on the ROE and an insignificant positive influence on ROA. The ROE is of great focus to investors as they are more focused on appreciating the returns to their stake in an entity. The findings on the influence of leverage on ROE basically means that a rise in debt levels in the listed banks causes a significant increase in ROE. The findings in this (ROE) agreed with the findings of Abubakar (2015) whose findings indicated a significant positive influence of leverage on return on shareholders' funds. However the findings of this study also differed with those of Oketch et al. (2018) who indicated that leverage had a considerable negative effect on the performance of commercial banks. Leverage comes with tax advantage as the interest rate expense is tax allowable when computing the taxable income. This reduces the tax expense and hence positive influence on net earnings. However, high level of leverage comes with a risk of insolvency. Banks should work on promoting an optimum capital structure to minimize cost of capital and reduce risk of insolvency.

The fourth hypothesis showed a significant positive influence of bank size on ROE and ROA. This is given a positive coefficient of 0.01816 and a P = 0.002 for ROA. For ROE the coefficient was 0.02106 while the P = 0.036, lower than the significance level (5%). The findings corroborated with those of Gatete (2015) who established a significant positive influence of bank size on the performance of quoted kenyan commercial banks. The findings however dissented those of Mbekomize and Mapharing (2017) who established an insignificant positive influence of bank size on performance with NIM and ROA being adopted as measures of performance. The latter found the relationship between the two variables to be insignificant meaning that other variables other than bank size influence the performance of listed commercial banks.

The ROE model is summarized as shown in equation 1.

$$ROE = -0.2656 + 0.5408 \text{Cap Adeq} - 0.3643 \text{NPL Ratio} + 0.0211 \text{Bank Size} + 0.0215 \text{Leverage} \quad (1)$$

The ROA model is summarized as shown in equation 2.

$$ROA = -0.2366 + 0.2163 \text{Cap Adeq} + 0.01816 \text{Bank Size} \quad (2)$$

## 5. CONCLUSION OF THE STUDY

The findings indicated a significant positive effect of capital adequacy on ROE and return on assets. On this basis and acknowledging the value of capital adequacy in safeguarding bank stability, this study concludes that capital adequacy has a significant positive effect on ROE. A high capital adequacy is pertinent to ensure that the bank is able to absorb losses emanating from economic shocks that are beyond the control of the banks. However, keeping very high level of capital could mean opportunity foregone to generate better returns to shareholders. It is thus advisable to maintain an optimum level of capital adequacy.

The findings indicated a significant negative effect of asset quality on ROE but an insignificant negative effect on return on assets. In reference to shareholders being the main stakeholders of an entity, this study concludes that NPL has a significant negative effect on performance. NPL reduce interest income which is a banks' main income and this reduces the net returns attributable to shareholders.

The findings indicated a significant positive effect of leverage on the ROE and an insignificant positive effect on return on assets. Again, given the value of shareholders as primary stakeholders, this study concludes that there is a significant positive effect of leverage on performance. However, it is good to note that while high level of leverage accrues tax benefits on interest expense, it comes with risk of insolvency. It also means that the bank will spend significant cash flows in repaying debts and this could constrain further investments that would bring in more returns to shareholders.

The findings of this study indicated that bank size has a significant positive effect on ROE and ROA. On this basis, the study concludes that bank size has a significant positive effect on performance and banks should work on growing the size of their assets. However, it cannot be ignored that there are internal factors that influence the performance of the listed commercial banks other than bank size. This includes other factors such as leverage, capital adequacy and leverage as these have been found to have a significant effect on ROE. Other factors notably the economic conditions, government regulations such as interest capping are bound to affect banks' performance.

### 5.1. Recommendations
Firstly, the study recommends that listed commercial banks should maintain a considerable capital adequacy to be able to effectively absorb losses emanating from economic shocks such as the one witnessed in the 2007/2008 financial crisis.

Secondly this study recommends that banks should avoid excessive leverage as such poses risk of insolvency. The focus is to maintain an optimal capital structure which minimizes cost of capital and reduces risk of insolvency.

Thirdly, the commercial banks should work towards reducing the NPL through in-depth credit assessment of clients' creditworthiness before awarding credit. This is given that NPL reduce the net earnings attributable to shareholders.

### 5.2. Areas of Further Studies
Although the study effectively met the objectives, further studies on the subject topic should consider more bank characteristics such as management efficiency and technology adoption. Such qualitative factors influence banks' competitive edge and hence performance.

## REFERENCES

Abubakar, A. (2015), Relationship between financial leverage and financial performance of deposit money banks in Nigeria. International Journal of Economics, Commerce and Management, 3(10), 759-778.

Adeolu, D.M. (2014), Asset quality and bank performance: A study of commercial banks in Nigeria. Research Journal of Finance and Accounting, 5(18), 39-44.

Awan, A.G., Amin, M.S. (2014), Determinants of capital structure. European Journal of Accounting, Auditing and Finance Research, 2(9), 22-41.

Barus, J.J., Muturi, W., Kibati, P., Koima, J. (2017), Effect of capital adequacy on the financial performance of savings and credit socities in Kenya. American Journal of Finance, 1(4), 1-12.

Calabrese, T.D. (2011), Testing competing capital structure theories of non profit organizations. Public Budgeting and Finance, 31(3), 119-143.

Cooper, D.R., Schindler, P.S. (2014), Research design: An overview. In: Business Research Methods. 12th ed., Ch. 6. New York: McGraw-Hill's PRIMIS Online Asset Library.

Dang, U. (2011), The CAMEL Rating System in Bank Supervision: A Case Study. Helsinki, Finland: Degree Thesis, Arcada University of Applied Sciences.

Dogan, M. (2013), Does firm size affect the firm profitability. Evidence from Turkey. Research Journal of Finance and Accounting, 4(4), 53-59.

Gatete, A. (2015), The Effect of Bank Size on Profitability of Commercial Banks in Kenya. Kenya: The Degree of Master of Science Finance, University of Nairobi.

Gaud, P., Jani, E., Hoesli, M., Bender, A. (2005), The capital structure of Swiss companies: An empirical analysis using dynamic panel data. European Financial Management, 11(1), 51-69.

Chen, W. (2011), Which Factors of Capital Structure Decisions are Important: Evidence From Dutch Firms, Msc Business Administration (Financial Management). Netherlands: University of Twente.

Irwin, S. (2013), Qualitative secondary data analysis: Ethics, epistemology and context. Progress in Development Studies, 13(4), 295-306.

Jensen, M.C., Meckling, W.H. (1976), Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305-360.

Kagecha, P.K. (2014), Bank Performance: Does Bank Size Matter? Kenya: School of Economics, University of Nairobi.

Kamande, E.G., Zablon, E., Ariemba, J. (2016), The effect of bank specific factors on financial performance of commercial banks in Kenya. International Journal of Sciences, Basic and Applied Research, 30(5), 165-180.

Mbekomize, J.C., Mapharing, M. (2017), Analysis of determinants of profitability of commercial banks in Botswana. International Journal of Academic Research in Accounting, Finance and Management Sciences, 7(2), 131-144.

Mostafa, H.T., Boregowda, S. (2014), A brief review of capital structure theories. Research Journal of Recent Sciences, 3(10), 113-118.

Muhmad, S.N., Hashim, H.A. (2015), Using the CAMEL framework in assessing bank performance in Malaysia. International Journal of Economics, Management and Accounting, 23(1), 110-127.

Mwengei, K.O. (2013), Assessing the factors contributing to non-performance loans in Kenyan banks. European Journal of Business and Management, 5(32), 155-162.

Myres, S.C. (2001), Capital structure. The Journal of Economic Perspectives, 15(2), 81-102.

Myres, S.C., Majluf, N.S. (1984), Corporate financing and investment decisions when firms have information that investors do not have. Journal of Finacial Economics, 13, 187-221.

Nyongesa, R.W. (2017), The relationship between management efficiency, capital adequacy and asset quality on commercial banks performance in Kenya. Imperial Journal of Interdisciplinary Research, 3(10), 126-129.

Oketch, J., Namusonge, P.G., Sakwa, P.M. (2018), Effect of financial leverage on financial performance of listed commercial banks in Kenya. Interantional Journal of Social Sciences and Information Technology, 4, 2760-2766.

Olalekan, A., Adeyinka, S. (2013), Capital adequacy and banks' profitability: An empirical evidence from Nigeria. American International Journal of Contemporary Research, 3(10), 87-93.

Omar, H.S. (2015), The Relationship between Firm Size and Financial Performance of Microfinance Banks in Kenya. Kenya: The Degree of Master of Business Administration, School of Business, University of Nairobi.

Ongore, V.O., Kusa, G.B. (2013), Determinants of financial performance of commercial banks in Kenya. International Journal of Econmomics and Financial Issues, 3(1), 237-252.

Qin, X., Pastory, D. (2012), Commercial banks profitability position: The case of Tanzania. International Journal of Business and Management, 7(13), 136-144.

Trading Economic. (2019), Trading Economic Statistics Report. Available from: https://www.tradingeconomics.com/kenya/domestic-credit-provided-by-banking-sector-percent-of-gdp-wb-data.html. [Last accessed on 2018 Nov 18].