MICRO-PRUDENTIAL REGULATORY VARIABLES AND STABILITY OF COMMERCIAL BANKS IN KENYA

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ABSTRACT

The study determines the effect of micro-prudential regulatory variables on the stability of commercial banks. The study uses balanced panel data from 32 banks in Kenya for the period 2010-2020 derived from published financial statements. The study used Feasible Generalized Least Squares (FGLS) due to heteroscedasticity and autocorrelation in the data. The study finds that capital adequacy, management quality, and earning ability positively affect bank stability. On the other hand, asset quality and liquidity were found to have a nonsignificant effect on commercial banks' stability in Kenya. Therefore, the study recommends continuing capital requirement enhancement to signal further bank consolidation. Secondly, the study calls for a concerted effort among bank managers to continually monitor and contain costs. Thirdly, the study recommends furtherance of the traditional view of performance from an earning point of view even as new frontiers in performance are explored. Lastly, arising from the significance of the overall model, the study recommends the heightened use of the CAMEL model in the monitoring of banks by the regulator.

INTRODUCTION

A well-developed and stable banking sector is the backbone of any country's financial system. It ensures long-term economic growth and welfare by forming sufficient resources and allocating funds efficiently for investment programs. A stable financial system boosts economic growth while reducing the adverse effects of disruptive events (Fell & Schinasi, 2005). Therefore, a long-term, effective, and financially stable banking sector is a foundation for financial system stability and actual earnings for emerging economies. According to Ali et al. (2019), a sound banking system leads to enhanced economic growth, efficiency in financial intermediation, public well-being, positive investment habits, and economic competitiveness.

Banking crises can be avoided if bank stability is enhanced. Bank stability refers to a situation in which the banking sector's financial intermediation functions effectively and continues without interruption amid internal or external shocks (Ali et al., 2019). Globally, regulators have instituted measures to enhance stability. For example, the Basel Accord is a universally accepted tool for enhancing stability. Within the Basel II framework, banking institutions can adopt an internal rating-based methodology to determine threats to their assets' quality and measure their capital adequacy, subject to certain conditions (Korbi & Bougatef, 2017). Furthermore, in order to attain stability in the financial system and spur economic growth, the Bretton woods institutions (IMF and world bank) have established "best practices" checklists for banks' prudential regulation (Ioannidis et al., 2010). However, the 2007-09 crises raised doubts about the ability of prudential regulation to mitigate against the emergence and spread of global financial crises.

The banking sector is arguably the most regulated sector of an economy due to its critical role. The regulations are broadly categorized into; micro and macro-prudential regulations. Micro-prudential regulations focus on limiting individual banks' excessive risk-taking behavior (Zhou, 2012). The regulatory variables are also popularly called financial soundness indicators and christened the CAMEL framework. They constitute financial metrics that characterize capital adequacy, asset quality, liquidity, and effectiveness within certain acceptable limits, ensuring that a bank can withstand adverse macroeconomic developments (Salina et al., 2020).

The CAMEL framework was developed in 1979 by bank regulatory agencies in the United States, and its use has since been expanded (Roman & Şargu, 2013). It is now considered a valuable method for supervisory authorities from various countries to determine the soundness of financial institutions. Variables in the CAMEL framework, namely, capital adequacy, asset quality, management earnings, and liquidity, provide early cautionary indications of the possible failure of banks (Korbi & Bougatef, 2017). In addition, since 1996, a sixth component, "S," has been added to the five components to increase the emphasis on risk. S stands for business risk sensitivity (Roman & Şargu, 2013).

There has been a concerted effort among scholars to identify a measure of bank stability to help assess financial vulnerability and identify banks in distress. This led to the development of the Z-score. Z-score is a risk indicator popularly employed in empirical banking literature to measure the likelihood of a bank's insolvency (Chiaramonte et al., 2015; Korbi & Bougatef, 2017; Poghosyan & Čihak, 2011). It is credited to Boyd and Graham (1986) and Hannan and Hanweck (1988). It is used to measure overall financial stability and individual bank's threat. The popularity of the Z-score has grown due to its ease of use and ability to be determined using accounting data; unlike market-based risk controls, it can be utilized by many financial institutions, including unlisted ones (Lepetit & Strobel, 2013). The Z-score is a valuable and cost-effective tool for predicting bank distress (Poghosyan & Čihak, 2011).

The relationship between the CAMELS variables and insolvency risk is not apparent. For example, the connection between capitalization and failure risk may be either positive or negative. On the one hand, since capital adequacy represents the ability of a bank to withstand losses during crises, we expect a negative relationship. The higher the capital held, the lower the probability of bankruptcy during a crisis (Korbi & Bougatef, 2017). On the other hand, due to the high cost of equity capital, a positive relationship is logical as banks are more likely to take proportionate risks to achieve adequate returns. This motivation to participate in high-risk behaviors, which can often be unnecessary, raises the chances of failure. Consideration of capital as a form of insurance is yet another reason why it is possible to have a direct relationship between capital held and the possibility of banks collapsing. This is because high levels of the capital provide a sense of safety which can reduce due diligence in selecting credit customers and the intensity of monitoring, leading to possible crises (Sahyouni, Zaid, & Adib, 2021).

On assets quality, nonperforming loans (NPLs) are arguably the main reason behind bank runs since the inability to recover money loaned poses a severe threat to the financial stability of any bank (Korbi & Bougatef, 2017). A high level of NPLs increases the risk of insolvency. A positive

relationship is expected. Banks with better management quality can better utilize the available resources to achieve the highest possible output. This reduces the risk of insolvency; thus, a direct relationship is expected. Banks with high liquidity are expected to be more stable since they can honor commitments even under challenging situations. However, banks that hold more liquid assets are not necessarily stable since more liquid banks are likely to engage in more volatile financial activities, thus threatening their stability (Korbi & Bougatef, 2017; Salina et al., 2020). The study sought to test the following hypotheses;

i. Capital adequacy does not have a statistically significant effect on the stability of commercial banks in Kenya.
ii. Asset quality does not have a statistically significant effect on the stability of commercial banks in Kenya.
iii. Management quality does not have a statistically significant effect on the stability of commercial banks in Kenya.
iv. Earnings ability does not have a statistically significant effect on the stability of commercial banks in Kenya.
v. Liquidity does not have a statistically significant effect on the stability of commercial banks in Kenya.

LITERATURE REVIEW

Theoretical Literature review

The relationship between the study variables is well grounded in theory. First, the Buffer Capital theory (Calem & Rob,1996) argues that banks maintain a buffer capital and that the amount of buffer capital maintained will signal the bank's behavior. When the buffer is capital is about to be depleted, the bank will aggressively build up the capital to avoid regulatory costs that are likely to be brought about by being unable to meet capital requirements (Ochei, 2013). According to the theory, capital buffers may improve bank performance by lowering lending rates, which increases loan demand. In such a case, banks are motivated to impose a high-interest charge on limited loans. Furthermore, since the screening and monitoring of borrowers are enhanced, it reduces the default risk leading to an increase in banks' profitability in the short run (Abbas et al., 2019).

Secondly, the shiftability theory of liquidity (Moulton, 1918) argues that there is no need to rely on maturities if banks can substantially transfer their illiquid assets to other banks in exchange for liquid assets without significant loss value in the event of crises. As a result, liquidity is a consequence of the ability of a bank to transfer its assets to other parties without bearing significant losses when liquidity needs arise. Accordingly, the theory posits that bank liquidity can quickly be evaluated by its capability to sell its assets for cash at a reasonable price to other buyers. By holding financial instruments with a ready secondary market, banks can protect themselves from massive withdrawals of deposits as a form of liquidity reserve (Maaka, 2013). The theory informs the current study by appreciating that liquidity affects the stability of banks since banks need to hold liquid assets to be able to withstand expected and unexpected withdrawals. However, the bank does not have to hold only cash balances for liquidity. Any assets that can be easily transferable to other banks or the central bank would suffice. The theory holds that the basis of ensuring liquidity is the

transferability, marketability, and shiftability of a bank's assets (Ibe, 2013). Accordingly, the theory argues there is no need to hold significant liquid assets in the banks' balance sheet since banks can purchase all the required funds by shifting their liabilities to other financial players.

Thirdly, agency theory (Jensen & Meckling, 1976) argues that agency problems or issues emanate from conflicts of interest between the principal and agents due to divergent interests. It posits that the agents will only sometimes pursue the principals' interest when undertaking contractual engagements. When acting for their principals, agents, on one hand, encounter a myriad of challenges, and principals, on the other hand, also encounter various challenges in ensuring that their agents' actions reflect the principal's preferences (Shapiro, 2005). The fact that all actions of the agents and principal have real or perceived costs is one significant observation in agency theory, which implies that even the corrections required to their actions also have costs (Mitnick, 2014). The theory is essential in the study as it informs the arguments on the effect of management quality on the stability of banks. According to the theory, managers, due to their egocentric nature, pursue goals that contrast with their principals, who are the shareholders, which, in the absence of a monitoring mechanism, deplete the shareholders' wealth (Mitnick, 2014). As a result, the managers may pursue short-term goals to the detriment of the firm's long-term survival. The management quality infers senior management's ability to identify, measure, monitor, and control risks associated with bank activities (Salina et al., 2020).

Empirical Literature Review

Over the years, capital adequacy has received significant attention from regulatory agencies and scholars. While it is generally agreed that capital held by banks helps mitigate risks, determining the right amount of capital that banks should hold is contested. The regular adjustment of the minimum regulatory capital under the Basel accord clearly indicates that the optimal level of capital is yet to be settled. Farkas, Fringuellotti, and Tunaru (2020) sought to evaluate the cost and benefit of model risk-adjusted capital requirements. According to the study's findings, the performance of risk-adjusted capital requirements in absorbing losses in both regular and crisis times was better. Similarly, Hakenes and Schnabel (2011) find that capital regulation has the potential to destabilize the banking sector due to its impact on banking competition. The ambiguity of competition's effect on bank risk-taking gets translated into an ambiguity of capital requirements' effect on financial stability. Fatima (2014) did a study highlighting the various components of regulatory capital by commercial banks in India and concluded that capital adequacy is critical in assessing banks' soundness and strength.

To evaluate whether regulators' imposed capital adequacy ratios were appropriate predictors of a bank failure, Abou-El-Sood (2016) studied 560 US bank holding companies and found that the Tier 1 capital ratio has no statistically significant influence on banks' financial distress. However, when the bank has a Tier 1 capital ratio of less than 6%, the core (Tier 1) capital ratio significantly influences bank failure. A study by Korbi and Bougatef (2017) evaluated the relationship between regulatory capital and bank stability from 1999 to 2014. The study revealed a positive association between capital adequacy and the stability of a bank. In Africa, Oduor, Ngoka, & Odongo (2017)

undertook a study on bank competition, capital requirement, and stability. The study focused on 167 banks operating in 37 African countries from 2000–2011. The study concluded that requiring banks to hold higher capital guarantees safer African banks. Finally, Polizzi et al. (2020) surveyed 2054 banks operating in 117 countries to assess liquidity's effect on bank stability. The study finds that capital adequacy has an inverse influence on bank stability.

One of the pointers of a financially stable bank is good asset quality. Because NPAs earn lower interest income and are more likely to default even on loan principal, they reduce the company's ability to generate resources to support operation and growth. A bank's deteriorating asset quality may reduce economic activity and efficiency and jeopardize the nation's social welfare by impeding growth (Ghosh, 2015). Ariff and Shawtari (2019) assessed Malaysia's banking sector's asset quality, efficiency, and stability. The study found that Islamic subsidiaries had more stable financing income than other banks. Swami et al. (2019) observed that in Indian banks, nonperforming loans harm the stability of banks and the economy. Adeolu (2014), in a study of commercial banks in Nigeria, assessed how asset quality affected bank performance from 1999 to 2013. The study found that asset quality does have a significant influence on the profitability of the studied bank. Satibi, Utami, and Nugroho (2018) did a study in a study of Islamic and conventional banks in Indonesia and found that conventional banks were more efficient, relatively stable, and held better asset quality compared to sharia banks.

Similarly, Sakti and Mohamad (2018) also studied the stability, efficiency, and asset quality of Islamic and conventional banks in Indonesia. The study covered 2008 to 2012, targeting 37 conventional and 11 Islamic banks. The study used a t-test to test for significant differences. The findings showed that the differences between conventional and Islamic banks were significant. Islamic banks were confirmed to be using a different business model. Islamic banks appeared to have higher asset quality and stability than non-Islamic ones. In Pakistan, Mirza, Rahat, and Reddy (2015) studied Shariah-compliant and conventional banks and non-banking financial institutions (NBFIs). The study assessed the relationship between cost efficiency, asset quality, business dynamics, and financial stability. The study involved unbalanced panel data for the period 2005 and 2013. The study found that Islamic banks had better asset quality and were more stable than conventional banks. This was reasonable since Islamic banks have a more conservative loaning profile by focusing on low-risk, religiously driven niches with lesser default rates.

The management quality dimension in the CAMELS model is often seen as the most ambiguous dimension, consisting of quantitative and qualitative factors (Chatterjee & Dhaigude, 2018). Sahyouni et al. (2021) analyzed the connection between bank soundness and liquidity creation in MENA countries and found that management quality ratios impact the on-balance-sheet liquidity creation components. Ozili (2018) sought to determine the drivers of bank stability in Africa. The study found that governance at the country level plays a critical role in bank stability. Kumar et al. (2012) sought to analyze soundness in Indian banks using the CAMEL framework. The study examined the performance of 12 public and private sector banks in India from 2000 to 2011. The CAMEL approach was used for this purpose. The study revealed that private sector banks ranked top regarding their soundness. Management dimension in CAMEL analysis was noted to have taken on a much more significant role in the framework than ever before. The study did not, however,

evaluate the effect of management quality on any other variable. Lastly, Ongore and Kusa (2013) studied the financial performance determinants of Kenyan Commercial Banks. It was observed that management quality plays a significant role in influencing the performance of banks.

Banks earning ability relates to the financial performance of the bank. Banks rely on their strong earnings capability to perform activities such as funding dividends, having sufficient capital levels, creating opportunities for bank growth, strategies for developing new activities, and sustaining a competitive outlook (Kumar et al., 2012). Banks with good earnings generate more resources than they expend, making it possible to plough back the profits as part of equity. This creates reserves that may be used to finance growth as a bank with netter earning ability is expected to be more stable. Riahi (2020) focused on Islamic and conventional banks showing that earnings management and bank stability had a weak association, implying that stability is related to the level of earnings management in some way. On the other hand, Ali and Puah, (2019), in a study of Pakistan banks, found a significant favorable influence of profitability on bank stability.

Barra and Zotti (2019) studied bank performance, financial stability, and market concentration in Italy. The research spanned the period 2001–2014. The study revealed that the performance of banks had a direct linkage with the financial system's stability. Kumar (2016), in a study of national commercial banks in the UAE, focused on financial performance and financial stability. Iren, Reichert, and Gramlich (2014) studied how information disclosure influences banks' performance and stability. The sample consisted of 27 US bank holding companies (BHCs) from 2001-2008. The study reported that the quality of information disclosure had a significant positive effect on bank performance and stability. According to the findings, with additional disclosures on activities relating to the bank's credit derivative and securitization, there is a "switching" behavior in which the bank's performance and stability initially decline and improve later. The study, however, did not assess the effect of performance on stability.

In a banking context, liquidity relates to banks ‘capability to fund the growth of their assets and fulfill their financial responsibilities rationally without undesirable losses in the value of assets (Al-Homaidi et al., 2019). The prominence of liquidity in banks’ stability is premised on the fact that a bank that holds more liquid assets can withstand expected and unexpected withdrawals. However, a bank that holds excess liquidity incurs high opportunity costs. Therefore, it is evident that a tradeoff exists between performance and liquidity (Malik et al., 2016). Polizzi et al., (2020), in a study of 2054 banks operating in 117 countries, sought to determine the effect of liquidity on bank stability. The study finds a negative and significant influence of liquidity on bank stability. This implies that banks that hold higher levels of liquidity are less stable. Hassan et al. (2019), in a study of conventional and Islamic banks operating in the Organisation of Islamic Cooperation countries, assessed how liquidity risk affects bank stability. The study finds a negative relationship between liquidity and stability for Islamic banks and a positive relationship for conventional banks.

Al-Homaidi et al. (2019), in a study of listed Indian commercial banks, sought to assess the determinants of liquidity. Accordingly, the study found that bank-specific factors such as operating efficiency ratio, capital adequacy ratio, size of the bank, deposits ratio, and financial performance ratios directly influence liquidity. On the other hand, asset quality, management quality, and net

interest margin were found to have a significant inverse influence on liquidity. Furthermore, Muriithi and Waweru (2017), in a study of 43 commercial banks in Kenya from 2005-2014, sought to determine the effect of liquidity risk on financial performance. A stable funding ratio in the short and long run influences bank performance negatively. Finally, in a study of Jordanian commercial banks, Alshatti (2015) sought to evaluate how liquidity management affected banks' profitability from 2005–2012. The findings exhibited that capital adequacy and liquidity had an inverse influence on bank profitability, but the investment ratio directly influenced financial performance. The study, however, did not evaluate these variables' influence on banks' stability.

RESEARCH METHODOLOGY

The study targeted all 41 commercial banks in operation as of 31st December 2020. However, the study excluded three banks in liquidation and receivership. Additionally, to avoid short panel bias, the study excluded banks that did not have complete data for the entire study period. This led to the dropping of a further six banks. The study, therefore, focused on 32 commercial banks yielding a balanced panel. Diagnostic tests were then undertaken to evaluate the best model for the study. The tests help choose between Pooled Ordinary Least Squares (OLS), Random Effect, and Fixed Effects models for panel data. Based on the results from the diagnostic tests, an appropriate panel data model was fitted. The panel data model takes the form.

$$STAB_{it} = \beta_0 + \beta_1 CAD_{it} + \beta_2 ASQ_{it} + \beta_3 MEF_{it} + \beta_4 ERN_{it} + \beta_5 LIQ_{it} + \in_{it}$$

Where; STAB is bank stability, CAD is capital adequacy, ASQ is assets quality, MEF is Management Quality, ERN is earnings ability, LIQ is liquidity, and ∈ is the error term. Since the variables are measured using more than one indicator, the study employed stepwise regression to select the best indicators used in the study.

Table 1

Variable	Measure
Dependent Variable	
Bank Stability	$z-score(Bstab)_{it} = \frac{ROA_{it} + (E/TA)_{it}}{\partial(ROA_{it})}$
Independent Variable	
Capital Adequacy	Core capital to total deposits
Asset Quality	Loan Loss Provisions / Net Interest Revenues
Management Quality	Non-interest costs to total income.
Earning ability	ROA
Liquidity	Gross loans/total deposits
	Liquid assets to total deposits

RESULTS AND DISCUSSION

Correlation analysis

The correlation analysis was carried out to determine the nature and degree of association among the study variables. The results are presented in Table 2. The results indicate that the correlation

between the independent and dependent variables is significant at 1%. Capital adequacy has a significant positive correlation with bank stability as measured by Z-Score. This infers that as capital adequacy increases, bank stability increases. The results are consistent with past studies that established positive links (Fatima, 2014; Korbi & Bougatef, 2017). However, the results disagree with past studies reporting a negative association (Hakenes & Schnabel, 2011; Oduor et al., 2017). The correlation between asset quality (LLP to Net Interest Revenues) and bank stability (Z score) is negative and significant (-0.670). This implies a higher degree of an inverse association between the ratio of LLP to net interest revenue and Zscore. Since LLP is an inverse measure of asset quality, the results indicate that higher asset quality is associated with bank stability. This is reasonable since nonperforming asset measures the degree to which the bank's assets have depreciated, depicting banking system flaws that, if not addressed cautiously, would result in a financial crisis (Swami et al., 2019).

As measured by the ratio of non-interest costs to total income, management quality negatively affects bank stability (r=-0.484). A higher ratio of non-interest costs to total income implies lower management quality due to the inability to contain costs relative to income. The ratio is thus an inverse measure of management quality. As expected, the results effectively mean higher management quality in stable banks. Management has a role in ensuring the firm's strategic positioning to make it competitive and provide quality services to its customers. The results are consistent with past studies (Ongore & Kusa, 2013). As measured by ROA, earning ability has a statistically significant strong positive correlation (r=0.906) with bank stability. This implies that higher bank performance is associated with higher bank stability. This is logically plausible since banks with good earnings ability generate more resources than they expend, making it possible to plough back the profits as part of equity. This creates reserves that may be used to finance growth and become more stable. Therefore, the quality of earnings signifies growth prospects and the ability of banks to sustain their future earnings (Sahyouni et al., 2021).

As proxied by the ratio of liquid assets to total deposits, liquidity has a weak negative (r=-0.343) correlation with bank stability. This implies that the more liquid asset the bank hold, the lower the stability. The results are consistent with the view that banks that hold more liquid assets are not necessarily stable since more liquid banks are likely to engage in more volatile financial activities, thus threatening their stability (Korbi & Bougatef, 2017; Salina et al., 2020).

Table 2 Pearson's Correlation Coefficients

	Zscore	Capital Adequacy	Asset Quality	Management Quality	Earning Ability	Liquidity
Z score	1.000					
Capital Adequacy	0.450	1.000				
Sig.	0.000					
Asset Quality	-0.670	-0.499	1.000			
Sig.	0.000	0.000				
Man. Quality	-0.484	0.007	0.214	1.000		
Sig.	0.000	0.903	0.000			
Earning Ability	0.906	0.443	-0.721	-0.423	1.000	
Sig.	0.000	0.000	0.000	0.000		
Liquidity	-0.343	0.105	0.299	0.463	-0.311	1.000
Sig.	0.000	0.050	0.000	0.000	0.000	

Panel data diagnostic tests

Three possible models can be fitted; Pooled OLS, Random Effect, and Fixed Effects (Torres-reyna, 2007). A series of econometric tests were carried out to identify the appropriate model for the study. This includes;

Table 3: Panel Data Diagnostic Tests

Test	Test Used	Results and Conclusion
The choice between pooled OLS and random effects model	Breusch Pagan LM test	P value <0.05, the study should not use pooled OLS
Random or fixed effects	Hausman test	P value>0.05, the study may use random effects model.
Heteroscedasticity	Modified Wald Test	p-value < 0.05, **There is heteroscedasticity**
Serial correlation	Wooldridge Drukker test	P<0.05, there is **a serial correlation**
Conclusion: Use FGLS for analysis to account for **serial correlation** and **heteroscedasticity**		

Regression analysis

Diagnostic tests have revealed that the data have heteroscedasticity and autocorrelation. The study, therefore, used Feasible Generalized Least Squares (FGLS) in the analysis. The results are presented in Table 4. From the results, it is notable that the number of observation have reduced to 320 from 352. Observation for one year was lost due to differencing asset quality and liquidity, which were nonstationary at level. First, the study sought to test a null hypothesis: capital adequacy does not significantly influence banks' stability in Kenya. The regression results indicate that the beta coefficient of capital adequacy is positive and significant at 5%. Since the p-value is less than 0.05, we reject the null hypothesis and conclude that capital adequacy positively affects bank stability. This implies that with an increase in capital adequacy by one unit, bank stability improves by 1.536 units holding all other factors constant. The results are consistent with past studies that established positive links (Fatima, 2014; Korbi & Bougatef, 2017). The results confirm that holding higher capital reduces distress risk during a crisis (Korbi & Bougatef, 2017). This validates the use of capital requirements as a micro-prudential regulation to steer the banking sector's stability. The results, however, disagree with past studies reporting a negative association between capital adequacy and stability (Hakenes & Schnabel, 2011; Oduor et al., 2017). The results, however, contradict past studies that found that higher capital requirement increases bank risk-taking, compromising their stability (Hakenes & Schnabel, 2011; Oduor et al., 2017).

Secondly, the study sought to test the hypothesis that asset quality does not have a statistically significant effect on the stability of commercial banks in Kenya. The regression analysis results indicate a beta coefficient of -0.059 with a p-value of 0.620. Since the p-value is more than 0.05, we accept the null hypothesis and conclude that asset quality does not have a statistically significant effect on the stability of commercial banks in Kenya. This implies that the results are inconclusive

regarding how asset quality influences bank stability. The results contradict other studies (Adeolu, 2014; Mirza et al., 2015) that reported a significant relationship between asset quality and stability. The results are puzzling given that deterioration in bank asset quality depicts banking system flaws which, if not addressed cautiously, would result in a financial crisis (Swami et al., 2019).

Thirdly, the study sought to test the hypothesis that management quality does not have a statistically significant effect on the stability of commercial banks in Kenya. The result reveals that management quality has a beta coefficient of -0.925. Since the p-value is less than 0.05 (0.000), we reject the null hypothesis that management quality does not have a statistically significant effect on the stability of commercial banks in Kenya. The study used the ratio of non-interest costs to total income, an inverse measure of management quality. Thus, the negative coefficient implies that a unit decrease in the ratio of non-interest costs to total income (increase in management quality) results in a 0.925 increase in bank stability. As expected, the results effectively mean higher management quality leads to stable banks. Management has a role in ensuring the firm's strategic positioning to make it competitive and provide quality services to its customers. The results are consistent with past studies (Ongore & Kusa, 2013). Banks with better management quality can better utilize the available resources to achieve the highest possible output.

Fourthly, the study sought to test the hypothesis that earnings ability does not have a statistically significant effect on the stability of commercial banks in Kenya. The regression results presented in table 4.8 show a beta coefficient of 31.579 with a p-value of 0.000. The fact that the p-value is less than 0.05 leads to the rejection of the null hypothesis. From the result, a unit increase in return on assets increases banks' stability by 31.579 units. This implies that earning ability has a statistically significant positive effect on bank stability. This is reasonable since good-earnings banks generate more resources than they expend, making it possible to plough back the profits as part of equity (Kumar et al., 2012). The results are consistent with past studies (Barra & Zotti, 2019; Iren et al., 2014) but contradict others (Kumar, 2016; Riahi, 2020).

Lastly, the study sought to test the hypothesis that liquidity does not have a statistically significant effect on the stability of commercial banks in Kenya. Liquidity, measured by liquid assets to total deposits, reported a beta coefficient of -0.249 with a p-value of 0.808. Since the p-value of more than 0.05, we accept the null hypothesis. Thus liquidity does not have a statistically significant effect on the stability of commercial banks in Kenya. This may be attributed to the fact that the banks' liquidity remains relatively stable yearly, as the banks maintain the minimum required regulatory liquidity levels. This result contradicts other past studies (Malik et al., 2016)
The micro-prudential regulatory variables have been christened the CAMELS model. The study focused on the first five CAMEL model variables: capital adequacy, assets quality, management quality, earning Ability, and liquidity. Therefore, the study used Feasible Generalized Least Squares (FGLS) in the analysis. The results are presented in Table 4.11. Based on the estimated coefficient, the model is fitted as follows; $STAB_{it} = 0.266 + 1.536CAD_{it} - 0.059ASQ_{it} - 0.925MEF_{it} + 31.579ERN_{it} - 0.249LIQ_{it}$

To test the significance of the overall model, the study used the Wald test (Wald Chi-Squared Test). The null hypothesis for the test is that the model is not statistically significant. The results are

embedded in Table 4. From the results, the statistic has a value of 1845 with a p-value of 0.000. Since the p-value is less than 0.05, we reject the null hypothesis and accept an alternative hypothesis. This implies that the overall model is statistically significant. In other words, all independent variables considered jointly influence the stability of banks. This is important since it indicates that by monitoring the micro-prudential variables, the regulator will enhance the stability of banks. This provides credence to using the CAMEL model to assess banks' financial soundness, thereby promoting their stability.

Table 4: Regression Results

Coefficients:	Generalized least squares					
Panels:	Homoscedastic					
Correlation:	No autocorrelation					
Estimated	covariances	=	1	Number of obs	=	320
Estimated	autocorrelations	=	0	Number of groups	=	32
Estimated	coefficients	=	6	Time periods	=	10
Wald	chi2(5)	=	1845			
Log	likelihood	=	-211.7	Prob>chi2	=	0.000
Zscore	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Cap. Adequacy	1.536	0.409	3.760	0.000	0.735	2.337
Asset Quality (D1.)	-0.059	0.119	-0.500	0.620	-0.293	0.175
Man. Quality	-0.925	0.156	-5.920	0.000	-1.231	-0.619
Earning Ability	31.579	1.241	25.450	0.000	29.148	34.011
Liquidity (D1.)	-0.249	1.024	-0.240	0.808	-2.257	1.758
Constant	0.266	0.099	2.690	0.007	0.072	0.461

Conclusion and Recommendations

The study finds that capital adequacy, management quality, and earning ability positively affect bank stability. Therefore, the study recommends that more regulatory efforts focus on capital adequacy, management quality, and earning ability. Specifically, the study calls for continued enhancement of capital requirements to signal further bank consolidation. Secondly, the study call for a concerted effort among bank managers to continually monitor and contain costs. Lastly, the study recommends the furtherance of the traditional view of performance from an earning point of view even as new frontiers in performance are explored. On micro-prudential regulations considered jointly, the study finds that they have a statistically significant influence on the stability of banks. Consequently, the study recommends heightened use of the CAMEL model in the monitoring of banks by the regulator.

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