FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN TANZANIA: A CAMEL MODEL APPROACH.

Magoma, A.[1], Mbwambo, H.[2], Sallwa, A.[3] & Mwasha, N.[4]
[1]Tanzania Institute of Accountancy, Mwanza-Tanzania
[2&4] College of Business Education, Mwanza-Tanzania
[3]College of Business Education, Dar es Salaam-Tanzania
[1]anthonyrmagoma@gmail.com *or* anthony.magoma@tia.ac.tz
[2] h.mbwambo@cbe.ac.tz
[3]a.sallwa@cbe.ac.tz
[4] n.mwasha@cbe.aac.tz

ABSTRACT
Purpose: The study focused on analysing the financial performance of seven listed commercial banks at the Dar es Salaam Stock of exchange (DSE) for five years from 2016 to 2020. CAMEL model was utilised to fully assess the financial strength of these listed banks. CAMEL is an acronym that stands for capital adequacy, asset quality, management efficiency, earning quality and liquidity

Design/Methodology/Approach: Explanatory research design was applied fully to establish the cause and effect relationship that exists between the response variable (banks performance) and explanatory variables (capital adequacy, asset quality, management efficiency, earning quality and liquidity) of commercial banks listed at DSE in Tanzania. Secondary data were sourced from audited financial statements and annual reports. Pre regression analysis was done (multicollinearity test and Durbin-Watson test). Last but not least correlation and linear regression analysis were done.

Findings: The findings reveal that commercial banks listed at the DSE in Tanzania are mostly affected by management efficiency and capital adequacy

Research Limitations/Implications: This study focused on using CAMEL analysis on only seven listed commercial banks at DSE in Tanzania from 2016 up to 2020.

Practical implications: The study demonstrated the use of CAMEL analysis in measuring the listed commercial banks' performance in Tanzania. Thus this model can be used as the benchmark in deciding to yield better performance results for the listed commercial banks in Tanzania.

Originality/ Value: The study demonstrated the use of CAMEL analysis in measuring the listed commercial banks' performance in Tanzania.

Keywords: Financial performance; CAMEL model; listed commercial banks; Tanzania

1.0 INTRODUCTION
1.1 Background information
The global financial crisis witnessed in the year 2008 highlighted the importance of airing out the factors that determine bank profitability. The key challenge facing both developing and developed countries is to assess what drives the financial performance of banks (Fidanoski, Choudhry,

Davidović & Sergi, 2018). Banks' profitability and stability in financial institutions is an area that needs regulators and bank supervisors to be keen on especially after the 2007/2008 financial crisis (Adusei, 2015). It is good to note that the financial sector acts as a catalyst for achieving sustainable economic growth as a well established financial sector encourages viable investments and efficient resource allocation on top of stimulating various trading activities in any given country. The performance of the banking system determines how well a financial sector is functioning in any given country as the banking sector fulfils the intermediary role and sustains the economic growth and its fact that cannot be refuted that the banks serve as a backbone to the financial sector (Boateng, 2019; Samuel, 2018; Tsegazeab, 2019). For the banking system to be labelled efficient it ought to be profitable and serve as the financial intermediary between the deficit individuals and surplus individuals. Hence banks' profitability is a key driver that is of interest to investors when analysing the performance of management (Menicucci & Paolucci, 2016). Thus, investigating the performance of the bank is a duty of all interested parties such as the management of the banks, the central banks of countries and all individuals and firms affected by the performance of these banks Al Zaidanin, 2020).

1.2 Problem statement

The banking sector's performance is believed to be a snapshot of the economic status of any country (Misra & Aspal, 2013). Commercial banks in Tanzania have passed through various regulatory and technological changes, some of the regulations that govern the banks and financial institutions in Tanzania are Banking and Financial Institutions Act (BFI Act 2006). And the Bank of Tanzania Act (BOT Act 2006). In Tanzania specifically at the beginning of 2018, the Bank of Tanzania closed five relatively smaller banks that failed to adhere to capital requirements for an extended period. In July 2018 one of the top 10 banks in the country was put under the Bank of Tanzania administration following persistent liquidity challenges (PWC, 2019). It is from this standpoint that the researchers decided to carry out a financial performance analysis of listed Commercial banks by fully utilizing the CAMEL model from 2016 to 2020.

THEORIES UNDERPINNING OF THE STUDY
CAMEL Model

CAMEL model is a framework mostly used for the estimation of bank performance. (Rose & Hudgins, 2010; Rozzani & Rahman, 2013). In analyzing the financial soundness of banks CAMEL is an acronym that stands for capital adequacy, asset quality, management efficiency, earning quality and liquidity (Getahun, 2015). Most studies have applied the CAMEL model for instance a study conducted in Ethiopia analysed the performance of the Ethiopian banking industry the results of the study proved helpful to the governor of the central bank in setting well-determined policies and procedures needed to guide the banking industry(Yonas, Hamdu & Michael, 2015).

Parameters descriptions
The factors that influence banks' profitability can either be internal or external and can as well be quantitative and qualitative in nature (Ghouila & Jilani, 2019). This particular study focused on bank-specific factors commonly known as internal factors aired out by the CAMEL model.

Response variable
When firms use their resources effectively and efficiently in meeting their goals and managed to generate more revenues above their expenses then it's more likely that these firms will be profitable in their undertakings (Baker *et al.*, 2019). In this particular study, profitability is used as a measure of a firm's performance. Previous studies used Return of equity (ROE) and Return on Assets (ROA) as a proxy for measuring a firm's performance. This study chose ROA as a proxy for measuring profitability (Alipour, Farhad, Mohammadi & Derakhshan, 2013).

Explanatory variables
Capital adequacy:
Banks with adequate capital have the capital strength to survive tough economic times and their capital adequacy indicates when these banks will need external funding from financial institutions. Thus, banks with enough capital strength will shy away from external funding which will eventually lower their cost of capital leading to higher profits (Al Zaidanin, 2020).
H1: The capital adequacy ratio has a significant positive relationship with Commercial banks' performance.

Asset quality: Non-performing assets in a bank's portfolio negatively affect the performance of the bank. Quality assets of the banks enable banks to be profitable as these assets will be yielding the needed returns for banks' survival. Banks with an immense portion of non-performing loans suffer from owning assets portfolios that are in bad health and vice versa is also true (Samuel, 2018; Aspal & Dhawan, 2016). Thus, asset quality affects the bank's performance negatively (Al Zaidanin, 2020).
H2: Asset quality has a significant negative relationship with Commercial banks' performance.

Management efficiency: The strength of the bank's management team in terms of technical skills, exposure and experience gathered through the years is an added advantage that guarantees the bank's success in the marketplace. Thus, it is true to mention that the success or failure of any organization is highly depending on the managerial capability as far as smooth running of the business affairs is concerned. Thus, quality managerial efficiency results in business success and vice versa are also true (Gautam, 2020).
H3: Management efficiency has a significant positive relationship with Commercial bank performance.

Earning quality: The power of the banks to earn more returns is crucial as in so doing the banks can able fulfil their financial obligations expected by the capital providers as well as the increase

future value of the banks in the sight of the public (Gautam, 2020). Thus, banks that earn huge returns stand a better chance of making more profit than their counterparts

H4: Earning quality has a significant positive relationship with Commercial banks' performance.

Liquidity: It is an indisputable fact that inadequate liquidity position of the banks is one of the most important reasons that end up in the failure of most banks. . Thus, liquidity risk entails the failure of the banks to fulfil their short term obligations once they come due and it must be known that lower liquidity position of the banks will eventually lead into solvency problems of the latter (Adusei, 2015; Gautam, 2020; Al Zaidanin, 2020). Thus, a more liquid bank stands a better chance of performing better in the market in which it operates.

H5: Liquidity has a significant positive relationship with Commercial banks' performance.

Empirical perspective
Rankings/Ratings under CAMEL Approach
Commercial banks' performances in Nepal are stricken by liquidity, earning quality and asset quality as these parameters were statistically significant (Kandel, 2019). Likewise, the performance of Commercial banks in Iran is highly influenced by management quality, asset quality and capital adequacy (Bastan, Bagheri & Mohammad, 2015). In another study that assessed the financial performance of public banks in India findings revealed that Baroda bank scored highly in earning quality, management efficiency and capital adequacy as compared to other public banks in the study (Kaur, Kaur & Singh, 2015).

Causal Relationship
A study that focused on financial analysis through the utilization of CAMEL ratings conducted by the World Finance Magazine from 2012-to 2014 revealed that top African banks are labelled to be strong when viewed in the light of their capital strength and their earning capacity over the years. Likewise, banks are rated weak and less satisfactory in asset quality, management quality and liquidity (Desta, 2016). The commercial banks analysed by the utilization of CAMEL parameters in Ethiopia revealed that there was a positive relationship that existed between bank performance and earning capacity as well as the liquidity position of the banks. Other CAMEL parameters had a negative relationship with bank performance (Getahun, 2015).

In Turkey 29 Commercial banks were analysed through the utilization of the CAMEL ratios from 2004-to 2014 and the result revealed that the credit ratings of the banks are significantly affected by strong management, the level of bad debts and sensitivity to the risk that are available in the market (Yuksel, Dincer & Hacioglu, 2015). The financial soundness of Commercial banks in Malaysia by utilization of the CAMEL model from 2008-to 2012 revealed that banks' capital strength, earning capacity over the years, the level of bad debts and liquidity position highly influence the financial soundness of the banks under the study (Muhmad & Hashim, 2015). According to Assfaw (2018), pointed out that Ethiopian Private banks' performance is highly influenced by the level of un-payable loans, earning capacity of the banks over the years and the

size of the banks. The study recommended that the management of these banks should target strengthening these factors that were significant to enhance the financial performance of the banks in the future.

Description of CAMEL parameters used in this study

Table 1: Description of CAMEL parameters

	Variable	Acronym	Definition	Formula	Authors
Response variable	"Profitability"	ROA	Net income to total assets ratio	NI/TA x 100	(Alipour *et al.*, 2013)
Explanatory variables					
1	Capital adequacy	CA	"Total equity to total asset ratio"	"TE/TA x 100"	(Al Zaidanin, 2020).
2	"Asset quality"	"AQ"	"Non-performing loans/Total loans"	NPLs/ total loans	(Al Zaidanin, 2020)
3	Management efficiency	ME	Total loans/total deposits	TL/TD	(Gautam, 2020).
4	Earning quality	EQ	"Net interest income/Total assets"	NII/TA x100	(Gautam, 2020)
5	Liquidity	LQ	"Liquid assets/Total assets"	LA/TA x100	(Al Zaidanin, 2020).

2.0 METHODOLOGY

Boateng (2019), contended that the CAMEL model is applicable in the evolution and transformation of banks, encouraging transparency and identifying the institutional and managerial strengths and weaknesses. Thus this model was fit for this study. The explanatory research design was applied fully to establish the cause and effect relationship that exists between the response variable (banks performance) and explanatory variables (capital adequacy, asset quality, management efficiency, earning quality and liquidity) of commercial banks listed at DSE in Tanzania. All seven commercial banks were used for this study for a period of five years leading to 35 data points or observations.

Bushra & Mirzsa (2015), recommended that for a quantitative study to be viable it should involve more than 30 observations or data points. This study had 35 observations or data points. Pre regression analysis was done (multicollinearity test and Durbin-Watson test). Last but not least

correlation and linear regression analysis were performed to ascertain the cause and effect relationships that exist between variables. Table 2 shows the list of listed commercial banks used in this particular study.

Table 2: Listed Commercial banks at the DSE in Tanzania

S/NO	Name of the Bank	Abbreviation	Year to be listed at DSE
1	Dar es Salaam Commercial Bank Plc	DCB	2008
2	National Microfinance Bank Plc	NMB	2008
3	CRDB Bank Plc	CRDB	2009
4	Maendeleo Bank Plc	MBP	2011
5	Mkombozi Commercial Bank Plc	MKCB	2014
6	Mwalimu Commercial Bank PLC	MCB	2015
7	Kenya Commercial Bank Plc	KCB	2016

Source: Dar es Salaam Stock of the exchange website

This study is guided by the following equation

$$ROA_{it} = \beta_0 + \beta_1 CA + \beta_2 AQ_{it} + \beta_3 ME_{it} + \beta_4 EQ_{it} + \beta_5 LQ_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{Eqn } 1$$

Where: ROA stands for Return on Asset (performance measure)
CA stands for Capital Adequacy of listed commercial banks
AQ stands for Assets quality of listed commercial banks
ME stands for Management Efficiency of listed commercial banks
EQ stands for Earning quality of listed commercial banks
LQ stands for Liquidity of listed commercial banks
β_0= Constant term
β_1, β_2, $\beta_{3,4}$,β_5 stands for coefficients of independent variables used in this study
ε stands for the error term in this study.

3.0 RESULTS AND DISCUSSION
Descriptive statistics
Descriptive results of key variables (Outcome and controlled variables) from seven (7) listed commercial banks in Tanzania whose financial results were available from 2016 to 2020 are shown in Table 3.

Table 3: Listed Commercial banks descriptive results/statistics

Variables	Min	Max	Mean	SD
ROA	.06	69.37	4.9765	11.97874
Capital adequacy	8.20	92.74	22.6958	19.56602
Asset quality	0	20	8.30	5.853
Management Efficiency	34	254	84.53	44.177
Earning quality	1.93	11.87	7.3191	2.50728
Liquidity	14.39	85.70	64.9083	21.89593
N= 35				

Source: Estimation from SPSS output

Test of multicollinearity

A test was conducted on independent variables used in the study to test if there was an existence of inter-correlation between these variables. The multicollinearity test is an important test to enhance the reliability of data collected and if data collected have multicollinearity then these data are tagged unreliable (Mazengo & Mwaifyusi, 2021). Data are free from multicollinearity if the tolerance is 0.10 or greater and Variance Inflation Factor (VIF) value does not exceed 10.0 (Pallant, 2020). Table 4 shows the results of the multicollinearity test and the results reveal that multicollinearity does not exist between all the independent variables. This implies that all the independent variables were reliable and valid.

Table 4: Multicollinearity test

Explanatory Variables	Tolerance	VIF
"Capital adequacy"	.548	1.826
"Asset quality"	.620	1.614
"Management efficiency"	.796	1.256
"Earning quality"	.794	1.260
"Liquidity"	.923	1.083

Source: Estimation using SPSS

Test for Autocorrelation

The most applied test for the existence of autocorrelation between variables is Durbin-Watson test (Kamboj & Gupta, 2020). Variables are labelled not to have autocorrelation if the Durbin-Watson test value ranges from 1.5 to 2.5 (Mazengo & Mwaifyusi, 2021). The results in Table 5 show that there is no autocorrelation between variables as the Durbin-Watson test has a value of 2.500.

Table 5: Durbin-Watson test for Autocorrelation

Model	Durbin-Watson Value
1	2.500

Source: Estimation using SPSS

Correlation Matrix

Listed commercial banks' performance measured by ROA has a positive correlation to capital adequacy (r= .833), management efficiency (r=.038) and earning quality (r= .314). Likewise, ROA has a negative correlation to asset quality (r=-.346) and liquidity (r=-.282) as depicted in Table 6.

Table 6: Correlation matrix

Correlation Matrix						
Variables	ROA	CA	AQ	ME	EQ	LQ
ROA	1					
CA	.833**	1				
AQ	-.346*	-.489**	1			
ME	.038	.330	.063	1		
EQ	.314	.231	.201	.212	1	
LQ	-.282	-.157	.071	.098	-.172	1

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

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

The overall model used in this study is statistically significant as the f-statistic value is .000 which is less than 5%. Likewise coefficient of correlations (R) was 89.5% meaning that 10.5% of other determinants were not used in this particular study. The coefficient of determination (R-Square) was 80.1% and the adjusted R-square was 76.7% (Seen in Table 7)

Table 7: Model testing

	Sum of Squares	df	Mean Square	F	Sig.
Regression	3907.740	5	781.548	23.344	.000[b]
Residual	970.924	29	33.480		
Total	4878.663	34			
R	.895[a]				
R Square	.801				
Adjusted R square	.767				
Standard error estimate	5.78620				

a. Response Variable: ROA
b. Predictors: (Constant), Liquidity, Asset quality, Management Efficiency, Earning Capability, Capital adequacy

From Table 8 the listed commercial banks' performance in Tanzania is predicted by the following model;

$$ROA_{it} = -4.3022+ .581CA +.247AQ-.081ME+.568EQ-.050LQ + \varepsilon_{it}$$

Table 8: Coefficients of determination results

Coefficients[a]					
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.302	4.887		-.880	.386
	Capital adequacy	.581	.069	.949	8.478	.000
	Asset quality	.247	.215	.120	1.145	.262
	Management efficiency	-.081	.025	-.299	-3.223	.003
	Earning quality	.568	.444	.119	1.278	.211
	Liquidity	-.050	.047	-.092	-1.061	.297

a. Response Variable: ROA

Source: Estimation using SPSS

Discussion

Capital Adequacy And Listed Commercial Financial Performance

The results reveal that capital adequacy and listed banks' performance measured in terms of ROA has a positive association and the formulated hypothesis was significant at the 5% level (r=0.833, p-value=0.000) as depicted in Tables 6 and 8 respectively. The theory argues that the higher the capital adequacy ratio the lower the need for external funding and thus the higher the profitability. These results were in alignment with other studies conducted such as those (Muhmad & Hashim, 2015) and contrary to those (Getahun, 2015) who concluded that capital adequacy has an insignificant impact on financial performance.

Asset Quality And Listed Commercial Banks' Performance

The results reveal that asset quality and listed banks' performance measured in terms of ROA has a negative association and the formulated hypothesis was insignificant at the 5% level (r=-.346, p-value=.262) as depicted in Table 6 and 8 respectively. The theory argues that asset quality affects the banks' performance negatively (Al Zaidanin, 2020) as depicted in the results through the impact was insignificant contrary to previous studies conducted (Muhmad & Hashim, 2015; Yuksel et al.,2015:Assfaw, 2018).

Management Efficiency And Listed Commercial Banks' Performance

The results reveal that management efficiency and listed banks' performance measured in terms of ROA have a positive association and the formulated hypothesis was significant at a 5% level (r=-..038, p-value=.003) as depicted in Tables 6 and 8 respectively. The theory argues that higher managerial efficiency signifies higher organizational success and in turn higher profits recorded and vice versa is true (Gautam, 2020). These results were in line with a study previous study conducted by (Yuksel et al., 2015).

Earning Quality And Listed Commercial Banks' Performance

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The results reveal that earning quality and listed banks' performance measured in terms of ROA has a positive association and the formulated hypothesis was insignificant at the 5% level (r=.314, p-value=.211) as depicted in Tables 6 and 8 respectively. These results were contrary to a study previously conducted by (Muhmad & Hashim, 2015).

Liquidity And Listed Commercial Banks' Performance
The results reveal that liquidity and listed banks' performance are negatively related whereas the formulated hypothesis was insignificant at the 5% level (r=-.282, p-value=.297) as depicted in Tables 6 and 8 respectively. These results were contrary to a study previously conducted by (Getahun, 2015).

4.0 CONCLUSION AND RECOMMENDATIONS
The findings reveal that commercial banks listed at the DSE in Tanzania are mostly affected by management efficiency and capital adequacy.

The study demonstrated the use of CAMEL analysis in measuring the listed commercial banks' performance in Tanzania. Thus this model can be used as the benchmark in deciding to yield better performance results for the listed commercial banks in Tanzania.

This study focused on using CAMEL analysis on only seven Commercial banks that are listed at the DSE in Tanzania from 2016 up to 2020. Other studies should include more than one country let's say listed East African Commercial banks and cover more years to have more robust results.

Recommendations
The study recommends that listed commercial banks should focus on maintaining adequate capital as the latter measures the soundness level of the banks. Likewise, bank managers should be efficient enough and focus on increasing bank deposits to shy away from imprudent lending practices in search of profit.

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