Journal of Finance and Accounting

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ISSN: 2616-4965

Stratford Peer Reviewed Journals and Book Publishing
Journal of Finance and Accounting
Volume 9||Issue 4||Page 20-37||September||2025|
Email: info@stratfordjournals.org ISSN: 2616-4965

Capital Adequacy Risk and Firm Market Value: Insights from Commercial Banks Listed at the Nairobi Securities Exchange

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How to cite this article: **Githiaka, T., Oluoch, O. & Nasieku, T. (2025), Capital Adequacy Risk and Firm Market Value: Insights from Commercial Banks Listed at the Nairobi Securities Exchange,** ***Journal of Finance and Accounting*****, 9(4) pp.20-37.** https://doi.org/10.53819/81018102t4353

Abstract

The Global financial crisis of 2008 exposed the danger of capital adequacy risk on the market value of commercial banks. Majority of the banks that lacked adequate capital to withstand the economic shocks eventually collapsed. The objective of this study was to assess the impact of capital adequacy risk on the market value of commercial banks in Kenya. The market value of commercial banks has been dwindling over time hence a sign of unstable performance. This study adopted a positivistic research philosophy where the research was detached from the study to ensure objectivity. Secondary data was obtained from the published financial reports of commercial and Nairobi Securities Exchange database. The study utilized a causal predictive model under partial least squares approach. Both the measurement and structural models were assessed for the validity of variables and testing of the hypothesis. Path analysis results revealed that capital adequacy risk has a significant negative relationship with the market value of commercial banks. This implies that with elevated levels of capital adequacy risk, commercial banks are exposed to economic shocks, regulatory compliance costs and insufficient capital to meet their operational performance and hence a declining market value. These results are consistent with new capital requirements under Basel III and in Kenya where banks are required to comply with the increased capital requirements. The mediating influence of profitability on the relationship between capital adequacy, risk and market value was also significant. The study

recommends that the regulator should be cautious while implementing the new capital requirements to avoid cash trap and a reduction of credit supply.

Keywords: *Interest rate risk, market value, financial performance, commercial banks*

1.0 Introduction

Bank play a significant role in the economy by facilitating financial intermediation, economic growth and stability. They have been highlighted as a key contributor to financial inclusion and a cornerstone to stable economic growth. Therefore, maintaining optimal market value levels is crucial because it promotes financial soundness and promotes investor confidence. Consequently, a vibrant financial system enhances efficient mobilization and allocation of resources promoting economic growth and development (Yudistira & Ristati, 2022). However, commercial banks face massive challenges in the provision of their services. These include financial risks, cyber security risks and capital regulatory and compliance risks among others. Financial risks and capital adequacy are remarkable since they directly affect the nature of the operations of a bank (Lee & Hsieh, 2013; Andersen & Juelsrud, 2024). Banks with high capital adequacy levels are depicted to be more stable due to their ability to withstand the economic shocks. The Global Financial Crisis (GFC) highlighted capital inadequacy as one of the weaknesses that banks faced and hence, they could not withstand the economic shocks. As a result, majority of the banks collapsed and especially the ones that were already struggling financially (Danielsson et al., 2018). The collapse led to a chain reaction in the economy and this affected the non-financial institutions too (Vousinas, 2015). Therefore, banks' market performance and value is important since it has a domino effect on all the sectors of the economy. Their regulation and compliance plays a key role in shaping the economic stability of a country (Abbas & Hassouni, 2024).

Globally, Basel Committee on Banking Supervision (BCBS) responded to the GFC by developing Basel III new rules in relation to capital requirements (Lee & Hsieh, 2013; Alaoui Mdaghri & Oubdi, 2021; Andersen & Juelsrud, 2024). These included an increase in Tier 1 capital ratio from 4% to 6%; equity to risk weighted assets increased from 2% to 4.5% which was considered as a reference point substituting Tier 1 capital ratio. The new rules provided a minimum benchmark for capital buffers which must exceed 2.5% and comprise owners' capital. In periods of economic downturn, banks are permitted to use the excess capital by reducing the distribution of dividends. These efforts have been made to ensure that financial institutions are holding adequate levels of capital to cover large amounts of losses which were missing under Basel I and II. Further, Basel III requires that banks establish a countercyclical capital surplus between 0 to 2.5% during periods of excessive capital growth. The banking system has also been strengthened by a minimum leverage ratio of capital to total assets of 3%.

Locally, capital adequacy requirements are an essential component of prudential guidelines. In Kenya, banks are required to maintain a minimum ratio of core capital to risk weighted assets of 10.5%, total capital to risk weighted assets of 14.5% and core capital to total deposits of 8% (CBK, 2024). The regulator has recognized the need for banks to have sufficient capital. Adequate capital levels promote solvency and resilience among banks (Ho & Hsu, 2010). Well capitalized banks are more economically stable because they have sufficient reserves to absorb losses and other economic shock in periods of financial distress. In Kenya, banks are required to maintain a minimum core capital of Ksh. 3 billion by the end of 2025. Currently, 32% of the banks are in breach of this requirement. This is after a revision from a core capital of 1 billion in 2012. By the end of 2029, commercial banks in Kenya will be required to have a minimum capital of 10 billion.

https://doi.org/10.53819/81018102t4353

This is a ten-fold increase in capital to reflect the underlying economic conditions. Capital inadequacy has also been recognized as a motivating variable to financial bankruptcy and dwindling market share (Yohana et al., 2023).

Based on the aforementioned section regarding the risks of capital inadequacy, the objective of this study is to identify the impact of capital adequacy risk on the market value of commercial banks in Kenya. In addition, the study also focuses on the moderating effect of profitability on the relationship between capital adequacy and market value of commercial banks in Kenya. Even though the theoretical discussions on capital regulations and adequacy have been widely researched, the theoretical discourse on capital adequacy risk and bank value remains in its infancy. Majority of the studies focus on the impact of capital adequacy on risk and financial performance of commercial banks (Mathuva, 2009; Ho & Hsu, 2010; Mir & Shah, 2022; Abbas & Hassouni, 2024; Andersen & Juelsrud, 2024). Secondly, previous studies have also not been conclusive on the relationship between capital adequacy and market performance of commercial banks. Some studies have revealed a negative effect (Alnajjar & Othman, 2021; Ogunode et al., 2022) while others have a positive influence (Ho & Hsu, 2010; Siddique et al., 2022; Mir & Shah, 2022). The study sought to bridge the existing gap between capital adequacy risk and market value of commercial banks and contributes to related literature. Firstly, the study adopted a novel approach to the specification of variables and analysis. It adopted a higher order form of analysis that allowed the use of multiple variables and a mediating variable in a single model. This permitted the researcher obtain comprehensive findings.

This study is organized into five parts. This first part introduces the background of the study, the gap, research objectives, this part also explains and discusses some main concepts of the study highlighting capital adequacy and performance. It is followed by part two which discusses the previous literature regarding the impacts of Capital Adequacy Ratio (CAR) on the performance in the banking sector, and the theoretical framework of the study. Part three includes research methodology of the study including population, target samples, data collection and analysis as well as methods (approaches) used in the study. Part four explains the discussion of study results including the measurement and the structural model. Finally, part five and six provides the conclusion and recommendations for further studies.

2.0 Literature Review

Capital adequacy refers to the availability of sufficient capital to cover the operational existence (Ogunode et al., 2022). Therefore, capital adequacy risk is an essential element in the determination of financial institutions market value. It determines whether a bank has sufficient funds to cover their operational losses (Vousinas, 2015). Banks with higher capital levels are more resilient to economic shocks because of their ability to absorb losses and finance the risky assets. Consequently, this promotes stability and investor confidence hence a higher market value (Abbas & Hassouni, 2024).

Mathuva (2009) assessed the impact of capital adequacy and cost income ratio on the performance of commercial banks in Kenya. The study found out that core capital and risk-based capital ratio have a positive effect on profitability due to the reduced costs of financial distress including bankruptcy. Agustin (2019) examined the effect of capital adequacy on the financial performance and corporate value of conventional banks in Indonesia. The results revealed that capital adequacy had no significant influence on profitability and corporate value. This could be attributed to the context of the study because majority of the banks are Shariah compliant.

https://doi.org/10.53819/81018102t4353

Lee and Hsieh (2013) investigated the impact of bank capital on profitability and risk in Asian banking. The study employed a general method of moments techniques for the analysis of 42 Asian banks over a period of 15 years. The results revealed that banks in low-income countries had a higher capital effect on profitability. Further, banks in lower-middle income countries had the highest reverse capital effect on risk while banks in high-income countries had the lowest values. In conclusion, banks in Middle Eastern countries had the highest and positive capital effect on profitability. This implies that the impact of bank capital on bank performance is dependent on the level of economic development of a country.

Karki and Aryal (2019) examined the impact of capital adequacy in shaping the market performance of Nepalese commercial Banks. The study utilized core capital adequacy and total adequacy ratios as measures of capital adequacy and covered a period of 10 years up to 2016. The findings revealed a positive relationship between capital adequacy and market performance. Further, adequate capital levels contributed to bank's stability and financial soundness (Yohana et al., 2023).

Abbas et al. (2021) investigated the effect of conventional capital ratio risk-based capital ratio, and capital buffer ratio on commercial bank risk-taking in the US. The study covered a period of 18 years up to 2019 and analyzed data a two-step General Method of Moments technique. The results revealed a positive relationship between traditional capital ratio and risk-taking behavior which support the regulatory hypothesis. However, an inverse relationship is observed when capital is measured using risk-based measures. The results confirm the moral hazard hypothesis. With higher proportions of risk-based capital, banks would have lesser chances of default because risk-based capital is able to cover the risky assets hence lower chances of default.

Andersen and Juelsrud (2024) analyzed the optimal capital adequacy ratios among Norway commercial banks. The study investigated the impact of increasing the levels of capital adequacy ratios against the cost of the financial crisis. Results indicated that higher capital adequacy ratios result in higher funding costs for the banks which might be passed on to the customers, hence increasing the cost of the loans. However, this increases a bank's ability to absorb higher periods of losses in times of financial stress without the use of external funds. Further, banks become more resilient to losses and hence reduced financial crisis.

Wanjiru et al. (2024) investigated the impact of capital adequacy on the financial performance of commercial banks in Kenya. The study utilized a census of 39 commercial banks and found capital adequacy positively influences profitability. On the other hand, Ogunode et al. (2022) found a negative relationship between capital adequacy and among non-financial firms in Nigeria. The study recommended that management of non-financial firms should optimize the use of debt capital in maximizing stakeholders returns and profitability. The regulator of non-financial firms should also closely monitor and strengthen the risk management framework and ensure market discipline.

Alnajjar and Othman (2021) examined the impact of capital adequacy ratio on the performance of Islamic commercial banks in MENA region. The results revealed that capital adequacy has a significant and negative influence on return on equity and return on assets. This could be attributed to the opportunity cost of owner's capital compared to debt. Similarly, Mir and Shah (2022) investigated the effect of capital adequacy on the commercial banks listed at the Bombay Stock Exchange in India. The study utilized a balanced panel data set of 37 banks for a period of 10 years

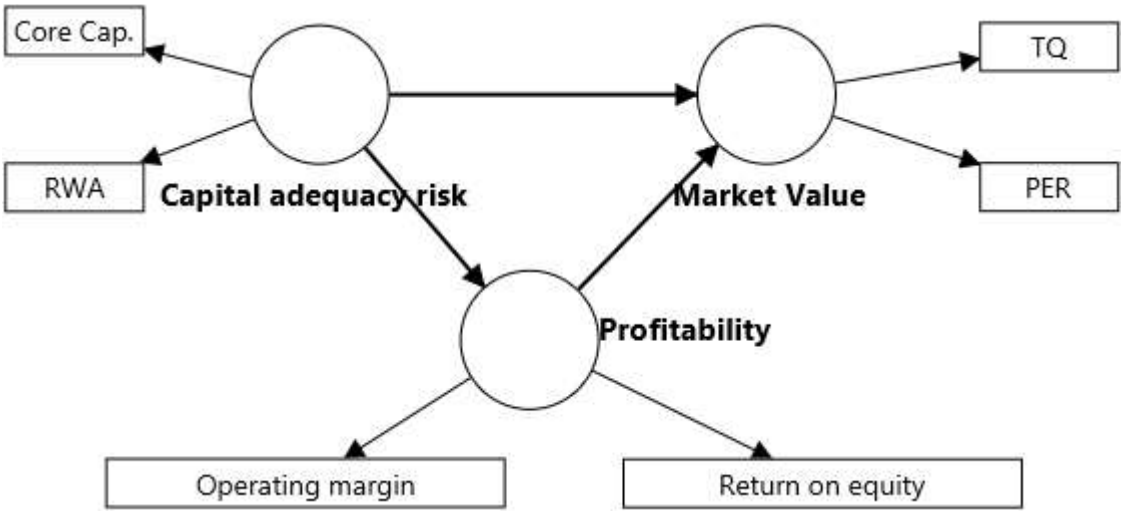
up to 2018. The study findings indicated that capital adequacy has a significant impact on return on assets and net interest margin.

Hulu and Siswanti (2023) assessed the impact of capital adequacy on financial performance in Indonesia. The study found out that capital adequacy has no significant influence on the performance of performance of commercial banks. However, Yudistira and Ristati (2022) performed a similar study on the impact of capital adequacy on the performance of Islamic banks in Indonesia. The results revealed that capital adequacy has a significant and positive influence on the performance of Islamic banks. The contrast in findings could be attributed to the use of different measures of capital adequacy and the context of the population.

Further, Ho and Hsu (2010) and Siddique et al. (2022) investigated the impact of capital adequacy on financial performance in Taiwan and Asia respectively. The findings revealed a positive and significant link between capital adequacy and financial performance. This implies that banks with higher levels of capital adequacy are more resilient to macroeconomic threats. This makes them stronger and more competitive in the industry. High capital adequacy permits financial institutions to pursue investment opportunities more effectively, increase profitability and absorb any economic or operational shocks. The reverse is true where low capital adequacy inhibits banks from pursuing investment opportunities and hence reduced profitability and market value of the firm.

2.1 Conceptual Framework and Hypothesis Development

This section illustrates the development of the conceptual framework based on reviewed literature. It extended the framework of Ho and Hsu (2010) and Abbas et al. (2021) who assessed the impact capital adequacy on financial performance. The study focused on the market value and used financial performance as a mediating variable. The main variable of interest is the market and was measured using two proxies, namely, Tobin's Q and Price earnings ratio. The independent variable was capital adequacy risk and was measured using three proxies namely, core capital to risk weighted assets, total capital ratio and the deposits ratio. Profitability was used as a mediating variable and was measured using operating margin and return on equity. The variables were selected on the basis of their significance and adoption from the reviewed literature. Figure 1 below represents the diagrammatic representation of the independent variable, mediating variable and dependent variable.



https://doi.org/10.53819/81018102t4353

Figure 1: Conceptual Framework

The study variables were hypothesized and the model developed as follows.

Let **X** = Capital adequacy risk, **M**= Profitability, **Y=** Market value

H1: Capital adequacy risk influences the market value of commercial banks in Kenya

X⟶Y: $\hat{y}=\beta_0+\beta_1\mathbf{x}$

H2: Capital adequacy risk influences the profitability of commercial banks in Kenya

X⟶M: $\hat{m}=\beta_0+\beta_1\mathbf{x}$

H3: Profitability influences the market value of commercial banks in Kenya

M⟶Y: $\hat{y}=\beta_0+\beta_1\mathbf{m}$

If one or more of the above relationships (H1 to H3) are non-significant, then no mediation exists. However, if the above relationships are significant, then we estimate the equation for mediation (H4).

H4: Profitability mediates the relationship between capital adequacy risk and market value of commercial banks in Kenya

X⟶M⟶Y

$\hat{y}=\beta_0+\beta_1\mathbf{x}+\beta_2\mathbf{m}$

If the X becomes nonsignificant when controlling M, then full mediation exists. However, if both X and M are significant then partial mediation exists.

3.0 Data and Methodology

This section presents the theoretical model, description of variables, sources of data and sample characteristics.

3.1 Theoretical Model

The theoretical model is composed of independent, moderating and dependent variables. Each variable has proxies that indicate how it was measured. Table 1 presents the measurement of variables and their associated proxies. This study adopted a Structural Equation Method (SEM) approach for data analysis. This was borrowed from the previous studies done by Agustin (2019) who carried out a study on the impact of liquidity risk, credit risk and capital adequacy on financial performance and corporate value. Ramli et al. (2019) also investigated the determinants of capital structure and firm financial performance in Malysia and Indonesia using a PLS-SEM approach. SEM is a second-generation technique and a causal-predictive approach that allows the use of multiple predictors, multiple independent variables, model errors, test for mediation and moderation in a single model (Usakli & Rasoolimanesh, 2023). In this study partial least squares (PLS) SEM was selected because of the small nature of the population. PLS-SEM allowed the researcher to identify the key indicators of capital adequacy risk that drive the market value of commercial banks without yielding unbiased coefficients. To establish the objective of this study, the two components of PLS-SEM model were specified, the measurement model and the structural model. The measurement model, also known as the inner model, was used to describe the hypothesis of this study, that is, the relationship between capital adequacy risk and market value of commercial banks. The moderating influence of profitability on the relationship between capital

adequacy risk and market value was assessed using the structural model too. On the other hand, the measurement model, also known as the outer model, was used to assess the relationship between the latent constructs and their indicators. In this model, the proxies for capital adequacy risk, profitability and market were tested for validity and quality. These tests included correlation, convergent validity, statistical significance of indicator weights and collinearity. Finally, the goodness of fit of the model was assessed and hypothesis tests were carried out.

3.2 Sources of Data and Measurement of Variables

The study employed secondary data and was collected from Central Bank database and Nairobi Securities Exchange database. The population of the study was the commercial banks listed at the Nairobi Securities Exchange. This study aimed to assess the mediating impact of profitability on the relationship between capital adequacy risk and bank market value. This included all the listed commercial banks that operated between 2008 and 2023. The rationale behind this period is the completeness of data and ensuring that no missing values since in the prior year's not all banks were listed. Further, the study used panel data. This includes the combination of cross-sectional and time-series data and hence reducing the degrees of freedom. This is similar to a study done by Chen et al. (2017) in Pakistan who utilized 132 observations and Kahihu et al. (2021) in Kenya who utilized 65 observations. The data for the main variables of interest was obtained from banks published financial reports, Central bank reports and NSE reports.

Table 1: Variables Description

Latent variables	Observed variables	Symbol	Formulae	References
Capital adequacy risk	Risk Weighted Assets Ratio	CAR 1	Core Capital/ Total Risk Weighted Assets	(Karki & Aryal, 2019; Abbas et al., 2021)
	Total Capital Ratio	CAR 2	Total Capital/Total Risk Weighted Assets	(Pervez et al., 2023)
	Core Capital Deposits Ratio	CAR 3	Core Capital/ Total Deposits	(Abbas et al., 2021)
Profitability	Operating profit margin ratio	OMR	Operating profits divided by gross revenues	(Mathuva, 2009)
	Return on equity	ROE	Net income divided by total equity	
Market value	Tobins'Q ratio	TQ	Market capitalization plus debt divided by total assets	(Abdullah, 2015; Chen et al., 2017; Mkalaf & Hilo, 2023)
	Price earnings ratio	PER	Market price per share divided by earnings per share	

Source: Author's construction (2025) based on reviewed literature

4.0 Findings and Discussion

This section presents the findings of the study constituting descriptive statistics, diagnostic tests and bootstrapping results of the measurement and structural model.

4.1 Descriptive Statistics

The dependent variable, market value, was measured using Tobin's Q and Price Earnings Ratio. Tobin's Q has a mean value of 1.023, with a minimum value of 0.864 and a maximum value of 1.432. This means that most of the banks are undervalued with the market value being higher than the book value of assets. The price earnings ratio had an average of 6.37. Its minimum and maximum values are 29.042 and -5.36320 respectively. The average PER indicates that the growth expectations or undervaluation. This negative figure implies that some banks are making losses. Capital adequacy ratio 1 had a mean value of 20%, CAR 2 was 44.3%, and CAR 3 was 21.5%. CAR 3. All these were above the minimum requirement of 10.5%, 14.5% and 10.5% signifying that majority of banks had satisfactory capital to finance their assets that contain risk and also cover their deposits. However, the minimum values for CAR1, CAR2 and CAR3 were 10.9%, 14% and 7.8% respectively. These were marginally below the threshold set for minimum capital requirements implying that some banks did not meet the minimum regulatory capital requirements. This is consistent with the current reality in Kenya where 32% of the banks are in breach of the minimum capital requirements (CBK, 2025). Profitability was used as a mediating variable, and the proxies were operating profit margin and return on equity where the mean values were 22.4% and 28.7% respectively. However, some banks were making losses during the period under study and hence a negative minimum value 20.7% and -37.2%.

Table 2: Descriptive statistics

Name	Mean	Median	Observed min	Observed max	Standard deviation
CAR1	0.207	0.206	0.109	0.312	0.036
CAR2	0.443	0.380	0.140	1.217	0.198
CAR3	0.215	0.196	0.078	0.766	0.083
MV1	1.022	1.011	0.864	1.358	0.103
MV2	0.767	0.834	0.000	1.463	0.259
ROE	0.224	0.238	-0.207	0.369	0.095
OMR	0.287	0.310	-0.372	0.478	0.122

4.2 Latent Variable Correlation Analysis

The correlation matrix represents the nature and strength of the association between the latent variables which include capital adequacy risk, market value and profitability. Capital adequacy risk has a coefficient of -0.169, implying a weak negative association with market value. This means that as capital adequacy risk increases, the market value of banks reduces. Similarly, the correlation coefficient between capital adequacy and profitability is -0.080 implying an inverse relationship between the two variables. However, profitability and market value have a correlation coefficient of 0.558, implying a direct relationship between the two variables. As profitability increases, the market value also increases.

Table 3: Latent variables Correlation Matrix

	Capital adequacy Risk	Market Value	Profitability
Capital adequacy risk	1.000		
Market Value	-0.169	1.000	
Profitability	-0.080	0.581	1.000

4.3 Convergent Validity

Convergent validity measures how well the indicators of a construct correlate with each other. This implies how they effectively represent the same concept. It measured using Average Variance Expected (AVE) whose values range from 0 to 1. According to Usakli & Rasoolimanesh (2023), the minimum threshold for AVE should be equal or greater than 0.5 implying that 50% of the variance in a construct is explained by its indicators.

Table 4: Construct Reliability and Validity Overview

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Capital adequacy risk	0.864	0.882	0.936	0.880
Market Value	0.808	0.820	0.912	0.838
Profitability	0.948	0.960	0.975	0.951

Table 4 represents the convergent reliability for capital adequacy risk, profitability and market value constructs. For capital adequacy risk, 88% of the changes can be explained by the changes in core capital and risk weighted assets ratios. Market value can be explained by 83.8% of the changes in price earnings ratio and Tobin's Q while profitability can be explained by 95.1% by operating profit margin and return on equity changes.

4.4 Indicators Correlation Analysis

Indicators and latent constructs correlation analysis was measured using the outer loadings. Outer loadings are coefficients that indicate the correlation between the observed variables and their latent constructs. Core Capital and RWA are indicators for the capital adequacy risk whereas Tobin's Q and PER are the observed indicators for market value.

Table 5: Outer Loadings

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
CAR2 <- CAR	0.809	0.773	0.239	3.377	0.001
CAR3 <- CAR	0.987	0.900	0.209	4.713	0.000
MV1 <- MV	0.936	0.943	0.029	3.612	0.000
MV2 <- MV	0.765	0.755	0.153	5.016	0.000
OMR <- Profitability	0.971	0.970	0.010	11.981	0.000
ROE <- Profitability	0.979	0.977	0.006	6.230	0.000

According to Hair et al. (2019), outer loadings should be above 0.7 and have significant p-values. Values with non-significant weights above 0.5 can also be considered if the p-value is significant. Table 5 shows the outer loadings of all the observed indicators. They all have significant weights above 0.7, and the p-values are also significant. This means that they were well fitted to represent the respective latent constructs.

4.5 Discriminant Validity

Discriminant validity assesses whether a construct is distinct from other constructs. This means that it should not overlap too much with different variables in the model. It is measured using Fornell-Larcker Criterion or Heterotrait-Monotrait Ratio. This study adopted the Heterotrait-Monotrait Ratio (HTMT) where the value of a construct should be below 0.85 hence indicating good discriminant validity between constructs. The constructs values were presented in table 6.

Table 6: Heterotrait-Monotrait Ratio Matrix

	Capital adequacy risk	Market Value	Profitability	Profitability x Capital adequacy risk
Capital adequacy risk				
Market Value	0.788			
Profitability	0.568	0.626		
Profitability x Capital adequacy risk	0.360	0.324	0.666	

All the HTMT values for capital adequacy risk, profitability, market value and interactions of profitability and capital adequacy were below the 0.85 threshold implying that each construct is empirically distinct.

https://doi.org/10.53819/81018102t4353

4.6 Multicolinearity

Multicollinearity occurs when two or more independent variables are highly correlated leading to unreliable estimates of the regression coefficients. It was measured using the Variance Inflation Factor (VIF). According to Hair et al. (2019), a VIF greater than 5 indicates presence of critical multicollinearity, possible collinearity issues when VIF is between 3 and 5 and ideal when VIF is below 3.

Table 7 shows that VIF values range from 1.000 to 4.342 which are below the threshold of 5. This suggests that multicolinearity is not a serios problem in this data set implying that the independent variables do not show excessive correlation. These results are consistent with Usakli & Rasoolimanesh (2023) who found out that VIF values between 0 and 5 are ideal for any dataset and will not lead to biased coefficients.

Table 7: Variance Inflation Factors – Outer model

	VIF	1/VIF
CAR 2	2.375	0.421
OMR	4.342	0.230
PER	1.847	0.541
CAR 3	2.375	0.421
ROE	4.342	0.230
TQ	1.847	0.541
Profitability x Capital adequacy risk	1.000	1.000

Table 8: Variance Inflation Factors – inner model

	VIF	1/VIF
CAR -> Market Value	1.388	0.720
Profitability -> Market Value	2.087	0.479
Profitability x Capital adequacy risk -> Market Value	1.713	0.584

4.7 Model Fit Evaluation

To assess the goodness of fit of the SEM model, adjusted R squared, Standardized Root Mean Square Residual (SRMR), unweighted least squares discrepancy (d_ULS), geodesic discrepancy (d_G), chi-square, and the Normed Fit Index (NFI) were used. According to Hair et al. (2019), a SRMR below 0.08 indicates a good model, while values below 0.10 are considered acceptable. Table 9 shows a SRMR of 0.08 which is at the threshold of an acceptable fit. The d_ULS (0.135) and d_G (0.129), are low indicating ithat the model reproduces the observed data structure well. Therefore, this model was considered fit for the purpose of this study.

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Journal of Finance and Accounting
Volume 9||Issue 4||Page 20-37||September||2025|
Email: info@stratfordjournals.org ISSN: 2616-4965

Table 9: Model Fit

	Saturated model	Estimated model
SRMR	0.080	0.080
d_ULS	0.135	0.135
d_G	0.129	0.129
Chi-square	104.572	104.572
NFI	0.742	0.742

The R^2 adjusted was used to evaluate the explanatory power of the SEM model. It indicated the proportion of the changes in dependent variable that can be explained by the independent variable. Hair et al. (2019) highlights that R^2 values of 0.75, 0.50 and 0.25 are considered substantial, moderate and weak respectively. Values above 0.9 reflect an overfit of the model.

Table 10: R-squared adjusted

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
MV	0.341	0.366	0.060	5.669	0.000
Profitability	-0.002	0.007	0.016	0.126	0.900

Table 10 shows that market value had a R^2 of 0.491 implying that 49.1% of the changes in the market value can be explained by the changes in capital adequacy and the moderating influence of profitability. This reveals a moderate level of explanatory power, implying a meaningful impact of the independent variables on the market value of commercial banks in Kenya. For profitability, the coefficient of determination was 0.287, implying that 28.7% of the changes in profitability can be explained by the capital adequacy risk. This reflects a weaker level of explanatory power. However, the model is statistically significant (p value=0.000) implying that the model is still relevant though it explains a smaller variation of profitability of commercial banks in Kenya.

https://doi.org/10.53819/81018102t4353

4.8 Results of the Measurement and Structural Model

The measurement model represents the relationship between the observed indicators and the latent constructs. Table 5 shows the outer loadings which all have significant weights and significant p-values. Therefore, the key quality criteria between the observed indicators and their latent constructs has been fulfilled.

Table 11: Structural Path Significance in Bootstrapping

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Capital adequacy risk -> Market Value	-0.123	-0.118	0.075	2.650	0.099
Capital adequacy risk -> Profitability	-0.080	-0.066	0.107	0.745	0.457
Profitability -> Market Value	0.571	0.586	0.054	5.648	0.000

On the other hand, the structural model describes the relationship between the latent constructs. Table 11 and figure 2 shows the results of the measurement model. The structural model was used to test the significance of the research hypotheses of the study. The first hypothesis tested the significant relationship between capital adequacy risk and market value. The path between capital adequacy risk and market value had a coefficient of -0.123 and a significant p value. This implies a significant and negative relationship between that capital adequacy risk and bank market value. These results confirm the findings of Mir and Shah (2022) and Yudistira and Ristati (2022)which indicated a significant and inverse relationship between capital adequacy risk and bank market performance. This can be attributed to the fact that with higher capital levels sufficient capital can be used as a buffer to absorb economic losses (Ho & Hsu, 2010). With higher capital levels, banks are more resilient to losses and economic shocks and hence reduced financial crisis (Andersen and Juelsrud, 2024). Consequently, this boosts investor confidence and the market perceptions of the bank leading to a higher market value. Further, higher capital adequacy risk may prevent moral hazard risk (Abbas et al., 2021). This is because with low capital adequacy, banks engage in excessive risky investments since they have less of their own funds to lose. However, the results are inconsistent with the findings of Ogunode et al. (2022) who revealed that capital adequacy risk has a positive relationship with corporate value of firms. This implies that lower levels of core capital level compels firms to operate more efficiently and adopt innovative strategies to remain competitive and financially stable. On the other hand, Agustin (2019) found out that capital adequacy has no significant effect on financial performance and corporate value. The difference in findings could be attributed to the use of different variables in measuring capital adequacy risk.

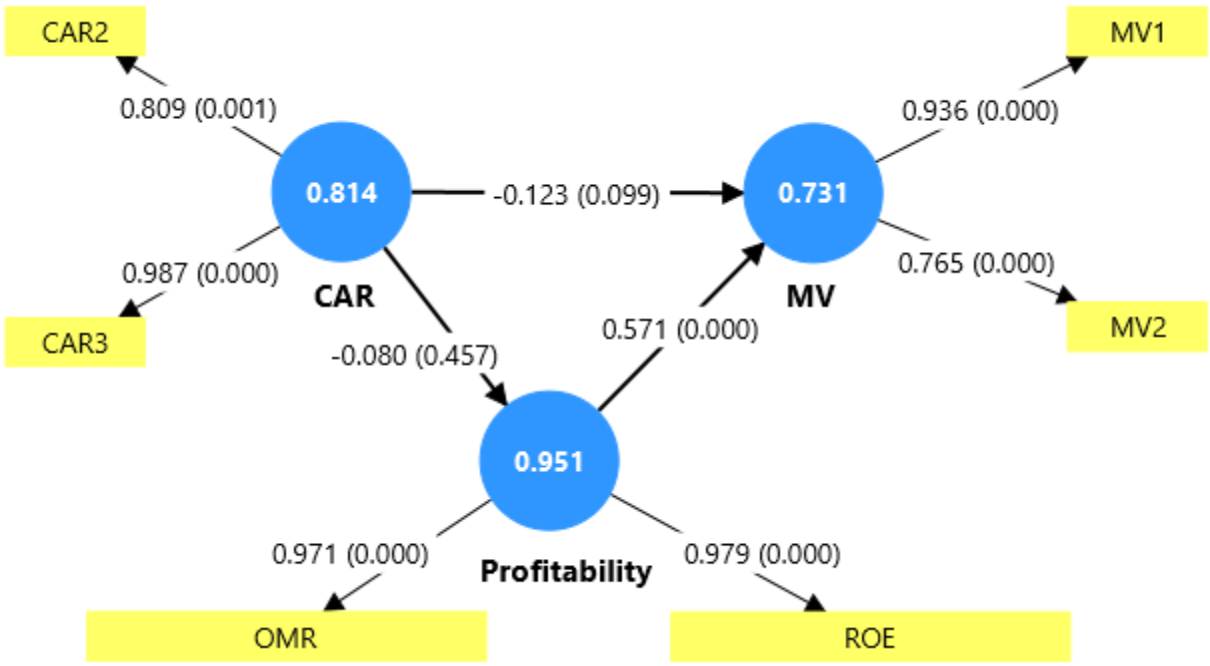

Figure 2: Result of Linear Bootstrapping Path Coefficient

The second hypothesis was on testing the significant relationship between capital adequacy risk and profitability. The path between capital adequacy risk and profitability had a coefficient of -0.0841 and an insignificant p value. This means that capital adequacy risk had an inverse relationship with bank profitability implying high levels of capital adequacy risk reduced banks profitability. These results are consistent with Mathuva (2009) and Wanjiru et al. (2024) who found out that capital adequacy has a positive influence on the profitability of commercial banks. This means that an increase in capital adequacy risk reduces bank profitability. Basel III argues that higher levels of capital, with combined global liquidity framework will materially diminish the severity and probability of banking crisis in the future (Vousinas, 2015). The results are also inconsistent with Alnajjar and Othman (2021) who found a significant negative relationship between capital adequacy and financial performance. The third hypothesis was on the moderating impact of profitability on the relationship between capital adequacy and market value of commercial banks. Study results revealed that profitability partially mediates the relationship between capital adequacy risk and market value of commercial banks in Kenya. With the inclusion of profitability as a mediator, there was a reduction on the negative effect of capital adequacy risk on the market value of commercial banks. This means profitability amplifies the positive effect of capital adequacy on the market value of commercial banks. Well capitalized and profitable banks are perceived to be financially stable and efficient, hence promoting investor confidence and a higher market value. This is supported by the positive relationship between profitability and market value. As firms become profitable, positive signals are transmitted to the market, the share price increases and consequently the market value.

Table 12: Hypotheses results

Symbol	Hypotheses statement	Result
H1	There is a significant negative relationship between capital adequacy risk and market value of commercial banks	supported
H2	There is an insignificant negative relationship between capital adequacy risk and profitability of commercial banks	Not Supported
H3	There is a significant positive relationship between profitability and market value of commercial banks	Supported
H4	Profitability mediates the relationship between capital adequacy risk and market value of commercial banks	Supported

5.0 Conclusion

This study concludes that capital adequacy risk has a significant and negative impact on the market value of commercial banks in Kenya. This finding departs from some prior studies and could be attributed to the context of the study, nature of the population or even the adoption of multiple proxies for a single construct. Majority of the previous studies utilized a single proxy for each variable and did not perform the path analysis with specific variables as compared to this study. From this background, the first hypothesis which stated that "H1 Capital adequacy risk negatively influences the market of commercial banks in Kenya" is accepted on the grounds that capital adequacy risk had a statistically significant negative impact on market value of commercial banks in Kenya. This implies that as capital adequacy risk increases, the market value diminishes due to the perceived risk of losses by investors. Hypothesis two also reveals a significant negative influence on profitability by capital adequacy risk. As capital buffers reduce implying increasing capital adequacy risk, commercial banks are exposed to economic shocks, regulatory compliance costs and insufficient capital to meet their operational existence. As a result, the profitability of commercial banks is reduced. This further explains H4 that profitability mediates the relationship between capital adequacy and market value of commercial banks. When negative signals are sent to the market of poor or good performance are transmitted to the market, the share price will react and in turn affect the market value of commercial banks. The final summary of the hypothesis is presented in Table 12.

6.0 Recommendations

Since capital adequacy risk has a negative impact on performance and market value of commercial banks, implementation of new capital requirements will produce a more stable banking system that are more resilient to economic shocks in periods of financial distress. Therefore, CBK will be required to closely monitor the financial and banking conditions and step in whenever there is a breach. The regulatory rules should be complied with and guarantee the required capital structure while avoiding cash trap.

The implementation of the ten-fold increase in core capital requirements might lead to a decrease in the credit supply provided by banks resulting in unfavorable outcomes on the real sector of the economy and growth. Consequently, it is essential to have accurate and reliable estimates

regarding the anticipated effects on the lending activity of banks both in times of economic growth and downturns. Therefore, CBK needs to evaluate the economic costs induced by the new capital requirements and if there are hidden requirements beneath them.

Finally, due to the domino effect of the banking system a delicate balance must be maintained between the strict compliance with the new capital regulatory requirements and maintaining the real economy's financing channels and the financial intermediation role of banks. For further studies, researchers can focus on whether bank stability leads to financial stability, and the real economic costs induced by the new regulation.

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