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Abstract

The adoption of IFRS 9 has ignited a debate among academics about its impact on credit risk management (CRM) in commercial banks. This study sought to evaluate the moderating effect of management efficiency in the relationship between IFRS 9 and CRM in commercial banks in East Africa. The study used quantitative methods, specifically panel data analysis, and is anchored the Problem Loans and Cost Efficiency Hypothesis. The study used data from 2015 to 2021, covering financial years before and after the adoption of International Financial Reporting Standard No. 9. Secondary data was gathered from the annual financial statements of commercial banks in four East African countries chosen for this study. The data was processed using the statistical software STATA version 14 to generate descriptive and inferential statistics to determine the trend underlying the connection between the dependent and independent variables. The results indicated that management efficiency had a significant moderating effect on the relationship between IFRS 9 and CRM. The model coefficient values were all positive, and the p-values were all less than 0.05. After the interaction, the coefficient of determination increased from 58.02% to 74.61% before and after moderation models, respectively. This implies that credit risk management is significantly related to the interaction term of the independent variables; expected credit losses (p=0.0130), credit loss volatility (p=0.000), and the change in the method of computing interest on NPLs (p=0.037). This implies that management efficiency has significant effects on credit risk management in the long run. The study concludes that efficient management practices are essential for identifying, measuring, mitigating, pricing, and controlling credit risks, enhancing overall bank performance. The study recommends that commercial banks in East Africa prioritize and enhance management efficiency by building strong governance structures, developing a risk-management

culture, providing employee training, and implementing robust performance management for credit risk management teams.

1. Introduction

Balancing between accuracy in financial reporting and minimizing credit risk has been a challenge for commercial banks and a concern for investors, accountants, regulators, and policy-makers alike (Dobler, 2008). Because past studies (Ewanchuk & Frei, 2018; KPMG, 2017) tend to focus on the quantum change and volatility in credit losses following the adoption of IFRS 9, this narrow focus has created a knowledge gap that motivated the current study, which focuses on the possible business implications of the adoption of IFRS 9. The impact of IFRS 9 on CRM has created a spirited debate among academics, according to a review of the empirical literature (Schutte et al., 2019; Kruger et al., 2017; Lie, & Sumirat, 2018; Sayed, Mendonca et al., 2018). According to the findings of these studies, IFRS 9 increases credit losses, which reduces earnings and capital adequacy and, as a result, impacts CRM in commercial banks. CRM, on the other hand, should not be viewed solely in terms of earnings and capital adequacy. The current study examines CRM from a broader perspective, including asset quality, bank liquidity, and credit loss coverage metrics.

The success or failure of CRM can be determined by examining various indicators classified as financial and non-financial indicators. A common financial indicator is the ratio of NPLs to gross loans (Ahmadyan, 2018; Jubouri, 2018; Kauko, 2012) which reflects the quality of a bank's loan portfolio. It is a risk management indicator because it calculates the loan loss ratio (Bhattarai, 2016). Other asset quality ratios for assessing CRM include the credit loss ratio, the coverage ratio, credit loss charge-offs to gross loans, allowance for credit losses to gross loans, and the ratio of foreign currency to total loans (Bratanovic & Greuning 2009; Casu et al., 2006).

IFRS 9 is the latest international financial accounting and reporting standard for the recognition, classification, measurement, hedging, and impairment of financial instruments. It replaced IAS 39, which was anchored on an incurred credit loss model; implying credit losses were recorded only when a trigger event or actual loss occurred or a counterparty's probability of default (PD) was close to 100% (KPMG, 2017; Seitz et al., 2018). This is the reason IAS 39 was widely criticized for failing to adequately recognize credit losses before the 2007-09 financial crisis (Orbán & Tamimi, 2020). Before the crisis, commercial banks, investment banks, and insurance companies held high-risk financial asset portfolios without making adequate provisions because trigger events or actual losses had not occurred (IMF, 2010).

CRM aims at reducing levels of credit risk while increasing risk-adjusted returns for commercial banks (Rehman et al., 2019). Banks must carefully evaluate and mitigate credit risk from both endogenous and exogenous sources, such as macroeconomic factors in the economy when dealing with credit risk. Banks' typical mitigation strategies include hedging, diversification, single borrower/sector limits, collateral-taking, and adequate capitalization to withstand shocks and operational disasters (Boateng, 2020). Thus, CRM aims to check credit losses from eroding earnings and reduce the bank's prudential capital. IFRS 9, on the other hand, aims for transparent, timely, and objective recognition of credit losses for banks to report accurate financial statements (IASB, 2014).

Based on the above-mentioned CRM and IFRS 9 objectives, it is clear that accounting or financial reporting and credit risk management have not always been completely in sync. This was demonstrated during the 2007-09 financial crisis when reporting entities misrepresented the status

of their credit risk management activities and understated credit losses in their financial statements by exploiting limitations in IAS 39 (Levy & Zhang, 2018). The crisis occurred because the IAS 39 accounting standard emphasized forensics on financial statements, whereas credit risk management is traditionally focused on the future. The IFRS 9 forward-looking ECL model was supposed to correct this and impose a more objective financial reporting regime. The fear has always been that because the ECL model front-loads credit losses, it will increase credit losses while decreasing earnings and regulatory capital (PwC, 2014).

According to empirical literature (Blaeková, 2018; Ewanchuk & Frei, 2018; Porretta et al., 2020), IFRS 9 has led in increase in credit losses, affecting earnings, capital requirements, and loan coverage ratios. There is also evidence that it has resulted in higher credit loss volatility, owing to the migration of loans from stage 1 to stage 2 buckets, as well as the managerial judgment required in estimating the ECL parameters (Huizinga & Laeven, 2018; Seitz et al., 2018). However, empirical studies appear to have adopted a narrow view of the correlation between CRM and IFRS 9. Furthermore, it is unclear whether the effects of IFRS 9 on CRM are comparable in developed and developing countries.

Commercial banks are regulated by the respective central banks in the East African region. The region is made up of Kenya, Uganda, Tanzania, Rwanda, Burundi, the Democratic Republic of the Congo, and South Sudan. While domestic banks dominate, the sector also includes international and pan-African banks. The emergence of these foreign players can be traced back to the 1990s banking reforms that swept across the African continent (African Development Bank, 2015). However, there is evidence (Mecagni et al., 2019) that international banks were present in the region much earlier and dominated the market in the 1990s. Larger foreign banks are typically associated with greater financial access (Clarke et al., 2005). Dominance due to unfair competition can occur when international banks with access to information about borrowers and enterprises engage in predatory strategies such as selecting the best borrowers thus limiting the credit pool available for small domestic banks (Detragiache et al., 2008). However, this is no longer true in East Africa, where local banks appear to have gained dominance.

Banks are typically classified based on their ownership structure (whether domestic or foreign-owned) and their tiered weighted market share. Local and regional banks are further subdivided into public and private institutions. Figure 1 depicts the classification of banks in the region based on ownership structure and shows that there were 167 commercial banks at the end of 2021 with significant foreign ownership. According to Kumai and Bala (2015), ownership structure affects governance, strategy, and performance. The presence of large shareholders in the ownership structure influences the bank's risk-taking behavior (Magalhaes et al., 2010; Rahman et al., 2012). The link between ownership and risk was also confirmed by Zhong (2017) who found correlations between ownership concentration and bank risk preference, implying that a bank without a major shareholder will follow a more conservative investment strategy.

1.2 Statement of the Problem

The objective of IFRS 9 is uniformity, comparability, and accuracy in financial reporting. Financial statements become comparable and uniform, according to Cole et al. (2012), when all reporting entities use the same accounting methods or standards. In the context of IFRS 9, accuracy implies anticipating and recording credit losses in the financial statements even before the actual losses crystalize. This has the potential to spike reported credit losses. Credit risk management, on the other hand, is concerned with lowering the level of credit risk in loan portfolios. The amount

of risk in a portfolio is revealed in the credit losses reported in the financial reports (Ozili & Outa, 2017). The competing objectives of IFRS 9 and CRM exemplifies the dual problem that banks in the East African region face: compliance with accounting standards and the Basel II Accord while maximizing earnings by minimizing credit risks (Darayseh et al., 2010).

The IFRS 9 introduced significant changes to the credit loss provisioning methodology, which was expected to cause a shift in credit risk management. Previous research on the relationship between IFRS 9 and CRM focused on the potential increase in quantum credit losses and its volatility (Blaeková, 2018; Ewanchuk & Frei, 2018; Huizinga & Laeven, 2018). The debate on whether IFRS 9 increases credit losses thus affecting earnings, capital adequacy, and ultimately credit risk management is nascent and ongoing (Fatouh et al., 2020; Halilbegovic et al., 2019; Ntaikou & Vousinas, 2018; Sayed et al., 2018; Schutte et al., 2019; Shuman & Arman, 2020; Lie & Sumirat, 2018;). The Majority of past studies found that IFRS 9 affects earnings, capital adequacy and loan loss coverage ratios which are measures of credit risk management but a small minority found that the accounting standard has no significant effect. Furthermore, though there is almost a general consensus that IFRS 9 increases credit loss volatility (Garcia et al., 2017; Huizinga & Laeven, 2018), the effect of volatility on credit risk management has not been adequately studied.

The empirical literature also reveals methodological and contextual gaps in past studies in this area. Many empirical studies (Levy & Zhang, 2018; Mdaka, 2018; Sayed et al., 2018; Schuttee et al., 2018) rely on simulations to estimate the parameters of the IFRS 9 impairment model. While simulation models may be a good representation of reality, they are only as good as the rules used to create them. To assess the impact of IFRS 9 on CRM, quantitative models that use real data from audited financial statements have been used in this study. Furthermore, previous studies have almost entirely been conducted in developed jurisdictions and have taken a very narrow view of IFRS 9 and CRM using only one or two measures of the dependent and independent variable (Ewanchuk & Frei, 2018; Huizinga & Laeven, 2018). This not only calls into question the findings but also ignores the experiences of developing countries in the adoption of IFRS 9.

This study sought to assess the change in credit risk management measures in commercial banks in East Africa attributable to the changeover from IAS 39 to IFRS 9. It is essential that bank managers, policy makers and scholars appreciate the effect of the interplay between changes in the financial reporting standard and managerial efficiency on credit risk management in the banking sector. Without this knowledge, they would not isolate the contribution of the shift in financial reporting standards to changes in CRM. Consequently, unlike previous studies that tended to deploy one quantitative model and one or two measures of both the dependent and independent variables, the study employed five quantitative study models and a broad range of measures to determine the impact of IFRS 9 on CRM as moderated by management efficiency.

1.2 Research Objectives

To evaluate the moderating effect of management efficiency in the relationship between IFRS 9 and CRM in commercial banks in East Africa.

1.3 Research Hypothesis

H_0: Management efficiency has no statistically significant moderating effect on the relationship between IFRS 9 and CRM in commercial banks in East Africa.

2. Literature Review

2.1 Theoretical Review

The Problem Loans and Cost Efficiency Hypothesis

The problem loans and cost efficiency hypothesis, developed by Berger and Deyoung in 1997, aims to explain the relationship between bad loans and cost efficiency in banks. The hypothesis presents four main explanations for poor credit risk management: bad management, skimping, bad luck, and moral hazard. The bad management hypothesis suggests that low-cost efficiency is a result of poor credit risk management, while the skimping hypothesis argues that higher cost efficiency may lead to insufficient expenditure in vetting potential borrowers. The moral hazard hypothesis posits that managers in less capitalized banks take more risks because the consequences are borne by shareholders. Lastly, the bad luck hypothesis attributes loan quality to exogenous macroeconomic factors such as changes in GDP growth, interest rates, and unemployment.

The problem loans and cost efficiency hypothesis has been empirically applied in various jurisdictions to explain poor credit risk management. Studies have found evidence supporting the moral hazard hypothesis in Kazakhstan and Italy, while the bad management hypothesis has been supported in Zimbabwe. Despite the efforts of banks to manage credit risk, some exposures will inevitably become non-performing due to bank-specific or macroeconomic reasons. Therefore, banks must develop clear credit risk policies to guide credit processes and ensure risks are managed within acceptable standards. A key criticism of the hypothesis is that often, there are multiple causes of weaknesses in credit risk management in any jurisdiction, and no single hypothesis can fully explain weak practices. In this study, the hypothesis is used to explain the interaction between management efficiency, IFRS 9, and credit risk management, assuming that management effectiveness moderates the impact of IFRS 9 on credit risk management.

2.2 Empirical review

Management efficiency, the capability of management to identify, measure, and control risks while ensuring safe, sound, and efficient operations, plays a crucial role in influencing credit risk and overall bank performance (Abdesslem et al., 2022; Amachree, & Iheanyi, 2020; Grier, 2007; Mamonov, 2013; Podpiera & Weill, 2008). Berger and DeYoung's (1997) four hypotheses on the relationship between management efficiency and credit risk - bad management, bad luck, skimping, and moral hazard - have been widely cited in empirical studies. The bad management hypothesis suggests that low efficiency leads to poor credit risk management (CRM) and poor portfolio quality, while the bad luck hypothesis asserts that macroeconomic factors negatively affect CRM (Berger et al., 1997; Das & Ghosh, 2007). The skimping hypothesis claims that credit risk weaknesses are related to the resources spent on underwriting loans (Berger et al., 1997), and the moral hazard hypothesis connects CRM and capitalization, stating that low-capital banks take on additional risk (Williams, 2004).

Empirical evidence supports the link between management efficiency and credit risk. Isnurhadi et al. (2020) found that capital and efficiency positively affect bank stability and negatively affect credit risk in Islamic banks, confirming the moral hazard hypothesis. Wanjohi (2016) found that management efficiency, represented by the earning assets ratio, has an adverse significant effect on credit risk. Ding and Sickles (2018) and Podpiera and Weill (2008) found a positive correlation between efficiency, capital, and credit risk, suggesting that more efficient and well-capitalized banks take on more credit risks. However, Mamonov (2013) found that while the bad management

hypothesis holds for the Russian banking industry as a whole, the skimping hypothesis holds for banks with lower capital ratios that are highly cost-efficient.

Macroeconomic variables and management quality have been found to primarily explain non-performing loans (NPLs) in various studies. Louzis et al. (2012) found that bad luck and poor management were blamed for poor credit risk management in Greece, while Koju and Wang (2017) discovered that Nepal's high NPLs were primarily caused by low economic growth, confirming the bad luck hypothesis. Zhang et al. (2016) supported the moral hazard hypothesis in Chinese banks, and Quadt and Nguyen (2016) found that exogenous factors, such as a slowing economy, affected credit quality in Nordic banks. Abdesslem et al. (2022) found that managerial ability mitigates the effect of credit risk on the probability of bank default in European banks.

Studies on Islamic banks have found a negative significant association between credit risk and management efficiency (Ahmad & Ahmad, 2004; Crespi & Aliano, 2017; Hayati & Ahmad, 2004). Nor and Ahmad (2015) found that staff efficiency significantly moderated the correlation between credit risk and capital ratio, profitability, and credit growth in Malaysia. In Zimbabwe, Abel (2018) found that cost efficiency adversely Granger-causes NPLs, supporting the bad management hypothesis. Studies in the East African region have also backed up the bad luck and bad management hypotheses, with Kangogo and Asienga (2014) finding a negative correlation between GDP growth and NPLs and a positive correlation between inflation, interest rates, and NPLs. Waweru and Kalani (2009) argue that unfavorable economic conditions, poor risk evaluation skills, and high loan rates contribute to NPLs in Kenya, while other studies emphasize the role of endogenous factors (Hamza, 2017; Mudanya et al., 2022; Otieno et al., 2016; Warue, 2013). Mataba et al. (2017) found that both bad management and bad luck contribute to a rise in NPLs in Tanzania, with bad management being the main cause.

The efficiency of management is crucial for banks to maintain their operations in the face of increasing competition (Setiawan & Hasan, 2017). Financial problems in banks are primarily due to inefficiency, weak credit standards, weaknesses in portfolio management, and a failure to adapt to changes in economic circumstances and the competitive landscape (CBK, 2000). Mwaura (2013) argues that NPLs accumulate in banks primarily due to management's inability to define appropriate risk appetite parameters, while Mburu et al. (2020) found that the efficiency of CRM practices directly affects credit risk or loan performance. The empirical literature demonstrates that management efficiency has a significant impact on credit risk management, and the extent to which IFRS 9 affects commercial banks' asset quality, coverage ratios, liquidity, or capital adequacy is highly dependent on management efficiency. The current study uses the problem loans and cost efficiency hypothesis to explain the role of management efficiency as a moderator in the relationship between IFRS 9 and CRM, assuming that the effectiveness of management in banks moderates the impact of IFRS 9 on credit risk management.

2.3 Conceptual Framework

The study aimed to analyze the impact of IFRS 9 on credit risk management (CRM) in East African commercial banks, with management efficiency as a moderating variable. The study was guided cost efficiency hypothesis. IFRS 9 adoption, represented by expected credit losses, credit loss volatility, and changes in interest revenue computation on credit-impaired loans, was the independent variable. CRM, the dependent variable, was measured by liquidity ratio, loans-to-deposit ratio, loan loss coverage ratio, nonperforming loans ratio, and total capital adequacy ratio. Management efficiency, proxied by cost efficiency, was the moderating variable, while bank size,

ownership structure, and loan growth were control variables. The study hypothesized that management efficiency would alter the relationship between IFRS 9 and CRM, with the magnitude of credit-related risk being influenced by management efficiency (Abdesslem et al., 2022; Ahmad & Ahmad, 2004; Crespi & Aliano, 2017; Nor & Ahmad, 2015).

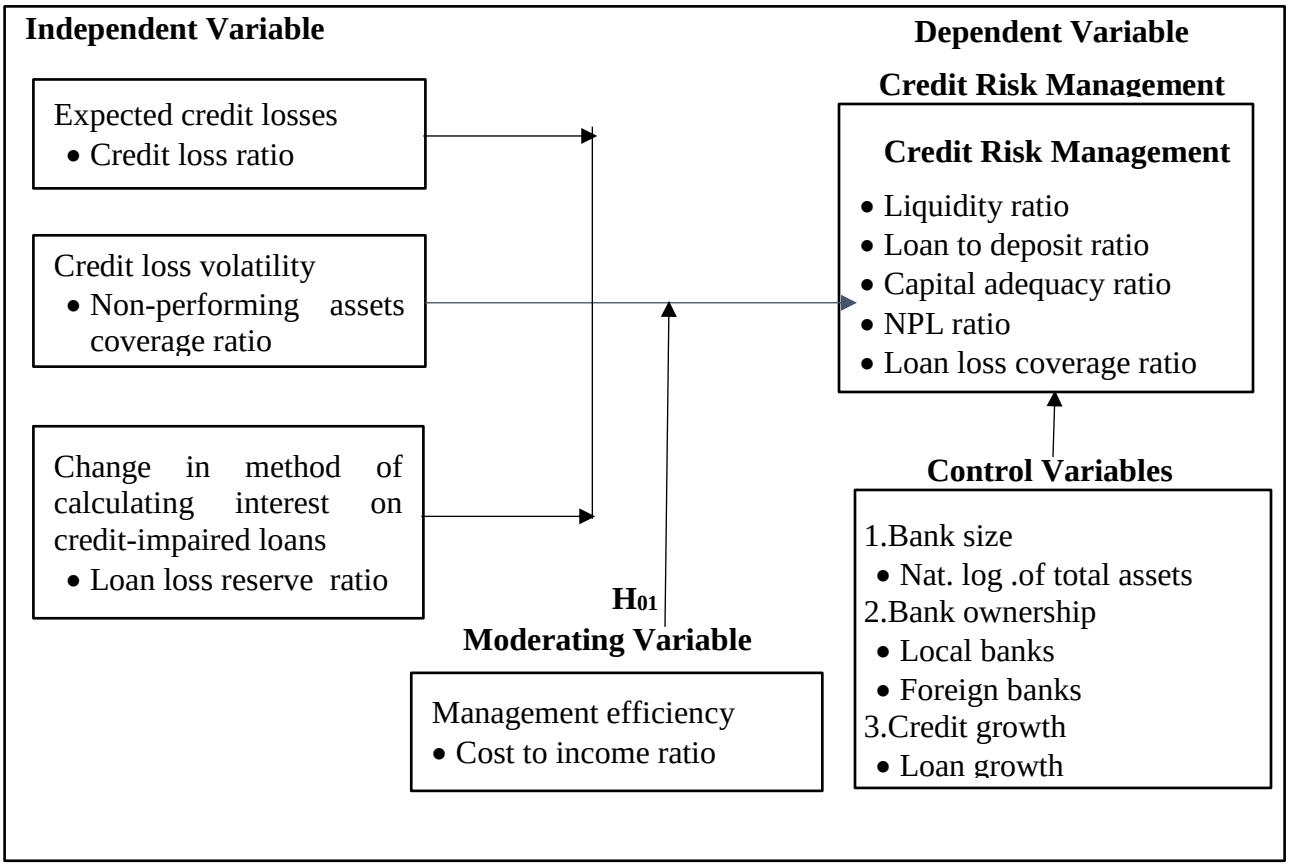

Figure 1: Conceptual Framework

3. Research Methodology

This study adopted an objectivist ontology and positivist epistemology, utilizing scientific methods to investigate relationships between variables while maintaining researcher objectivity and independence throughout the research process. The positivist viewpoint was suitable for this quantitative study, which aimed to determine the relationship between IFRS 9 and credit risk management (CRM) based on theory and empirical evidence. The target population consisted of 167 commercial banks operating in East African countries, with a sample size of 108 banks from Kenya, Tanzania, Uganda, and Rwanda. The selection of these countries was influenced by the availability of reliable data and language translation issues. The final sample was reduced to 101 banks due to mergers and data gaps. The study relied on secondary data from financial statements published on the respective bank websites. The study used a static panel data, generalized method of moments, panel event study model, moderating effects, and control variable models to determine the impact of Expected credit losses on CRM in commercial banks in East Africa.

Table 1: Operationalization and Measurement of Variables

Variable	Symbol	Operationalization	Measurement	Scale of measurement	Hypothesized Direction
Introduction of IFRS 9	CLR	Expected credit losses: change in credit losses charged to P&L	Credit losses to gross loans	Ratio	Negative
	NPACR	Credit loss volatility: change in loan reserves in the B/Sheet	Loan reserve ratio	Ratio	Negative
	LRR	Change in method of calculating interest on NPLs: extend equity & reserves cover NPLs	Non-performing accounts coverage ratio	Ratio	Positive/ Negative
Management efficiency	CIR	Cost efficiency	Cost-to-income ratio	Ratio	Positive
Bank size	LnTA	Total assets	LnTA	Ratio/Ordinal	Positive/ Negative
Bank ownership	BO	Ownership of the bank whether domestic or foreign	Local Foreign	Ratio/Ordinal Ratio/Ordinal	Positive/ Negative
Credit growth	LG	Change in loans	change in loans	Ratio	
Credit risk management	LR	Capacity to meet immediate cash flow obligations	Liquidity ratio	Ratio	Positive/ Negative
	LTDR	Bank capacity to finance its lending operations and meet cash flow obligations	Loans to deposit ratio	Ratio	Positive/ Negative
	CAR	Capacity to meet regulatory capital obligations	Capital adequacy ratio	Ratio	Positive/ Negative
	NPL	Quality of loans	NPL ratio	Ratio	Positive/ Negative
	LLCR	Adequacy of provisions to cover NPLs	Loan loss coverage ratio	Ratio	Positive/ Negative

4. Results an Findings

In the moderation model, liquidity ratio has been used to serve as the primary credit risk management metric. This was due to the prior analysis on static panel data model, GMM, and dynamic panel data model which revealed no significant changes or differences in the credit risk management indicators of liquidity risk, loans-to-deposit ratio, capital adequacy ratio, NPL ratio and loan loss coverage ratio. The analysis of these variables on all the models were consistent and it is expected this consistency will still hold in the moderation model. To assess the moderating effects of management efficiency on the relationship between IFRS 9 and CRM, the Whisman and

McClelland two-step test was used first by introducing management efficiency as an explanatory variable in accordance with the dynamic model *xiv* and secondly introducing it as a moderating variable in accordance with the dynamic model *xv*. The analysis is based on the aggregate data for commercial banks

Table 2: Before Moderation Model

Credit risk management	Coef.	Std. Err.	z	P>|z|
Lag1 Credit risk management (LR)	0.0610	0.0352	1.7300	0.0830
Lag2 Credit risk management (LR)	0.0930	0.0339	2.7500	0.0060
Expected credit losses	-0.0754	0.0420	-1.7900	0.0730
Credit loss volatility	-0.1532	0.0410	-3.7300	0.0000
Change in method of calculating interest on NPLs	0.1543	0.0366	4.2100	0.0000
Management efficiency	0.0944	0.0403	2.3500	**0.0190**
Bank Size	0.1041	0.0388	2.6800	0.0070
Bank Ownership	0.0999	0.0392	2.5500	0.0110
Credit growth	0.0820	0.0388	2.1200	0.0340
_cons	0.7865	0.0718	10.9615	0.0000
F-statistic	143.34			
Prob > chi2	0.000			
Rsquared	0.5802			
Number of observations	733			

The results shown in Table 2 indicate that model xiv is significant with p-value of 0.000 and r-squared of 0.5802 while management efficiency has a p-value of 0.019 which is less than the critical 0.05. As a result, management efficiency may be an explanatory variable. According to Lai (2013), a moderator is a variable that changes the magnitude and/or direction of the correlation between another variable and an outcome variable. Furthermore, Kim, Kaye, and Wright (2001) argue that while a moderator variable can be weighed when the association between a predictor variable and a dependent variable is strong, it is typically considered when the relationship between a predictor variable and a dependent variable is unexpectedly weak or inconsistent. The fact that management efficiency is an explanatory variable and that the association between IFRS 9 and CRM is significant offers a strong foundation for the current study to assess whether management efficiency serves as a moderator in the relationship between IFRS 9 and CRM.

The second step involved the introduction of management efficiency as a moderating variable in line with the dynamic model *xv*. The results in Table 3 shows that model *xv* is significant with a p-value of 0.000 and R-squared of 0.7461. Management efficiency has a p-value of 0.000 which is significant as it is less than the critical 0.05. The moderator model's final term is the product of all predictor variables. The statistical significance of the difference between the two models determines whether management efficiency is an independent variable or a moderator. Management efficiency's moderating effects on the independent variables revealed an increased magnitude of relationship between expected credit losses (β=-.0947, p=0.013), credit loss volatility (β=-.1514, p=0.000), the change in method of calculating interest on NPLs (β=-.1264, p=0.0370), bank size, bank ownership, and credit growth on credit risk management.

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Table 3: After Moderation Model

Credit risk management	Coef.	Std. Err.	z	P>|z|
Lag1 Credit risk management	0.0214	0.0353	0.6100	0.5440
Lag2 Credit risk management	0.0400	0.0346	1.1600	0.2470
Expected credit losses	-0.2057	0.0428	-4.8066	0.0063
Credit loss volatility	-0.1046	0.0412	-2.5400	0.0110
Change in method of calculating interest on NPLs	0.1154	0.0366	3.1500	0.0020
Management efficiency	0.238	0.067	3.560	**0.000**
Bank Size	0.0494	0.0391	1.2600	0.2070
Bank ownership	0.0560	0.0392	1.4300	0.1530
Credit growth	0.4577	0.0387	11.8195	0.0237
Expected credit losses*Management Efficiency	-0.0947	0.0383	-2.4700	0.0130
Credit loss volatility*Management Efficiency	-0.1514	0.0394	-3.8400	0.0000
Change in calculating interest on NPLs*Management Efficiency	0.1264	0.0376	3.3611	0.0370
Bank Size*Management Efficiency	0.3912	0.0360	10.8533	0.0078
Bank Ownership*Management Efficiency	0.5839	0.0359	16.2623	0.0104
Credit growth*Management Efficiency	-0.1542	0.0357	-4.3222	0.0067
_cons	2.1874	0.6989	3.1298	0.0000
F-statistic	929.5			
Prob > chi2	0.000			
Rsquared	0.7461			
Number of observations	733			

The model p-values in Table 3 were all significant as they are less than the critical 0.05. After interaction, the coefficient of determination increased from 58.02% before moderation to 74.61% after moderation models, respectively. This means that credit risk management is significantly related to the interaction term of; expected credit losses (p=0.0130), credit loss volatility (p=0.000), and the change in the method of calculating interest on NPLs (p=0.037) and that management efficiency has significant effects on the relationship between IFRS 9 and CRM. Therefore, considering the results in Table 3 against the decision criteria in Table 3, the study fails to reject the null hypothesis that management efficiency has no significant moderating effect on the relationship between IFRS 9 and CRM in commercial banks in East Africa.

The objective was to evaluate the moderating effect of management efficiency on the relationship between IFRS 9 and CRM in commercial banks in East Africa. Management efficiency's moderating effects on the independent variables revealed an increased magnitude of the relationship between expected credit losses, credit loss volatility, the change in method of calculating interest on NPLs, management efficiency, bank size, bank ownership, and credit growth on credit risk management. The model coefficient values were all positive, and the p-values were all less than 0.05. After the interaction, the coefficient of determination increased from 58.02% to 74.61% before and after moderation models, respectively. This implies that credit risk management is significantly related to the interaction term of the independent variables; expected credit losses (p=0.0130), credit loss volatility (p=0.000), and the change in the method of computing interest on NPLs (p=0.037). This implies that management efficiency has significant effects on credit risk management in the long run.

The findings support the problem loans and cost efficiency hypothesis, particularly the bad management hypothesis which posits that cost efficiency is positively related to management quality and bad management results in poor CRM indicators. The current study shows that management efficiency is an independent variable that has significant moderating effects on the relationship between IFRS 9 and CRM. Because management efficiency has a positive coefficient, an increase in efficiency results improved CRM measures.

The findings are also consistent with previous studies (Abdesslem et al., 2022; Mamonov, 2013; Podpiera & Weill, 2008) indicating management efficiency influences credit risk and overall bank performance. Although Quadt and Nguyen (2016) attributed NPLs in Nordic banks to the bad luck hypothesis, they also confirm that the bad management or cost efficiency hypothesis plays a role. Similarly, Ahmad and Ahmad (2004) found a significant relationship between credit risk and management efficiency in Islamic banks, while Crespi and Aliano (2017) found a positive (lagged) correlation between the value of past-due and overdrawn loans on the one hand and NPLs on the other, indicating a failure of credit managers in Italian banks to predict or recover (at least partially) troublesome credits. Further, Matabaet al. (2017) established that while both cost efficiency and bad luck contribute to a rise in nonperforming loans, cost efficiency was the main cause of high NPLs.

5. Conclusions

The study indicates that management efficiency moderates the association between IFRS 9 and CRM in commercial banks in East Africa. Management efficiency significantly moderates the relationship between expected credit losses, credit loss volatility and the change in the method of calculating interest on credit-impaired loans and credit risk management. The results of the study highlight the significant impact of management efficiency on CRM in commercial banks in East Africa. This is due to the fact that efficient management practices are essential for identifying, measuring, mitigating, pricing and controlling credit risks which enhances overall financial performance of the bank. The findings underscore the importance of investing in strong management teams and fostering a culture of risk management within banks to ensure long-term success and stability.

6. Recommendations

The study recommends that commercial banks in East Africa prioritize and enhance management efficiency in order to effectively deal with credit risk. The findings clearly indicate that management efficiency plays a significant role in influencing the effect on IFRS 9 on credit risk among banks in East Africa. To foster efficient corporate management processes, banks should build strong governance structures and leadership frameworks including clearly defining roles and responsibilities, developing a risk-management culture, promoting accountability, providing training for employees and implementing robust performance management especially for the credit risk management function teams. It is also important that banks formulate comprehensive risk management frameworks that include building managerial capacity within the credit risk function and holding them to account for the outcome of their action. An enabled risk management team can utilize sophisticated credit scoring techniques, conducting thorough due diligence on borrowers and creating effective early warning systems to identify potential credit concerns promptly.

References

Abdesslem, R., B., Chkir, I., & Dabbou, H. (2022). Is managerial ability a moderator? The effect of credit risk and liquidity risk on the likelihood of bank default. *International Review of Financial Analysis, 80, 102044*. Accessed on March 2, 2022, from https://doi.org/10.1016/j.irfa.2022.102044

African Development Bank (2015). The Banking System in Africa: Main facts and challenges. *Africa Economic Brief, 6(5).* Accessed on May 17, 2022, from https://www.afdb.org/fileadmin/uploads/afdb/Documents/Knowledge/AEB_Vol_6_Issue_5_2015

Ahmadyan, A. (2018). Measuring credit risk management and its impact on bank performance in Iran. *Marketing and Branding Research 5(2018) 168-183.* Accessed on June 9, 2022, from https://mbr.cikd.ca/pdf_60427_3457d88f2719f28116b0664a8e9be03d.html.

Amachree, R., M. & Iheanyi, I., H. (2020). Management Efficiency and Bank Performance. *International Journal of Innovative Finance and Economics Research 8(4):13-20.* Accessed on May 4, 2024, from http://www.seahipaj.org/

Bhattarai, Y. R. (2016). Effect of credit risk on the performance of Nepalese commercial banks. *Journal of Balkumari College Vol. 10 No. 1 (2021).* Accessed on June 17, 2022, from https://doi.org/10.3126/jbkc.v10i1.42088

Boateng, K. (2020). Credit risk management and profitability in select savings and loans companies in Ghana. *International Journal of Advanced Research (2020).* Accessed on October 31, 2021, from *http://dx.doi.org/10.13140/RG.2.2.18284.51845*

Bratanovic, S. B., & Greuning, V. H. (2009). Analyzing banking risk: A framework for assessing corporate governance and risk management, Third Edition. World Bank. Accessed on June 2, 2022, from https://doi.org/10.1596/978-0-8213-7728-4

Central Bank of Kenya (2021). Quarterly economic review. Accessed on January 8, 2022, from https://www.centralbank.go.ke/uploads/quarterly_economic_review/129999459_QER%20April-June%202021.pdf

Clarke, P., Crawford, C.,Steele, F., & Vignoles, A. (2015). Revisiting fixed-and random-effects models: some considerations for policy-relevant education research. *Education Economics, 23 (3).* Accessed on May 3, 2021, from https://doi.org/10.1080/09645292.2013.855705

Clarke, G., Cull, R., & Shirley, M. (2005). Bank privatization in developing countries: A summary of lessons and findings. *Journal of Banking & Finance, 29 (8), 1905–1930.* Accessed on May 17, 2022, from http://www20.tok2.com/home/oohamak/asai/4.pdf

Crespi, F., & Aliano, M. (2017). Incapability or bad luck? Testing the "bad management" hypothesis in the Italian banking system. *The Business of Banking pp 55–78.* Accessed on July 13, 2022, from DOI:10.1007/978-3-319-54894-4_4

Das, A. & Ghosh, S. (2007). Determinants of credit risk in Indian state-owned banks: An empirical investigation. *Economic Issues, Volume 12(2), 27-46,.* Accessed on February23, 2022 from https://mpra.ub.uni-muenchen.de/id/eprint/17301

Darayseh, M., Gence, I., AlFoul, B., A., & Abdallah, W. (2010). The accuracy of the annual financial report data: An empirical analysis of GCC firms. *International Business & Economics Research Journal, 9(8).* Accessed on March 5, 2022, from

file:///C:/Users/HomePC/Downloads/The_Accuracy_Of_The_Annual_Financial_Report_Data_A.pdf

Deloitte, (2019). IFRS 9 - Summary, Requirements & Changes. Accessed on August 18, 2021, from https://www.iasplus.com/en-ca/toolkit/ifrs-9

Detragiache, E., T. Tressel, and P. Gupta (2008). Foreign banks in poor countries: theory and evidence. *The Journal of Finance, 63 (5), 2123–2160.* Accessed on May 17, 2022, from https://doi.org/10.1111/j.1540-6261.2008.01392.x

Dobler, M. (2008). Incentives for risk reporting – A discretionary disclosure and cheap talk approach. *The International Journal of Accounting. 2008, 43(2), 184–206.* Accessed June 9. 2022 from DOI: https://doi.org/10.1016/j.intacc.2008.04.005

European Investment Bank (2020). Banking in Africa: financing transformation amid uncertainty. European Investment Bank. Accessed May on 18, 2022 from https://www.eib.org/attachments/efs/economic_report_banking_africa_2020_en.pdf

Ewanchuk, L. & Frei, C. (2018). Recent regulation in credit risk management: A statistical framework. *Risks, 7(2), 40*. Retrieved on May 27, 2020, from https://doi.org/10.3390/risks7020040

Grier, W., A. (2007). Credit Analysis of Financial Institutions. 2nd Edition. Euromoney Institution Investor PLC.

Huizinga, H. & Laeven, L. (2018). The Procyclicality of banking: evidence from the Euro Area. *ECB Working Paper Series No 2288.* Retrieved on June 22, 2020 from DOI:10.1057/s41308-019-00081-5

Jubouri, M. (2018). The impact of credit risk management in financial market indicators—Analytical study in the Iraqi Market for Securities. *Journal of Financial Risk Management, 7, 254-277*. Accessed July 6, 2022, from doi: 10.4236/jfrm.2018.73017.

Kangogo, N., J., & Asienga, I., C. (2014). Factors affecting non-performance of personal loans in banking industry: Case study of tier one banks in Kenya Conference Proceedings, 4th Annual Conference Kabarak University. Accessed on July 17, 2022, from http://ir.kabarak.ac.ke/handle/123456789/1048

Kauko, K. (2012). External deficits and non-performing loans in the recent financial crisis. *Economics Letters, 115(2), 196–199.* Accessed on May 28, 2022, from https://doi.org/10.1016/j.econlet.2011.12.018

Kumai G., B., & Bala H. (2015). Equity formation and financial performance of listed deposit money banks in Nigeria. *European Journal of Accounting Auditing and Finance Research. 3(8), pp.25-39.* Accessed on July 14, 2022, from http://www.eajournals.org/wp-content/uploads/Equity-Formation-and-Financial-Performance-of-Listed-Deposit-Money-Banks-In-Nigeria.pdf

Lie, P. & Sumirat, E. (2018). Implementation of IFRS 9 for banking in Indonesia. *11th International Conference on Management, Law, Economics and Interdisciplinary Studies (MLEIS-18).* Retrieved on July 6, 2020, from https://doi.org/10.15242/DiRPUB.DIRH0118207

Magalhaes, R., Urtiaga, M., & Tribo, J. (2010). Banks' ownership structure, risk and performance. *SSRN Electronic Journal · May 2010*. Accessed on July 15, 2022, from DOI:10.2139/ssrn.1102390

Mamonov, M. (2013). Bad management, skimping, or both? The relationship between cost efficiency and loan quality in Russian banks. *Higher School of Economics Research Paper No. WP BRP 19/FE/2013.* Accesses on July 5 2022 from https://dx.doi.org/10.2139/ssrn.2344685

Mburu, I., Mwangi, L., & Muathe, A. (202O). Credit management practices and loan performance: empirical evidence from Commercial Banks in Kenya. *International Journal of Current Aspects in Finance, Banking and Accounting, 2(1), 51-63.* Accessed on February 23, 2022, from DOI:10.35942/ijcfa.v2i1.105

Mecagni, M., Marchettini, D., & Maino, R. (2019). Evolving banking trends in sub-Saharan Africa: key features and challenges. Washington, DC: IMF. Accessed on May 3, 2021 from https://www.imf.org/external/pubs/ft/dp/2015/afr1508.pdf

Orbán, I., & Tamimi, O. (2020). Accounting model for impairment under IFRS 9 and its impact on loss allowance. *European Research Studies Journal, 0(4), pp 1259-1277.* Accessed on May 10, 2021, from https://ideas.repec.org/a/ers/journl/vxxiiiy2020i4p1259-1277.html

Ozili, P., K., & Outa, E. (2017). Bank loan loss provisions research: A review. *Borsa Istanbul Review, 17(3).* Accessed on March 2, 2022, from https://www.sciencedirect.com/journal/borsa-istanbul-review/2214-8450

Podpiera, J. & Weill, L. (2008). Bad luck or bad management? Emerging banking market experience. *Journal of Financial Stability, 4(2), 135-148.* Accessed on February 20, 2022, from https://doi.org/10.1016/j.jfs.2008.01.005

Quadt, V., & Nguyen, T. (2016). The relation between efficiency, non-performing loans and capitalization in the Nordic banking sector. Lund University School of Economics and Management Accessed on July 13, 2022, from https://www.lunduniversity.lu.se/lup/publication/8877802

Rehman, Z., U., Muhammad, N., Sarwar, B., & Raz, M., A. (2019). Impact of risk management strategies on the credit risk faced by commercial banks of Balochistan. Balochistan University of Information Technology Engineering & Management Sciences. Accessed on May 25, 2022, from https://doi.org/10.1186/s40854-019-0159-8

Schutte, W., Verster, T., Doody, D., Raubenheimer H., & Coetzee, P. (2019). A proposed benchmark model using a modularized approach to calculate IFRS 9 expected credit loss. *Cogent Economics & Finance, 8(1).* Retrieved on June 2, 2020, from https://doi.org/10.1080/23322039.2020.1735681

Setiawan, C., & Hasan, M. (2017). Non-performing loans and bank efficiency of conventional and Islamic banks in the Organization of Islamic Cooperation (OIC) Countries. *Journal of Islamic Economics Banking and Finance 13(4)18-43.* Accessed on July 17, 2022, from DOI:10.12816/0051000