# CAPITAL ADEQUACY AND BANKS' PROFITABILITY: EMPIRICAL EVIDENCE FROM SELECTED TIER 2 BANKS' IN KENYA

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## Key words

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## Abstract

Uproars bedeviling the Banking sector in Kenya and around the globe warrant a study to unearth the nitty gritty proponents that are causative agents of illiquidity and or insolvency in the Kenyan Banking sector. The main objective of this study was to determine the effect of Capital adequacy on Banks' Profitability. Capital adequacy was proxied by Total capital to Risk weighted Assets and Banks' Profitability by Return on Assets. The study used positivism research philosophy and the sampling frame comprised of Tier 2 Banks in Kenya. Longitudinal research design and simple random sampling design were used in the study. The empirical results revealed that capital adequacy has a positive effect on Banks' Profitability as proxied by ROA ($\beta1 = .127$, $p =.0390$, $\alpha > 0.05$). Tier 2 Banks' should progressively improve their asset quality, asset base, liquidity position and financial leverage ratio for purposes of achieving financial soundness. Central Bank of Kenya should progressively continue to implement the Basel Accord in its entirety.

## 1. INTRODUCTION

Capital adequacy aptly affects the magnitude of risk exposure of any organization. Financial stability in the banking sector is absolutely dependent on capital adequacy as it indicates whether the bank has enough capital to absorb unexpected losses. Banks' are required to maintain depositors' confidence and cushion itself against insolvency and or bankruptcy. Dubai Bank, Chase Bank and Imperial Bank are among the banks' which recently faced illiquidity and insolvency uproars prompting temporal closure. Capital is mandatory for banks if they have to satisfy the going concern principle of a business entity. Capital is at the centre stage of success of any business because it acts as a cushion against which to charge off losses. Depending on how risky the asset composition of a business concern is the more capital the firm is required to maintain to achieve a significant level of financial soundness.

When the constituents of liabilities of a firm are volatile, the greater the risk exposure. This necessitates a greater amount of capital adequacy so as to maintain solvency. Capital funds in this paper are broadly classified as Tier 1 and Tier 2 capital. Tier 1 capital is a type of capital funds which absorbs losses without a bank being wound up and Tier 2 capital absorbs losses in the event of a Bank being wound up. Tier I capital is the most reliable form of capital and consists of common stock, preferred stock and retained earnings. Tier 2 capital consists of undisclosed reserves, revaluation reserves, general provisions, subordinated debt and hybrid instruments (Pasha and Swami, 2012). The business environment is becoming extremely competitive necessitating banks to maintain adequate capital to meet its financial needs.

Studies on capital adequacy cannot be exhausted without emphasis on Capital adequacy regulation. The central banks around the continents' should use it as a buffer against insolvency crises as it limits costs associated with financial distress by mitigating against insolvency of banks (Barrell et al., 2009; Miles et al., 2011; Caggiano and Calice, 2011). Since capital adequacy challenges is a global problem, it informed the birth of the Basel Committee on Banking Supervision which is a set of agreement which mainly focuses on risks to banks and the financial system is called Basel accord and its main object was to ensure that banking institutions have enough capital with itself to meet its financial obligations.

The objective of the Central Bank of Kenya is to ensure that a Bank maintains a level of capital which is adequate to protect its depositors and creditors and is commensurate with the risks associated with its activities and profile. The Central Bank of Kenya requires banks to maintain the pre determined ratio of total capital to total risk weighted assets. Effective on1 January 2013, banks are expected to assess the credit risk, market risk and the operational risk of the risk weighted assets to derive the ratios. The capital adequacy and use of regulatory capital are monitored regularly by management employing techniques based on the guidelines developed by the Basel Committee, as implemented by the Central Bank of Kenya for supervisory purposes.

According to the Central Bank of Kenya all banks' should maintain at all times a regulatory core capital of not less than 8% of total risk weighted assets in addition to the risk weighted off balance sheet items, a core capital of not less than 8% of its total deposit liabilities and a total capital of not less than 12% of its total risk weighted assets, plus risk weighted off balance sheet items. In addition to the minimum capital adequacy ratios of 8% and 12%, banking institutions are required to hold a capital conservation buffer of 2.5% over and above these minimum ratios to enable the banking institutions withstand future periods of stress. This brings the minimum core capital to risk weighted assets and total capital to risk weighted assets requirements to 10.5% and 14.5% respectively. In Kenya a bank must maintain a minimum regulatory core capital of one billion. Irrespective of the implementation of the Basel Accord in Kenya illiquidity, solvency uproars still bedevils the banking and finance sector.

## 1.1 Kenyan Banking Industry and the Tier System

Banks in Kenya are grouped into three tiers according to banks market share, asset base and number of customer deposits. Banks that fall under Tier 1 are banks whose cumulative assets are hundreds of billions and millions of depositors. Only six banks in Kenya fall in this tier and they control 49.9% of the market. They are as follows; Cooperative Bank of Kenya, Kenya Commercial Bank, Equity Bank, Barclays Bank, Commercial Bank of Africa and Standard Chartered Bank. Tier 2 banks are medium sized lenders. Tier 2 banks control 41.7% of the market share. Banks that fall under this category are; Family Bank, I&M Bank, NIC Bank, Diamond Trust Bank, Bank of Africa, Housing Finance, Ecobank, Prime Bank, Bank of Baroda, CFC Stanbic Bank, Citibank, Guaranty Trust Bank, National Bank and Bank of India. Tier 3 banks are; Jamii Bora Bank, ABC Bank, Credit Bank, Paramount Universal, Consolidated and Development Bank, Fidelity Bank, Equatorial Commercial Bank, Giro Bank, Guardian Bank, Midddle East Bank, Oriental Commercial Bank, Paramount Universal Bank, Trans National Bank, Victoria Bank, First Community Bank, Babib A.G. Zurich Bank, Habib Bank, Gulf Bank, Sidian Bank, UBA Bank, Consolidated Bank and Development Bank.. They control 8.4% of the market (Ayugi, 2016). According to Ayugi (2016), in 2015 tier 1and tier 2 banks experienced a drop in customer deposits and industry assets

marginally. This was attributed to the fact that many people speculated more banks in tier 3 would fail. The tier system is just a distinguishing criteria and not a cause for bank instability. The section that follows gives us a snip preview of the Basel norms as applied in the banking sector.

## 1.2 Basel norms

Basel is found in Switzerland and it incubates liaison among central banks with goal congruence of financial stability and common standards of banking regulations. Basel Accord has given us three Basel norms which are Basel 1, 2 and 3. Base 1 enumerates the minimum capital requirements for internationally active banks and invites similar banks to be more conservative in their banking regulations. Capital adequacy ratios should not be viewed on standalone basis. It comprises 4 pillars. Pillar 1 comprises constituents of capital majorly tier 1 capital which consists of disclosed cash reserves and paid up equity and Tier 2 which includes capital created to cover hybrid debt, potential bad loans, subordinated debt. The second pillar focuses on Risk weighting which creates a frame work to risk weight a bank's asset. The pillar presents five categories on how to risk weight banks' assets. Firstly, the risk apportioned to Riskless assets is at 0% and it includes cash in bank, the sovereign debt held and funded in domestic currency. Second category weights assets at 20% and comprises low risk assets with a maturity of less than one year such as bank debt, cash and any loan guaranteed by parastatals.

The third category is moderate risk and comprises residential mortgages weighted at 50%. Fourth category is high risk weighted at 100% and it includes any bank debt with a maturity of more than one year, for example, equity assets and Eurobonds. Fifth category is variable risk and it includes claims on domestic parastatals which can be valued at 0, 10, 20, or 50% depending on a central bank's discretion. Pillar 3 focuses on target standards ratio. This pillar synchronizes the first and second pillars and it prescribes 8% as a universal rate of a bank's risk weighted assets must be covered by tier 1 and tier 2 capital reserves. Tier 1 capital must cover 40% of a bank's risk weighted assets. Pillar 4 is centered on transition and implementation of the Basel accord. Each country's central bank is required to come up with a strong surveillance and enforcement mechanism to ensure transition weights are given so that banks can adapt over a 4 year period to the set standards. Basel 1 was characterized with shortcomings which necessitated the drafting of Basel 2. Basel 1 only concentrated on credit risk management at the expense of emphasizing the overall financial market discipline by players in the financial sector.

The implementation of Basel 1 was more of a marketing strategy than a technical one. It was intended to be the blue print for financial stability by commercial banks despite its unforeseen financial loopholes. It was the only thing to do by any international bank to subscribe to the tenets of Basel 1. Basel 1 was a hindrance in adoption of external strategies outside the scope of Basel 1 schedule of risk weighting. Basel 2 accord was initiated in 1999. Pillar 1 touches on minimum capital requirement which asserts that assets of

parent companies should be monitored to avoid transferring the same to subsidiaries thereby avoiding weighting of the same in computation of Value at Risk. This pillar analyzes banking risk in three different categories; the standardized approach extends Basel 1 capital weights to include market based rating agencies like Standard and Poor, Moody's and Fitch. Bank debt and corporate debt are weighted synonymously except for debts rated BBB+ and BB- which are rated at100%. Debts rated below BB- are weighted at 150%; any unrated debt is weighted at 100%. Corporate mortgages are weighted at100% while home mortgages are weighted at 35%. Basel 2 proposes internal capital weighting using the Foundation or Internal Ratings Based Approach which requires banks to come up with models for weighting of their loan books. Regulatory authorities are charged with the mandate to provide probability of loss for each type of asset and bank exposure. Advanced internal ratings based approach is most suitable to large banks capable of implementing use of complex models to determine the assumption of proprietary default. Pillar 2 concentrates on extending regulatory power to oversee bank's internal risk evaluation and spearheads reviewer ship of bank capital assessment policy. This pillar allows regulators to step in as soon as it is detected that a bank's capital base has fallen below the minimum required level by implementing corrective measures to counter this stressful scenario. Pillar 3 recommends public disclosure of both capital and risk taking positions of banks through their financial statements.

## 1.3 Statement of the problem

In Kenya illiquid commercial banks have been put under receivership by the Deposit Protection Fund Board, a functional area within the Central Bank of Kenya for failing to meet minimum standards of operations. In the recent past, three banks were placed under receivership after it became apparent they could no longer operate due to having minimum liquidity ratios. The closure of these banks left many customers concerned about their money. There were numerous speculations as to what happened as well as which bank would be next (Ayugi, 2016). Based on the above scenario all is not well in the banking industry in Kenya prompting a further research to ascertain capital adequacy and how it has affected banks' profitability. The main objective of the study was to find out the effect of capital adequacy on banks' profitability. The remainder of this article paper is organized as follows. Section 2 covers review of past studies and defines the main hypothesis. Section 3 covers materials and methods. Section 4 covers the results and discussion. Section 5 presents the conclusion and section 6 covers the recommendations.

## 2. LITERATURE REVIEW

## 2.1 Banks' Profitability

Profitability is a relative concept that refers to an organizations ability to make profit from all the business activities of a business concern. Profitability is the ability of a given investment to earn a return from its use (Harward and Upton, 1991). Many scholars emphasize return on assets as the best measure of bank profitability (Hassan and Bashir, 2003). According to Rivard and Thomas (1997), return on assets represents a better measure of the ability of the firm to generate returns on its portfolio of assets and it is not distorted by high equity multipliers. The bottom line is that ROA gives an idea as to how the management of a given organization uses its assets efficiently to increase its profit margins. Return on Assets is calculated by dividing a company's annual earnings by its total assets.

## 2.2 Theoretical Framework

This study reviewed buffer theory and portfolio regulations theory so as to put capital adequacy into perspective.

### 2.2.1 Buffer theory of capital adequacy

The theory was initiated by Calem and Rob (1996), the theory postulates that banks prefers to hold excess capital to shield banks' against falling under the legal minimum capital requirements. The theory states that banks' approaching the regulatory minimum capital ratio shall have funds to boost capital. The excess funds reduce the risk exposure of banks' as it cuts on regulatory costs as a result of breach of the capital requirements.

### 2.2.2 Portfolio regulation theory

Portfolio regulation theory by Peltzman (1970) is relevant to capital adequacy of banks as it helps to predict the performance of firms in the banking industry. The theory postulates that banks regulation helps to maintain safety and soundness of the banking system. It helps banks' to be in a position to meet its liabilities without difficulty. This has compelled central bank of Kenya to emphasize greater solvency and liquidity of each and every bank than making it optional. This theory captures LAD which is the ratio between Liquid Assets divided by Bank Deposits and it depicts the banks' liquidity position. The higher the liquid assets to banks' deposits ratio the better the liquidity and solvency of banks. Peltzman (1970) argues that if the asset portfolio of a bank is deemed too risky then the relevant supervisory agency should instigate a change in the banks' balance sheet.

## 2.3 Capital Adequacy and Banks' Profitability

Adequate capital is that quantum of funds which a bank should have or plan to maintain in order to conduct its business in an efficient manner (Nwankwo, 1991). Adequate capital can also be regarded as the amount of capital that can effectively discharge the primary capital function of preventing bank failure by absorbing losses. Adequate capital is a buffer against insolvency and liquidation in the business arena. An organization with inadequate capital faces hidden constraints and it spends much time working out on how to raise capital or guard against takeovers. A study by Goddard, Molyneux, and Wilson (2004), on capital adequacy as a determinant of profitability of banks revealed that a high capital adequacy ratio signifies a bank that is risk averse. It ignores investment in viable projects because of risk factor. This implies that their exist a negative relationship between equity to asset ratio and bank profitability.

Staikouras and Wood (2004) researched on the determinants of European bank profitability and they found that there exists a positive association between a greater equity and profitability among European banks. This implies that banks with higher levels of capital outperform undercapitalized Banks. Pasiouras and Kosmidou (2007)

researched on factors influencing the profitability of domestic and foreign commercial banks in the European Union. They focused on fifteen domestic and foreign commercial banks in the European Union between 1995 and 2001.They found that capital adequacy has a significant effect on bank profitability. The effect of capital adequacy on banks' profitability is not synonymous for domestic and foreign banks. Kosmidou (2008) did a research on the Determinants of Banks' Profits in Greece during the Period of European Union Financial Integration. The researcher found that capital adequacy had a positive association with Banks' profitability.

Saona (2011) researched on the determinants of the Profitability of the US Banking Industry. The finding was Capital adequacy positively affects Banks' profitability. The empirical evidence presented by Chaudrey, Perera and Skully (2013) on the Determinants of Commercial Bank Profitability in South Asian revealed that adequate capital is a significant driver of banks profitability. A study on an empirical analysis of Bank profitability in Ghana as evidenced from Bank Specific and Macroeconomic Factors by Dore (2013) revealed that capital adequacy and liquidity of banks are negatively associated with bank profitability. Scholarly works of Umoru and Osemwegie (2016) sought to determine the magnitude of significance of the capital adequacy ratio in influencing the financial performance of Nigerian banks. The study used feasible GLS estimates and found that the coefficient of asset quality was significant implying that capital adequacy had a negative effect on Banks' financial performance. Empirically, their study immensely emphasized that capital adequacy had an absolute overriding effect on Banks' profitability. The literature reviewed above led to the following hypothesis statement:

*$H_01$: Capital adequacy has no significant effect on Return on Assets*

## 3. MATERIALS AND METHODS

Research philosophy can simply be defined as a belief about the way in which data about a phenomenon should be gathered, analyzed and used. For this study, a positivism research philosophy was adopted. The choice for the positivism research philosophy is supported by the principle underlying this philosophy. According to the principles of positivism, the philosophy depends on quantifiable observations that lead themselves to statistical analysis. It is noted that positivism is in accordance with the empiricist view that knowledge stems from human experience. This principle conforms to the nature of the study in that it deals with the quantifiable observations. With regard to the progression of this study, it was guided by the hypotheses in attempt to show the association between independent variable and dependent variable. All these attributes of the study apply for the positivism research philosophy hence its choice as the ideal research philosophy. The study was carried out using a longitudinal research design, employing secondary quantitative data between 2013-2015. The sampling frame consists of tier 2 banks listed on the Nairobi Securities Exchange as at July 2017. A sample size of two tier 2 banks was incorporated in this study based on simple random sampling design.

The two Banks are Diamond Trust Bank and NIC Bank. The study utilized secondary data to answer the research hypothesis. Secondary data was obtained from Nairobi Securities Exchange handbooks and published books of accounts of the banks' listed on the Nairobi Securities Exchange. Audited financial statements of commercial banks were used to ensure that information was as accurate as possible. Return on Assets was used as proxy for banks' profitability and capital adequacy was proxied using total risk weighted Basel ratio. This paper adopts the risk based approach to capital adequacy measurement and it is applied to both on and off balance sheet items. In order to arrive at risk weights assigned on assets, this paper takes into consideration credit risk arising from the possibility of losses associated with reduction of credit quality of borrowers or counterparties, market risk which is the risk of losses arising from movements in market prices pertaining to interest rate related instruments and foreign exchange risk and commodities risk and finally operational risk. It involves the risk of loss as a result of failed systems, internal processes, people and external events. The data collected was analyzed using inferential statistics such as correlations and linear regression analysis. The regression analysis model was as elucidated below;

$$ROA\ M, t = \beta_0 + \beta_1 x_1, t + e\ M, t$$

$x_1$, t = Total Capital to Weighted Risk Assets of Selected Banks' in year t; e, t = error term, $\beta_0$ = intercept, $\beta_1$ = coefficients of $x_1$.

## 4. EMPIRICAL RESULTS

The results of Karl Pearson correlation revealed that capital adequacy has a strong positive association with Return on Assets (r =.810, P = .127, α > 0.05). This implies that as the proportion of Total Capital to Weighted Risk of Assets increases the Banks' Return on Assets increases as well as, as shown below in Table 4.1 below;

**Table 4.1:** Correlation between Capital Adequacy and Banks' Profitability

| | **Correlations** | | |
|---|---|---|---|
| | | Total capital to Risk weighted assets | Return on Assets |
| Total capital to Risk weighted assets | Pearson Correlation | 1 | |
| | Sig. (2-tailed) | | |
| | N | 6 | |
| Return on Assets | Pearson Correlation | .127 | 1 |
| | Sig. (2-tailed) | .810 | |
| | N | 6 | 6 |

(Source: Survey data, 2017)

As shown in the table below, the value of R-square is 0.016 which indicates that the model explains 16% of Banks' Profitability from the predictor variable (Total Capital to Risk weighted Assets). The

Durbin-Watson's d tests the null hypothesis that the residuals are not linearly auto-correlated. The value of Durbin-Watson was at 1.181 which indicates no autocorrelation among the variables as shown Table 4.2 below;

**Table 4.2:** Regression Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .127[a] | .016 | -.230 | .00427 | 1.181 |

a. Predictors: (Constant), Total capital to Risk weighted assets

b. Dependent Variable: Return on Assets

(Source: Survey Data, 2017)

Analysis of variance was employed to measure the differences between Banks' profitability and its predictor variable. The F-ratio was .066 at 1 degree of freedom which is the variable factor. This represented the effect size of the regression model and the model is significant at 95% confidence level (p=0.010) indicating that Banks' Profitability can be predicted from the aforementioned independent variable. The results are shown in the table 4.3 below;

**Table 4.3:** One Way ANOVA

| Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| 1 Regression | .000 | 1 | .000 | .066 | .010[a] |
| Residual | .000 | 4 | .000 | | |
| Total | .000 | 5 | | | |

a. Predictors: (Constant), Total capital to Risk weighted assets
b. Dependent Variable: Return on assets
(Source: Survey data, 2017)

As aforementioned, the model was found to be statistically significant. Further, the regression model can be outlined as follows;

*ROA = (.027) +X₁(.127) + .009*

$ROA = (.027) + X_1(.127) + .009$

Total capital to risk weighted assets had a beta coefficient of .127 implying that Total capital to risk weighted assets explained 12.7% change in Banks' Profitability as shown in Table 4.5;

**Table 4.5:** Coefficient Analysis

| Model | Unstandardized Coefficients B | Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|
| 1 (Constant) | .027 | .009 | | 3.023 | .039 |
| Total capital to Risk weighted assets | .011 | .043 | .127 | .257 | .810 |

a. Dependent Variable: Return on Assets
(Source: Survey data, 2017)

The Empirical Results of this study reveals that Capital Adequacy as proxied by Total Capital to Risk weighted Assets has a positive association with Banks' Profitability. The null hypothesis statement was accepted that capital adequacy has no significant effect on Banks' Profitability. The results are in tandem with the findings of Saona (2011); Chaudrey, Perera and Skully (2013); Staikouras and Wood (2004). The rationale for positive association is that capital adequacy ratio ensures efficiency and stability of a Banks' financial system. A high total capital to Risk weighted Assets boosts depositors' confidence in the banking services of a certain Bank. Capital adequacy is a symptom of a healthy balance sheet and it ensures a Bank has a strong capital enough to withstand shocks. The Capital buffers that have been introduced and loss absorptive capacity of Tier 1 and Tier 2 capital instruments of internationally active banks has been enhanced. Forward looking provisioning has been prescribed and modification made in counterparty credit risk weights. Studies of Dore (2013); Goddard, Molyneux, and Wilson (2004); Umoru and Osemwegie (2016) revealed that capital adequacy is negatively associated with bank profitability. These results are informed by differences in asset quality, bank size, liquidity, credit exposure, inadequate or failed internal processes, people and systems and financial leverage ratio.

## 5. CONCLUSIONS

Capital adequacy has a positive effect on Banks' Profitability. Rise in the proportion of Tier 1 and Tier 2 capital in relation to total risk weighted assets in turn increases Banks' Profitability. The requirement by the Central Bank of Kenya that a bank should maintain at all times a core capital of not less than 8% of total risk weighted assets, a core capital of not less than 8% of its total deposit liabilities and a total capital of not less than 12% of its total risk weighted assets and a capital buffer of 2.5% has enabled banking institutions to withstand future periods of stress.

## 6. RECOMMENDATIONS

Based on the analysis and findings in this study, it is suggested that the Central Bank of Kenya should not rely solely on the 1 billion minimum capitalization of banks as a determinant of good banks' profitability but should also concentrate on efficient and effective banks' regulation. Tier 2 Banks' should improve their asset quality, asset base, liquidity position and financial leverage ratio for purposes of achieving financial stability. Central Bank of Kenya should progressively continue to implement the Basel Accord in entirety. Diamond Trust Bank and NIC Bank and other Tier 2 Banks should continue to have a portion of capital known as buffer capital in its financial structure to handle credit exposure as a result of credit risk, market risk and operational risk resulting from inadequate or failed internal processes, people and systems.

## References

[1] Ayugi, W. (2016). Is The Banking Tier System Related To The Success of Banks in Kenya? Retrieved on 25th July 2017: https://covered.co.ke/blog/2016/09/banking-tier-system-kenya/

[2] Barrell, R., Davis, E., Fic, T., Holland, D., Kirby, S., & Liadze, I. (2009). 'Optimal regulation of bank capital and liquidity: How to calibrate new international standards', FSA Occasional Paper 38.

[3] Caggiano, G., & Pietro, C. (2011). The Macroeconomic Impact of Higher Capital Ratios on African Economies Working Paper No. 139. African Development Bank Group.

[4] Calem, P.S., & Rob, R. (1996). "The Impact of Capital-Based Regulation on Bank Risk-Taking: A Dynamic Model, Board of Governors of the Federal Reserve System," Finance and Economics Discussion Series 96/12 (February), 36.

[5] Chaudrey, Z., Perera, S., & Skully, M. (2013): Determinants of Commercial Bank Profitability: South Asian Evidence. *Asian Journal of Finance and Accounting*, 5(1), 365-380.

[6] Dore, M. (2013). An Empirical Analysis of Bank Profitability in Ghana: Evidence from Bank Specific and Macroeconomic Factors. Eastern Mediterranean University (EMU).

[7] Goddard, J., Molyneux, P., & Wilson, J.O.C. (2004). The profitability of European banks: A cross sectional and dynamic panel analysis. *The Manchester School,* 72 (3), 363–381.

[8] Harward, P., & Upton, A. (1991). *Introduction to Business Finance*. New York; Mc Graw Hill.

[9] Hassan, M. K., & Bashir, A. H. M. (2003). Determinants of Islamic banking profitability, in *the 10th ERF Annual Conference.* Morocco, December 16-18.

[10] Miles, D. J., Yang & Marcheggiano, G. (2011). Optimal bank capital. Discussion Paper No. 31 Bank of England.

[11] Nwankwo, G.O. (1991). *Bank Management, Principles and Practice*. Malthouse Press Ltd. Lagos.

[12] Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance,* 21(2), 222-237.

[13] Pasha, M. A., & Swamy, T.S. (2012). Basel II norms with special emphasis on capital adequacy ratio of Indian Banks. *A Journal of M P Birla Institute of Management*, 6(1), 23-40.

[14] Peltzman, S. (1970). "Capital Investment in Commercial Banking and its Relationship to Portfolio Regulation". *Journal of Finance,* 78(1), 1-26.

[15] Rivard, R. J., &Thomas, C. R. (1997). The effect of interstate banking on large bank holding company profitability and risk. *Journal of Economics and Business* 49(1), 61-76.

[16] Staikouras, C., & Wood, G. (2004). The determinants of European bank profitability. *International Business and Economics Research Journal*, 3 (6), 57-68.

[17] Umoru, D., & Osemwegie, J.O. (2016).Capital Adequacy and Financial Performance of Banks in Nigeria: Empirical Evidence Based on the Fgls Estimator. *European Scientific Journal*, 12 (25), 295 – 305.