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EFFECTS OF FINANCIAL MARKET DEVELOPMENT ON BANK CAPITALIZATION RATIO: EVIDENCE FROM COMMERCIAL AND NON-COMMERCIAL BANKS IN TANZANIA

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ABSTRACT

Financial market development in many developing countries is a series of financial market reforms aimed at improving the market and the financial system in general. Theoretically, major reforms that improve the stock market are expected to increase bank performance by reducing bank risk of default by increasing the bank capitalization ratio. This results in stability in the financial market and banking sector. Nonetheless, empirical literature in addition shows that the quality of the financial market may be at high risk following the reforms process because of the integration effects of the markets across the countries or regions. A good example of this is the global financial crisis of 2007/2008. Based on this background, the present study investigates the extent to which the financial market development in Tanzania influences the bank's capitalization ratio (commercial and non-commercial banks). Employing a two-step system GMM technique in a dynamic panel dataset regression model for the investigation for a period of 2012 to 2021, while macroeconomic and bank-specific variables have been used as control variables. We proxy financial market development as stock market development. This study finds that stock market development in Tanzania measured in terms of stock market turnover ratio improves bank capitalization ratio with the goals of enhancing the financial market and maintaining stability in the banking sector.

Keywords: Tanzania, Bank capitalization ratio, Financial market development, Stock market development, Banking sector.

1. INTRODUCTION

Financial market plays an important role in the improvement of the country economy as well as financial sector development as explained by various finance proponents. According to the financial intermediation theory, stock market as a proxy for financial market acts as a middle person because it enable to connects between financiers and borrowers to smooth the financial transaction. Gurley and Shaw (1960) argued that financial intermediation activities reduce the information asymmetry issues through reducing the moral hazard and adverse selection risk. In addition, based on Grossman and Stiglitz (1980) intermediaries have advantages over the individual since they allow the sharing of fixed cost of transaction between lender and intermediaries. Demirgüç-Kunt and Maksimovic (1999) propose that stock markets using the key role of intermediaries they have in reducing the information asymmetry issues enable to encourage investors to provide new equity capital to the banks. This results into improving the liquidity condition of the stock market which help banks and other entities to access external equity finance

Vol. 7, No. 02; 2024
ISSN: 2581-4664

easily for increasing ratio of capitalization. Nevertheless, the Tanzania stock market is a kind of the market which is under-developed compared to Europe, South America, Asia and some other developing countries in Africa (BOT, 2021). The underdevelopment of the stock market in Tanzania calls upon the question whether it carries out effective role of financial intermediation that may help banks to increase capitalization ratio as expected.

Despite underdevelopment of Tanzania stock market, still some measures have been taken to improve the market since its establishment in 1998. In the efforts made to improve the stock markets, many African countries established law and regulatory reforms to enable the financial market to grow and keep it to international level. These reforms including stock market deregulation and strengthening supervision activities, removing barrier to entry and exit the market. Specifically, major reform including reducing the number of state owned banks to encourage private and public ownership. Another reforms was establishment of policies that govern corporate and establishment of creditor and investor protection law (Etudaiye-Muhtar et al., 2017; Murinde, 2012).

Following the reforms, the major goals of the financial market reforms appears to be attained (Ozili, 2017). One among the goal of the reforms in relation to the stock market is to enhance the bank capitalization ratio so as to protect banks from shocks that can cause banks capital disturbance that may lead to poor performance of the financial sector. Though, literatures that investigate the effects of the development in the financial market on the bank capitalization ratio specifically for Tanzania is limited. Relatively, financial market development literatures for Tanzania such as Kapaya (2021); Mwakalobo (2009); Fille (2013) concentrate towards investigating the factors influencing economic growth. Moreover, the banking literatures such as Mkaro et al. (2023); Jilenga & Luanda (2021); Kingu et al. (2018); Ngweshemi & Isiksal (2021); Ally (2013); Mrindoko et al. (2020); Raphael (2012) focus towards investigating bank profitability and bank performance.

The need of research on the field of financial market development especially the stock market development and bank capitalization ratio forms the motivation for this study which aim to examine the extent at which financial market development in Tanzania affects bank capitalization ratio. This is necessary because banks have to compete with challenges such as high floatation cost, information asymmetry problem, illiquidity of the stock market and unavailability or difficulty of rising external equity capital for improving capitalization ratio to meet required level by the regulator (Murinde, 2012; Abbas et al., 2021; Abdulhamid et al., 2019). Banks in the countries with such challenging situation may be at high risk of default due to operating under capitalization ratio compared to other countries with which the situation is less serious. The financial market that involve the above challenging situation could lead to investors having no confidence in the financial system, this can result into serious effect to the economic improvement in such country because it may lead into capital flight issue (Narayan& Narayan, 2013). The ability of banks to maintain an adequate capitalization ratio may results into stability of the banks and the banking sector in general.

The other part of the study is organized as below. The second section provide a brief literature review, third section describe the determinants of the bank capitalization ratio following by the fourth section which gives the description of the data collection and methodology for the study. The fifth section presents empirical findings and discussion of the results while the last section conclude the study by providing the significance of the study in terms of the policy

Vol. 7, No. 02; 2024
ISSN: 2581-4664

implications.

2. LITERATURE REVIEW: THEORETICAL AND EMPIRICAL

The financial intermediation theory and capital buffer theory are very important theories in explaining the impact of financial market development on bank capitalization ratio. These theories stem from literatures that look at finance and bank growth on explaining the benefit of financial system in improving economic growth of the country (Levine, 2005; Murinde, 2012; Narrayan & Narayan, 2013). The financial market development due to finance and trade openness enables banks growth and increase banks and other firms access to capital while reducing much dependency on the internal source of capital for financing (Etudaiye-Muhtar, 2016). This suggest that banks and other firms may have to obtain external finance in the form of debt, equity finance, preference shares, subordinated bonds or any other form of financing which is available. However, if banks take the loan option as the means of financing, it is very necessary for such banks to increase capitalization ratio to fulfil as the buffer capital against increasing loan demand. According to Abdulhamid et al. (2019) the increasing in debt financing may result into bankruptcy cost which may cause bank default due to failure to repay loan on time.

The capital buffer theory proponents suggest that bank will have to build up the capitalization ratio due to increasing risk of default associated with increasing loan demand. This is the reason for capital buffer theory to request banks to hold extra capital to compensate regulatory required capitalization ratio when banks face financial distress. This challenges according to Vithessonthi (2014a, 2014b) may results into a reduction of the capitalization ratio for the banks if no proper supervision is in place. Moreover, Rime (2001) and Abbas et al. (2021) argued that costly adjustment cost may resist bank to adjust towards minimum regulatory capitalization ratio required. If the banks operate below minimum required capitalization ratio they may be penalized by regulators and even sometime be stopped their operation (Etudaiye-Muhtar et al., 2017). To prevent banks from operating below the regulators capitalization ratio required, they have to hold extra capital above the minimum required capitalization ratio by the regulators. From the above argument, theoretical literatures related to bank capitalization ratio and development in financial market suggest that bank capitalization ratio and the development in financial market correlate positively. Though, the empirical literatures evidence that support the above argument for Tanzania banks is not present despite various reforms taken over the decades to improve the financial market system. However, evidence supporting the argument can be found from literatures in Europe, Asia and some African counties. For instance, Etudaiye-Muhtar et al. (2017); Abdulhamid et al. (2019); Wang and Luo (2019); Baselga-Pascual et al. (2015); Tran and Nguyen (2020) found that stock market development positively influencing bank capitalization ratio.

3.FACTORS INFLUENCING BANK CAPITALIZATION RATIO

3.1 Financial market development (Key variable)

The financial market development is proxied by the stock market development that can be measured by different ways including the stock market capitalization and the stock market turnover rate. While the former signifies the size of the stock market relative to the total capitalization for all entities listed in the stock exchange, the latter indicates the liquidity and trading activities based on the size of the market. This study therefore interested on the stock market turnover rate because of the following main advantages. Firstly, Stock market turnover ratio measures liquidity of the

Vol. 7, No. 02; 2024
ISSN: 2581-4664

stock market as compared to capitalization measure which measure the size of stock market in terms of capitalization. This means, despite the stock market being highly capitalized, but also has to be liquid. If the market is illiquid even though it is capitalized enough, it reduce trading activities of equities as a results shares are traded less frequently in the stock market. Nevertheless, based on Booth et al. (2001), liquid market encourage the existing and new investors to purchase and sale shares in that market. Hence, increases the trading activities of shares. Secondly, the interest of new shareholder to invest in a long-term investment reduced if the markets is illiquid while a liquid market remove these challenges and inspire new shareholder to invest for longer-term basis (Beck & Levine, 2004). Moreover, stock market turnover ratio has been used as a measure for stock market development because the measure is among top ten core indicators used by World Bank to measure development in stock market as indicated by Beck et al. (2008).

Accordingly, We measured stock market turnover ratio as the ratio of the value of all traded shares for a specified period divided by average market capitalization for that period as employed in literatures of Kapaya (2021); Etudaiye-Muhtar et al. (2017); Saci & Holden (2008); Booth et al. (2001). An increases of turnover ratio of the stock market suggest the presence of low flotation cost and high rate of trading activities in the stock market, the lower flotation cost and the high rate of trading activities of shares encourage both existing and new shareholder to purchase and sale shares in the market (Saci & Holden, 2008). Thus, bank capitalization may increase because of availability of equity finance in the stock market.

3.2 Control variables

3.2.1 Bank specific variables

3.2.1.1 Bank size

The too big to fail hypothesis propose that the bigger the size of the firm indicates less capitalization ratio retain by the firm. This notion based on the assumption that the bigger firms enjoy diversification of the business. As a results, these firms have a very low risk of default (Zou & Xiao, 2006). Nevertheless, the pecking order theory develop a positive association between capitalization and the size of the firm (Frank & Goyal, 2009), this is because the bigger firms normally are older and they succeed to build up profit for many years to finance their projects in comparison with smaller and medium size firms. Rajan and Zingales (1998) found that since the information asymmetry problem in bigger entities is less, probable it is not easy for them to undervalue new share issuance as a result such big firms may be able to issue shares to finance their new project. In relating the impact of size of bank on the capitalization ratio according to the too big to fail hypothesis, the size of bank has significance impact on bank capitalization ratio. Based on Gennaioli et al. (2013) big banks maintain low capitalization ratio for the following reasons, big banks have economies of scale and benefit from it. This make them less capitalized and achieve better income diversification. Moreover, big banks benefit from comparative advantages of non-traditional banking activities because they need significant fixed cost to do that, the engaging into more non-traditional banking activities result more debt outstanding and unstable funding to the banks. Hence, big banks are expected to be less capitalized (taking more risk) and preceding into more non-traditional banking activities. This negative significant relationship of bank size and bank capitalization ratio is consistent with (Abdulhamid et al., 2019; Brei & Gambacorta, 2016; Ozili, 2018; Baselga-Pascual et al., 2015) and contrasting with the literatures of (Wang & Luo, 2019; Tran & Nguyen, 2020). We measured bank size as the logarithm of total

Vol. 7, No. 02; 2024
ISSN: 2581-4664

assets as used in the study of (Brei & Gambacorta, 2016; Alı et al., 2022; Philip et al., 2014, Farooq et al., 2018; Abbas et al., 2021; Tran & Nguyen, 2020).

3.2.1.2 Bank profitability

According to the pecking order theory, profitability of firm is positively associated with the capitalization ratio the firm hold. Thus, the large the profit retains by the firm to finance project from total profit generated, the higher the ratio of capitalization the firm retain and less leverage used in its capital structure. This is because firms choose to use internal finance as compared to external finance because of the asymmetric information issues associated with the use of external finance (Alı et al., 2022; Ramjee & Gwatidzo, 2012). Relating this impact of profitability on the bank capitalization ratio according to the pecking order theory, banks seem to be adequate capitalized when they are more profitable than when less profitable. This is because profitable banks have better opportunity of increasing the ratio of bank capitalization using retained earnings (Philip et al., 2014; Abdulhamid et al., 2019; Etudaiye-Muhtar et al., 2017; Vithessonthi, 2014b; Baselga-Pascual et al., 2015). Nevertheless, Ahmad et al. (2008) hold that bank capitalization ratio is not associated with profitability in Malaysia, this is consistent with Brei and Gambacorta (2016). We employed the return on assets (ROA) as the proxy for the profitability of banks as adopted in literatures of (Abdulhamid et al., 2019; García-Herrero et al., 2009; Philip et al., 2014; Brei & Gambacorta, 2016; Wang & Luo, 2019; Abbas & Masood, 2020; Tran & Nguyen, 2020; Jokipii & Milne, 2008).

3.2.2 Macroeconomic factors

Apart from bank size and bank profitability to be used as control variables, literature reviewed also indicated that bank capitalization ratio can be influenced by macroeconomic variables. Inflation and economic growth (GDP) are the two main macroeconomic variables that may influence bank capitalization ratio. Therefore, these factors also used as control variables of the study and they identify the degree of the Country's economic stability (Booth et al., 2001).

i) Economic growth: The effects of the conditions of the economic growth (GDP) of a Country on bank capitalization ratio as found in several literatures is of two types. Firstly, during a period of booming economic condition normally equity shares are over price, there is an increase in cash availability and typically there is a decline of bankruptcy costs as well as lowering degree of probability of loan defaulter. Accordingly, banks as big borrowers are interested to borrow more to get advantages of tax deduction benefit while during a recession period the effects is opposite (Frank & Goyal, 2009). This indicating that during a good economic condition in a Country banks issue more debt instrument to take advantages of existing investment opportunities. Therefore, capitalization is less preferred by banks during this period (Brei & Gambacorta, 2016; Schaeck & Cihak, 2012). Secondly, one of the way in which the agency conflict can be reduced i.e conflict of personal interest between bank's executive managers and bank owners. Haas and Peeters (2006) hold that the decline state of economy in the Country increases the principal and an agent conflict of interest. This is because banks executive managers consider increasing their wealth and do not prefer much leverage financing and take the profit generated by banks as means of internal financing or issuing new equity shares to enhance the capitalization ratio.

ii) Inflation: This is another macroeconomic variable measured as the consumer price index as adopted by World Bank development indicator database. The variable signifies the

Vol. 7, No. 02; 2024
ISSN: 2581-4664

increases of price of goods and services due to rise in money supply and demand of consumer on the goods and services. It is one of the important macroeconomic factors that influencing bank capitalization ratio (Jokipii & Monnin, 2013). High inflation rate results in to increases the real value of tax benefit from debt finance. Therefore, during the high inflation period, banks issue more debt instruments and retain low level of capitalization ratio so as to get the tax deductions benefit (Frank & Goyal, 2009). Demirgüç-Kunt and Maksimovic (1999); Fan et al. (2012) argued that, inflation relate with Central Government's efforts at controlling and monitoring of the economic situation in the country. In addition, it reflects the efforts of the Central Government in maintaining stability of the local currency's which have effects on long-term debt contracts. Hence, a stable or very low inflation rate normally encourage the use of more leverage financing as a result may keep banks holding less capitalization ratio.

Inflation and economic growth (GDP) are common to all banks as macroeconomic variables. Though, they change with time. Therefore, their effects are controlled in this study by introducing time dummies variables in the regression model (Roodman, 2009). The introduced time dummies variables use n = T-1, where (T) reflects number of years employed in the study. i.e 1 for a given year and 0 for the remaining years. This shows that, there are absolutely nine-period dummies variables in this study (10-1). The inclusion of these period dummies variables enable the estimation to take into effects other unobserved factors that change with time-period but common for all banks in Tanzania (Flannery & Hankins, 2013; Roodman, 2009).

3.3 Banks status dummy variables

Understanding the nature of banks status in a country is another important factor that may influence the bank capitalization ratio. For the purpose of this study, the banks status dummy variable is introduced and classified as dummy variable for banks ownership status (DOSS) for private banks and for state owned banks. Another classification is dummy variable for country of originality of banks (DCOS) which are domestic banks and for foreign banks. Memmel & Raupach (2010) found that state owned banks have low pace towards adjustment of capitalization ratio compared to private owned banks because of high cost of rising equity capital while Mohanty and Mahakud (2019) found opposite. In addition, Philip et al., 2014 and Abbas et al., (2021) found that foreign banks have low speed of rebalancing capitalization ratio compared to domestic banks. Relating these argument on adjustment speed and cost of adjustment of capitalization ratio, the study expects that the state owned banks hold higher capitalization ratio than private banks in Tanzania. Moreover, the foreign banks retain less capitalization ratio compared to domestic banks.

4. SAMPLE SELECTION, VARIABLE DESCRIPTION, DATA ANALYSIS METHOD, MODEL AND ESTIMATION TECHNIQUE

4.1 Sample selection and variable description

We select the sample space of commercial and non-commercial banks from 34 commercial and 12 non-commercial banks who have been in operation in Tanzania for at least 7 years. These banks are as follows: For commercial banks it includes, Akiba Commercial Bank, Azania Bank, Banc ABC, Bank of Africa Tanzania Limited, Bank of Baroda Tanzania Limited, Bank of India (Tanzania), Citibank, CRDB Bank, DCB Commercial Bank, Diamond Trust Bank Tanzania, Ecobank, Equity Bank (Tanzania), Exim Bank (Tanzania), Habib African Bank, I&M Bank (Tanzania), International Commercial Bank, KCB Bank Tanzania, Mkombozi Commercial Bank,

Vol. 7, No. 02; 2024
ISSN: 2581-4664

National Bank of Commerce (Tanzania), National Microfinance Bank, People's Bank of Zanzibar, Stanbic Bank Tanzania Limited, Standard Chartered Bank and TPB Bank PlC. For non-commercial banks, it includes Mufindi Community Bank Plc, Uchumi Commercial Bank Limited, Access Bank Tanzania and TIB Development Bank. We have not included in the study banks that are in operation for less than seven years so as to protect the impact of too many missing data. Moreover, the study excluded banks operating under fully Islamic perspective because of the following reasons. Firstly, theoretically Islamic banks are different from conventional perspectives because of the unique contracts and risk-sharing nature (Abdulhamid et al., 2019). Secondly, Islamic banks are very different in terms of capitalization structure compared to conventional banks. For example, recent evidence shows that banks operating under Islamic perspectives are better capitalized and exhibit lower risk aversion (Beck et al., 2013; Ashraf et al., 2016).

The study used annual country level data from Dar es Salaam Stock Exchange and World Bank data base for ten years period from 2012 to 2021 while bank-level dataset for the period of 2012 to 2021 is collected from published balance sheets and income statements of 28 banks selected. Because of the exclusion of banks that have been in operation for less than seven years. As a result, we have balanced panel data set of 28 banks forming the final sample space of the study. We proxy bank capitalization ratio as the ratio of unweighted equity ratio (total equity to unweighted total assets) that is available to all banks in the study. This is in line with the study of Vithessonthi and Tongurai (2016); Vithessonthi (2014b); Etudaiye-Muhtar and Abdul-Baki (2020); Abdulhamid et al. (2019); Etudaiye-Muhtar et al. (2017). Consistent with the previous literatures, we used macroeconomic and bank-specific factors as control variables that also identified to have effects on the bank capitalization ratio. Table 1 provide description of variables used and source of the data for the study.

Table 1: Variables measurement and source of data

DEPENDENT VARIABLE		
Variable	**Measurement**	**Source of data**
Bank Capitalization ratio (BCRS)	Ratio of total equity to total assets	Individual bank balance sheets
INDEPENDENT KEY VARIABLES		
Variable	**Measurement**	**Source of data**
Financial market development		
- Stock market development (SMDS)	Ratio of value of traded shares for a period to average market capitalization for the same period (stock market turnover ratio)	Dar es Salaam Stock Exchange
CONTROL VARIABLES		
Variable	**Measurement**	**Source of data**
Bank-Specific Factors		
-Profitability (PROFS)	Return on asset (ROA)	Individual bank income statements

Vol. 7, No. 02; 2024
ISSN: 2581-4664

-Bank size (BSS)	Natural logarithm of Bank total asset	Individual bank balance sheets
(Macroeconomic)		
-Inflation (INFS)	Annual rate of change of consumer price index	World bank database
-Economic growth rate (EGS)	Annual percentage growth rate of GDP	World bank database
Banks status factors		
- Banks ownership status (DOSS)	Dummy variable (binary number 1 for private banks and 0 for state owned banks)	-
- Country of originality of banks (DCOS)	dummy variable (binary number 1 for domestic banks and 0 for foreign banks)	-

Source: Authors review of related literature

4.2 Data analysis method, model and estimation technique

To examine the impact of the development in financial market on bank capitalization ratio, A modified model of equation (*) as adopted from Abdulhamid et al. (2019); Etudaiye-Muhtar et al. (2017); Wang and Luo (2019) employed. The model is given as below:

$Y_{i,t}=\gamma Y_{i,t-1}+\beta X_{i,t}+\mu_i+\eta_t+\varepsilon_{i,t}$……(*)

The study variables are as measured in Table 1, Yi, is the response variable for bank i at time t, Yi,t−1 is a time period lagged response variable of bank i at time t, Xi, is independence variables of bank i at time t, μi is a time-invariant unobserved bank-specific effects (For example, bank managerial capacity, bank risk tolerance, bank managerial decision making, among others.), ηt is a time-specific effects that relate to all banks and change with time (For example, macroeconomic factors including rates of interest, inflation, GDP, among others), εi,t is a time-varying error term. γ *and* β represents the estimated coefficients value. We used two-step Generalized Method of Moments (GMM) estimation technique to estimate the coefficient of a dynamic panel dataset model as suggested by Blundell and Bond (1998). This technique is suitable for addressing issues of the persistence risk of the dependent variable, autocorrelation and endogeneity issues that may be associated with the dynamic nature of the system caused by the use of lagged dependent variable in the regression equation.

The endogeneity issue in this study is addressed using instruments variable in level and differenced regression equation. The two-step system generalized method of moments (GMM) is used to perform simultaneous equations, one in lagged difference of the endogeneous variable as instrument for the equation in levels while the second one in lagged levels of the endogeneous variable as instrument for the equation in the first difference. The use of the two step system GMM eliminates time-invarient fixed effect of the variable in first difference and estimate them in levels to increase the efficient of the estimation (Blundell and Bond, 1998). Moreover, the GMM

Vol. 7, No. 02; 2024
ISSN: 2581-4664

technique control for unobserved heterogeneity and suitably addresses the unit root issues that may affects the estimation. Generally, the technique lead to avoid the spurious results of the estimate (Gujarati & Porter, 2009).

To test whether the regression estimation of the coefficient is valid or not, we presents the test of Arellano and Bond for AR(1) and AR(2). The test is for the purpose of identifying the absence of first order and second order autocorrelation in the residuals of the first-differenced. The instruments used are valid if there is no second order autocorrelation in AR(2) though present in the first order (Arellano & Bover, 1995). We also presents Hansen/Sargan test for over identifying restriction and absence of correlation between error term and the instruments used in regression model.

Moreover, the partial specification model for adjustment in regression equation (*) consider adjustment cost incurred when banks need to rebalance the capitalization ratio to meet regulatory capitalization requirements. The cost may lead the banks to instantaneous adjustment if it is low or may result in to slow speed of adjustment when it is high. If the banks fails to adjust quickly to meet required capitalization ratio when it fall below the minimum required level by the regulators, they may be exposing to regulatory fines and penalties or even forced by regulators to close their banking operation (Rime, 2001; Brei & Gambacorta, 2016). To prevent banks from this situation, they improve their capitalization ratio. Accordingly, we expect the value of coefficient (γ) for adjustment cost ($Y_{i,t-1}$) to be statistically positive and significant, this suggesting the existence of adjustment cost and speed of adjustment ($1-\gamma$) towards required capitalization ratio. As discussed earlier in the previous paragraph. The classification of the banks in this study based on commercial and non-commercial banks as categorized by BOT as at June 2021. It is most likely that the effects of financial market development on capitalization ratio with commercial banks in Tanzania may be relatively different from non-commercial banks. To find out whether this is true or not, we conduct a robustness test for regression specifications model in equations (*) to make sure that the interpretations of the findings are robust according to the bank classification. In using this equation, commercial and non-commercial banks were merged in a new single regression to find out the effects of financial market development on bank capitalization ratio. This is done in order to avoid conducting different regression analysis for the two sample classification. A single dummy variable is introduced in a regression where banks in Tanzania classified as commercial banks take the value of 1 and those classified as non-commercial banks take the value of 0. The coefficient value which is significant for the proposed dummy variable (DVCS) signifying that the effects of financial market development on bank capitalization ratio is significant different between banks classified as commercial banks and those classified as non-commercial banks in Tanzania. While a non-significant coefficient variable would suggest otherwise.

The regression equation for the robustness tests of the bank's classification are customized versions of the previous equations (*) which take similar form as shown below:

$Yi,t = \gamma Yi,t-1 + \beta Xi,t + D\text{VC} + \mu i + \eta t + \varepsilon i,t$..... (**)

The key difference of the equations (*) and (**) is that commercial and non-commercial banks classification dummy variable (DVCS) is introduced to the independence variables in equation (**) while bank ownership dummy variable (DOSS) and Country of originality of the banks dummy variable (DCOS) are not included in the specification model. The dummy variable (DVCS) has given the binary value of 1 if the banks are commercial and 0 if otherwise. All of the remaining variables are the same. The two-step system Generalized Method of Moments technique

Vol. 7, No. 02; 2024
ISSN: 2581-4664

still employed to perform the regression estimates as in the previous equation. The comparison of the findings obtained in a robustness estimation and those obtained in equations (*) are made and that findings are robust to find if they possess similarity in terms of qualitative characteristics. If the findings are similar it implies that the findings obtained in a robustness estimations regression equation and those obtained from the key analysis in equations (*) are consistent.

5. EMPIRICAL FINDINGS AND DISCUSSION

Summary of descriptive statistics

Table 2 reports the results of descriptive statistics from the balanced panel regression model of 28 banks from 2012 to 2021. The response variable BCR is observed to have an average mean of 15.77 percent and a standard deviation of 6.52. The variable for the financial market development which is proxies as stock market development (SMDS) measured in terms of stock market turnover ratio seem to have mean of 2.53 percent and standard deviation of 1.11. The reported statistical summary in Table 2 shows that variables are suitable for doing analysis. For that reason, the study has been confirmed the normality of distribution regarding to the result in the Table 2. To account for the issue of outlier, robustness check regression test are performed as described in the earlier section of data analysis method, model and estimation technique.

The analysis of pairwise correlation results of the variables reported in Table 3 and 4 indicate that all the variables have the value of correlation coefficient below 0.5. Pairwise correlation between bank capitalization ratio and regressors and between regressors themselves are reported in Table 3 and Table 4 respectively.

Table 2: Descriptive statistics

Variables	Obs	Mean	Median	Std. Dev.	Mini	Maxi
-BCRS	280	15.7700	14.2500	6.5200	10.9100	51.6900
-BSS	280	12.8400	12.8400	1.3500	9.3100	15.9800
-ROA	280	0.7200	0.6900	0.0200	-2.4100	6.2000
-SMDS	280	2.5300	2.8600	1.1100	0.5100	3.6700
-EGS	280	5.5400	5.9800	1.4800	2.0000	6.8700
-INFS	280	6.0000	5.2500	3.6200	3.2900	16.0000

Note: BCRS stands for bank capitalization ratio, BSS represents bank size, ROA represents Return on assets, SMDS represents stock market development, EGS represents economic growth and INFS indicates inflation. All these variables are as measured in Table 1.

Vol. 7, No. 02; 2024
ISSN: 2581-4664

Table 3: Pairwise correlation between bank capitalization ratio and regressors

Category 1 Bank capitalization ratio and bank-specific variables				
Variables	-BCRS	-BSS	-ROA	
BCRS	1.0000	-0.1530**	0.0150***	
Category 2 Bank capitalization ratio and non-bank-specific variables				
Variables	-BCRS	-SMDS	-EGS	-INFS
-BCRS	1.0000	0.0060	-0.0360***	-0.0080**

*NOTE: *** represents significant level at 1%, ** shows significant level at 5%. BCRS represents bank capitalization ratio, BSS represents bank size, ROA represents Return on assets, SMDS represents stock market development, EGS represents economic growth and INFS indicates inflation.*

Table 4: Pairwise correlation between regressors

Variables	-BSS	-ROA	-SMDS	-EGS	-INFS
-BSS	1.0000				
-ROA	0.1710***	1.0000			
-SMDS	0.0190	0.0590	1.0000		
-EGS	-0.0490	0.1660***	0.2340***	1.0000	
-INFS	-0.1700***	0.1140*	-0.2370***	0.0360	1.0000

*NOTE: *** represents significant level at 1%, ** reports significant level at 5%. BCRS represents bank capitalization ratio, BSS represents bank size, ROA represents Return on assets, SMDS represents stock market development, EGS represents economic growth and INFS indicates inflation.*

Financial market development and bank capitalization ratio

The objective of the study required to examine the effects of financial market development on the banks capitalization ratio in Tanzania. To attain the required objective, a well-modified regression specification model of equation (*) was used to provide solution to research question where by the stock market development (SMDS) variable used as a proxies for financial market development for the given definitions and measurement of bank capitalization ratio (BCRS). Empirical findings are reported in Table 5. The estimated coefficient value of the main explanatory variable of interest in the equation (*) is stock market development which is measured by the stock market turnover rate. Though significance positive (0.1260) at 1% level. This gives answers to the research question specifically when bank capitalization ratio is measured in terms of the total equity to total assets ratio. The level of significance for bank-specific variables (bank profitability and bank size) is the same for the ratio of bank capitalization. However, they have different coefficient signs. For

Vol. 7, No. 02; 2024
ISSN: 2581-4664

instance, the coefficient value of the estimates for bank size is statistical significant at 10% significant level and negative (-0.2910) for the defined bank capitalization ratio. Though, the return on assets (ROA) for the banks is significant at 10% significant level but possesses positive sign (0.2050).

Regarding to the study macroeconomic variables as control variables, the growth of economic (EGS) defined in terms of GDP is still significant at 5% level and possesses negative signs (-0.0630) for the ratio of bank capitalization. Inflation (INFS) which is defined as consumer price index (CPI) also identified to be significant at 1% significant level and possesses negative sign (-0.3680) coefficient value of estimates. The coefficient value of the bank ownership status dummy variable (DOSS) is positive (0.0070) and that for Country of originality of the banks (DCOS) is negative (-0.0020) for bank capitalization ratio. In addition, the results shows that the dummy variables DOSS and DCOS have insignificant effect on the capitalization ratio of banks when measured in terms of the ratio of total bank equity to total bank assets.

Table 5: Two-step system GMM regression estimation for the effect of stock market development on bank capitalization Ratio

BCR	Coeff.	St.Erro.	p-value	Sign
Lagged dependent variable				
-LBCRS	0.4790	0.1010	0.0000	***
Banking sector development variable				
-SMDS	0.1260	0.0240	0.0000	***
Bank-specific variables				
-BSS	-0.2910	0.6220	0.0570	*
-ROA	0.2050	0.1090	0.0700	*
Macroeconomic variables				
-EGS	-0.0630	0.0780	0.1140	
-INFS	-0.3680	0.1510	0.0380	**
Dummy variables				
-DOSS	0.0070	0.0080	0.2970	
-DCOS	-0.0020	0.0150	0.3960	
Test statistics				
-(AR1)	-2.80 0		0.0050	
-(AR2)	-1.200		0.2290	
-Hansen test	17.150		0.1030	
-World Chi^2	7.290		0.0000	
Number of groups	28			
Number of observations	252			
Number of instruments	19			

Note: The Table 5 shows the results of equation (*) emplyed the two-step system Generalized Method of Moments estimation technique using STATA 15.0, the statistics coefficients and

Vol. 7, No. 02; 2024
ISSN: 2581-4664

*standard errors that are robust to heteroskedasticity in column wise. BCRS represents the response variable, independent variables are stock market development represented by SMDS, bank size-BSS, Return on assets-ROA, Economic growth-EGS, inflation -INFS, dummy variable for ownership status-DOSS and dummy variable for Country of originality-DCOS. All variables are as measured in Table 1. Table 1 also shows P-values results, Arellano-Bond (AR1) and (AR2), Wald chi-square tests statistics and the Hansen test statistics to detect whether the variables are over identified or not which is necessary for testing the overall validity of the employed instruments. Parenthesis *, **, *** shows 10%, 5% and 1% significance level respectively. Moreover, the Table shows the number of groups of data, number of instruments employed and number of observations reported.*

As reported in Table 5, the liquidity ratio of the stock market as also called the stock market turnover rate is positively related to the ratio of bank capitalization with an estimated coefficient value of 0.1260 at 1% level of significance. This identified positive impact is consistent with the financial intermediation theory that the development in stock market minimize information asymmetry issues through reducing adverse selection risk and moral hazard problem (Grossman & Stiglitz, 1980). According to Demirgüç-Kunt and Maksimovic (1999), if this happens the potential investors and existing shareholders are encouraged to provide new equity capital and are in good position of increasing their stock holding to the banks respectively. This also lead into increasing the liquidity of the stock market because of the increasing rate of trading of shares capital in the stock market. Accordingly, banks are in position of rising more equity capital from the public stock market which results in to increasing bank capitalization ratio.

The positive effects of the stock market development on bank capitalization ratio is consistent with the results of Etudaiye-Muhtar et al. (2017); Vithessonthi and Tongurai (2016); Tran and Nguyen (2020); Wang and Luo (2019); Abdulhamid et al. (2019) that following some financial market reforms, capitalization ratio of banks increase specifically for the reforms desired to reduce information asymmetry issues and transaction cost by banks and regulators of capital markets. They argued that such reforms results in to strengthening of the liquidity of the stock market that increasing the trading activities of shares which cause the increasing the ratio of capitalization for the banks. In a similar views, Kleff and Weber (2008); Poghosyan and Čihak (2011) revealed that stock market development in the form of transparency and financial information dissemination positively influencing capitalization ratio of banks because it encourages trading activities among investors in the market. Though, such observed positive effect may be deteriorated if the macroeconomic situation in a country is not well. Some of the suggested measures that most countries implement in the financial market development in the form of stock market development consisting of elimination or reducing of information asymmetry problems to the lowest level, elimination of restriction to enter the market and exit the market, reduction of flotation cost and other necessary measures taken to strengthen supervision activities and governance practice. In taking these measures, it is probable that the restrictions facing the market which is necessary in increasing liquidity of the stock market as a means of improving source of finance for capitalization of banks and other financial institutions are minimized in a way that banks capital accessibility increases as a result enable banks to enhance capitalization ratio. Similar to the study expectations, the results of the analysis showed that bank capitalization ratio increases when the stock market developed as observed in Table 5. This increasing in bank capitalization

Vol. 7, No. 02; 2024
ISSN: 2581-4664

ratio might be caused by increasing equity capital that available at low flotation cost that help banks to increase ratio of capitalization to reduce risk of failing to operate below minimum required ratio. In addition, this might also be caused by the major reforms made in a country financial market and financial sector in general. Moreover, this might also be as a results of improvement on bank supervision activities. However, the results of this study is inconsistent to the previous study such as Abbas et al. (2021) in United State of America and Philip et al. (2014) in China who revealed that the development of the stock market has significant negative impact on capitalization ratio of the banks. This might be as a results of higher floatation cost of equity capital issuance in USA and China public stock market since most banks in these Countries are listed.

Nevertheless, as explained in the previous paragraph the main objective of the study is to examine the effect of the financial market development proxies as stock market development on bank capitalization ratio, but the findings of the Generalized Method of Moments estimation also indicates that bank-specific and macroeconomic variables as the control variables of the study are also very essential factors that influencing bank capitalization ratio as identified in prior studies. The effects of these variables in this study however is well discussed below. Subsequent the definition of the bank capitalization ratio (BCRS) as the ratio of banks total equity to banks total assets. Size of the banks, return on assets (ROA), economic growth (GDP) and inflation are essential determinants of bank capitalization ratio. The negative coefficient value of the size of banks (BSS) of -0.2700 which is at 1% significant level indicates that banks that have large total assets value possessing low value of capitalization ratio because such banks believe that being big in industry is enough for them to obtain new equity capital for easy improving the capitalization through issuing new shares when required to ensure they operate above the minimum required capitalization ratio by regulator. Moreover, these banks believe further that being too huge serve as advantage of receiving support from Central Government when they face financial difficulties to avoid down turn in the economy of the country. This observed result is supported with the argument of the too-big-to fail hypotheses and in line with previous studies such as Brei and Gambacorta (2016); Yu (2000). In addition, support of the findings reported in Table 5 is also witnessed in the pecking order theory through the estimated coefficient value and the level of significance of return on assets. The positive impact of 0.1880 at 10% significant level indicates that return on assets (ROA) increases banks retained earnings to continuously improving bank capitalization ratio. Since (ROA) has been used as proxy for bank profitability, Tran and Nguyen (2020) argued that (ROA) represents business profit produced by assets in a given period of time that can be retained either the whole amount or part of it to increase bank capitalization ratio.

Moreover, economic growth (GDP) as the macroeconomic determinants reports insignificant impact on bank capitalization ratio. Inflation as another macroeconomic factors, it has negative effects with a coefficient value of -0.2920 at 10% level of a significant. The negative coefficient value of inflation which represents consumer price index over time is consistent with the economic and finance concept that a relative high inflation period in the country economy encourage financial institution such as banks to maintain higher debt to equity ratio as a way of benefit from the tax deductions as a result cause banks to maintain low level of capitalization ratio (Frank & Goyal, 2009). This reported result contrast with the previous studies such as Demirgüç-Kunt and Maksimovic (1999) who suggests that inflation as a measure of controlling stability of

Vol. 7, No. 02; 2024
ISSN: 2581-4664

local currency in a country in a long-term debt finance contract. Therefore, a low inflation rate attract banks to enter in to more debt contracts to improve their investment as a results reduces the ratio of bank capitalization. This findings is supported with the results of Philip et al. (2014).

Apart from bank-specific and macroeconomic variables, a dummy variables has been used as independence variable of the study. Though there is no significance impact of the dummy variable introduced for the country of originality of the banks as well as for the ownership status of banks as reported in Table 5, This shows that stock market development in terms of stock market turnover ratio has the same effects on capitalization ratio for banks categorized as domestic and foreign banks as well as when banks categorized as private and state-owned banks. Consequently, this suggest no need to perform two additional separate regression equations for these two categories of banks (domestic and foreign; private and state-owned banks).

Post estimation check for validity of regression model specification

Statistics check of the post-estimation was conducted to confirm the validity and robustness of the study regression model in equations (*). The test detect that the results reported in Tables 5 are statistically valid and the regression specification models used are appropriate for the estimations. For example, the test for no autocorrelation in AR (2) residuals as shown in Tables 5 indicated that the null hypothesis should not be rejected and the alternative hypothesis should not be accepted because the AR (2) estimates coefficients is insignificance. This means that the second order serial correlation is not existing in the AR (2) residuals. Nevertheless, the alternative hypothesis for Hansen statistics employed to test whether the instruments used in the regression specification equation (*) are over identified revealed that it cannot be accepted and the null hypothesis cannot be rejected, this indicating that the statistical instruments variables used in the regression model are not over identified. Regarding the joint statistically significance test of the predictor variables and whether these variables are good predictor of the response variable, the Wald chi square statistics test also known as the goodness of fit test indicated non-rejection of the alternative hypothesis and non-acceptance of the null hypothesis. This indicating that the independence variables are good predictor of the dependent variable because of the presence of significance level for the chi-square statistics. According to these results of the post estimation test, we may therefore make conclusion that the regression model and the estimation techniques employed which is two-step system generalized method of moments is appropriate econometric technique for answering the research question.

Robustness test for bank classification

The study grouped banks into samples of commercial and non-commercial banks (stratified sampling method) as described in the previous paragraph. A special definite variable known as dummy variable (DVCS) is employed that used the binary number 1 and 0 for commercial and non-commercial banks respectively. These definite dummy variable introduced in order to examine statistically the existence or non-existence of significant difference in the effects of stock market development on bank capitalization ratio for the stratified sampling of banks. Another regression model which consist of the dummy variable are used to examine the impact as shown in equation (**). The results for the regression model are as represented in Tables 6.

The results of the regression model of the main study analysis in Table 5 are compared

Vol. 7, No. 02; 2024
ISSN: 2581-4664

with the findings of robustness test reported in Table 6 for the objective of the study. Following the comparison performed for the results, the findings seemed to be similar in terms of qualitative characteristics despite the presence of very small variation. These results indicates that the estimates of the analysis reported for the main study regression specification model are robust. The study robustness check for the main analysis is observed through the existence of non-significance estimates of the DVCS variable as reported in Tables 6 and the presence of the positive signs of the main independence variable (SMDS) of the study as shown in Tables 5. The existence of non-significance estimates of the DVCS variable identifies that there is no significant difference in the impact of stock market development for commercial banks and non-commercial banks on capitalization ratio in Tanzania. However, it is observed that the coefficient value of the estimates for bank-specific factors and macroeconomic determinants differs. The post estimation test for the validity of the robustness model employed including Hansen test, AR(2) for detecting whether the instrument variables employed are over identified or not and Wald Chi- Square check for goodness of fits of study variables indicates that the regression specification model is free from spurious results of the estimation. This means the estimation is valid.

Moreover, Table 6 report that all of the significant variables of the study maintain the same signs of the coefficient of the estimates as reported in Table 5 for the impact of stock market development on capitalization ratio of the banks in Tanzania. Furthermore, the categorical dummy variable (DVCS) is insignificant which indicating that the stock market development has the same impact on bank capitalization ratio in both commercial and non-commercial banks in Tanzania.

Table 6: Robustness check for the effect of stock market development on bank capitalization Ratio

BCR	Coeff.	St.Erro.	p-value	Sign
Lagged dependent variable				
-LBCRS	0.4920	0.1200	0.0000	***
Banking sector development variable				
-SMDS	0.1190	0.0190	0.0000	***
Bank-specific variables				
-BSS	-0.2790	0.6310	0.0450	**
-ROA	0.2100	0.1100	0.0680	*
Macroeconomic variables				
-EGS	-0.1040	0.0590	0.1520	
-INF	-0.3900	0.1470	0.0440	**
Dummy variable for bank classification				
-DVCS	-0.0060	0.0120	0.3720	
Test statistics				
-(AR1)	-2.740		0.0070	
-(AR2)	-1.240		0.2240	
-Hansen statistics test	16.920		0.1010	
-World Chi^2 test	8.420		0.0000	
Number of groups	28			

Vol. 7, No. 02; 2024
ISSN: 2581-4664

Number of observations	252
Number of instruments	19

*Note: The Table 6 shows the results of the robustness test equation (**) for the effects of stock market development on bank capitalization ratio employed the two-step system Generalized method of Moments estimation method using STATA 15.0, the statistics coefficients and the standard errors that are robust to heteroskedasticity in column wise. BCRS represents the response variable, independent variables are stock market development represented by SMDS, bank size-BSS, Return on assets-ROA, Economic growth-EGS, inflation-INFS and the study dummy variable for bank classification-DVCS. The measurement of variables are as described in Table 1. Table 6 also shows P-values results, Arellano-Bond (AR1) and (AR2), Wald chi-square tests statistics and the Hansen test statistics to detect whether the variables are over identified or not which is necessary for testing the overall validity of the employed instruments. Parenthesis *, **, *** shows 10%, 5% and 1% significance level respectively. Moreover, the Table shows the number of groups of data, number of instruments employed and number of observations reported.*

6 CONCLUSION

The financial market development through the role plays by stock market as the financial intermediaries improves economic growth, we investigate the impact of the development in financial market proxies as stock market development on bank capitalization ratio in Tanzania for the time period from 2012 to 2021. This is following the fact that Tanzania has gone through several financial market reforms programmes to improve and stabilize the financial sector. Following several finance and banking literature, the present study include control variable in a dynamic panel regression specification model categorized in terms of macroeconomic and bank-specific variables to observe the effect of financial market development proxies as stock market development measured in terms of stock market turnover rate on bank capitalization ratio. Our empirical findings depicts that an improvement in bank capitalization ratio is as a results of the stock market development. This indicate that banks in Tanzania increase the capitalization ratio to suffice as a buffer capital to withstands financial shocks to the sector and maintain stability in the financial market because the banks depend greatly on the founder and private investor for rising equity capital since most of them are not listed. Hence, incurred lower cost of financing in equity capital.

The results of the study have some important policy implications. Firstly, the positive relationship between bank capitalization ratio and development in financial market for the banks selected in this study indicates the major financial market reforms implemented over the decades in Tanzania are in the right direction as seems to improve bank capitalization ratio. In additions, it shows the presence of regulation stringent by the regulator which is linked to quality of regulatory policies seeking to develop the financial market. Accordingly, the policymaker and regulators in the financial market are encouraged to uphold and improve the existing policies and regulation to maintain healthier financial system. Secondly, the increasing in bank capitalization ratio improve and stabilize the banking sector and financial sector in general, it may increase investors' confidence on their investment because of the stability of the sector. Consequently, this will improve economic growth as suggested by the finance and bank-growth scholars. Thirdly, the

Vol. 7, No. 02; 2024
ISSN: 2581-4664

impact of macroeconomic variables used in this study (inflation and economic growth) signifying that regulators and bank management have to take in to effects the importance of these determinants in order to minimize possibility of happening for the financial crisis by controlling the fluctuation of the impact of the business cycle on bank capitalization ratio. Finally, enhanced bank capitalization ratio following the development in the financial market enables those who take managerial position in banks to increase profitability as a means of increasing shareholders wealth through retained earnings. However, it should be understood that increasing in capitalization ratio may cause banks to increase risk taking behaviour for engaging in to more non-traditional banks activities. Therefore, bank manager is supposed to consider the risk-return trade-off. Based on the findings of this study, the investigation of the effects of the development in financial market on bank capitalization ratio in the future research should focus on the countries in which the banks operate in similar economic environment as Tanzania.

COMPETING INTERESTS

There is no competing interests that exist between author(s).

REFERENCES

Abbas, F., & Masood, O. (2020). How do large commercial banks adjust capital ratios: Empirical evidence from the USA. Economic Research-Ekonomskaistraživanja, 33(1), 1849-1866.

Abbas, F., Masood, O., & Ali, S. (2021). Financial development and bank risk-taking: Empirical evidence from the USA. Intellectual Economics, 15(1), 64-87.

Abdulhamid, B., Azmi, W., & Ali, M. (2019). Bank risk and financial development: Evidence from dual banking Countries. Emerging Markets Finance and Trade, 56(2), 286-304. http://doi.org/10.1080/1540496X.2019.1669445

Ahmad, R., Ariff, M., &Skully, M. J. (2008). The determinants of bank capital ratios in a developing economy. Asia-Pacific financial markets, 15(3-4), 255-272. doi:10.1007/s10690-009-9081-9

Alı, S. H., Dagli, H., Faedfar, S. &Turan-Kurtaran, A. (2022). The impact of bank-specific and macroeconomic factors on the capital structure of banks. Sosyoekonomi, 30(54), 225-242. doi: 10.17233/sosyoekonomi.2022.04.12

Ally, Z. (2013). Comparative Analysis of Financial Performance of Commercial Banks in Tanzania. Research Journal of Finance and Accounting, 4, 133-143.

Ashraf, D., Ramady, M., &Albinali, K. (2016). Financial fragility of banks, ownership structure and income diversification: Empirical evidence from the GCC region. Research in International Business and Finance, 38, 56-68. doi: 10.1016/j.ribaf.2016.03.010.

Baselga-Pascual, L., Trujillo-Ponce, A., &Cardone-Riportella, C. (2015). Factors influencing bank risk in Europe: Evidence from the financial crisis. The North American Journal of Economics and Finance, 34, 138–166. https://doi.org/10.1016/j.najef.2015.08.004.

Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. Journal of Banking & Finance, 28(3), 423-442.

Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. Journal of Banking & Finance, 28(3), 423-442.

Beck, T., Demirgüç-Kunt, A., &Merrouche, O. (2013). Islamic vs. conventional banking: Business model, efficiency and stability. Journal of Banking & Finance, 37(2), 433–47.

Vol. 7, No. 02; 2024
ISSN: 2581-4664

Beck, T., Feyen, E., Ize, A., &Moizeszowicz, F. (2008). Benchmarking financial development. World Bank Policy Research Working Paper 4638. Washington, DC: World Bank.
Booth, L., Aivazian, V., Demirgüç-Kunt, A., &Maksimovic, V. (2001). Capital structures in developing countries. The Journal of Finance, 56(1), 87-130.
BOT, (2011). Tanzania mainland's 50 years of independence of independence. Bank of Tanzania, Ed: Dar es Salaam.
BOT, (2019). Tanzania financial stability report, https://www.bot.go.tz
BOT, (2020). Annual report 2019/20, https://www.bot.go.tz
BOT, (2021). Financial sector supervission 2020/21, https://www.bot.go.tz
Brei, M., &Gambacorta, L. (2016). Are bank capital ratios pro-cyclical? New evidence and perspectives. Economic Policy, 31(86), 357–403. doi:10.1093/epolic/eiw001
Demirgüç-Kunt, A., &Maksimovic, V. (1999). Institutions, financial markets, and firm debt maturity. Journal of financial economics, 54(3), 295-336.
Etudaiye-Muhtar, O. F. (2016). The effect of financial market development on capital and debt maturity Structure of firms in selected African Countries. PhD Thesis University of Malaya. Kuala lumpur.
Etudaiye-Muhtar, O. F., & Abdul-Baki, Z. (2020). Market structure, institutional quality and bank capital ratios: Evidence from developing Countries. European Journal of Management and Business Economics, 30(1), 92-107.
Etudaiye-Muhtar, O. F., Ahmad, R., Olaniyi, T. A., &Abdulmumin, B. A. (2017). Financial market development and bank capitalization ratio: Evidence from developing countries. Paradigm, 21(2), 126-138.
Farooq, U., Malik, J. A., & Muhammad, L. (2018). Impact of banking sector development on capital structure of non-financial sector firms in Pakistan. Journal of Accounting and Finance in Emerging Economies, 4(2), 177-188. doi: 10.26710/jafee.v4i2.400
Flannery, M. J., & Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. Journal of Corporate Finance, 19(0), 1-19. doi: http://dx.doi.org/10.1016/j.jcorpfin.2012.09.004
Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? Financial Management, 38(1), 1-37.
Gennaioli, N., Shleifer, A. &Vishny, R. W. (2013). A model of shadow banking. Journal of Finance, 68(4), 1331–63.
Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient markets. The American Economic Review, 70(3), 393-408.
Gujarati, D., & Porter, C. (2009). Basic Econometrics (Fifth ed.): The McGraw-Hill, New York, USA.
Gurley, J.G., Shaw, E.S., (1960). Money in a theory of finance. Brookings Institution, Washington, D.C.
Haas, R., &Peeters, M. (2006). The dynamic adjustment towards target capital structures of firms in transition economies. Economics of Transition, 14(1), 133-169.
Jilenga, M. T., & Luanda, P. (2021). Factors influencing profitability of commercial banks in Tanzania: a case study of CRDB bank plc. *The Economics and Finance Letters*, *8*(1), 61-69.
Jokipii, T., & Milne, A. (2008). The cyclical behaviour of European bank capital buffers. Journal of banking & finance, 32(8), 1440-1451.
Jokipii, T., & Monnin, P. (2013). The impact of banking sector stability on the real economy.

Vol. 7, No. 02; 2024
ISSN: 2581-4664

Journal of International Money and Finance, 32(1), 1-16.
Kapaya, S. M. (2021), "Financial development and economic growth in Tanzania: An ARDL and bound testing approach", Asian Journal of Economics and Banking, 5(1), 46-65. https://doi.org/10.1108/AJEB-09-2020-0063
Kingu, P. S., Macha, S., &Gwahula, R. (2018). Impact of non-performing loans on bank's profitability: Empirical evidence from commercial banks in Tanzania. *International Journal of Scientific Research and Management*, *6*(1), 71-79.
Kleff, V., & Weber, M. (2008). How do banks determine capital? Evidence from Germany. German Economic Review, 9(3), 354–372. doi: 10.1111/j.1468-0475.2008.00437.x)
Memmel, C., &Raupach P. (2010). How do banks adjust their capital ratios? Journal of Financial Intermediation, 19(4), 509–528.
Mkaro, G. H., Lau, L. S., &Choong, C. K. (2023). The determinants of banking sector performance in Tanzania: A pre-post Treasury Single Account analysis. *Cogent Economics & Finance*, *11*(2), 2282812.
Mohanty, S., &Mahakud, J. (2019). Dynamic adjustment towards target capital adequacy ratio: Evidence from Indian commercial banks. Global Business Review, 20(3), 757-768. doi: 10.1177/0972150919837082
Mrindoko, A., Macha, S., &Gwahula, R. (2020). Nonperforming loans and financial performance of commercial banks in Tanzania. *Int J Bus Manag Econ Rev*, *3*(6), 152-180.
Murinde, V. (2012). Financial development and economic growth: Global and African evidence. Journal of African Economies, 21(suppl 1), i10-i56.
Narayan, P. K., & Narayan, S. (2013). The short-run relationship between the financial system and economic growth: New evidence from regional panels. International Review of Financial Analysis, 29, 70-78.
Ngweshemi, L. E., &Isiksal, A. Z. (2021). Analysis of the factors affecting bank profitability: Evidence of Tanzania commercial banks. *Studies of Applied Economics*, *39*(8).
Ozili, P. K. (2017). Bank profitability and capital regulation: Evidence from listed and non-listed banks in Africa. Journal of African Business, 18(2), 143–168. doi:10.1080/15228916.2017.1247329
Ozili, P. K. (2018). Banking stability determinants in Africa. International Journal of Managerial Finance, 14(4), 462–483. doi:10.1108/ijmf-01-2018-0007
Philip, M., Hong, L., &Chunxia, J. (2014). Bank Capital, Adjustment and Ownership: Evidence from China. BOFIT Discussion Paper No. 16/2014. http://dx.doi.org/10.2139/ssrn.2509295
Poghosyan, T., &Čihak, M. (2011). Determinants of Bank Distress in Europe: Evidence from a New Data Set. J FinancServ Res, 40(3), 163–184. https://doi.org/10.1007/s10693-011-0103-1
Rajan, R. G., & L. Zingales. (1998). Financial dependence and growth. American Economic Review, 88(3), 559–586.
Raphael, G. (2012). Commercial banks efficiency in Tanzania: A non-parametric approach. *European Journal of Business and Management*, *4*(21), 55-67.
Rime, B. (2001). Capital requirements and bank behaviour: Empirical evidence for Switzerland. Journal of Banking & Finance, 25(4), 789–805.
Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. Stata Journal, 9(1), 86-136.
Saci, K., & Holden, K. (2008). Evidence on growth and financial development using principal

Vol. 7, No. 02; 2024
ISSN: 2581-4664

components. Applied Financial Economics, 18(19), 1549-1560.
Schaeck, K., &Cihák, M. (2012). Banking Competition and Capital Ratios. European Financial Management, 18(5), 836–866. doi:10.1111/j.1468-036x.2010.00551.x
Tran, S. H., & Nguyen, L. T. (2020). Financial Development, Business Cycle and Bank Risk in Southeast Asian Countries. The Journal of Asian Finance, Economics and Business, 7(3), 127–135. https://doi.org/10.13106/JAFEB.2020.VOL7.NO3.127
Vithessonthi, C. (2014a). Financial markets development and bank risk: Experience from Thailand during 1990–2012. Journal of Multinational Financial Management, 27, 67–88.
Vithessonthi, C. (2014b). The effect of financial market development on bank risk: Evidence from Southeast Asian countries. International Review of Financial Analysis, 35, 249–60.
Vithessonthi, C., &Tongurai, J. (2016). Financial markets development, business cycles, and bank risk in South America. Research in International Business and Finance, 36, 472–84.
Wang, R., & Luo, H. R. (2019). Does financial liberalization affect bank risk-taking in China? SAGE Open, 9(4), 1-15. doi:10.1177/2158244019887948
Yu, H. C. (2000). Banks' capital structure and the liquid asset-policy implication of Taiwan. Pacific Economic Review, 5(1), 109–114. doi:10.1111/1468-0106.00093
Zou, H., & Xiao, J. Z. (2006). The financing behavior of listed Chinese firms. British Accounting Review, 38(3), 239-258. doi: 10.1016