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Research Article

Does Environmental Dynamism Affect Customer Relationship Management - Commercial Banks' Performance Nexus in Tanzania?

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Abstract

With a rapid change in the market environmental factors of the developing economies, uncertainty raises on the outcomes of the strategies employed by business organizations. The thrust of this paper therefore, was to examine how environmental dynamism interacts the link between Customer Relationship Management strategic practices namely CRM organisation, customer orientation, technology-based CRM, customer knowledge management; and performance of commercial banks in Tanzania. The study employed a cross sectional explanatory design, utilizing deductive approach and quantitative method. Yamane's rule was used to establish the sample size for commercial banks. Data were collected using a survey technique from 272 employees across various departments including customer relationship, customer service, operations, marketing and sales, information and communication technology (ICT), credit, and management of commercial banks in Tanzania. Data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) through Smart PLS version 4.0.9.5. The study revealed that environmental dynamism positively moderates the influence of CRM organization and customer knowledge management on commercial banks' performance, while negatively moderating the effect of technology-based CRM and customer orientation variables. Results also indicate that three constructs namely customer knowledge management, CRM organization, and technology-based CRM have a positive significant influence on performance of commercial banks. In contrast, customer orientation demonstrated a positive but non-significant effect. This implies that to enhance performance in the settings of environmental dynamism, commercial banks' management should continue investing in customer knowledge management, CRM organization and technology-based CRM strategies. Conversely, they should reconsider investment in customer orientation, as it was found to have non-significant contribution to performance.

Key Words: Customer Relationship Management, Bank Performance, Environmental Dynamism.

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Introduction

In today's competitive and evolving business environment, good performance stands as the cornerstone of success for organizations, including commercial banks (CBs), serving as a critical benchmark for evaluating marketing, human resources, operations, and strategic outcomes (Al Issa, 2021; Richard et al., 2009). As claimed by Al-Dmour et al. (2019) and Mohammad et al. (2013), performance can be appraised from the perspective of firms' operating efficiency, profitability, return on assets, share price growth, market share expansion, ability to confirm target customers, sales growth, customer complaints reduction, and customer retention ability; all these demonstrating both financial and non-financial performance indicators, which should be integrated in order to achieve an optimal performance (Petersen & Schoeman, 2008).

The essence of CBs' performance is founded on the reality that the banking sector performs a crucial role in the economy of any country. They participate in income generation, employment, financial services provision, and in the flow of financial resources, which are necessary for economic prosperity. In Tanzania, the banking sector contribution to GDP was 3.2 percent in the financial year 2023/2024 (BOT, 2024). Additionally, the banking sector remains one of the significant employers, with 16,731 persons employed in various banking firms (TBA, 2023). Thus, improved CBs' performance through customer relationship

management (CRM), among other strategies, is well-thought-out to guarantee continued contribution to GDP as well as sustained employment (Rafiki et al., 2019; Soltani et al., 2018).

CBs are among service companies investing heavily in CRM strategies for the purpose of improving service quality to ensure customer satisfaction, customer retention and overall performance (Buttle & Maklan, 2019; Dubey & Sangle, 2018). Investment in the CRM strategies has been additionally driven by the paradigm shift from product-centric marketing perspective to customer-centered perspective (Soltani et al., 2018) as well as globalization and technological changes which led into competition because customers were exposed to more alternative sources of supply at competitive prices (Motiwalla, & Thompson, 2009). Therefore, to satisfy and retain customers, and improve overall performance, CBs needed to commit substantial resources to CRM strategic practices (Bhat & Darzi, 2016; Lebdaoui & Chetioui, 2020). However, as a result of market environmental factors dynamics (environmental dynamism), CBs' prediction and achievement of the targeted performance levels is blurred (Agyapong et al., 2020; Wang, 2019).

CRM plays a key role in customer knowledge management and overall business organization within CBs. It helps streamline all customer-related operations such as collecting, organizing, analyzing, and interpreting data to uncover patterns in buying behavior. These insights are then used to design more effective marketing strategies and boost business performance (Buttle & Maklan, 2019; Dubey & Sangle, 2018). Banks also rely on CRM for its strong analytical capabilities, which help increase the success of cross-selling efforts and reduce customer attrition rate. This is consistent with Buttle (2009) who asserts that banks use data mining techniques to determine which clients are most likely to leave the bank, how to entice them back, pinpoint potential cross-sell opportunities, and determine the best methods to present offers.

However, despite the positive impact of CRM in CBs' operational procedures, many prior studies reported conflicting results on CRM-firms' performance relationships. Some indicated strong relationships (Krasnikov et al., 2009; Law et al., 2013; Lebdaoui & Chetioui, 2020; Woodcock & Stone, 2012) while others revealed absence of relationships (Awasthi & Sangle, 2012; Rafiki et al., 2019; Santouridis & Tsachtani, 2015; Sofi et al., 2020). Many of these studies have been conducted in developed economies with market environmental factors such as marketing strategies, level of ICT sophistication, service standards, customers' preferences for service features, service innovation, market demand and supply, and market shocks unrelated to that of developing economies. In developing economies, these factors are usually dynamic and unpredictable (Mirkovski et al., 2019). Their degree of unpredictability mirrored through environmental dynamism (ED), which in due course hamper possibility of predicting and achieving CBs performance was regarded as one of the possible reasons for the inconsistent findings (Agyapong et al., 2020; Wang, 2019). Consequently, this study considered ED as a moderating variable amidst CRM and CBs' performance relationship, since it has the regulatory ability (Duncan, 1972; Fiedler,1964).

Moreover, since CRM is a higher-order construct but has often been treated as a single predictor variable in some of the prior studies, could also explain the contradictory results observed (Ada et al., 2010; Chan & Khodakarami, 2014). In this study, therefore, CRM has been evaluated by examining its relevant lower-order constructs, namely technology-based CRM (TBCRM), customer orientation (CO), CRM organisation (CRMO), and customer knowledge management (CKM). This is consistent with Akroush et al. (2011), Bhat and Darzi (2016), Alam et al. (2021), and Mohammad et al.(2013), who followed a related course. Conceptualization of CRM as a construct made up of these four dimensions aligns with the views of Kincaid (2003), Mandic (2011), and Mendoza et al. (2006), who describe CRM as the strategic management of profitable relationships between businesses and their customers, via effective use of people (customers and firm employees), information (knowledge about, to and from customers), procedures (firm structures and operations), and technology to enhance performance.

It can thus be argued that, due to inconsistencies in the findings of previous studies regarding the CRM-firms' performance nexus, it was deemed essential to conduct this study in the Tanzanian CBs, as a proxy for developing economies. The aim being to demonstrate developing economies' context-specific insights and reveal how the link between CRM and bank performance is influenced by ED, The remainder of this article is structured in the following manner.

First, we provide a brief theoretical perspective focusing on CRM, CB's performance and ED relationships. We then present our research methodology, including the sampling, data collection, and data analysis procedures, succeeded by presentation and discussion of the results. Finally, we offer conclusions and implications for theory and practice, as well as suggestion for future potential studies in this area.

Literature

Theoretical Perspective

Focusing on clients' needs, knowledge about and for customers, aligning structures of the business firms with CRM systems, and employing technology-driven CRM are key strategic measures, among others, that firms rely on improving performance (Akroush et al., 2011; Bhat & Darzi, 2016; Kebede & Tegegne, 2018; Meher & Mishra, 2019; Mohammad et al., 2013; Sin et al., 2005). However, while firms' performance depends on how effectively they build relations with clients via CRM practices, deployment of these practices alone is not sufficient for performance improvement. Dynamics in environmental conditions, particularly ED, are also crucial. This is because businesses operate in a complex and constantly changing external environment (Agyapong et al., 2020; Purwanti et al., 2022; Wang, 2019).

This study is primarily based on two theories: the resource-based view (RBV) theory and the structural contingency theory. These theories have gained acceptance among marketing researchers (Cheraghalizadeh et al., 2021; Alam et al., 2021; Migdadi, 2021; Mohammad et al., 2013; Rafiki et al., 2019; Sinkovics et al., 2018) in explaining firms' resource-performance relationships as interacted by environmental factors. The Resource-Based View (RBV) theory, introduced by Penrose (1959), posits that a firm's success is determined by its internal resources, including physical and non-physical. The author argued about how firms' resources play a crucial role in gaining a competitive advantage and in enhancing competitiveness. Linked to that, Wright and McMahan (1992) claim further that internal resources, processes, systems and policies can provide competitive edge if aligned along firms' competitive strategies. Therefore, since CRM strategies such as organizing around CRM, technology-driven CRM, customer knowledge management and building customer-oriented business culture serve as internal resources for CBs' performance, the RBV theory offers a theoretical framework to guide this study.

Similarly, the study applied the structural contingency theory to assess the interacting effects of ED on the link between CRM dimensions and CBs' performance. Fiedler (1964) contingency model postulates that the settings in which a firm function dictates the most effective way for it to structure itself, operate and achieve performance. This means that firms' performance depends on how effectively they adapt and fit to the contingencies in their operating environment, with the degree of ED being considered as one of these contingencies (Donaldson, 2001; Zeithaml et al., 1988). Fit is a core concept in the theory (Miles, 2012). The concept advocates that organizations' performance is largely determined by how well it matches its features such as procedures, tactics, systems, goals, structures, invention, and technology with the contingency in its functioning environment (Sinkovics et al., 2018). Donaldson (2001) describes contingency as the concept that the impact of one variable (x) on another variable (y) is influenced by a third variable (z). The effect of x on y differs depending on whether z is low or high, meaning the relationship between x and y is contingent upon the level of z. In this context, variable z interacts the link between variables x and y. Structural contingency theory was relevant to this study, as the aim was to examine if ED (z) interacts the impact of CRM (x) on performance of CBs (y).

Empirical Studies and Hypotheses Development

Customer Orientation, CBs' Performance and Environmental Dynamism

Customer orientation is a key element of an effective CRM system, aiming at putting customers' needs at the center of firms' strategic focus (Jayachandran et al., 2005). When corporate operations, processes, and strategies are focused on meeting customer needs and expectations, customers are more likely to remain loyal and make more purchases, which in turn boosts the company's performance (Bhat & Darzi, 2016). Furthermore, businesses thrive in a competitive market if their CRM strategies are focused on identifying and retaining profitable customers (Nasution & Rafiki, 2018). Despite the assertation by Rafiki et al. (2019) and Becker et al. (2010) that customer-oriented strategies have little effect on business performance, other literatures (Lebdaoui & Chetioui, 2020; Nasution & Rafiki, 2018; Soltani et al., 2018) still support that CO is an essential CRM strategy for increasing firms' performance. The contradictory findings from these studies highlighted a need to examine the moderating effect of an external factor particularly ED in the CO-CBs' performance relationship.

This is line with Donkor et al. (2018), Purwanti et al. (2022), and Wang (2019) who suggests that ED influences the link between business strategies and outcomes. Therefore, the current study hypothesized that:

H1a: *Customer orientation positively influence performance of commercial banks.*

H2a: *Environmental dynamism moderates the influence of customer orientation on performance of commercial banks.*

Customer Knowledge Management, CBs' Performance and Environmental Dynamism

Increased customer value and service quality is determined by the firms' knowledge about customers' needs and priorities (Sofi et al., 2020). Customer knowledge management is the firms' process for gathering, keeping, evaluating, and analyzing customer data and insights for performance enhancement (Mohammad et al., 2013). By generating customers knowledge, organizations can efficiently leverage this information to boost their competitive advantage, ultimately improving overall performance (Mohammad et al., 2013; Bhat & Darzi, 2016; Soltani et al., 2018). Since customer knowledge serves as a key strategy for fostering positive link between organizations and customers, understanding customer needs is essential for effective CRM implementation and firms' success (Meher & Mishra, 2019). In contrast, Garrido-Moreno and Padilla-Meléndez (2011), and Zahari et al. (2023) argue that customer knowledge has an inadequate impact on firms' performance. Inconsistencies in these results might have been attributed by studies' contextual differences as well as the effect of ED (Agyapong et al.,2020). Consequently, ED was anticipated to influence the effect of CKM on performance of the Tanzanian CBs. Hence, the hypotheses are:

H1b: *Customer knowledge management positively influence performance of commercial banks.*

H2b: *Environmental dynamism moderates the influence of customer knowledge management on performance of commercial banks.*

CRM Organization, CBs' Performance and Environmental Dynamism

CRM organization focuses on establishing the needed organizational and managerial components including stronger infrastructure, modern equipment, technology, customer information system, staff trainings and rewards required to support the CRM effort (Akroush et al., 2011). According to structural contingency theory, designing an appropriate organizational structure enhances organization's performance. Implying that, when a company's entire structures encompassing operations, human resources, management, and technology is set to foster valuable relationships within the organization's CRM system, high performance is ensured (Mohammad et al., 2013). Hence, effective organizational structure enables a firm to develop CRM applications tailored to each department in facilitating collaboration and resource sharing to attain long-term plans (Sofi & Hakim, 2018). Moreover, studies by Akroush et al. (2011), Kebede and Tegegne (2018), Mohammad et al. (2013), Soltani et al. (2018) unveiled a favorable and substantial link between CRMO and CBs' performance, contrary to Yim et al. (2014) who found that structuring organizations by focusing on CRM have non-significant effect in gaining competitive advantage. Inconsistent findings across these studies prompted consideration of ED as a potential external factor influencing the variability in the relationship between CRMO and CB performance, given ED's regulatory role (Duncan, 1972). Therefore, the current study hypothesized that:

H1c: *CRM organization positively influence performance of commercial banks.*

H2c: *Environmental dynamism moderates the influence of CRM organization on performance of commercial banks.*

Technology-based CRM, CBs' Performance and Environmental Dynamism

Technology-based CRM is the application of computer technologies, both hard and software that firms use to establish and sustain profitable relationships with customers over time (Rafiki et al., 2019). ICT have enabled organizations to implement modern systems that enhance costs reduction capability, effective interaction with clients, thereby improving long-term performance (Kebede & Tegegne, 2018; Soltani et al., 2018). Moreover, the tools of data mining for CRM enhance firms' increased comprehension of consumers' behaviors, expectations and needs, hence gaining competitive edge. Linked to that, Mohammad et al. (2013) claim that the efficient application of ICT enhances employee productivity and service quality, which in turn increases customer satisfaction and overall business performance.

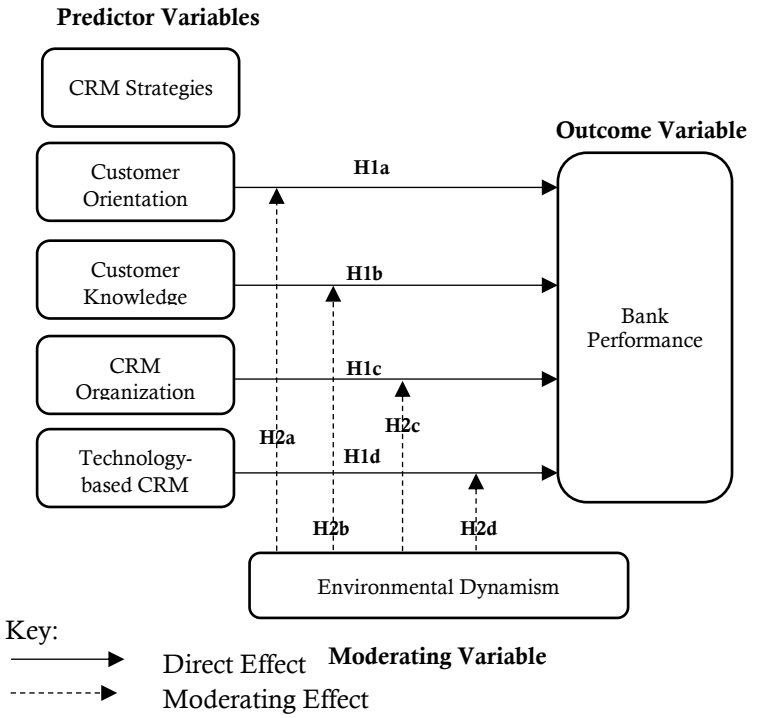
Contrarily, Sofi et al. (2020) and Santouridis and Tsachtani (2015) argue that technology-driven CRM has insignificant effect on business performance. In a constantly changing market environment, especially in the developing countries, Tanzania inclusive, regular alterations in innovation and technology usually occur (Agyapong et al., 2020; Purwanti et al.,2022), providing justification for the current study's assessment of the effect of ED in the TBCRM-CBs' performance nexus. Therefore, it was hypothesized that:

H1d: *Technology-based CRM positively influence performance of commercial banks.*
H2d: *Environmental dynamism moderates the influence of technology-based CRM on performance of commercial banks.*

Conceptual Model

Based on the theoretical and empirical literature review, it can be argued that that there are relationships between CRM dimensions and performance of CBs. Additionally, it was anticipated that the link between CRM and performance of CBs can be interacted by ED as depicted by a conceptual model in Figure 1.

Figure 1: Conceptual Model



Source: Literature Review (2024)

Methodology

Research Design and Data Collection

Grounded on the ontology of objectivism, this paper aim to confirm theories that firms' success is determined by internal resources and the settings in which they operate dictates the most effective way of their structure, operation and performance achievement (Saunders et al., 2019; Penrose,1959; Fieldler,1964). The study aligns with the positivist perspective, which asserts that truth exists independently and is waiting to be uncovered (Ragab & Arisha, 2018). It employed a quantitative method with a deductive approach to test the proposed hypotheses. Based on the objectives of the study to examine cause-effect relationship between CRM, CB's performance and ED, a cross-sectional explanatory research design was adopted. (Bhattacharjee, 2012).

Data were gathered from employees across various departments including sales and marketing, customer service, customer relationship, operations, credit, ICT, and management of the CBs operating in Tanzania. These departments were selected because their staff are directly involved in the adoption, implementation and evaluation of CRM practices (Kessy, 2019). More precisely, reliable information for a research project emanates from cases that are principally informative (Saunders et al., 2019). Therefore, CBs were units of analysis and staff in the selected departments were units of inquiry.

Population and Sampling Design

The sample size for unit of analysis (CBs) were calculated by the Yamane rule: $n = Z / [1 + Z (e)^2]$, where Z represents the population size, n is the sample size, e denotes the acceptable sampling error (Yamane, 1967). Since the population of CBs were known, that is 34 CBs (BOT, 2024), the sample size for CBs was 31 i.e., 34/ [1+(34 x 0.05 x 0.05)]. Research clearance letters were sent to all 31 CBs' management seeking for permission to interact with the staff (units of inquiry) in the selected departments. However, because of several factors including some of the banks' internal policies that prevent other parties from accessing information, data for a pilot study was collected from 3 CBs, which is 10% of the sample (Connelly, 2008), and data for a full-scale study from 19CBs, making a total of 22CBs participated in this study. This indicates a response rate of 71% (22/31CBs). The analysis and conclusion drawn from the study is still valid and reliable since the response rate was above 50% as recommended by Field (2009).

The actual sample size needed (n^a) for units of inquiry (respondents) was calculated by $[(n^a) = (N \times 100)/re\%]$, in which N is the minimal sample size needed while re denote projected percentage response rates (Saunders et al., 2019). Moreover, Baruch and Holtom (2008) suggest that for scholarly research involving representatives of organizations, the response rates of 35 to 40 percent are typically expected. Similarly, general guidelines for response rates across disciplines, indicate a mean response rate of 35% for studies in the marketing fields (Mellahi & Harris, 2016). Furthermore, a minimum sample size needed (N) of $N \geq 50+8m$ is required for analyzing multiple correlations among variables (Tabachnick & Fidel., 2007), in which m represent the amount of predictor constructs. Since this study has four (4) predictor constructs, then by this formula, the minimum sample size needed (N) was 82 i.e., $N \geq 50+8(4)$. Therefore, the actual sample size needed for this study, based on a 35% expected response rate, was 234 i.e., (82×100)/35. However, to account for potential limitations and errors, such as non-responses, a total of 380 self-administered structured questionnaires were distributed to respondents. Out of 380 distributed questionnaires 288 were returned, nonetheless 16 were not included in the analysis because of erroneous entries, making a response rate of 72% (272/380) which is acceptable based on the claim that a response rate of more than 50% is adequate (Field, 2009).

Operationalization of the Variables

Predictor constructs customer knowledge management, CRM organization with 7 indicators each, and customer orientation, technology-based CRM with 6 indicators each were adopted from Mohammad et al. (2013), Akroush et al.(2011), and Sin et al. (2005). Outcome variable (CBs performance) adopted from Mohammad et al. (2013), was measured using 9 indicators, and the moderator variable environmental dynamism with 7 indicators was adopted from Agyapong et al. (2020), and Cheraghalizadeh et al. (2021). All indicator items were measured using a five-point Likert scale, ranging from 5 (strongly agree) to 1 (strongly disagree), to collect the required information.

Results

Descriptive Statistics

Respondents' attributes were crucial for accuracy and consistency of the information they provide on behalf of their banks because respondents' non-biased structure leads to non-biased data. The sample's descriptive statistics were 129(47%) male and 143(53%) female, suggesting approximately equal gender participation in the study, hence no bias. 69(25%) of the respondents were between the age18-30 years, 149(56%) between 31- 42, 46(17%) between 43-55, and 8(2%) were above 55 years. In terms of level of education, 1(0.4%) respondent was college certificate holder, 20 (7%) diploma, 192(71%) bachelor's degree, 59(21.6%) master's degree, and none was a PhD. These statistics show that over 99% of respondents held educational qualifications ranging from a diploma to a master's degree, signifying a strong ability to understand the research tools and provide meaningful feedback.

Respondents with 3 years' experience with the particular bank were 71(26%), 59(22%) had an experience of between 3-5 years, and 142(52%) had an experience of more than 5 years. By having a total of 74% respondents who had an experience of more than 3 years with the particular bank implies that they have better understanding of the bank's CRM practices in relation to its performance as well as how the relationship is interacted by ED. Results show that, 57(21%) of respondents were from customer relationship management department, 28(10%) from sales and marketing, 18(7%) from ICT, 33(12%) from customer service, 87(32%)

from operations, 32(12%) from credits, and 17(6%) were branch managers, implying fair representation across departments as well as that data were collected from departments that are directly involved in the adoption, implementation and evaluation of CRM practices as suggested by Kessy (2019). Number of respondents per each bank was as follows ABSA 10(3.7%), ACB 10(3.7%), Amana 9(3.3%), Azania 15(5.5%), Baroda 10(3.7%), Bank of India 10(3.7%), CRDB 31(11.4%), DCB 11(4%), DTB 11(4%), EcoBank 10(3.7%), ICB 8(3%), KCB 9(3.3%), MCB 14(5.3%), Mkombozi 8(3%), NBC 30(11%), NCBA 30(11%), Stanbic 8(3%), TCB 28(10.3%), and UBA 10(3.7%), indicating fair representation.

Table 1: Measurement Model's Reliability and Validity Results

Constructs	Indicators	Indicator Loadings	Cronbach Alpha	Rho_a	Rho_c	AVE	HTMT
CO	CO1	0.805	0.873	0.879	0.905	0.616	< 0.90
	CO2	0.836					
	CO3	0.79					
	CO4	0.829					
	CO5	0.785					
	CO6	0.647					
CKM	CKM1	0.807	0.883	0.886	0.909	0.589	< 0.85
	CKM2	0.816					
	CKM3	0.785					
	CKM4	0.781					
	CKM5	0.784					
	CKM6	0.705					
	CKM7	0.683					
CRMO	CRMO 1	0.727	0.898	0.905	0.92	0.623	< 0.85
	CRMO 2	0.831					
	CRMO 3	0.701					
	CRMO 4	0.834					
	CRMO 5	0.792					
	CRMO 6	0.795					
	CRMO 7	0.833					
TBCRM	TBCRM1	0.748	0.881	0.881	0.91	0.627	< 0.85
	TBCRM2	0.836					
	TBCRM3	0.825					
	TBCRM4	0.766					
	TBCRM5	0.791					
	TBCRM6	0.784					
ED	ED1	0.812	0.885	0.899	0.911	0.595	< 0.85
	ED2	0.828					
	ED3	0.762					
	ED4	0.775					
	ED5	0.825					
	ED6	0.589					
	ED7	0.781					
BP	BP1	0.6	0.9	0.909	0.919	0.56	< 0.85
	BP2	0.794					
	BP3	0.695					
	BP4	0.791					
	BP5	0.844					
	BP6	0.779					
	BP7	0.708					
	BP8	0.728					
	BP9	0.769					

Source: Data Analysis (2024)

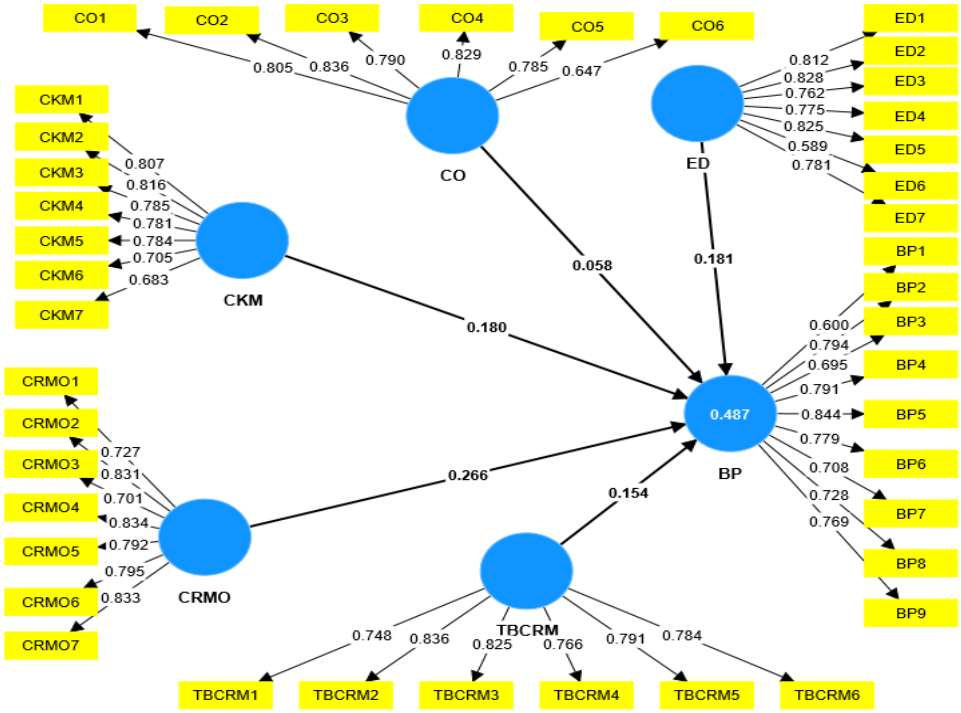
Note: BP – bank performance, CKM – customer knowledge management, CO – customer orientation, CRMO–CRM organization, TBCRM – Technology-based CRM, and ED-Environmental Dynamism

Measurement (Outer) Model Evaluation

The study employed Smart PLS 4.0.9.5 software to perform partial least squares structural equation modelling (PLS-SEM). When assessing reflective measurement models, it is essential to consider construct and indicator reliability scores including Cronbach's alpha (CA) and composite reliability (CR) measures (Becker et al., 2023; Matthews et al., 2018). the heterotrait-monotrait (HTMT) correlation ratio (Hair et al., 2021; Henseler et al., 2015).

Results in Table 1 indicates that the model is reliable since internal consistency measure (CA), CR measures (Rho_c and Rho_a) were above the cut-off-point 0.7 (Hair et al., 2019; Shrestha, 2021). Moreover, the model is valid since the AVE and loadings of items of all constructs were above the threshold 0.5 and 0.7 respectively (Hair et al., 2019; Shrestha, 2021). Indicator CO7 found to have loadings of 0.257, below the prescribed threshold of at least 0.4 (Hair et al., 2011), thus it was removed from the model (Figure 2). The HTMT ratio was within the required threshold i.e., below 0.85 or below 0.90 (Henseler et al., 2015), confirming that the model is valid.

Figure 2: Measurement Model Output Showing Indicator Loadings and Path Coefficients



Source: Data analysis (2024)

Assessments of the Structural (Inner) Model

After testing the validity and reliability of the measurement model, the hypotheses were confirmed by examining the structural model (Hair et al., 2019). Before proceeding to this stage, the variance inflation factor (VIF) was determined to assess the multicollinearity of the model (Shrestha, 2020). All values were within the tolerable cut-off points i.e., less than 3 to less than 5, which indicates absence of multicollinearity (Hair et al., 2019; Shrestha, 2020), as indicated by the results (Table 2).

Table 2: Multi-Collinearity Assessment (Variance Inflation Factors)

Paths	VIF	Multi-Collinearity Issue
CO > BP	2.657	Not an issue
CKM > BP	3.032	Not an issue
CRMO > BP	3.088	Not an issue
TBCRM > BP	2.421	Not an issue
ED > BP	1.375	Not an issue

Source: Data analysis (2024)

Direct and moderated hypotheses were then tested. The results of hypotheses testing for direct effects (Table 3), revealed a positive and significant influence of variables CKM, CRMO and TBCRM on CBs' performance. Hence, hypotheses *H1b, H1c* and *H1d* were supported. However, results show that variable CO had positive but insignificant influence on CB's performance. Hence, *H1a* was not supported.

Table 3: Direct Relationship Hypotheses Testing

Paths and Hypotheses	β- coefficients	SE	T-statistic	P-value	Decisions
H1a: CO - > BP	0.030	0.075	0.406	0.342	Not Supported
H1b: CKM - > BP	0.185	0.090	2.061	0.020	Supported
H1c: CRMO - > BP	0.301	0.084	3.568	0.000	Supported
H1d: TBCRM - > BP	0.123	0.072	1.750	0.040	Supported

Source: Data analysis (2024)

Additionally, this study assessed if ED moderates the relationship between CRM factors and CBs' performance. Moderation analysis was performed using product-indicator PLS-SEM approach. According to Hair et al. (2017), product-indicator approach is applicable when the exogeneous construct and/or moderator construct are measured reflectively. Results in (Table 4), indicate that ED negatively and significantly *(p=0.034; ß=-0.12; CI=-0.238 to -0.018)* moderates the relationship between CO and CBs' performance. Hence, *H2a* was supported. The results also indicated that ED positively moderates CKM-CBs' performance relationship, although the effect is not significant *(p = 0.182; ß = 0.067; CI=-0.052 to 0.183).* Hence, *H2b* was unsupported. Furthermore, results indicate that ED positively moderates CRMO-CBs' performance relationship, with the effect being significant *(p=0.094; ß = 0.114; CI = 0.022, 0.261)* based on 95% CI criteria (Hair et al., 2021). Additionally, ED found to negatively moderate TBCRM-CBs' performance relationship, but the influence is insignificant *(p = 0.142; ß = 0.088, CI=-0.231 to 0.042)*. Hence, *H2d* was unsupported. Based on bootstrapping confidence interval (CI) criterion analysis, results indicated that the CI for *H2a* (CI = -0.238 to -0.018) and *H2c* (CI = 0.022 to 0.261) did not include zero in between lower and upper limits, justifying existence of significant moderating effect (Hair et al., 2021).

Table 4: Moderation Relationship – Hypotheses Testing Results

					Bootstraps at 95% CI		
Paths and Hypotheses	**β-coefficients**	**SE**	**P-values**	**f^2**	**Lower limits**	**Upper limits**	**Decision**
H2a: ED x CO -> BP	-0.120	0.066	0.034	0.010	-0.238	-0.018	Supported
H2b: ED x CKM -> BP	0.067	0.074	0.182	0.003	-0.052	0.183	Not Supported
H2c: ED x CRMO -> BP	0.114	0.086	0.094	0.008	0.022	0.261	Supported
H2d: ED x TBCRM -> BP	-0.088	0.082	0.142	0.006	-0.231	0.042	Not Supported

Source: Data analysis 2024

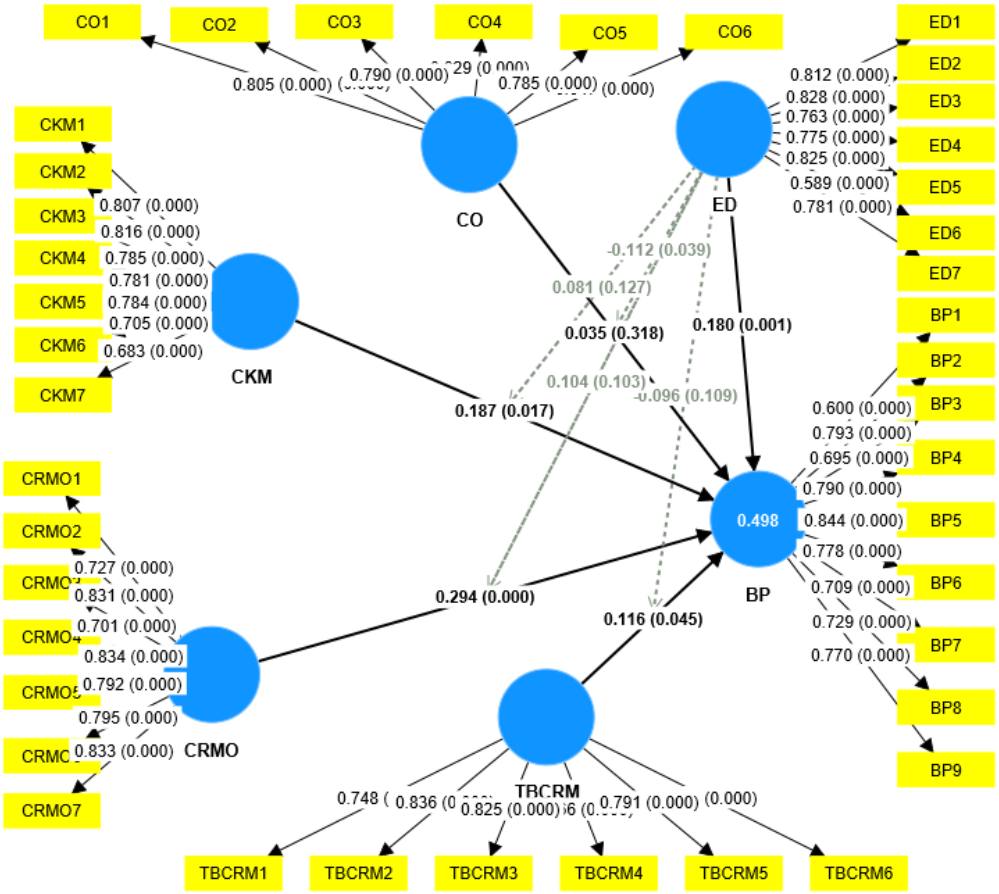
By computing the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2 predict), the explanatory and predictive capabilities of the structural model is evaluated (Hair et al., 2019). From the results (Table 5 and Figure 3), an R^2 score of 0.498 implies that the model has a reasonable explanatory power (Hair et al., 2011) suggesting that approximately 50% of CBs performance is explained by the predictor variables. Values of f^2 suggests that removing predictor variables CO (f^2 = 0.001) and TBCRM (f^2 = 0.011) from the model have no impact on the outcome variable (BP) because the values fall below the small threshold. i.e., 0.02 (Cohen, 1988). However, removing variables CKM (f^2 = 0.019), CRMO (f^2 =0.051), and ED (f^2 = 0.041) have negligible size of effect, as they fall within the small cut-off-point (Cohen, 1988). Furthermore, the structural model's prediction accuracy of new or future observations is significant since the values of Q^2 predict are greater than zero (Q^2>0), implying that the model can accurately predict future observations (Hair et al., 2021).

Table 5: Structural Model Explanatory and Predictive Power Outcomes

Construct	R^2	R^2 adjusted	f^2	Indicators	Q^2predict
BP	0.498	0.481		BP 1	0.174
CO - > BP			0.001	BP 2	0.336
CKM - > BP			0.019	BP 3	0.176
CRMO - > BP			0.051	BP 4	0.286
TBCRM - > BP			0.011	BP 5	0.360
ED - > BP			0.041	BP 6	0.315
				BP 7	0.129
				BP 8	0.235
				BP 9	0.215

Sources: Data analysis 2024

Figure 3: Structural Model's Output (R^2, p-values and path coefficients)



Source: Data analysis (2024)

Discussions of the Findings

This paper aimed to provide a reflection into the RBV and structural contingency theories in explaining the effect of ED on performance of CBs as driven by CBs' commitment of resources to CRM strategies. The results (Table 3), shows that customer orientation (CO) positively but non-significantly influence CBs' performance. These results align with those of Becker et al. (2010) and Rafiki et al. (2019), but contrary to Bhat and Darzi (2016), Lebdaoui and Chetioui (2020), Nasution and Rafiki (2018), and Soltani et al. (2018) who found positive and significant relationships. Positive but insignificant findings suggest that CBs' commitment of resources to a CO strategy may not necessarily guarantee higher performance of the Tanzanian CBs. One of the main concerns with CRM is orientation to customer needs and preferences, which may have led CBs focus more on pre-conceived needs and preferences while neglecting changing needs caused by ED, ultimately lowering CO effect on performance (Frambach et al., 2016).

This study observed significant positive link between variables customer knowledge management (CKM), CRM organization (CRMO), technology-based CRM(TBCRM) and CBs' performance. CRMO being the strongest performance predictor (*ß =0.301*), followed by CKM (*ß =0.185*), and TBCRM (*ß =0.123).* The results are similar to prior literatures by Akroush et al. (2011), Bhat and Darzi (2016), Kebede and Tegegne (2018), Mohammad et al. (2013), and Soltani et al. (2018). These findings highlight that CBs' investment in CKM, CRMO and TBCRM strategies/practices results in enhanced performance, justifying the RBV theory. Specifically, the results suggest that investing in CKM enables CBs to better understand customer needs and preferences, leading to more effective and efficient service delivery, hence overall performance improvement. This can be achieved through three strategies: knowledge for clients (i.e., knowledge given to clients to meet their needs), knowledge about clients (comprehending clients' preferences and behaviors), and knowledge from clients (insights gained from clients, ideally via direct contacts) (Meher & Mishra, 2019). Investment in CKM also allows CBs to identify clients' grievances, which offers CBs with opportunities to uncover internal deficiencies. This, in turn, helps develop effective recovery strategies for customer

retention, because retaining existing customers is more cost-effective than acquiring new ones (David & Aaker, 2011).

In addition to that, CBs invest in CRMO by recruiting personnel with the pertinent skills and capacities as well as equipping them with contemporary tools and technical know-how. They also invest in regular staff training, effective employee reward system, and proper systems for tracking customer satisfaction and managing complaints. Also, investment in TBCRM plays a crucial role in automating customer touchpoints to ensure that necessary clients' information is gathered, accurately translated, and utilized for the benefit of CBs, as revealed by this study. This aligns with Buttle and Maklan (2019), who described that technologies such as computer-aided design, CRM software, flexible systems, and just-in-time production databases allow organizations to manage customer data and interactions effectively.

The study examined whether the relationship between CRM dimensions and CBs' performance is moderated (either strengthened or weakened) by ED. Results (Table 4) indicate that the influence of variables CO and TBCRM on CBs' performance were negatively moderated (weakened) by ED. These results echo the findings by Abrar et al. (2019). By reflecting the structural contingency theory, negative moderation effect means that CO and TBCRM strategies did not match effectively with ED, resulting in weakening of their effect on CBs' performance. This means the strategic-fit paradigm was not achieved. The results suggests further that the changing nature of banking environment in Tanzania, are not in favor of the current CBs' CO and TBCRM strategies. Moreover, findings (Table 4) illustrate that ED strengthens (positively moderates) the effect of CKM and CRMO strategies on CBs' performance. Consistent to the current study's findings, Purwanti et al. (2022) revealed a related course. Reflecting the structural contingency theory, positive moderation effects indicate achievement of strategic-fit paradigm between CKM, CRMO, and ED, postulating that the strategies effectively match with ED. This implies further that the changing nature of environmental factors in the Tanzanian banking sector are in favor of the present CKM and CRMO strategies in influencing CBs' performance.

Conclusions and Recommendations

The study examined how CRM practices are linked to commercial banks' performance, as well as how this relationship is influenced by environmental dynamism. Using survey data from 272 respondents of 19 CBs, the study established that customer knowledge management, CRM organization, and technology-based CRM have positive significant impact on CBs' performance. However, customer orientation had positive but insignificant effect on CBs' performance. Additionally, ED was found to positively moderate the impact of customer knowledge management and CRM organization on CBs' performance, while negatively moderating the influence of customer orientation and technology-based CRM dimensions. These insights can guide both theoretical advancements and practical strategies for improving CBs' performance in a dynamic market condition.

Theoretically, the results of this study contribute to the present body of knowledge of CRM and CBs' performance fields by extending the RBV theory through explanation of how CRM practices affect CBs' performance in the context of developing economies that have relatively higher unpredictable market environmental factors. Additionally, the structural contingency theory, via the moderating role ED, provides a valued theoretical extension for studying the multifaceted relationships in CRM and CBs' performance. This is the case because earlier researches in the developing economies have primarily examined these relationships from a direct perspective, ignoring the moderation effect of ED. From a practical and managerial perspective, this study highlights several key considerations by CBs' management teams, policy-makers, and decision-makers in the process of resources allocation. Explicitly, they have to recognize that customer knowledge management, CRM organization, and technology-based CRM practices are essential for influencing performance of their banks, as these practices have a positive and significant impact on CBs' performance. Additionally, they should be mindful that while the customer orientation strategy has insignificant influence on CBs' performance, warranting caution in allocating substantial resources to this strategy. Furthermore, because of the negative moderating effect of ED on the two strategies i.e., CO and TBCRM on CBs' performance relationships, which implies non-fit between the strategies and TBCRM, the management team should research on the actual customer needs and preferences as well as technological innovations that fits the changing market environmental factors.

The study acknowledges several limitations that should be considered. First, since the survey was limited to CBs, caution should be exercised when generalizing the findings to other types of banks. Thus, future research should expand the investigation to include other types of banks. Second, this study used a cross-sectional research design, which does not capture the longitudinal impact of CRM and ED on CBs' performance. Therefore, future studies should consider a longitudinal approach to explore the long-term effects of these variables. Third, from the findings that CO has no significant effect on CBs' performance, suggest that CO may have a significant impact on other variables within CBs that were not addressed in the current study. This highlights the need for further research to explore the exact role of CO as it remains one of the key components of CRM in CBs. However, despite the aforementioned constraints, the study's results preserve reliability and validity in explaining the impact of key CRM dimensions and ED on CBs' performance in the developing economies, particularly Tanzania.

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