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ABSTRACT

Purpose: The purpose of this study was to analyze Performance Measurement, Growth and Structure of Commercial Banks in East Africa

Methodology: The study used cross country data analysis of 100 commercial banks and collected secondary data from annual published audited financial statements for the period 1997-2011

Results: The results indicate that the OPM which combines productivity and profitability captured a high percentage of similar banks when the top 20 commercial banks were ranked; 80% for return on assets, 60% for profit margin and 55% for net interest margin. A positive and significant relationship between economic growth and performance measures was confirmed. Similarly market structure had a positive relationship with the performance. The results further showed an insignificant relationship with financial structure which conforms to the financial structure theory.

Policy recommendation: The study recommended that the OPM should enable central banks to assess the performance levels of banks and be able to detect those that are underperforming and take corrective measures to either improve productivity, profitability or both. For policy makers in the EAC secretariat, the measure will enable comparison on the performance of banks in East Africa for subsequent integration to the monetary union.

Keywords: *Performance Measurement, Growth, Structure of Commercial Banks in East Africa*

1.1 INTRODUCTION

Banks are the main part of the financial sector in any economy performing valuable activities on both sides of the balance sheet. A commercial bank is defined by is a financial intermediary that raises funds primarily by issuing checkable deposits (deposits on which checks can be written), savings deposits (deposits that are payable on demand but do not allow the owner to write checks), and time deposits (Mishkin, 2001). The Financial Times (2013) have a similar definition where a commercial bank refers to a financial institution providing services for businesses, organizations and individuals. The study by Diamond and Rajan (2001) highlights the strength of the banking system as an essential requirement to ensure the economic stability and growth. Services include offering current, deposit and saving accounts as well as giving out loans to businesses. On the asset side, they enhance the flow of funds by lending to the cash starved users of funds, whereas they provide liquidity to savers on the liability side. Banks also facilitate the payments and settlement systems and support the smooth transfer of goods and services. They ensure productive investment of capital to stimulate the economic growth. Hence it is this banking system that constitutes the largest part of the financial system in most countries, especially in emerging and developing markets (Beck and Dermiguc-Kunt, 2009).

The European Central Bank (2010) defines bank performance as the capacity to generate sustainable profitability. Kumar and Gulati (2010) define performance in both profit and non-profit organizations as an appropriate combination of efficiency and effectiveness. Profitability refers to the net gains after deducting all costs and is essential for ongoing activities as well as for its investors to obtain fair returns.

A performance measurement framework as noted by Bigliardi and Bottani (2010) assists in the process of performance measures building, by clarifying measurement boundaries, specifying performance measurement dimensions or views and may also provide initial intuitions into relationships among the dimensions. There are a multitude of measures used to assess bank performance with each group of stakeholders having its own focus of interest. (Rouse and Putterill, 2003)

1.2 Statement of the Problem

The worldwide financial crisis in 2008 highlighted the importance of financial systems and their role in supporting economic development. Commercial banks in particular play a critical role as they intermediate funds between savers and investors and hence evaluating their performance is important to depositors, owners, new investors and the central bank. During the financial crisis, a number of banks collapsed and were placed under receivership thus investors lost their savings. Prior to their collapse, the banks had shown favorable performance when measured using the most frequently used measures of return on assets and return on equity which then prompts the questions: 'How suitable are the current measures being applied?', 'Are these measures measuring the same thing?', 'Which perspective is comprehensive enough to tell us about overall performance?'. These questions have brought into focus and reignited the debate on applicability of the various measures of bank performance. The various performance measures reflect different perspectives and one does not get a clear view of the overall performance. An attempt has been made to construct a composite measure on productivity (combining efficiency and effectiveness) but this excludes profitability. The review of the literature exposes a research gap whereby there is an

absence of a measure that combines productivity and profitability to measure the overall performance of a financial institution.

Previous studies in East Africa have reviewed performance from the financial ratios perspective while others have looked at the aspects of efficiency but neither has considered the effectiveness of banks which is an important aspect of bank performance nor the application of a combined measure.

Performance of financial institutions is also influenced by key macro-level factors which include market structure, financial structure and economic growth. Therefore, there is need to assess the impact of these macro-level factors on commercial banks' performance, more so, the theoretical relationships between market structure, financial structure, output and performance measures due to the contradicting results from previous studies on these relationships.

This study therefore proposed a common measure that combined the key attributes of productivity and profitability to address this problem and analyzed the theoretical relationships with market structure, financial structure and output.

1.3 Objective of the Study

The specific objectives are:

1. To evaluate bank performance measures and propose a common measure for commercial banks in the East African Community (EAC) countries.
2. To assess the relationship between economic growth and bank performance for commercial banks in EAC countries.
3. To analyze the effect of market structure on bank performance in commercial banks in EAC countries.
4. To evaluate the influence of financial structure on bank performance in commercial banks in EAC countries.

2.0 LITERATURE REVIEW

2.1 Theoretical review

2.1.1 Finance Growth Theory

Over the past decade, as noted by Koivu (2002), considerable interest focused on the link between the financial sector and economic growth. Endogenous growth theory emerged in the late 1980's and paved the way for new theories exploring the link. Pagano (1993) suggests three ways in which the development of financial sector might affect economic growth under the basic endogenous growth model. First, it can increase the productivity of investments. Second, an efficient financial sector reduces transmission costs and thus increases the share of savings channeled into productive investments. Third, financial sector development can either promote or decline savings.

Financial sector development has been defined as the improvement in quantity, quality and efficiency of financial intermediary services. Schumpeter (1911), McKinnon (1973) and Shaw (1973) have postulated that financial development has a strong connection with economic growth. The theoretical basis for linking economic growth with financial development is that a well developed financial system fuels technological innovation and economic growth through the provision of financial services and resources to those entrepreneurs who demonstrate evidence of successfully producing innovative products and processes.

Inklaar and Koetter (2008) show that more efficient banks are particularly important in stimulating both output and productivity growth, while traditional volume measures of finance are less important for productivity growth. Both bank cost and profit efficiency scores are economically and statistically significant factors in spurring economic activity and they facilitate both output and productivity growth.

3.0 RESEARCH METHODOLOGY

The study used cross country data analysis of 100 commercial banks and collected secondary data from annual published audited financial statements for the period 1997-2011. This study therefore, employed a quantitative/scientific approach to deal with this ambiguity within the East African region. The target population was 127 commercial banks licensed at the start of every calendar year beginning 1st January 1997 to 1st January 2011 in the five countries namely; Uganda, Kenya, Tanzania, Rwanda and Burundi. However, two countries were excluded namely Rwanda and Burundi due to the unavailability of data for at least three years on their stock exchanges. Burundi does not have a functional stock exchange while Rwanda has a demutualised stock exchange that begun full operation in 2010 thus reducing the sample size from 127 to 100 commercial banks. The five countries form the East African Union which has begun the process of integration into a monetary union and hence the special focus on this region. The relationship between the performance scores and the exogenous factors was then analyzed using regression and Analysis of Variance Tests (ANOVA) to assess the strength and fit of the models to bring out trends that will lead to conclusions.

4.0 RESULTS AND DISCUSSIONS

4.1 Performance measurement model

The objective was to evaluate bank performance measures and propose a common measure of performance for commercial banks in the East African Community (EAC). The bank performance measures identified include Return on Equity (RoE), Return on Assets (RoA), Net Interest Margin (NIM), profit margin (PM), efficiency and effectiveness.

4.1.1 Common performance measures

The commonly used profitability ratios include return on equity, return on assets, net interest margin and profit margin. Productivity measures applied include efficiency scores, effectiveness scores and the single measure of performance (which is a combination of the efficiency and effectiveness scores).

4.2 Bank Performance Measures

The objective was to evaluate bank performance measures and propose a common measure of performance for commercial banks in the East African Community (EAC). The bank performance measures identified include Return on Equity (RoE), Return on Assets (RoA), Net Interest Margin (NIM), profit margin (PM), efficiency and effectiveness.

Descriptive statistics of the mean values of performance is presented in table 2 that the average ROE for Kenya was 21.2%, 12.4% for Tanzania and 30.7% in Uganda. The results for Kenya and Uganda are significantly higher compared to the East African commercial (EAC) banks average of 18.7% while Tanzania is lower. However, the results for EAC is lower than the average mean in Sub-Saharan Africa (SSA) of 28% but higher than for Middle East and North Africa at 19% as reported by Beck *et al.*, (2009).

Table 1: Mean scores for Performance for commercial banks 2006-2011

Country	Performance Measure					
	RoE	RoA	Efficiency	Effectiveness	NIM	PM
Kenya	0.212	0.029	0.544	0.569	0.059	0.339
Tanzania	0.124	0.005	0.560	0.387	0.038	0.142
Uganda	0.307	0.026	0.541	0.632	0.088	0.195
EAC	0.187	0.021	0.503	0.549	0.056	0.253

The average return on Assets (ROA) was 2.9% in Kenya and 2.6 % in Uganda which is significantly higher compared to the East African commercial banks average of 2.1%. However, Tanzania has a lower RoA of 0.5%. This implies that Kenyan and Ugandan commercial banks generate higher profits from the assets compared to their East African counterparts. Chen (2009) reports a higher mean average for SSA countries of 2.4% when compared to the average for the EAC banks of 2.1%.

The average Profit Margin (PM) was 33.9% in Kenya, 14.2% in Tanzania and 19.5% in Uganda. Commercial banks in Kenya recorded a PM score significantly higher than the East African commercial banks average of 25.3% while Tanzania and Uganda were lower. McKinsey (2012) highlight mean PM's of 19% for Asian countries, 27.33% for Western Europe and 28% for Northern Europe.

The average net interest margin was 5.9% in Kenya, 3.8% in Tanzania and 8.8% in Uganda. Tanzania and Uganda have NIM scores higher than the East African commercial banks average of 5.6% while Kenya scored lower. The average NIM for SSA countries is 6% while for Middle East and North Africa was 3% respectively as reported by Beck *et al.*, (2009).

The efficiency scores were highest in Tanzania at 56% followed by Kenya at 54.4% and Uganda at 54.1% and which were all higher than the EA combined score of 50.3%. This is an indication that over the study period 2006-2011, banks have been able to maximize their inputs (capital and deposits) to maximize their outputs (loans and investments).

The effectiveness scores were highest in Uganda 63.2% followed by Kenya at 56.9% and Tanzania at 38.7%. Tanzania is the only country that scored less than the EA combined score of 54.9%. This indicates that in Uganda and Kenya, banks have been able to maximize their inputs (loans and investments) to maximize their outputs (net interest and non-interest income).

Table 2: Pearson's correlation for Performance measures

		ROA	ROE	NIM	effectiveness	efficiency	PM
ROA	Pearson Correlation	1	.714**	.320*	.296*	.156	.695**
	Sig. (2-tailed)		.000	.011	.019	.222	.000
	N	63	63	63	63	63	63
ROE	Pearson Correlation	.714**	1	.343**	.234	.082	.615**
	Sig. (2-tailed)	.000		.006	.065	.523	.000
	N	63	63	63	63	63	63
NIM	Pearson Correlation	.320*	.343**	1	.651**	-.200	.143
	Sig. (2-tailed)	.011	.006		.000	.115	.263
	N	63	63	63	63	63	63
Effectiveness	Pearson Correlation	.296*	.234	.651**	1	-.073	.050
	Sig. (2-tailed)	.019	.065	.000		.570	.697
	N	63	63	63	63	63	63
Efficiency	Pearson Correlation	.156	.082	-.200	-.073	1	.154
	Sig. (2-tailed)	.222	.523	.115	.570		.228
	N	63	63	63	63	63	63
PM	Pearson Correlation	.695**	.615**	.143	.050	.154	1
	Sig. (2-tailed)	.000	.000	.263	.697	.228	
	N	63	63	63	63	63	63

** . Correlation is significant at the 0.01 level (2- tailed).

* . Correlation is significant at the 0.05 level (2- tailed).

The correlation analysis reveals that there is a negative and statistically insignificant (-.073) correlation between efficiency and effectiveness for banks in the EAC. However, effectiveness had a positive and significant correlation with NIM (0.651) and ROA (0.296)

but insignificant for ROE (0.234) and PM (0.05). Efficiency had a positive but insignificant correlation when compared to ROA (.156), ROE (.082), and PM (0.154). The relationship was negative and insignificant for NIM (-.200).

Due to the low correlation between efficiency and effectiveness and adopting the same methodology applied by Ho and Zhu (2004) and Kumar and Gulati (2010) the study combined the efficiency and effectiveness measures into the proposed single performance measure (SPM). The results for the 63 commercial banks were analyzed for the period (2006-2011) and for the calendar year 2011 individually.

4.3 Effect of growth on performance measures

The objective of this study sought to establish the relationship between economic growth and bank performance for commercial banks in EAC countries. The finance growth theory posits a positive and significant relationship between efficiency and economic growth.

The descriptive results (mean and standard deviations) for the sampled commercial banks are shown in table 3. The mean scores had a range of 0-1 with 0 indicating low while 1 representing high. The efficiency for the Kenyan banks was 0.683 while the mean effectiveness was 0.553 and combined score of 0.379 implying that Kenyan banks were more efficient than Tanzanian banks which had mean scores of 0.682, 0.467 and 0.192 respectively. However, commercial banks in Uganda are the most efficient and effective with mean scores of 0.919, 0.844 and 0.782 respectively.

Table.3 Descriptive statistics for Performance and Growth Indicators 2006-2011

Country	Variable	Mean	Std Dev
Kenya	Efficiency	.6836	.2033
	Effectiveness	.5538	.2444
	SPM	.3795	.2000
	OPM	.0759	.0522
	Real GDP	.045	.0193
Tanzania	Efficiency	.6826	.2703
	Effectiveness	.4670	.2635
	SPM	.3082	.2155
	OPM	.0357	.0398
	Real GDP	.0678	.0045
Uganda	Efficiency	.9187	.1442
	Effectiveness	.8444	.1933
	SPM	.5622	.2222
	OPM	.1877	.1562
	Real GDP	.0753	.0129

In Kenya, standard deviation of effectiveness (0.2444) is higher than standard deviations of efficiency (.2033), combined (.2000), Real GDP (.0193). From the results, Tanzania has a

standard deviation of efficiency (0.2704) which is higher than the standard deviations of effectiveness (0.2635), combined score (.2155) and Real GDP (.0045). However, in Uganda, the standard deviation of the combined scores (0.2222) which is higher than standard deviations of efficiency (.1442), effectiveness (.1933) and Real GDP (.0129).

High variations in the standard deviations imply that the variability of observations for the effectiveness is high and hence a higher likelihood of outliers. This is more so for the variables in Tanzania and Kenya.

4.3.1 Normality test for Performance and Growth Indicators

In order for ordinary least squares (OLS) regression to be applied, the data needs to be tested for three conditions namely; normality of data, serial correlation and homoscedasticity. This study therefore tests for normality in data which is a condition where the data is free from outliers or extreme variables. A normality test therefore checks whether the distribution of the data obeys the normality assumption. Regression analysis requires normal data since the standard errors and regression coefficients calculation require the use of a mean.

Various measures can be applied to conduct the Normality test which includes the Jarque-Bera test, Smirnov-Kolgoromov test, Shapiro-Wicks test and the Skewness and Kurtosis test (SK test).

The study applied the (SK test) which has been applied in similar studies where if p-value is greater than 0.05, then the data is said to be normally distributed. The SK test in table 2 indicates that only efficiency and effectiveness with joint p-values of 0.1957 and 0.1709 in Kenya follow a normal distribution. In the case of Uganda, the combined score and Real GDP with p-values of 0.1185 and 0.2269 follow a normal distribution.

Table 4 Normality test for Performance and Growth Indicators-Kenya, Tanzania and Uganda

Country	Variable	Pr(Skewness)	Pr(kurtosis)	adj chi2 (2)	SK Prob>chi2
Kenya	Efficiency	0.0748	0.8110	3.26	0.1957
	Effectiveness	0.1015	0.3657	3.53	0.1709
	SPM	0.0000	0.0306	51.83	0.0000
	OPM	.0016	0.0019	16.24	0.0003
	Real GDP	.0675	.0000	.	0.0000
Tanzania	Efficiency	0.0005	0.6476	10.70	0.0047
	Effectiveness	0.0011	0.2320	10.35	0.0057
	SPM	0.0000	0.1303	15.92	0.0003
	OPM	0.0031	0.0728	9.71	0.0078
	Real GDP	.0560	.0016	11.53	0.0031
Uganda	Efficiency	0.0001	0.0066	16.43	0.0003
	Effectiveness	0.1167	0.0250	6.74	0.0344
	SPM	0.0449	0.7658	4.27	0.1185
	OPM	0.0025	0.000	29.17	0.0000
	Real GDP	.8411	.1022	2.97	0.2269

From the results, joint SK p-values of efficiency (0.1957) and effectiveness (0.1709) variables in Kenya and the combined score (0.1185) and real GDP (0.2269) in Uganda follow a normal distribution as they have p-values greater than 0.05.

4.4 The effect of Market Structure on Bank Performance Measures

The objective was to analyze the effect of market structure on bank performance in commercial banks in EAC countries. Market structure was measured using three variables: market share (MS), Hirschman Herfindahl Index (HHI) and size (represented by log of total assets LnTA).

The MS was measured in terms of the deposits of individual commercial banks against the entire deposits of the banking sector. The level of market concentration was measured using the HHI which analyses each commercial bank.

4.4.1 Descriptive Statistics for Market structure

The average market share was 2.7% for Kenyan commercial banks. This is less compared with the East African Average of 9.2%. The average HHI was 0.26% and this is less than the East African Average of 3.1%. The average log of total of assets was 4.696 and this compares well with the East African Average of 4.76.

Table 5: Descriptive Statistics for EAC, Kenya, Uganda and Tanzania

Variable	EAC		Kenya		Uganda		Tanzania	
	Mean	Std.dev	Mean	Std.dev	Mean	Std.dev	Mean	Std.dev
MS	.0916	.0794	.0270	.0367	.2	.2220	.0476	.0623
HHI	.0310	.0388	.0026	.0073	.0841	.1351	.0063	.0142
LnTA	4.7667	.9982	4.6968	1.6291	5.0711	2.2902	4.5561	1.6936

The average market share was 20% for Ugandan commercial banks. This is higher compared with the East African Average of 9.2%. The average HHI was 8.4% and this is higher than the East African Average of 3.1%. The average log of total of assets was 5.07 and this compares well with the East African Average of 4.76.

The average market share was 4.7% for Tanzanian commercial banks. This is low compared with the East African Average of 9.2%. The average HHI was 0.63% and this is lower than the East African Average of 3.1%. The average log of total of assets was 4.56 and this compares well with the East African Average of 4.76.

4.5 The Effect of Financial Structure on Bank Performance Measures

The fourth objective was to determine the influence of financial structure on bank performance in commercial banks in EA commercial banks. Financial structure refers to the development of banks relative to that of markets and theory postulates that it does not have an independent effect on bank performance.

Financial structure is measured using two variables: w_1 measures the activity of stock markets relative to that of banks while w_2 measures size of stock markets relative to that of banks. The first variable w_1 is measured as the logarithm of the ratio of stock market capitalization to GDP while w_2 is measured as the ratio of stock market total value traded to GDP.

4.5.1 Comparative Model results using Panel Data Regression (Kenya)

The final model results for Kenya are presented in table 6 analyzing the relationship between the dependent variables (PM, NIM, ROA, ROE, SPM) and the independent variables (structure size, Lnw1; structure activity, Lnw2).

The results indicate that there is a negative and significant relationship between financial structure size (Lnw1) and PM (p-value<0.001) but a positive and significant relationship with SPM (p<.05). Results further indicate that there is a negative but insignificant relationship between financial structure size and NIM, ROA and ROE.

Table 6 Comparative Random Effects Model results

	PM	NIM	ROA	ROE	SPM	OPM
Lnw1	-0.0606*** (-3.76)	-0.00169 (-0.97)	-0.00541 (-1.81)	-0.00367 (-0.46)	0.0547* (2.62)	-0.087 (0.331)
Lnw2	0.00707* (2.17)	1.961*** (4.45)	-0.00378 (-0.14)	0.191 (1.85)	0.0195 (0.890)	0.149 (0.035)
Constant	0.467*** (9.29)	0.0635*** (15.97)	0.0405*** (6.46)	0.209*** (12.40)	0.259*** (5.91)	0.237* (8.32)
N	222	222	222	222	222	222
R^2	0.1365	0.0184	0.1705	0.2395	0.2177	0.205

NB: t statistics in parentheses

*p<0.05, **p<0.01, ***p<0.001

4.5.2 Comparative Model results using Panel Data Regression (Uganda)

The final results for Ugandan panel modelled using OLS are presented in table 7 and they indicate that there is a negative and significant relationship between financial structure size and PM (p-value<0.05) and ROE (p-value<0.01). There is a negative but statistically insignificant relationship with NIM and ROA but positive with SPM.

The relationship between financial structure activity and ROE is positive and significant (p<0.01) but insignificant for SPM. PM, NIM, and ROA have a negative and statistically insignificant relationship with financial structure activity.

Table 7: OLS Model and Random Effects results

	PM	NIM	ROA	ROE	SPM	OPM
Lnw1	-0.0584* (-2.36)	-0.00123 (-0.22)	-0.0088 (-3.38)	-2.712** (-3.43)	0.00534 (0.22)	-1.436 (-2.69)
Ln w2	-0.0290 (-0.93)	-0.00570 (-1.32)	-0.0023 (-0.77)	1.222* (2.38)	0.00539 (0.24)	0.678 (1.39)
Constant	0.183 (1.32)	0.104*** (4.46)	0.0174 (1.28)	-4.955 (-1.89)	0.852*** (7.49)	-3.05* (-1.49)
N	30	30	30	30	30	30
R ²	0.526	0.123	0.641	0.401	0.022	0.184

NB: t statistics in parentheses

*p<0.05, **p<0.01, ***p<0.001

Source: Author (2013)

4.5.3 Comparative Model results using Panel Data Regression (Tanzania)

Fixed effects were used to run the PM, ROA, ROE, and SPM model. NIM was run in OLS. Results in table 8 for Tanzanian commercial banks indicate that there is no significant relationship between financial structure size and structure activity and any of the bank performance measures.

Table 8 Comparative random effects results

	PM	NIM	ROA	ROE	SPM	OPM
Lnw1	-0.0602 (-1.41)	-0.00182 (-1.78)	-0.0405 (-1.36)	-0.0952 (-1.11)	-0.00701 (-0.34)	-0.0346 (-0.842)
Ln w2	0.0659 (0.85)	0.00180 (1.14)	0.0449 (0.98)	-0.0201 (-0.67)	0.0260 (0.72)	0.0891 (0.365)
Constant	-0.0853 (-0.44)	-0.00126 (-0.31)	-0.0326 (-0.30)	-0.00524 (-0.16)	0.145 (1.53)	-0.432 (-1.03)
N	126	126	126	126	126	126
R ²	0.016	0.026	0.018	0.010	0.04	0.038

NB: t statistics in parentheses

*p<0.05, **p<0.01, ***p<0.001

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

The study also developed the overall performance measure (OPM) which was a product of SPM and ROE. When the top 20 banks were ranked using the OPM as the base indicator, the results showed that 12 banks (60%) are in the top 20 when compared against the profit margin (PM), 16 banks (80%) for return on assets and 11 banks (55%) for NIM. This indicates that OPM compares relatively well with the key measures of SPM, PM, ROA, ROE and NIM and can be considered as a robust performance measure.

The second objective of this study was aimed at establishing the relationship between economic growth (measured by real GDP growth) and the common measures of performance. The objective was addressed by testing hypothesis 2 (H2). The findings of this study indicate that there is a positive and significant relationship between economic growth and performance in Kenya and Tanzania but insignificant relationship in the case of Uganda. The insignificant relationship in the case of Uganda can be attributed to the small sample of commercial banks. The results for Kenya and Tanzania indicate that the SPM and OPM conform to the finance growth theory and this strengthens their acceptability as measures of performance.

The results support the earlier studies (Koivu, 2002; Berger *et al.*, 2004) where efficiency and growth are positively related. The findings support the view that the presence of an efficient banking sector is accelerated by economic growth. In particular, researchers have provided additional findings on the finance-growth nexus and have offered a much bolder appraisal of the causal relationship; firm-level, industry-level, and cross-country studies all suggest that the level of financial development exerts a large, positive impact on economic growth.

The third objective sought to establish the relationship between market structure (market share, concentration and size) and bank performance measures and it was addressed by testing hypothesis 3. The results were done for both balanced and un-balanced panel data sets. The findings from the balanced panel data set indicate a negative and significant relationship between market share and profit margin (PM) and return on assets (ROA) but positive for the single performance measure (SPM) and the overall performance measure (OPM). The concentration measure (represented by the Hirschman Herfindahl Index (HHI) is positive and significant for PM, ROA, SPM and OPM. The size (measured by the logarithm) is negative but insignificant for all the performance measures. The unbalanced panel data set shows a positive and significant relationship for only market share and Return on equity (RoE) and SPM. The results show that SPM and OPM conform to the market structure theory for both the balanced and unbalanced panel data sets and can therefore be applied to test the effects of market share and concentration on bank performance.

5.2 Recommendations

The common measure proposed under objective 1 has been shown to be a robust measure as it combines The fourth objective sought to establish the relationship between financial structure and bank performance, and it was addressed by testing hypothesis 4 (H4). The results were similarly done for both balanced and un-balanced panel data sets. The findings from the balanced panel data set indicate a positive and significant relationship between financial structure and RoE while insignificant for OPM, SPM, PM, ROA and NIM. The

results were the same for the unbalanced panel data set. The finance structure theory postulates an insignificant relationship between financial structure and profitability as a measure of performance. The results from this objective conform to the theory and hence the SPM can be considered as an alternative measure of performance for commercial banks in East Africa.

The relationship between financial structure (structure activity and structure size) was analyzed under hypothesis 4 and was based on the position that a significant relationship exists. The results indicate that structure size does not influence bank performance and this conforms to the financial structure theory. However, structure activity has a negative influence on the bank performance implying that as the stock activity increases bank performance (when measured by RoE, SPM and PM) decreases.

The study has therefore contributed to new knowledge by proposing a common measure of performance, testing its correlation with existing performance measures and ranking them. The SPM and OPM were also tested as to whether it conforms to existing theoretical frameworks with regards to economic growth; market structure and financial structure and the results have yielded positive results. Both productivity and profitability and can be used by the regulators (Central banks) and bank managers to assess bank performance. Its ability to classify the efficiency and effectiveness separately will enable the bank regulator to identify banks that are inefficient and ineffective in their use of resources.

The second objective of this study has highlighted a positive relationship between economic growth and bank performance. The Central bank can therefore follow the performance levels from both the productivity and profitability aspects as a way of monitoring individual bank performance levels so as to boost economic growth in the economy.

The positive relationship between market share, concentration and bank performance was observed under objective 2. Further, from the results large banks have been found to be more efficient and more effective than small banks in generating net-interest and non-interest incomes. Therefore, bank regulators should place more emphasis on consolidation of banks which will also increase the stability of banks by having a higher combined core capital for the commercial banks in the member states. The results also showed that Multi-national banks (MNBs) which comprise banks that own and control branches and affiliates in more than one country were more efficient than Indigenous banks (IBs) which do not have branches outside their home country. However, in terms of effectiveness, IB's were more effective than MNB's. In the spirit of integration, bank regulators should ensure monthly supervision visits so as to assess the levels of efficiency and effectiveness so as to enable MNB's increase their effectiveness so as to encourage banks to open up branches within the member state countries and even beyond.

The government, through the Competition Authority of Kenya, should constantly monitor the banking sector and strengthen anti-monopolistic policies where few banks dominate the market so as to protect small banks from unfair competition in the market. Small banks should adopt modern technology (online banking, use of automated teller machines and Mpesa) so as to be able to improve on their efficiency and effectiveness levels so as to compete with the large banks.

The fourth objective analyzed the relationship between financial structure (that is, the relative development of banks versus markets) and bank performance. The insignificant relationship

between structure size and bank performance conforms to the finance structure theory and therefore bank regulators need to encourage banks to list on their respective stock exchanges so as to increase banks share and also to enable them source for funding in the capital markets. A large number of small banks are privately owned and the National Securities Exchange can reduce listing fees and allow for direct placement of shares in the stock exchange as was done for Equity bank and family bank.

5.3 Future research areas

The study looked only at commercial banks in Kenya, Tanzania and Uganda. There is need for a review of other financial institutions namely community banks, microfinance institutions and co-operative societies which also intermediate funds.

The population of the commercial banks was drawn from Kenya, Uganda and Tanzania. Future studies can use larger samples of commercial banks and more countries in the context of the African perspective.

REFERENCES

- Aarma, A., Vainu, J., & Vensel, V. (2004). 'Bank Performance Analysis: Methodology and Empirical Evidence (Estonian Banking System, 1994-2002)'. *Journal of Economic Literature*, (21), pp.1-28.
- Beck, T., Fuchs, M., & Uy, Marilou. (2009). 'Finance in Africa', World Bank Policy Research Working Paper 3955.
- Bigliardi, B., & Bottani, E. (2010). 'Performance measurement in the food supply chain: a balanced scorecard approach', *Facilities*, vol. 28, (5/6), pp.249-260.
- Chatzoglou, D. P., Diamantidis, D. A., & Vraimaki, E. (2010). 'Banking productivity: an overview of the Greek banking system', *Managerial Finance*, vol. 36, (12), pp. 1007-1027.
- Cihak, M., Demirguc-Kunt, A., Feyen, E., & Levine, R. (2012). 'Benchmarking Financial Systems around the World', World Bank Policy Research Working Paper 6175.
- Cihak, M., & Podpiera, R. (2005). 'Bank behavior in Developing Countries: Evidence from East Africa', IMF Working Paper WP/05/129
- Delis, D. M., & Papanikolaou, N. I. (2009). 'Determinants of bank efficiency: evidence from a semi-parametric methodology', *Managerial Finance*, vol. 35, (3), pp. 260-275.
- Demirguc-Kunt, A., & Huizinger, H. (2001). 'Financial Structure and Bank Profitability', World Bank Policy Research Working Paper 2430.

- Demirguc-Kunt, A., & Huizinger, H. (2001). 'Financial Structure and Bank Profitability', World Bank Policy Research Working Paper 2430
- Demirguc-Kunt, A., & Martinez-Peria, M. S. (2010). 'A Framework for Analyzing Competition in the Banking Sector: An Application to the Case of Jordan'. World Bank Policy Research Working Paper 5499.
- Dietrich, A., & Mattig, A.W. , (2010). 'Bank Market Structures and Performance Around the World', (July 1, 2010). Available at SSRN: <http://ssrn.com/abstract=1860194>
- Edwards, S. , Allen, A. J. , & Shaik, S. (2006). 'Market Structure Conduct Performance (SCP) Hypothesis Revisited using Stochastic Frontier Efficiency Analysis', Paper presented American Agricultural Economics Association Annual Meeting, Long Beach, California, July 23-26, 2006
- European Central Bank (2010). 'Beyond ROE-How to measure bank performance', Germany
- Keh, H. T. , & Chu, S. T. (2006). 'Efficiency, effectiveness and productivity of marketing in services', *European Journal of Operational Research*, vol. 170, (1), pp. 265-76.
- King, R. G., & Levine R. (1993). 'Finance, entrepreneurship, and growth: Theory and evidence'. *Journal of Monetary Economics*, vol. 32, pp. 513-542
- Levine, R. , Loayza, N., & Beck, T. (2000). 'Financial intermediation and growth: Causality and causes'. *Journal of Monetary Economics*, 46, (1), pp. 31-77
- Mishkin, F.S. (2001). *The Economics of Money, Banking and Financial Markets*, 6th edition Addison Wesley Publishers, NY, USA.
- Panagiotou, G. (2006). 'The impact of managerial cognitions on the structure-conduct-performance (SCP) paradigm: A strategic group perspective, *Management Decision*, vol. 44, (3), pp. 423-441
- Ruiz-Porras, A. (2009). 'Financial Structure, Financial Development and Banking Fragility: International Evidence', *Análisis Económico*, Núm. 56, vol. XXIV, pp. 147-173.
- Wong, J. , Wang, T. , Wong, E., & Choi, K. (2007). 'Determinants of the performance of banks in Hong Kong', *Working Paper 06/2007*, Hong Kong Monetary Authority