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RELATIONSHIP BETWEEN FIRM CHARACTERISTICS AND FINANCIAL STABILITY OF TIER THREE COMMERCIAL BANKS IN KENYA

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Abstract: **The sought to assess the relationship between firm characteristics and financial stability of tier three commercial banks in Kenya and Agency Theory, Capital Buffer Theory, Efficiency Theory and Structure Conduct Performance Hypothesis were adopted. Secondary data was collected from the websites of the commercial banks over a period of seven years that is from year 2013 to year 2019. Data was analyzed using descriptive statistics, pearsons correlation analysis and panel regression analysis. Hypotheses tests were performed at 0.05 level of significance. The study found that capital adequacy and management efficiency are significantly related with stability of tier three banks in Kenya at a p-value of 0.001 each. Bank size was found not to be statistically related with stability of tier three banks in Kenya a P-value of 0.191. The study also found that bank competitiveness is not significant to mediate the relationship between firm characteristics and stability of tier three banks in Kenya at a P-value of 0.026. The study concluded that adequate capital in a business and efficient management policies are key to sustaining stability of tier three commercial banks and therefore, the regulators and the management should ensure that policy guidance that affect positive capital adequacy and corporate governance are emphasized. The study also concluded bank size does not affect banks stability and therefore, a balance of investments should be done focusing more other important factors other than bank size.**

Keywords: **Firm Characteristics, Capital Adequacy, Bank Size, Management Efficiency, Bank Competitiveness and Financial Stability.**

1. INTRODUCTION

1.1 Introduction and Background

The financial stability of financial institutions is an important component which ensures economic growth (Meshak & Nyamute, 2016). While trying to support the economy at large, commercial banks offer various products to its corporate and non-corporate customers which include but not limited to loans and overdraft facilities. Commercial banks further provide means of settling international payments while serving as a framework upon which monetary policy is executed (Mulwa, 2015). In the context of Sub-Saharan Africa, financial instability has been witnessed across regions leading to key bank failures. Notable bank failures that have been experience in the various banking industries of countries within the region include, Savannah Bank and Societe Generale Bank in Nigeria (Kimani & Koori, 2018). Across literature, various firm characteristics have been linked to financial stability of commercial banks. According to Karugu, Achoki and Kiriri (2018), capital adequacy of banks is an important predictor of financial stability of the economy of countries.

Commercial banks in Kenya have also experienced instability leading to a few collapsing. These include the Capital Finance Bank and Chase Bank. This was attributed to the stringent regulations implementation of operation rules and compliance with regulations surrounding interest rates capping and operational rules regarding capital adequacy. Financial stability is linked to internal processes of banks as well as strong shocks which lead to the emergence of weak spots in banks (Laeven, Ratnovski, & Tong, 2014). According to Musau (2018), stability of financial institution plays a key role in shaping up the financial environment and dictates the player's reaction in the sector. The sector is characterized by various competitive forces informed by the struggle for larger market share (Odundo & Orwaru, 2018). The financial institutions in Kenya are regulated by rules set through the various acts of parliament and statues which include the companies act and the Banking Act (Central Bank of Kenya, 2019).

Firm characteristics are specific attributes unique to commercial banks and controlled (determined) by the management (Mirzaei, Moore & Liu (2013). They are notably determined by the internal decisions and strategies employed by the management of commercial banks (Wangila, 2017). Firm attributes are features which make up a firm and they include capital structure, bank size, capital adequacy, and the executives effectiveness.

Bank competitiveness is a powerful cycle prompting the eliminating firms which are less efficient, while leaving the more profitable at equilibrium (Genchev, 2012; Musau, Muathe, & Mwangi, 2018). Bank competitiveness is considered important in the banking industry due to the notion that when intermediation efficiency is enhanced, prices are reduced while increasing choice and innovation (Karkrah & Ameyaw, 2010).

Increased competitiveness is of importance to many sectors however, too much competitiveness may not be attainable in an industry. Industries are characterized by underlying characteristics which are unique due to the nature of operations in industries (Mdoe, Omolo & Wawire, 2017; Minh, Hong, Hoang & Thuy, 2020). According to Vives (2016), the connection among competition and stability impacts more through the economy and is considered as the central point of contention in the financial business. Banking competitiveness, prompts higher strain to keep up with the benefit and may ponder banks solidness (Troug & Sbia, 2015). Bank competitiveness was estimated using Herfindahl-Hirschman Index (HHI). Herfindahl-Hirschman Index is an intermediary for market concentration which depends on market structure which mirrors the degree of fixation in an industry.

Financial stability relates to the capacity of banking institutions to carry out intermediation process in an efficient and prudent manner while ensuring confidence among users (Ciha'ki, Mare, & Malecky, 2016). Stability is viewed as the smooth functioning of the process of financial intermediation between households, government and firms as supported by a well-developed financial system based on various financial institutions (Swamy, 2014). Financial stability of commercial banks, is commonly assessed using insolvency risk, credit risk and liquidity risk (Mostak & Sushanta, 2015; Musau, 2018). Insolvency risk depends on the z-score which expressly thinks about buffers (that is capitalization and returns) with unpredictability of profits (hazard) (Onuonga, 2014).

Kenyan banks are subdivided into three peer segments depending on capital and reserve size, pretax benefits, total deposits and assets size (Central Bank of Kenya, 2020). Large peer group also tier one commercial banks, command a 73.9% of capital and reserves, 89.79% of pretax profits, 74.6% of total deposits and 75% of Net assets. Presently in Kenya there are Nine (9) banks delegated as level 1 (Central Bank of Kenya, 2020).

Medium peer group also tier two commercial banks, encompasses commercial banks that command 17.8% capital and reserve size, 11.24% pretax profits, 17.2% total deposits and 16.7% net assets. There are Nine (9) commercial banks which are categorized under tier two (Central Bank of Kenya, 2020).

The small peer group also tier three commercial banks, commands 8.3% capital and reserve size, 1.03% pretax profit, 8.2% total deposit and 8.3% total net asset. In Kenya, this is represented by Twenty-one (21) commercial banks. Kenya financial sector had an eventful year in 2019 where turbulence was experienced in the banking sector's strategic operating environment. Noteworthy milestones were experienced in the year in policy, technological and legislative spaces which were of significance for the sector (CBK, 2019).

The banking sector in Kenya remains conscious of playing the role of propelling the economy and impacting lives and livelihoods. Pursuit of profits in an ethical manner, is a key consideration in business decisions as the banking sector is committed to working with stakeholders in the financial sector to circumnavigate the dynamic operating environment and deliver on its commitments as laid down in the Kenya Banking Sector Charter (CBK, 2019).

The tier one commercial banks accounted for 89.79% of the pretax profits, hence an increase from 84.99% reported in 2018. The tier three commercial bank proportion of pretax profits decreased from -0.07% in 2018 to -1.03% reported in 2018. This was attributed to 7 commercial banks that made high magnitude of losses in 2018 as compared to 8 commercial banks which made losses at lower magnitude in 2018. The tier two commercial banks pretax profits declined to 11.24% firm 15.08% attributed to a loss of Kshs. 821.2 Million in December, 2019 by National Bank of Kenya as compared to the profits of Ksh. 587.5 Million in December, 2018 (CBK, 2019). Tier three commercial banks in Kenya have been struggling to make a profit ever since the law on interest rate capping was introduced in 2016. The average return on equity fell to -0.9% in 2016 and -9.5% in 2017 from 4.4 % which was registered before interest rate capping in 2016. The year 2017 was a tough year for tier three commercial banks as they recorded the highest cost to income ratio of all time of 104.2 % as compared with the industry average of 50.9%.

1.2 Statement of the Problem

Commercial banks in Kenya play a key intermediation role among investors and borrowers and as such, their monetary soundness stays most extreme (Vives, 2016). One of the key issues faced by tier three commercial banks in the recent past is financial distress which leads to financial instability. According to Maingi, Mungai, and Omagwa (2018), this instability hinders effective execution of financial regulations since commercial banks provide a framework for these regulations. This was particular in the midst of monetary financial market changes presented in the year 2017, which added to most commercial banks in level three recording declining profits and different occurrences misfortunes. Commercial banks that have reported declining returns in year 2016/2017 in Kenya include, Sidian Bank enrolling a deficiency of 307 million and Family Bank of Kenya which recorded a deficiency of 259.57 (Maingi, Mungai, & Omagwa, 2018)

Tier three commercial banks in Kenya have been faced with challenges of making profits from introduction of the law on interest rate capping in 2016. The average return on equity, fell to -0.9% in 2016 and -9.5% in 2017 from 4.4 %. The year 2017, was a tough year for tier three commercial banks as they recorded the highest cost to income ratio of all time of 104.2 %, as compared with the industry average of 50.9%. These dwindling statistics are sources of concerns to the commercial banks as they depict a state of financial instability among the commercial banks. Due to Kenya being a bank driven economy, financial stability of commercial banks is of significant importance.

Moussa (2015) evaluated the determinants of liquidity for Tunisian banks. The study findings show that capital adequacy significantly affects bank liquidity in Tunisia. Vijayakumar and Tamizhselvan (2010) tracked down that the connection among size and profitability of firms is positive. The review was centered on non-banking foundations in South India. Ali and Puah (2018) studied the relationship financial stability of commercial banks have with banks size, focusing on Pakistan. Despite these studies contributing to empirical literature, they are characterized by several research gaps which form a good basis for the current study. Furthermore, they are based on a different context vary in operation and economic conditions, thereby limiting the generalization of findings. Some of the studies focused only on liquidity risk as a measure of financial stability.

Evidence from Kenya equally presents key research gaps. In an analysis of the top six (6) commercial banks in Kenya by Onuonga (2014), it was established that banks' capital significantly affected financial stability. Nyaundi (2015), documented that capital adequacy was reported to impact on commercial banks' liquidity in Kenya significantly. Wangila (2017) discovered that capitalization significantly affected stability of commercial banks. Odundo and Orwaru (2018) opined that capital sufficiency impacted positively on financial stability. Notwithstanding, the fundamental research gaps in these investigations required the conduct of further studies.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to assess the relationship between firm characteristics and financial stability of tier three Commercial Banks in Kenya.

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To evaluate the relationship between capital adequacy and financial stability of Tier three commercial banks in Kenya.

ii. To assess the relationship between bank size and financial stability of Tier three commercial banks in Kenya.

iii. To determine the relationship between management efficiency and financial stability of Tier three commercial banks in Kenya.

iv. To determine the mediating effect of bank competitiveness and the relationship between firm characteristics and financial stability of Tier three commercial banks in Kenya.

The null hypotheses were formulated in view of the specific objectives

2. LITERATURE REVIEW

2.1 Theoretical Review

Agency Theory was propounded by Jensen and Meckling in the year 1976. The nexus between the principal (defined as the owner) and agent (defined as the principal's representative) is examined by Agency Theory. The theory is rooted in economic theory based on the principal owners and company agents', in this case financial institution. The shareholders have the principle interest of the company and are regarded as the principals while the bank management are the stewards executing the principal interests. The shareholders share into the profits or losses earned or suffered by the company, as the management run the day to day activity to ensure the company is profitable (Moussa, 2015). Monitoring of the managements action to ensure they are in line with the interests of the principal, becomes the most important corporate governance concern. In the absence of monitoring, majority of managers diverge from the objectives of their principals by taking decisions which seeks to suit their interests. Possibility of agents acting in their own best interests rather than those of their principals is regarded as the principal-agent problems (Bofondi & Gobbi, 2004).

Capital Buffer Theory propounded by Diamond and Rajan founded in 1999. The theory refers to the amount of basic capital level, that should be held by commercial banks in compliance with the laid down thresholds, by the regulator in this case, Central Bank. The theory proposes that banks will always ensure their capital levels are enhanced either by getting investors to plough more capital into the business, or by joining other small companies to enhance capital. Conversely, those that have high capital will strive to maintain the high levels. Sufficient capital levels absorb adverse shocks thereby reducing the probability of bank failures. Capital adequacy is regarded as the instrument which limits banks from taking excessive risk, thereby encouraging optimal sharing of risks between depositors and owners of banks. Banks holding higher liquidity as well as capital buffers, have better capacity of supporting households and businesses in periods of economic recession, due to the ability of absorbing losses as well as upholding lending in such periods. Stringent capital requirements are accompanied by underlying associated costs. Imposition of high capital requirements, limits banks by an extent through competitive forces based on loan competition (Barth, Caprio & Levine, 2013).

Efficiency Theory was developed by Demsetz developed in the year 1973. The theory customarily applied to the financial sector where it states that increased yields and profits, will be acquired where banks increases their productivity more than their rivals, coming about because of low functional expenses while holding outstanding portion of the market. Subsequently, contrasts at the degree of effectiveness makes an inconsistent conveyance of positions inside the market and an extraordinary fixation. Since productivity decides market structure and performance, the positive connection between these two appears weak. A market with higher fixation is the fundamental wellspring of market force and in this manner, the productivity of the executives in a bank, is emphatically connected to monetary solidness of that bank as the capacity of the administration to interface and distinguish an ideal harmony between credit control, liquidity and capital sufficiency stays significant.

Structure Conduct Performance Hypothesis was founded by Bain in 1951. This model emanated from the modernist paradigm of worldview of market investigations. The structure conduct and performance hypothesis is concerned with the nexus between industry structure and performances. This model is generally utilized in econometric demonstration of consolidation, technological changes, market entry, market exit and market power identification. A market with high degree of market concentration, the degree of competition will be relatively low and thus the inverse relationship and vice versa. This forms the underlying assumption of the structure conduct and performance hypothesis (Goetz, 2018). Various prepositions have been presented for Structure Conduct and Performance hypotheses across industries, products and commodities. However, the banking sector is documented to have unique underlying characteristics in terms of competition (Choi, Byeongyong, & Weiss, 2005). Market structure and conduct factors nexus with performances is reflected in the profit margin of commercial banks. According to Troug and Sbia, (2015), the technical efficiency of a firm that uses primal production function is preferred in assessing the structure conduct and performance hypothesis, as opposed to the firm using the profit to profit margin as an indicator of performance.

2.2 Empirical Review

2.2.1 Capital Adequacy and Financial Stability

Dang (2011) assessed capital adequacy and bank profitability nexus based on regression methods and established capital adequacy to be significant on the success of banks. The researcher utilized capital adequacy ratio (CAR) as the most adequate measure of capital adequacy since it describes the perseverance of commercial banks during financial distress. Despite the study being on capital adequacy, the focus was profitability. This study looked at insolvency risk to determine financial stability.

Wangila (2017) studied the stability of banks in Kenya and the extent by which it is affected by capital adequacy. The researcher targeted three hundred and forty-two (342) staff of the finance department in the year 2015, where a descriptive cross-sectional survey was used and data analyzed using multiple regression. The study concluded that banking institutions should encourage capitalization so as to ensure optimal stability of banks. The researcher utilized primary data through questionnaires and interviews. This study utilized secondary data obtained from the banks' websites and central bank of Kenya websites, as opposed to primary data.

Odundo and Orwaru (2018) with regards to commercial banks listed in the NSE studied how adequate capital affects their stability. The time scope of the study was between 2011 and 2017 where descriptive research design was used. The study reported that capital adequacy had positive effects on banks stability and suggested that banks should think of arrangements which are compelling towards supporting higher capital bases in banks. The current study differs as it assessed financial stability based on insolvency risk and focused on the tier three commercial banks in Kenya, which are more susceptible to financial instability.

Nyabaga and Matanda (2020) carried out a study on how the banks qualities affected financial performance. Financial performance within a time scope of 2010 to 2018, was measured using returns on assets and equity (ROA), (ROE), where adequate capital had a significant relationship on performance of banks. The study concluded that, for commercial banks listed in the NSE to absorb losses, they should maintain an adequate level of capital. The current study differs as it measures financial stability through insolvency risk and focused on tier three commercial banks.

2.2.2 Bank Size and Financial Stability

Hasanovica and Latic (2017) evaluated the different determinants of abundance liquidity on Nineteen (19) banks of the Herzegovina and Bosnia banking sector, covering a time scope of 2006 to 2015. The generalized method of moments (GMM) methodology was used and bank size was found to positively impact on commercial banks liquidity. This study differed in that tier three commercial banks were the point of focus, in addition to the mediating effect bank competitiveness had on size and stability of the commercial banks in the third-tier.

Ali and Puah (2018) studied on the size of five (5) Islamic banks and nineteen (19) conventional banks in Pakistan and how they affect their stability. The study focused on while covering the period 2007 to 2015. The study applied three models of the panel regression technics on the panel data collected. The three models applied included Z-score, risk adjusted return on assets and risk adjusted equity to assets. The Z-score model, found size to have a negative effect on stability while a positive effect on the stability, when using both the risk-adjusted return on assets and risk-adjusted equity-to-asset. The current study focused on banks in tire three in Kenya and data collected was and analyzed using panel regression model therefore, filling the contextual and methodological gaps in literature. In addition, the mediating role of bank competitiveness was explored.

Minh *et al*. (2020) while studying on the impacts of market power on stability of banks in Vietnam for a time scope of 2008 to 2017, found that commercial banks have minimal competition and were found to be less stable. Banks size was found to be statistically significant and positively affect stability of banks in Vietnam. This implied that the results from this study could not be generalized since different countries have varying economic and market conditions. In view of this gap, the current study examined size and stability of tier three banks in Kenya.

Maingi *et al.* (2018) while using descriptive analysis, multiple regression analysis and corelation analysis, assessed attributes of banks in the lower tier. Performance of tier two and tier three commercial banks was measured using three measurements which are Return on Assets (ROA), Return on Equity (ROE) and Net Income (NI). In conclusion the study found that bank size would act as a buffer for instability and thus its desirable for better performance. This was after it was found that size and return on equity have a strong and significant relationship and a weak positive association on return on equity and net income. The study focussed on three elements of measuring perfomance, while this study used insolvency ratio to measure stabiltiy. Moreover, the study focused both on the tier two and tier three commercial banks

and used multiple regression. This study focused on tier three commercial banks since they are deemed to be more prone to instability and measured stability using insolvency ratio. Moreover, this study used panel regression analysis. According to Patel (2021), panel data models are mostly prefered with roburst results as they introduce individual specific results when they allow heterogenious groups as opposed to multiple regression.

Neves, Proença, and Dias (2020), analysed the determinant of banks profitability and efficiency in portugal and spain. The study concluded that, small cost structures in small banks, allow for high efficiency and as size increases efficiency decreases and so does their stability. This was after it found bank size to have statistically negative non linear relationship with profitability and subsequently bank size. However, Neves *et al.* (2020) differed in his study where bank size was found to attract huge operating costs thus negative on banks stability. Due to this differing stand in opinion, the current study assessed the relationship between bank size and stability of banks in tier three.

2.2.3 Management Efficiency and Financial Stability

Onuonga (2014) while applying regression analysis (generalized least squares methods), found management efficiency to be statistically significant and affects stability. The study was carried out in Kenya and data collected for the period 2008 and 2013. A more concrete approach was adopted by this study as it not only measured financial stability using insolvency ratio, but also examined the role competitiveness as a mediating variable.

Adusei (2015) studied a sample of twelve (12) out of the 137 rural banks in Ghana to determine of stability of rural banking industry in Ghana. The study was based on quarterly data for regional banks focusing on the time frame 2009-2013 Quarter 4. The study found that efficiency is significant to stability of rural banks in Ghana. New contextual insights were brought by this study since it explored the third-tier commercial banks in Kenya that are guided by varying operation regulations different from commercial banks in Kenya.

Githinji (2016) while using census approach, used questionnaires on eighty-two (82) respondents to collect data which was used in assessing factors affecting stability in Kenya. Based on correlation and multiple regression methods at a significance level of 0.05, management efficiency affected stability of banks in Kenya positively. Moreover, the study used primary data but this study used secondary data.

Ngaira and Miroga (2018) utilized descriptive survey research design in his study on eleven (11) listed commercial banks in Kenya and what determined their stability. The study used primary sources through questionnaires and three hundred and fifty-six (356) employees formed the study population. The researcher found management efficiency to have a statistically negative significance to financial stability. This study focused on banks in tier three and secondary data within a period of 2008 to 2019 was collected and analyzed using multiple regression.

Ikapel, Namusonge and Sakwa (2019) studied the factors affecting the performance of banks listed in the NSE Kenya. Efficiency in management was found to be key to contribute to perfomance. This study focused on assessing the relationship firm characteristics such as; capital adequacy, bank size and management efficiency and stability of tier three commercial banks in Kenya.

2.2.4 Bank Competitiveness and Financial Stability

Troug and Sbia (2015) evaluated competitiveness and financial stability nexus of fifteen banks in Libya for a period between year 2002 and 2013 were studied. Stability was measured based on Non-performing loans while competition was proxied using concentration while focusing on the banking sector of Libya. The findings based on robustness tests negate the competition-stability theory while conforming to competition-fragility works. The study recommended further analyses based on the nexus between competition and fragility in Libya, specifically and in general for developing countries. This study focused of the Kenyan context which has a different regulatory environment to the one in Libya.

Goetz (2016) sought to answer the question, does competition increase or decrease the stability of bank, while studying competitiveness and stability of financial institutions. The study documented how the state-specific process of interstate banking deregulation decreased barriers to entry into urban banking markets. The study established that higher competition significantly enhances the stability of banks. This finding is based on robust estimations with the inclusion of additional fixed effects as well as other influences which include mergers and acquisitions (diversification). The study results showed that, non-performing loans are reduced by increase in competition and thus increased profitability by commercial banks. The study concluded that financial stability in banks, can be achieved through increase in competition in the sector and through improvement in profitability as well as their asset quality. Despite the study being on competition and financial stability, this study used insolvency risk as a measure of financial stability.

Zhanbolatova, Ziyadin, Zhumanov, and Almagul (2018) examined how competitiveness affects stability of large banks in United Kingdom (UK) in the time scope of 2004 to 2014. Banks competitiveness was found to relate to stability and was presumed that in shielding banks from competition results to risks and a therefore an element of competition among banks is healthy for the development of financial institutions. The study was based on developed nations, specifically United Kingdom which is based on a more organized banking sector, while the current study focused on the Kenyan context by focusing on tier three Kenya commercial banks.

Minh *et al*. (2020) looked to decide if market power in the financial environment in Vietnam impacts monetary stability which depended on bank-level information extracted across four banks in Vietnam within the period between 2008 and 2017. Market power was proxied by Lerner index while monetary soundness was estimated utilizing Z-score. The review applied both fixed and random effects model. The study found that the competition stability view where the Vietnamese commercial banks were found to have minimal competition and the commercial banks were less stable. The current study focused on tier three commercial banks in the Kenyan context.

3. RESEARCH METHODOLOGY

3.1 Research Philosophy

This study adopted the positivism philosophy which is hinged on the notion that science is the only way of learning about the truth. Positivism entails looking for causal relationships in research data to establish valid conclusions and generalization, making it ideal for this study.

3.2 Research Design

This study adopted explanatory research design by evaluating whether firm attributes relate to the stability of the third-tier commercial banks in Kenya. This research design was appropriate since the study aimed at establishing relationships between variables.

3.3 Target Population and Sampling Design

There were twenty-one (21) tier three banks in Kenya operating within the period 2013 and 2019 (Central Bank of Kenya, 2019). The study focused on all the twenty-one (21) tier three banks in Kenya based on a census approach.

3.4 Empirical Model

Panel regression model was preferred because it gives less collinearity and enhances the degrees of freedom in variables where large samples of data are obtained, in addition to more variability and more information (Vijayamohanan, 2016).

Direct Effect

$$\mathbf{FINS_{it}} = \beta_0+\beta_1 CAP_{it}+\beta_2 BKS_{it}+\beta_3 MAN_{it}+\varepsilon \quad \text{.....3.1}$$

Where:

$FINS_{it}$ = Financial Stability of bank *i* at a given time *t*

CAP_{it} = Capital Adequacy of bank *i* at a given time *t*

BKS_{it} = Bank Size of bank *i* at a given time *t*

MAN_{it} = Management Efficiency of bank *i* at a given time *t*

$\beta_1, \beta_2, \beta_3,$ = Coefficients

ε = Error term

Mediation Effect

According to Baron and Kenny (1986), a four step approach was proposed where significance of coefficients is investigated in every step of the several regression analyses done. Therefore, in testing for mediation effect, the study used the technique by Baron and Kenny (1986).

Step One

A panel regression analysis with firm characteristics predicting financial stability:

$\mathbf{FINS_{it}} = \beta_0+\beta_1 FC +\varepsilon$……..…….....…….3.2

Step Two

A panel regression analysis with firm characteristics predicting bank competitiveness:

$\mathbf{BC_{it}}=\beta_0+\beta_1 FC_{it}+\varepsilon$…….....…….3.3

Step Three

A panel regression analysis of bank competitiveness predicting financial stability:

$\mathbf{FC_{it}}=\beta_0+\beta_1 BC_{it}+\varepsilon$…….....…….3.4

Step Four

A panel regression analysis with firm characteristics and bank competitiveness predicting financial stability:

$\mathbf{FINS_{it}}=\beta_0+\beta_1 FC_{it}+ \beta_2 BC_{it}+\varepsilon$…….....…….3.5

Key:

$\mathbf{FINS_{it}}$ = Financial Stability (Insolvency risk) of bank *i* at a given time *t*

$\mathbf{FC_{it}}$ = Firm Characteristics of bank *i* at a given time *t*

$\mathbf{BC_{it}}$ = Bank *i* Competitiveness

$\boldsymbol{\beta_1}$ **to** $\boldsymbol{\beta_2}$ = Coefficients

$\boldsymbol{\varepsilon}$ = Error term

β1 significant in models 3.2,3.3, 3.4, 3.5 while β1 insignificant and β2 is significant= Complete Mediation

β1 significant in models 3.2,3.3, 3.4, 3.5 while β1 significant and β2 is significant= Partial Mediation

β1 significant in models 3.2,3.3, 3.4, 3.5 while β1 insignificant and β2 is insignificant= No Mediation.

4. RESEARCH FINDINGS AND DISCUSSION

4.1 Descriptive Analysis

The descriptive statistics specifically depicts the prominent characteristics of data that was obtained from the study as shown in Table 4.1 below. This section documents the mean, minimum and maximum, number of observations and standard deviation.

Table 4.1: Descriptive Analysis

Variables	Observations	Mean	Std. Deviation	Minimum	Maximum
Financial Stability	138	-0.0568	3.2199	-15.4011	13.3738
Capital Adequacy	138	0.1559	0.0621	0.0045	0.4854
Bank Size	138	4.3906	0.5730	3.4166	5.7584
Management Efficiency	138	2.2281	12.0403	-70.1558	49.4818
Bank Competitiveness	138	669.2841	39.1441	623.6300	750.5380

Source: Study Data (2021)

Table 4.1 documents the outcome of the descriptive analysis. Financial stability had a mean of -0.0568, standard deviation of 3.2199, minimum and maximum values of -154011 and 13.3738 respectively. From the analysis, Capital Adequacy was found to have a maximum and minimum value of 0.4854 and 0.0045 respectively, a mean value of 0.1559 and a standard deviation value of 0.0621. Bank size on the other hand was found to have a minimum of 3.4166, a maximum value of 5.7584, mean and standard deviation values of 4.3906 and 0.5730, respectively. Management efficiency was found to have a mean value of 2.2281, while the standard deviation, was found to be 12.0403. the minimum and maximum values were -70.1558 and 49.4818 respectively. Bank competitiveness, was found to have a mean value of 669.2841, while standard deviation was 39.1441. A minimum value of 623.6300 and maximum value of 750.5380 was observed.

4.2 Inferential Analysis

4.2.1 Correlation Analysis

Pearson correlation was applied to assess the relationship between firm characteristics and stability of tier three commercial banks. The extent and direction of relationship between the variables of the study which includes, financial stability and capital adequacy are as shown in Table 4.2 below.

Table 4.2: Correlation Test Results

Variable	Financial Stability	Capital Adequacy	Bank Size	Management Efficiency
Financial Stability	1.0000			
Capital Adequacy	0.0013	1.0000		
Bank Size	0.1204	-0.3134	1.0000	
Management Efficiency	0.3262	-0.2743	0.8878	1.0000

Source: Study Data (2021)

Correlation test was carried out to establish the level of relationship between variables in the study. Table 4.2 documents the results obtained from the correlation test. Capital adequacy was found to have a value of 0.0013 which implies that there exists a statistically weak and positive relationship with financial stability of commercial banks in Tier three. This implies that an increase in the level of capital translate to an increase in financial stability, though in a weak manner. Wangila (2017) also found that Capital Adequacy and financial stability of commercial banks exhibited a positive relationship. Furthermore, Odundo and Orwaru (2018) established positive nexus between capital adequacy and banks' stability. Nyabaga and Matanda, (2020) further found that capital adequacy and peerformance have positive relationship.

The correlation test between Bank size and financial stability relationship, returned a value of 0.1204. Despite increase in bank size leading to higher financial stability, this is weakly evidenced. This shows that the two variables has a statistically weak and positive relationship. Vijayakumar and Tamizhselvan (2010), found positive relationships between the two variables when he studied the nexus between size and firm profits. Muriithi (2014), found that bank size and commercial banks liquidity risk in Kenya. Despite focusing on commercial banks in Kenya have positive relationships. Onuonga (2014), found bank size to have a statistically positive relationship with financial stability, while focusing on commercial banks in Kenya.

The correlation test between management efficiency and financial stability, returned a value of 0.3262. This shows that there is a statistically weak and positive relationship between these variables. With respect to the study context, the efficiency of management and financial stability are weakly correlated. Similarly, Onuonga (2014) while applying regression analysis (generalized least squares methods) found that management efficiency and financial stability have positive relationships. Adusei (2015) found Management efficiency and financial stability positive with respect to Ghanaian rural banks. Githinji (2016) did a study and found that management efficiency positively relates to financial stability of commercial banks. Ikapel, Namusonge and Sakwa, (2019) further reported that management efficiency and financial performance have positive relationships.

4.2.2 Hausman Specification Test

According to Torres-Reyna, (2007), Hausman specification test is carried out to determine the appropriate suitable model to use between random effect model and the fixed effect model. The results of the test procedure are presented in Table 4.3.

Table 4.3: Hausman Test Result

	(a) Fixed	(A) Random	(a-A) Difference	Square root (diag(V_a-V_A)) S.E.
Capital Adequacy	19.74999	19.58388	0.1661089	2.739066
Bank Size	-3.229301	-1.568835	-1.660466	1.400782
Management Efficiency	1.746425	1.961707	-0.215282	0.2054604
chi2(3)	5.60			
Prob>chi2	0.1326	0.014	-0.005	0.002

Source: Study Data (2021)

The test is guided by a threshold of 0.05, where it implies that if the p-value is greater than 0.05 (p-value > 0.05), the null hypothesis (H_0) is not rejected and that the efficient model to use is the random effect model. The study found the p-value to be 0.1326, which is greater than 0.05 (0.1326>0.05), implying that random effect model was used to derive inferences while testing the research hypotheses.

4.2.3 Direct Effect Panel Regression Analysis

This section documents the results obtained from the regression output as presented in Table 4.4.

Table 4.4: Direct Effect Results

Financial Stability	Coef.	Std. Err.	Z	P>|z|	[95% Conf.	Interval]
Capital Adequacy	19.58388	5.759218	3.40	0.001	8.296022	30.87174
Bank Size	-1.568835	1.200902	-1.31	0.191	-3.922561	0.7848905
Management Efficiency	1.961707	0.5817279	3.37	0.001	0.8215411	3.101873
_cons	1.761707	5.330303	-0.33	0.741	-12.20891	8.685495
R^2 =0.2319						
Wald chi2 (3) =24.88						
Prob> chi2 =0.0000						

Source: Study Data (2021)

4.2.4 Mediation Effect Panel Regression Analysis

The mediation effect of bank competitiveness on the firm characteristics and financial stability relationship, was presented in 4.5 below.

Table 4.5: Mediation Effect Results

Steps	Variable	Variable	Coefficient	P-Value	Comment
Step One	Financial Stability	Firm Characteristics	0.1634596	0.026	Significant
Step Two	Bank Competitiveness	Firm Characteristics	0.1790245	0.854	Insignificant
Step Three	Firm Characteristics	Bank Competitiveness	0.0013883	0.854	Insignificant
Step Four	Financial Stability	Firm Characteristics	0.1639985	0.026	Significant
		Bank Competitiveness	-0.0052772	0.409	Insignificant

Source: Study Data (2021)

Table 4.5 above comprises of the results obtained from the mediation test. In step one, firm characteristics had positive effect on financial stability as depicted by a coefficient of 0.163. In step two, firm characteristics was found to have a coefficient of 0.179, implying that there was a statistically positive effect on bank competitiveness. In step three, bank competitiveness had a statistically positive effect on firm characteristics based on a coefficient of 0.001. In step four, firm characteristics had positive effect (0.164) on financial performance of Tier 3 commercial banks in Kenya. Bank Competitiveness had a negative coefficient value of -0.005, which implies that the relationship is statistically negative.

4.3 Hypotheses Testing

4.3.1 Capital Adequacy and Financial Stability

The first specific objective of the study sought to evaluate the relationship between capital adequacy and financial stability of Tier three commercial banks in Kenya. The null hypothesis which states that capital adequacy does not have a significant relationship with financial stability of Tier three commercial banks in Kenya was formulated and tested. Based on the results in Table 4.4, a p-value of 0.001 was found with respect to the relationship and thus the underlying null hypothesis which stated that capital adequacy does not have a statistically significant relationship with financial stability of tier three commercial banks in Kenya was rejected at 0.05 significance level. The findings can be linked to the concept that increasing levels of capital adequacy, serve as buffer for banks which cushions against external shocks, hence ensuring higher and stable financial stability of commercial banks.

The study findings are in line with those of existing studies who opined on capital adequacy and financial stability relationships. Dang (2011), found that capital adequacy and profitability of commercial banks, have a positive and significant relationship. Onuonga (2014) established that bank capital significantly affected financial stability of commercial banks in Kenya. Moussa (2015) reported that capital adequacy significantly impacted on bank liquidity in Tunisia. Nyaundi (2015) with focus on commercial banks in Kenya found that capital adequacy significantly impact on liquidity. Wangila (2017) concluded that banking institutions should encourage capitalization so as to ensure optimal stability of banks. Odundo and Orwaru (2018) reported that capital adequacy had positive effects on banks stability and suggested that banks should think of arrangements which are compelling towards supporting higher capital bases in banks. Nyabaga and Matanda, (2020) established that capital adequacy and return on assets and return on equity, are statisticaly positive significant related.

4.3.2. Bank Size and Financial Stability

The second specific objective of the study sought to examine the relationship between bank size and financial stability of Tier three commercial banks in Kenya. Bank size has no significant relationship with financial stability of tier three commercial banks in Kenya. P-value of 0.191 was found as indicated in Table 4.4, hence indicating statistically insignificant effect. The null hypothesis which stated that bank size has no statistically significant relationship with financial stability of tier three commercial banks in Kenya was therefore not rejected. The insignificant relationship was attributed to the bureaucratic conditions that accompany bank size slowing down decision making processes. Additionally, a growing bank despite the underlying associated economies of scale is sometimes characterized by poor customer relationship. All these in turn can be detrimental to banks stability, thus the justification for the statistically insignificant and negative effect of bank size on stability of tier 3 commercial banks in Kenya.

Various empirical studies found similar results with regards to the relationship between bank size and financial stability. Ali and Puah (2018) studied effects on size on stability of five (5) Islamic banks and nineteen (19) banks in Pakistan, where bank size had a negative effect on stability. Maingi, Mungai and Omagwa, (2018) while using descriptive analysis, multiple regression analysis and corelation analysis, found that size had weak positive relationship between return on equity and net income with respect to commercial banks. Neves *et al*. (2020), found a negative non linear relationship between bank size and banks profitability of banks in portugal and spain. The study concluded that, small cost structures in small banks, allow for high efficiency and as size increases efficiency decreases and so does their stability. Bank size was found to attract huge operating costs thus negative on banks stability.

4.3.3 Management Efficiency and Financial Stability

A null hypothesis on the third objective of the study, sought to determine the relationship between management efficiency and financial stability of Tier three commercial banks in Kenya. This hypothesis that stated Management Efficiency has no significant relationship with financial stability of tier three commercial banks in Kenya, was formulated and tested at 0.05 significance level. P-value of 0.001 was found indicating that the relationship between variables is statistically significant. The significant relationship can be attributed to the notion that the efficient handling of the internal resources of banks lead to improvements in the inflow of bank revenue, hence increasing levels of stability.

The results obtained on the relationship between management efficiency and financial stability are in line with those of previous empirical studies. Onuonga (2014) found that Management Efficiency and Financial Stability have a significant effect while applying regression analysis (generalized least squares methods). Adusei (2015), found management efficiency and financial stability of the Ghanaian rural banks have a significant effect. Based on correlation and multiple

regression methods, Githinji (2016), established that management efficiency positively and significantly affect financial stability of commercial banks. Ngaira and Miroga (2018), found that there exists a negative significant relationship between management efficiency and financial stability of commercial banks listed on the NSE, Kenya. Additionally, Ikapel, Namusonge and Sakwa, (2019) found management efficiency and financial performance of commercial banks, to have a positive significant relationship.

4.3.4 Firm Characteristics, Bank Competitiveness and Financial Stability

The fourth null hypothesis stated that bank competitiveness has no significant mediating relationship with firm characteristics and financial stability of tier three commercial banks in Kenya. The test for mediation was carried out in line with Baron and Kenny (1986). The test for mediation effect was based on the findings obtained in Table 4.5. The first step had statistically significant effect (p-value 0.026), while the second (p-value 0.854) and third steps (p-value 0.854) had statistically insignificant effect. In the fourth step, firm characteristics had a statistically significant effect (p-value 0.026) while bank competitiveness had a statistically insignificant effect (p-value 0.409) on financial stability of tier three commercial banks in Kenya. This therefore implies that bank competitiveness had no mediating effect on firm characteristics and financial stability of tier three commercial banks relationship.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The conclusion is in line with the specific objectives and respective findings of the study. With respect to the first specific objective which was to evaluate the relationship between capital adequacy and financial stability of Tier three commercial banks in Kenya, the study concluded that capital adequacy and financial stability were statistically significantly related. Increasing levels of capitalization is critical as it ensures that commercial banks have enough cushion to absorb reasonable losses to prevent them from becoming insolvent. Moreover, adequate capital buffers ensure that there is more resilient global financial systems and forms a key ingredient for safe and sound tier three commercial banks.

The study's second specific objective was to examine the relationship that exists between Bank size and tier three commercial banks' financial stability. The finding suggests that bank size attract huge operating costs to banking institutions, thus negative on banks stability. The study made a conclusion that bank size does not in any way predict stability. Increase in bank size can be detrimental to banking institutions due to the underlying bureaucracy which it comes with when not properly managed.

The third objective of the study sought to determine the relationship between management efficiency and financial stability of Tier three commercial banks in Kenya. It was concluded that management efficiency and financial stability relationships with respect to tier three commercial banks in Kenya is significant. Improvements in the efficiency of management in maximum use of organizational resources lead to increasing levels of commercial banks stability.

The study's fourth specific objective sought to determine the mediating effect of bank competitiveness and the relationship firm characteristics have on financial stability of Tier three commercial banks in Kenya. The study concluded that firm characteristics is not significantly predicted by bank competitiveness when related to financial stability of tier three commercial banks in Kenya. The underlying level of competition in the bank sector hence does not stand as a key determinant of firm characteristics and financial stability nexus in the context of tier three commercial banks in Kenya.

Although competition reduces the banks market share, it also follows that the efficiency of the banks becomes enhance thus edging out the effects of the competitiveness.

5.2 Policy Recommendations

The policy recommendations are informed by the firm characteristics which had significant relationship with financial stability of Tier three commercial banks in Kenya. Capital adequacy and financial stability relationships were found to be statistically significant with respect to stability of Tier three commercial banks in Kenya. The study recommends that the management of commercial banks should at all times strive towards maintaining the required capital level to safeguard customers' deposits in a commercial bank as specified by the Central Bank. Adequate level of capital will in-turn serve as buffer for banks in the period or event of adverse conditions as well as other external shocks which may hit the banking institution. Moreover, regulators in the financial sector can use capital adequacy to run stress checks and tests to determine how stable or prone the commercial banks are. These further facilitate these institutions in cushioning against adverse shocks as well as recovering from event of losses.

It was further established that the relationship between management efficiency and financial stability of Tier three commercial banks in Kenya is significant. The study recommends that the management of commercial banks should ensure the effective utilization of bank resources, minimize costs of operations and maximize income. This is as minimization of operating expenses which is a key component of efficiency ultimately leads to improvements in the financial stability of banking institutions. Management efficiency is important in running of commercial banks as it aids in efficient assembling resources, optimum utilization of resources to aid in achieving of the goals. Moreover, an efficient management establishes sound organizations by ensuring there are no overlapping of efforts, and ensures that there is an effective authority and responsibility relationship thus enabling the commercial banks in tier three to survive the changing environment.

5.3 Contribution to Knowledge

Due to the significance of this area, several contributions were made to the literature in various ways. Sound specific objectives and corresponding null hypotheses used in this study, can be adopted in different context by other researchers. The study provides underpinning theories with respect to firm characteristics and financial stability relationships. These theories can similarly be adopted by other researchers. The study documents a comprehensive conceptual framework depicting underlying relationship between firm characteristics and financial stability which will further guide researchers in the future. Comprehensively, a workable empirical model based on direct and mediation effect has been presented in this study. This will further enhance effective modelling in upcoming researches. The study provides several recommendations for policy and practice which when considered will transform the financial sector and ensure there is more resilient financial stability of Tier three commercial banks in Kenya. Suggestions for further researches have been documented with a view of guiding and providing direction for additional research in this area of study.

5.4 Suggestions for Further Research

Bank size and financial stability was found to be insignificant and therefore, the study presents the suggestion that further researches can be undertaken towards this variable and financial stability of commercial banks. This can be done using different methodology, time scope, methods of analysis and even different context. The study further found that firm characteristics and financial stability of Tier three commercial banks, relationship is not significantly mediated by bank competitiveness. Other mediating variables can also be considered and additional researches can be conducted on their mediation effect on the relationship between firm characteristics and financial stability of Tier three commercial banks in Kenya.

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