



Role of Green Organisational Culture in the relationship between Adaptive Capabilities and Competitive Advantage: A study of Commercial Banks in Kenya

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Abstract

Adaptive capabilities are theorised to be associated with competitive advantage contingent on organisational culture. Within Kenya's commercial banking sector, marked by an evolving green regulatory landscape, Green Organisational Culture (GOC) may strengthen or weaken the association of Adaptive Capabilities (AC) on Competitive Advantage (CA), an area which is underexplored. This study examined GOC's moderating and mediating role in this relationship, guided by Dynamic Capabilities Theory and Organisational Culture Framework. A positivist, explanatory, cross-sectional quantitative research design covering commercial banks in Kenya. 205 primary data points using structured questionnaires from senior management were used in analysis. PLS-SEM results confirmed significant direct association of AC and CA and on GOC, as well as significant direct association of GOC and CA. The interaction of GOC with AC was insignificant, while the indirect role of AC on CA via GOC was statistically significant, confirming the mediating role of GOC. So, GOC relates with the competitive advantage indirectly, through adaptive capabilities rather than through direct moderation. The study recommends integrating GOCs into strategic frameworks, technology uptakes, and practices. The study contributes to the empirical extension of theory in an understudied geographical and sectoral context. The results signal in favour of policy development on GOCs.

Introduction

In an increasingly volatile, unpredictable, complex and ambiguous business environment, organisations must develop adaptive capabilities to address disruption, evolving customer expectations, regulatory complexity, globalisation, and competitive pressures. Dynamic capabilities enable firms to sense environmental changes, seize emerging opportunities, and reconfigure resources to attain competitive advantage (Teece, 2023). According to the dynamic capability perspective, the capacity to integrate and build competencies is associated with competitive advantage in rapidly changing markets (Teece et al., 1997; Helfat, 2022). Specifically, continuous adaptation is critical to attain competitive advantage (Barney, 1991; Teece, 2019).

Dynamic Capabilities Theory posits that adaptive capabilities underpin sustained competitive advantage by enabling firms to sense opportunities and threats, seize emerging opportunities, and reconfigure resources in response to environmental change (Teece, 2019, 2023). Adaptive capability supports strategic alignment and organisational resilience. Empirical evidence consistently



demonstrates that adaptive capabilities enhance organisational performance and competitive advantage across diverse contexts (Kuo, 2024; Arraya, 2024).

Growing concerns surrounding environmental sustainability have compelled organisations to integrate green considerations into strategic and operational decision-making however the regulatory framework is complex and management uncertain of the impact on business performance (PwC, 2025). Consequently, green organisational culture, characterised by shared values, norms, and practices that foster environmental responsibility, has emerged as a strategic imperative (Cyfert et al., 2021). Such cultures enhance employee commitment to sustainability, promote green innovation, and support environmentally sustainable practices, thereby strengthening organisational capabilities and improving performance outcomes (Denison & Mishra, 1995; Cyfert et al., 2021).

The concept of green organisational culture extends this perspective by emphasising adaptation and alignment of organisational cultural values with emerging environmental sustainability demands (Cristofaro et al., 2025). Consequently, organisations that have a green organisational culture may strengthen the effectiveness of adaptive capabilities in generating competitive advantage on the basis that stakeholder legitimacy is enhanced, customer loyalty is stronger and develop unique solutions (Helfat et al., 2023).

The banking industry faces sustainability imperatives requiring integrating environmentally responsible sustainable operations, and regulatory compliance into strategy (PwC, 2025). Globally, green banking initiatives serve as strategic mechanisms for mitigating environmental impacts while enhancing operational efficiency and institutional reputation (McKinsey, 2023). In Kenya, digital transformation, fintech innovation, regulatory reforms, and evolving customer expectations continue to reshape the sector, increasing the strategic importance of a green organisational culture as a source of competitive advantage (CBK, 2025; KBA, 2025).

Despite strategic management literature presenting association between adaptive capabilities and organisational performance, empirical evidence on the moderating and mediating role of green organisational culture remains limited within Kenyan commercial banks. Existing studies predominantly examine direct association, overlooking contextual moderators and mediation mechanisms. Moreover, systematic reviews report inconsistent findings, with positive effects in some settings (Abbas & Khan, 2023; Al-Hakimi et al., 2022) and negative or insignificant effects in others (Qu et al., 2022). Consequently, evidence on green organisational culture as a moderator and mediator remains scarce, particularly in the Kenyan banking sector (Bogale & Debela, 2024).

The aim of the study addresses this knowledge gap by examining the moderating and mediating role of green organisational culture (GOC) on the relationship between adaptive capabilities and competitive advantage in Kenyan commercial banks. Culture is conceptualised with reference to literature of Aggarwal and Agarwala (2025) and Denison and Mishra (1995), with the study providing a robust framework to understand GOC's moderating and mediating role in strengthening the strategic benefits of adaptive capabilities. The findings are expected to advance dynamic capabilities and strategic management literature while offering practical insights for banking executives and policymakers seeking to enhance competitiveness and promote environmental sustainability.

In addition to possible moderation, GOC can also act as a mechanism through which adaptive capabilities are translated into competitive advantage, i.e., a communication mediator (Cristofaro et al., 2025). Moreso, Kenya's banking sector is structurally heterogeneous, the regulator classifies commercial banks into tiers (Tier 1, 2 and 3), reflecting differences in the scale of assets, resource base and organisational maturity (CBK, 2025). This heterogeneity suggests that competitive advantage may vary significantly between bank tiers, rather than being evenly distributed across the industry (Helfat



et al., 2023). Accordingly, the present study expands the analysis by testing not only the moderating role of GOC, as well as the differences in competitive advantage between bank tiers.

Statement of the Problem

Kenyan commercial banks continue to demonstrate varying levels of competitive performance with reference to adaptive capabilities, indicating that such capabilities may not independently generate competitive advantage and that contextual factors may play a role in their effectiveness (Cristofaro et al., 2025). Although existing research reports a positive association between adaptive capabilities and competitive advantage, it predominantly focuses on direct association, with limited examination of underlying mechanisms and contextual contingencies (Cyfert et al., 2021). Consequently, nature of effectiveness remains insufficiently understood.

The increasing global focus on environmental sustainability has compelled organisations to embed green principles within strategy (CBK, 2025). Green organisational culture, defined as the continual alignment of organisational values, norms, and practices with green objectives, may strengthen banks' adaptive capabilities and competitive advantage (Cristofaro et al., 2025; Helfat et al., 2023). However, evidence regarding its role in terms of moderating and mediating remains inconclusive, with studies reporting positive (Abbas & Khan, 2023), mixed (Khaksar et al., 2023), partial (Qu et al., 2022). Moreover, prior research has largely examined adaptive capability constructs independently and the role of GOC seldom studied within sub-Saharan African banking contexts (Aggarwal & Agarwala, 2025).

The moderating and mediating role of green organisational culture in the relationship between adaptive capabilities and competitive advantage among Kenyan commercial banks remains inadequately understood. This knowledge gap limits the development of strategies that effectively align competitive advantage with sustainability objectives. Accordingly, this study investigates the association of adaptive capabilities and competitive advantage and moderating and mediating role of green organisational culture, as well as differences in competitive advantage between bank tiers. The findings contribute to Dynamic Capabilities Theory and strategic management literature while informing sustainability-oriented adaptation in Kenya's banking sector.

Theoretical Review

Dynamic Capabilities Theory (DCT) underpins this study by explaining how organisations attain competitive advantage in dynamic environments through sensing opportunities, seizing via strategic resource allocation, and capabilities to align with environmental change (Teece et al., 1997; Teece, 2007). DCT assumes that competitive advantage derives from effective responsiveness to change through adaptation (Teece, 2007). The theory emphasises managerial competence, and continuous learning as critical mechanisms for capability development and sustained competitiveness (Teece 2023).

Adaptive capabilities are a critical dimension of dynamic capabilities, reflecting an organisation's ability to adjust strategically to disruptions, evolving customer needs, technological advancements, and competitive pressures (Helfat, 2022). DCT posits that such capabilities enable firms to respond to environmental changes more effectively than competitors, thereby enhancing competitive advantage (Cristofaro et al., 2025). Given the dynamic conditions characterising Kenya's banking sector, DCT provides an appropriate lens for examining the relationship between adaptive capabilities and competitive advantage among commercial banks.

The Denison Organisational Culture Framework asserts that organisational effectiveness is influenced by four interrelated cultural dimensions: involvement, consistency, adaptability, and mission (Denison & Mishra, 1995). The framework contends that high-performing organisations balance



internal integration with external adaptation while maintaining strategic alignment. It further posits that culture is measurable, performance-enhancing, and instrumental in facilitating responsiveness to environmental change, making it a pertinent lens for examining green organisational culture (Denison & Mishra, 1995).

The Denison Organisational Culture Model explains organisational culture and informs Aggarwal and Agarwala (2025) operationalisation of GOC which is adopted in this study to examine the moderating and mediating role of green organisational culture (GOC) in the relationship between adaptive capabilities and competitive advantage in Kenyan commercial banks. GOC speaks to the shared values and beliefs on greening with Dynamic Capabilities Theory recognises culture as a contextual determinant of the effectiveness of organisational capabilities (Helfat et al., 2023; Teece, 2023), GOC (shared values and beliefs) is posited to enhance capability (skills, processes and resources) deployment and competitive advantage when sufficiently institutionalised (Pennetta et al., 2024; Teece, 2023).

Empirical Review

Abbas and Khan (2023), using SEM-AMOS on 402 respondents from Pakistan's manufacturing sector, found that green organizational culture significantly strengthened the relationship between green knowledge-management and organizational performance. Operationalized through green training, performance management, and process orientation, green culture reduced knowledge-management barriers and enhanced knowledge conversion, supporting Dynamic Capabilities Theory's proposition that institutionalised cultural norms facilitate capability mobilisation.

Hooi et al. (2022) reported green culture positively and significantly mediates the relationship between green human resource management and green organisational citizenship behaviour in the context of Taiwan's private universities. Similarly, Muisyo and Qin (2021) found that green innovation culture strengthened the relationship between green human resources and competitive advantage in China's manufacturing sector, while Kwarteng et al. (2022) confirmed positive moderation in Ghana but assessed organisational culture not GOC. These findings emerged from contexts characterised by mature, organically developed green cultures, unlike Kenya's predominantly regulation-driven adoption.

Contrary evidence suggests the context-dependent nature of green organisational culture. Khaksar et al. (2023), using the Denison framework in Australia's R&D sector, found that cultural consistency negatively moderated adaptive capability effectiveness, suggesting that entrenched norms may constrain flexibility. Similarly, Qu et al. (2022) reported partial moderation in China's hotel sector, while Do et al. (2025) found negative moderation of social sustainability orientation in Thai SMEs. Table 1 summarises the empirical review for quick analysis.

*Table 1: Empirical Matrix, Green Organisational Culture as Moderating Variable*

Scholar	Context	Method	Significant Finding	Gap addressed by present study
Abbas & Khan (2023)	Manufacturing and Service, Pakistan	SEM-AMOS (n=402)	+VE moderation of GOC on Green KM - Green innovation	AC as a broader construct and CA as DV. Kenya gap, Banking sector gap.
Aggarwal & Agarwala (2023)	Cross- industry, India	PLS-SEM (n=278)	GOC (diffusion and depth dimension) mediating role in the relationship between GHRM and EP is insignificant	Kenya and banking sector gap. AC as a multi-dimension construct. GOC moderator.
Al-Hakimi et al. (2022)	Manufacturing SMEs Saudi Arabia	Hierarchical regression analysis (n=328)	+VE moderating effect of GOC on Green Manufacturing practices - Corporate sustainable performance via Green Innovation	Kenya Gap, Banking sector gap.
Hooi et al. (2022)	Cross- industry, Taiwan	PLS - SEM (n=240)	Green culture mediates the relationship between GHRM and G-OCB	Africa & Banking sector gap. Moderating role GOC on AC-CA relationship
Muisyo & Qin (2021)	Manufacturing, China	SEM (n=324)	+VE moderation of GOC on HRM-CA	AC instead of HRM
Khaksar et al. (2023)	Research institutes, Australia	PLS -SEM (n=303, 41 firms)	Mixed outcomes on moderating impact of organisational culture on dynamic capability - productivity	Examination of 'green' organization culture
Kwarteng et al. (2022)	Multi-sector, Ghana	PLS-SEM (n=617)	+VE moderation of organisational culture	Banking Tiers Tested
Liu et al. (2021)	Manufacturing sector, China	Manufacturing, China (n=201 from 3 firms)	Environmental values +VE moderate Green HRM and Green Organisational Identity	Kenya gap, Banking sector gap. Large number of firms. Moderating role of GOC - AC and CA.
Qu et al. (2022)	Hotels and restaurants, North and East China	PLS - SEM (n=294)	GOC moderates relationship between green absorptive capacity and green process (significant)/ product innovation (not significant)	moderating role GOC with CA as DV. Kenya and banking sector gap.

Source: Author compilation from reviewed literature

(AC = Adaptive Capabilities, CA = Competitive Advantage, DV = Dependent Variable, G-OCB = green organizational citizenship behavior, KM = Knowledge-Management, HRM = Human Resource Management, +VE = Positive, -VE = negative)

Dynamic capability theory states that the ability of organisations to sense changes in the environment, seize emerging opportunities, and realign resources is associated directly with competitive advantage (Teece et al., 1997; Teece, 2007). Adaptive capabilities that integrate organisational learning, customer relationship management, human capital development, and innovation represent a practical manifestation of this dynamic (Cristofaro et al., 2025). Empirical studies in various industry contexts consistently record a positive relationship between adaptive capabilities and organisational performance (Kuo, 2024; Arraya, 2024), but there appears to be no direct empirical evidence of this relationship in the Kenyan banking sector.

H1: AC is significantly and positively associated with CA of Kenyan commercial banks.



Similarly, having a direct association with CA, AC can contribute to the formation of an organisational culture focused on sustainable development. Denison's structure suggests that the cultural attributes of an organisational; engagement, consistency, adaptability, and mission, evolve in conjunction with the company's capabilities (Denison & Mishra 1995). In the context of green transformation, this suggests that banks with more developed AC, can learn faster, build relationships, and innovate faster. Further, they are more likely to institutionalise green practices, climate risk compliances, and green technologies, thereby forming a mature green organisational culture (Cristofaro et al., 2025; Helfat et al., 2023).

H2: AC is significantly and positively associated with GOC of Kenyan commercial banks.

Green organisational culture is considered in the literature not only as a contextual moderator, but also as an independent strategic resource that can directly increase the competitiveness of an organization by strengthening legitimacy among stakeholders, increasing customer loyalty, and reducing regulatory risks (Cyfert et al., 2021; Helfat et al., 2023). In the banking sector, where green regulation is becoming increasingly prescriptive (CBK, 2025), the institutionalisation of green practices can be directly translated into competitive advantage regardless of the level of adaptive capacity, reflecting the growing importance of environmental sustainability as an independent source of differentiation in the Kenyan banking market (PwC, 2025).

H3: GOC significantly and positively associated with CA of Kenyan commercial banks.

Dynamic capability theory also suggests that organisational culture can strengthen or weaken the effectiveness of adaptive capabilities by acting as a contextual moderator (Bogale and Debela, 2024). Empirical evidence on such a moderating role remains contradictory, with some studies recording positive amplification, whereas others report a negative or non-significant association. Given the relatively early stage of institutionalisation of green culture in the Kenyan banking sector, a moderating role of GOC on the relationship between AC and CA is theoretically expected, but empirically remains arguable.

H4: GOC significantly moderates the relationship between AC and CA.

In addition to moderation, GOC can also act as a connecting mechanism through which AC are converted into CA, i.e., a connecting mediator (Cristofaro et al., 2025). This is consistent with the logic of dynamic capability theory, where organisational perception and learning (sensing) shape a company's cultural and strategic orientations, which then enhance the ability to seize opportunities and resources allocated to achieve competitive advantage (Teece, 2007, 2023). Azeem et al. (2021) highlighted that supportive learning culture would help employees to build adaptive capacity. In return, adaptive capacity mediates the effect of culture on achieving competitive advantage. So, if adaptive capabilities contribute to the development of a GOC (H1), and green culture, in turn, is positively associated with CA (H3), then, logically, the GOC can act as a significant mediator of this AC-CA relationship.

H5: GOC significantly mediates the relationship between AC and CA.

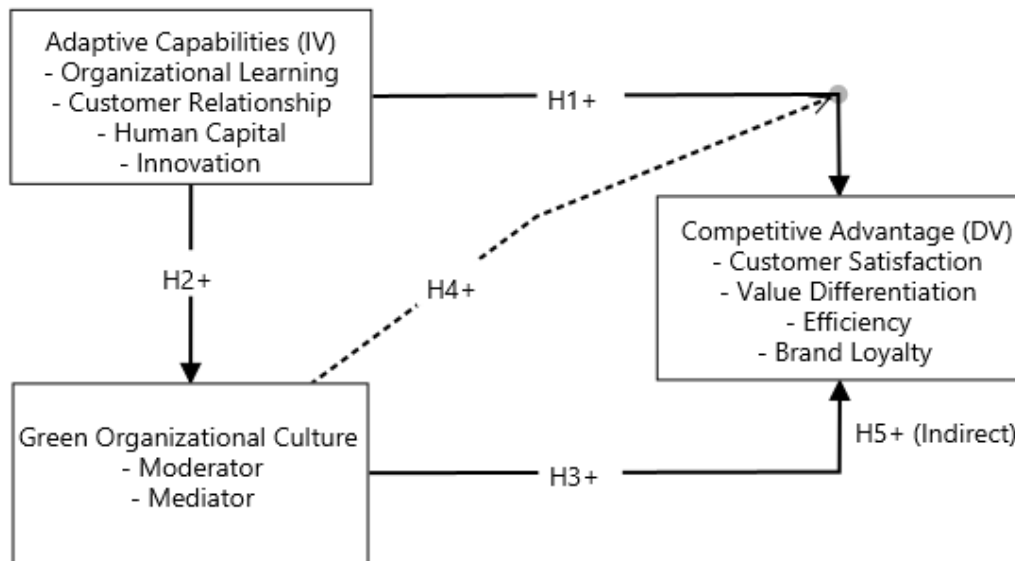


Figure 1: Hypothetical Framework

Research Methodology

Approval for the study was granted by ISERC (USIU-A/ISERC/US784-2025) and NACOSTI (REF NO. 532015). The research adhered to set standards of ethics and code of conduct, informants were advised of their rights and strict confidentiality was maintained. The study population comprised all 38 licensed commercial banks through stratified sampling by bank tier (Tier 1 – large banks, Tier 2 – medium size, Tier 3 – small banks) to enhance representation, with senior management serving as the informants (Helfat & Martin, 2015).

300 questionnaires were distributed with 205 responses usable from the primary data collected between August and September 2025 using electronic structured 5-point Likert scale questionnaires capturing demographic information (Table 2) and opinions related to the study variables. Quantitative data was analysed using SPSS version 27 for descriptive analysis such as mean, standard deviation and bivariate correlations and SmartPLS 4.0 to employ the PLS-SEM to test the hypothesis.

AC was measured adapting from the instruments developed by Vuori et al. (2023), Heubeck (2024), Corte et al. (2021) and Moreira et al. (2024). CA was measured adapting from the scales developed by Porter (1985) and Barney et al. (2021). While GOC was adapted from Aggarwal and Agarwala (2025) and validated questionnaire by Khaksar et al. (2023).

Results

Primary Analysis

This mainly covered the measures of central tendency which indicated that respondent generally agreed to the surveyed constructs (mean > 3). The bivariate correlations were positive and statistically significant ($p < .001$), being moderate to strong in strength (Cohen, 1988). Some of these bivariate correlations were on the higher levels ($r = 0.842$), nonetheless VIF being less than 3 suggested that such correlations are strong but not concerning. These aligned with the proposed hypothesis, so further analysis was justified. These correlations mimicked the pattern discovered by Teece (2023), which suggested that organisational culture and capability co-evolve (Table 3).



Table 2: Distribution of Informants and Banks

Characteristics	Category	<i>n</i>	%
Education	Bachelor's degree	80	39
	Master's Degree	119	58
	Doctoral Degree (PhD)	6	2.9
Position	CEO	7	3.4
	Head of Department	75	37
	Senior Manager	123	60
Work experience	< 5 years old	3	1.5
	6–10 years old	17	8.3
	11–15 years old	44	22
	> 15 years old	141	69
Bank Type	Public - local	81	40
	Private - Local	37	18
	Foreign	87	42
Bank level	Tier-1	156	76
	Tier-2	24	12
	Tier-3	25	12
Age of the bank	< 25 years old	16	7.8
	25–50 years old	75	37
	> 50th years	114	56

Note. *n* = frequency; % = share of *n* = 205.

Since this study used the bank types, an intraclass correlation coefficient (ICC [1]) was conducted to measure the proportion of total variance in CA was attributable to the differences between clusters (types). Results showed that ICC (1) of 0.051 or only 5.1% of the variance in CA was attributable to banks type membership, which was borderline with small group-level effect i.e., 5% (LeBreton and Senter, 2008). Therefore, group dependency was low with low clustering that could affect the results of subsequent analysis. In addition, the Levene's test confirmed the homogeneity of the variances between the groups. So, the results of the ICC and homogeneity test supported the use of individual observations in subsequent analysis. Harman's single factor analysis reported, KMO = 0.927, Bartlett's χ^2 (2145) = 11199.61, $p < .001$. Further, the results indicated that the first unrotated factor accounted for 40.07% of the total variance, which is below the commonly accepted threshold of 50% among the 66 pooled items, supporting the factorability of the correlation matrix (Kaiser, 1974). This jointly suggested that common method bias was not a major concern for this study (Hair et al., 2019; Podsakoff et al., 2003), see Table 3. Further, the high correlation ($r = .842$) between AC and CAD is acceptable as it reflects strong shared variance (71%) without threatening discriminant validity or multicollinearity.

Table 3: Descriptive, Correlational, ICC and Harman Single Factor Analyses

Variable	M	SD	AC	CA	GOC
AC	3.83	0.56	1		
CA	3.75	0.78	.842**	1	
GOC	3.88	0.76	.816**	.651**	1
ICC (1) / Levene's test			0.0513 / F(2, 202) = 0.381, $p = .684$		
Kaiser-Meyer-Olkin Test			0.927		
Bartlett's Test			$\chi^2(2145) = 11199.607, p < .001$		

N = 205, ** $p < .001$

**Measurement Model Assessment**

To assess the reliability and validity of the surveyed model, a number of crucial criteria were analysed. A Type-II reflective-formative model was adopted for AC as its dimensions formed it, while Type I reflective-reflective model was adopted for GOC and CA. Such mixed typology is advocated in PLS-SEM to be more appropriate for analysis (Sarstedt et al., 2019). Factor loadings reported to be > 0.5 threshold, Cronbach's alpha (CA) and composite reliability (CR) values were > 0.70 for all constructs, AVE was > 0.50 to mark the convergent validity, and Fornell-Larcker criterion confirmed discriminant validity (Table 4). Whereas for the formative construct i.e., AC the Relevancy of the outer loadings (>0.50) and significance ($p < .05$) was checked and confirmed, along with significance of the outer weights ($p < .05$) was also confirmed, as well as the collinearity of the indicators which was < 3.3 except for two indicators which still had VIF < 5 (Hair et al., 2019), see Appendix I. Taken together, these results confirmed the suitability of this model for hypothesis testing in succeeding stage (Hair et al., 2019).

Table 4: Reliability and Validity of the Measurement Model

Variable	Factor Loadings	Cronbach Alpha	CR	AVE	HTMT		Fornell-Larcker	
					CA	GOC	CA	GOC
CA	0.85 – 0.96	0.97	0.97	0.71	-	-	0.84	-
GOC	0.71 – 0.92	0.94	0.95	0.66	0.68	-	0.65	0.81

Structural Model Assessment

Hypothesis testing was carried out by employing 5000 subsamples of bias corrected bootstrapping with 95% confidence intervals (CI) with details presented Table 5 and Figure 2. The PLS-SEM results showed that AC had a positive and significant association with CA and GOC ($p < .05$), which confirmed that H1-H2 were supported. GOC also had similar association providing support to H3. Thus, all direct associations were approved. The interaction between AC and GOC was not statistically significant, therefore the role of GOC as moderator was not sustained, hence H4 is not supported. The interaction had a VIF of 1.030 which suggested no severe violations. The indirect relationship of AC with CA via GOC was positive and significant, providing support to H5. The indirect association of AC with CA significant, which marked this as partial mediation (Hayes, 2022).

Table 5: Hypotheses Results (H1-H5)

Path	β	95% CI	t	p	F ²	Result
AC → CA	0.666	[0.523, 0.776]	10.48	.000	0.506	H1: Sig.
AC → GOC	0.744	[0.661, 0.800]	21.497	.000	1.258	H2: Sig.
GOC → CA	0.157	[0.021, 0.305]	2.154	.031	0.028	H3: Sig.
AC x GOC → CA	0.011	[-0.049, 0.077]	0.333	.739	0.000	H4: n. s.
AC → GOC → CA	0.117	[0.015, 0.238]	2.089	.037	-	H5: Sig.*

Notes. Sig. = significant. n. s. = not significant. *Partial mediation.

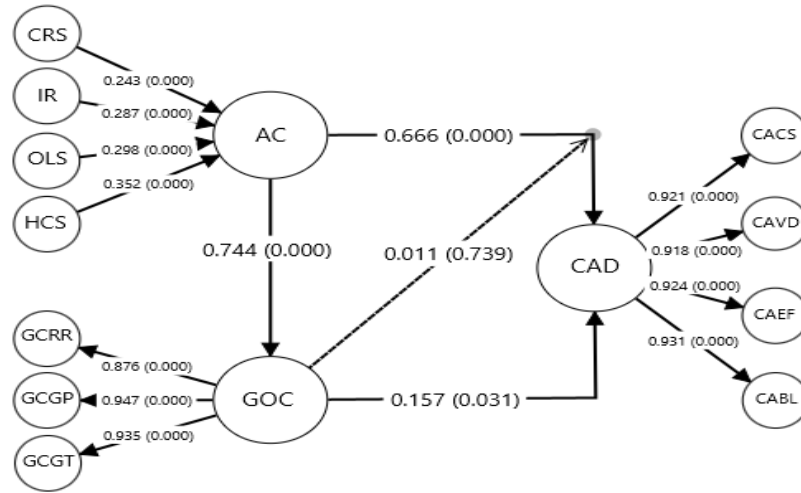


Figure 2: Statistical Model

Quality Features of the Structural Model

Higher R^2 values suggested a stronger influence of the exogenous variables on the endogenous constructs. VIF values were undertaken to estimate the potential presence of perturbing collinearity. The VIF values were well within an acceptable threshold, specifically < 3.3 (Kock, 2015), thereby these values confirmed the elevated level of model quality. The predictive relevance of the model was evaluated using the PLSpredict procedure (Sarstedt et al., 2019). The Q^2 values for all endogenous constructs were positive, which confirmed the predictive relevance of the model outside the training sample (Table 6). Additionally, the Cross-Validated Predictive Ability Test (CVPAT) was applied which compared the PLS-SEM model with the Indicator Average (IA) reference model. Negative loss difference values (ΔLoss) for all constructs indicated that the PLS-SEM model provided significantly lower prediction errors compared to the reference model, confirming its high predictive consistency (Hair et al., 2022; Liengaard et al., 2021).

Table 6: Structural Model Quality Indicators

Outcome	R-square	VIF	Q^2 Predict	CVPAT ΔLoss	t	p
CA	0.619	2.242	0.597	-0.362	6.882	0.000
GOC	0.551	1.000	0.548	-0.318	6.532	0.000

Notes. CVPAT ΔLoss = difference between the forecast loss of the PLS-SEM vs IA model.

One-way ANOVA method in SPSS results revealed that Levene's test was insignificant ($p = 0.492$), confirming the equality of variance across the banks tiers, which had statistically significant differences with a substantial effect size, which explained about 21.5% of the variation in competitive advantage among the bank tiers. Tukey's post-HOC HSD comparisons showed that all bank tiers differed significantly with Tier-1 showing more CA than Tier-2 and Tier-3, and Tier-2 being better than Tier-3, see Table 7.

Table 7: Bank Tiers Comparisons

Bank	N	M	SD	Comparison	MD	SE	p	95% CI
Tier 1	156	3.94	0.69	Tier 1 - Tier 2	0.47	0.152	0.007	[0.108, 0.827]
Tier 2	24	3.47	0.60	Tier 1 - Tier 3	1.07	0.149	$< .001$	[0.712, 1.418]
Tier 3	25	2.87	0.79	Tier 2 - Tier 3	0.60	0.198	0.008	[0.129, 1.066]
ANOVA					$F(2, 202) = 27.651, p < .001, \eta^2 = .215$			
Levene's Test					$F(2, 202) = 0.712, p = .492$			



Notes. MD = mean difference. SE = standard error. CI = confidence intervals.

Discussion

The results of this study significantly expand the understanding of the role of GOC in the Kenyan banking sector. Results show that AC has a strong direct association with both CA and the formation of the GOC itself. Further GOC, in turn, directly and significantly associates with CA. These results confirm the centrality of AC and indicate that GOC in the Kenyan banking sector is already serving a strategic function, rather than remaining a purely ceremonial superstructure.

Moderation of the GOC, however, could not be sustained. This lack of moderation is consistent with the findings of Qu et al (2022) in the hotel and restaurants sectors in North and East China but inconsistent with Muisyo & Qin (2021). From a DCT perspective, Teece (2023) acknowledged that organisational culture must reach a threshold of coherence and depth before it can serve as an amplifier of dynamic capabilities. The path dependency argument (Damaraju et al., 2023) suggests that in Kenya's banking sector, where green culture is externally imposed and recent in origin, the cultural embedding required for GOC to function as a positive moderator has not yet been attained. The GOC in the Kenyan banking sector has so far benefited from a focus on compliance and external regulatory requirements of the Central Bank of Kenya (CBK, 2025). Such a culture creates a direct and indirect contribution to competitiveness but does not yet have sufficient internal depth and rootedness necessary to perform the function of a catalyst (moderator) that enhances the return on adaptive abilities. This finding is also consistent with Damaraju et al. (2023), who noted that cultural moderation emerges over extended institutionalisation periods, and with Tahir et al. (2019), who established that green culture requires sustained embedding before its moderating effects become measurable.

A key theoretical contribution of this study is the discovery of the mediating mechanism of GOC (H5). The specific indirect role of GOC was statistically significant. Which indicates that the GOC serves as an important connecting bridge. Bank's adaptive capabilities are transformed into a sustainable competitive advantage, partly through the institutionalisation of environmental values, norms and practices. In the context of Denison's concept (Denison et al., 2014) and the modern interpretation of dynamic capabilities (Cristofaro et al., 2025), highly adaptable banks use their training and innovation routines to implement green compliance, green practices, and green technologies. This, in turn, relates with their higher legitimacy among customers and regulators, reduces environmental risks and ensures differentiation in the market.

Another meaningful result of the study is the pronounced heterogeneity of CA between the banks tiers. The systematic decline in competitive advantage from Tier 1 to Tier 3 is consistent with a resource-based perspective. Tier 1 banks have a broader resource base, mature governance structures, and a greater likelihood of affiliation with international groups, which is positively related with both their adaptive capabilities and their ability to convert a green culture into a competitive advantage (Helfat et al., 2023). This result indicates that organisational scale is a contextual factor that needs to be considered when interpreting the relationship between AC, GOC, and specially for CA.

Theoretical Implications

This study makes several key contributions to academic literature on AC, GOC and CA. First, the study contributes to the theory of dynamic capabilities by demonstrating that GOC, rather than a being moderator, it functions primarily as a mediator of the relationship between AC and CA, a clarification previously not well documented in the literature on GOC, contrary to the prevailing view of organisational culture solely as a contextual moderator. This expands on the theory of dynamic



capabilities by demonstrating the adaptive capabilities creates value through the formation of green values and practices.

Secondly extant literature on dynamic capabilities theory has principally focused on adaptation to technology related changes. The findings of this study enlarge Dynamic Capabilities Theory by incorporating environmental sustainability as a strategic dimension of organisational adaptation, thereby linking dynamic capabilities to sustainability-oriented competitive advantage.

Finally, this study identifies significant differences in CA between the bank tiers indicating that organisational scale and resource base act as an independent boundary condition for the effectiveness of adaptive capabilities, which expands the resource-oriented perspective in the context of emerging banking markets in order to determine the degree of success in transforming AC into CA.

Practical and Management Implications

Based on the empirical findings, this study recommends that banks should integrate green technology goals into their digital technology roadmaps transformation and link the implementation of green practices with performance management systems and leadership competency frameworks. Banks may need to shift their focus from just compliance to active adoption of green technologies so that its full role is pronounced more, which could be achieved by integrating environmental goals into personnel performance management systems. Second, since the GOC has a significant direct association and mediating role, banks should consider investments in a green culture; not as an addition to adaptive capabilities, but as an independent channel for improving competitiveness. Thus, considering GOC as a strategic asset not merely as a compliance cost.

Third, the pronounced gradient of CA between the banks tiers (Tier 1 > Tier 2 > Tier 3) indicates the need for targeted support for second and third-tier banks, for example, through joint industry programmes on knowledge and technology sharing of the Kenya Bankers Association and CBK, to reduce the gap in resource base and improve the overall resilience of Kenya's banking system. Fourth, At the industry level, the Kenya Bankers Association and CBK would establish an industry framework for the capacity development, providing especially smaller third-tier banks, which demonstrate the lowest level of CA. The CBK should extend the timeline for green regulation to ensure genuine implementation of the culture, not just ceremonial compliance. Finally, CBK should ensure a systematic, coherent and long-term Green Finance Taxonomy policy, allowing banks to gradually deepen the institutionalisation of GOC from external compliance to internal organisational values.

Limitations and Recommendations for Future Research

While interpreting the findings of this study certain limitations must be considered. A key limitation of this study is that its cross-sectional design which precludes the causal inference, future studies would apply longitudinal design to track the evolution of the GOC and its long-term moderating potential as the Kenyan market matures. Second, reliance on self-reported, informant-based data may introduce common method bias, although this study mitigated the same through rigorous sampling and bias testing. Third, future studies would supplement survey data with objective indicators such as the share of green loans in the portfolio, ESG rating metrics, and report on the CBK Green Finance Taxonomy.

Fourth, GOC was measured through the subjective perceptions of informants, objective indicators such as ESG or green lending were omitted, thus limiting the ability to independently verify the declared level of GOC. Future studies take this aspect into account as well. Fifth, Moderating role of AC $\times$ GOC failed with positive direction ($\beta = 0.011$), which is theoretically consistent with the expectation of a gradual increase in the moderating role of GOC (Damaraju et al., 2023), yet its practical significance remains extremely limited ($f^2 < 0.02$). Sixth, GOC is a promising area of research



which remains understudied. While this study found that the moderating role of GOC was insignificant, other studies have reached contrary outcomes hence further studies are required. Further future studies should explore a moderated mediation model to build knowledge on GOC. In addition, this study highlights banks tiers differed at CA, but an open question remains on whether they also differ when mediation equation ($AC \rightarrow GOC \rightarrow CA$) is in place, so testing the same is also called for. Finally, a methodological limitation is also present regarding potential clustering, data were gathered across 38 banks but bank level cluster-robust standard errors could not be estimated due to the omission of bank tags for the anonymity of the respondents. ICC indicated that 5.1% of the variance in CAD was associated with bank type (vs 94.9% with individual-level), yielding a design effect of 1.22, and approximately 11% inflation. Future multi-level research designed to compare institutional structures (e.g., tiers), should incorporate cluster-robust estimations.

Conclusion

This study adds to the rationalisation of how AC translates into CA in the context of commercial banks in Kenya. The PLS-SEM findings demonstrate that AC has a significant association with CA and, importantly, also contributes to the formation of GOC. The significant mediating role of GOC further indicates that GOC constitutes an important mechanism through which banks convert their AC into CA. Such findings enhance the capability-based perspective by indicating that AC is not the sole antecedent of competitive outcomes, rather, their value is partly appreciated through the development and institutionalisation of organisational values and practices supporting the environmental responsiveness. While the moderating role of GOC was not significant, yet this doesn't diminish the strategic relevance of GOC. Instead, it implies that, within the largely compliance-oriented institutional environment of Kenyan banking sector, GOC may currently function more vividly as an organisational mechanism through which AC are translated into competitive outcomes than as a boundary condition that reinforces the existing relationships. The observed heterogeneity across bank tiers also suggests that organizational scale may shape the manner in which AC and GOC relate with CA. Therefore, the institutionalisation of environmental values, along with the systematic integration of green technologies and adaptive practices, would enable Kenyan banks to move beyond regulatory compliance towards more strategically embedded approaches to attain CA.

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Appendix I

Indicator	Outer Loading	T	P	Outer Weight	T	P	VIF
CRCC1	0.748	20.385	0.000	0.155	12.537	0.000	2.142
CRCC2	0.783	20.982	0.000	0.165	14.815	0.000	2.249
CRCC3	0.477	6.206	0.000	0.100	5.297	0.000	1.278
CRCI1	0.680	10.819	0.000	0.117	7.513	0.000	1.873
CRCI2	0.734	17.100	0.000	0.142	12.806	0.000	2.560
CRCI3	0.698	15.071	0.000	0.146	10.683	0.000	2.686
CRCS1	0.778	20.566	0.000	0.148	11.214	0.000	2.215
CRCS2	0.739	18.472	0.000	0.136	11.404	0.000	1.929
CRCS3	0.702	13.588	0.000	0.134	9.494	0.000	2.373
CRCS4	0.731	17.657	0.000	0.154	12.924	0.000	2.880
HCLS1	0.820	31.559	0.000	0.125	22.371	0.000	3.354
HCLS2	0.720	16.062	0.000	0.111	15.129	0.000	2.883
HCLS3	0.805	26.267	0.000	0.120	18.254	0.000	3.319
HCLS4	0.830	32.176	0.000	0.133	20.513	0.000	3.223
HCLS5	0.756	19.216	0.000	0.117	18.041	0.000	3.098
HCLS6	0.792	27.984	0.000	0.125	20.385	0.000	2.514
HCSE1	0.717	19.055	0.000	0.106	16.466	0.000	2.719
HCSE2	0.673	13.809	0.000	0.094	12.879	0.000	2.774
HCSE3	0.638	12.386	0.000	0.102	14.080	0.000	2.439
HCTR1	0.715	17.423	0.000	0.098	15.660	0.000	2.969
HCTR2	0.746	23.209	0.000	0.108	18.819	0.000	2.562
HCTR3	0.703	16.378	0.000	0.099	15.998	0.000	2.523
ICNP1	0.659	15.168	0.000	0.118	11.386	0.000	2.332
ICNP2	0.703	16.030	0.000	0.138	14.933	0.000	2.075
ICNP3	0.675	14.280	0.000	0.124	10.537	0.000	1.750
ICRA1	0.674	14.185	0.000	0.130	10.496	0.000	1.844
ICRA2	0.747	22.281	0.000	0.145	14.981	0.000	3.150
ICRA3	0.755	25.762	0.000	0.154	13.773	0.000	2.765
ICRA4	0.684	19.174	0.000	0.141	13.167	0.000	2.469
ICRT1	0.696	16.331	0.000	0.125	13.444	0.000	2.290
ICRT2	0.669	15.266	0.000	0.110	11.343	0.000	2.749
ICRT3	0.652	12.705	0.000	0.111	9.616	0.000	2.633
ICRT4	0.741	22.978	0.000	0.135	13.728	0.000	3.018
OLKA1	0.822	37.903	0.000	0.171	19.637	0.000	3.682
OLKA2	0.698	15.538	0.000	0.140	14.345	0.000	1.906
OLKA3	0.689	17.212	0.000	0.145	14.261	0.000	2.450
OLKC1	0.741	21.658	0.000	0.160	19.865	0.000	1.943
OLKC2	0.612	13.552	0.000	0.120	10.624	0.000	2.227
OLKC3	0.639	14.320	0.000	0.121	11.031	0.000	1.911
OLSE1	0.572	10.789	0.000	0.120	10.386	0.000	1.395
OLSE2	0.724	19.596	0.000	0.156	16.325	0.000	2.651
OLSE3	0.664	14.202	0.000	0.133	13.449	0.000	1.824
OLSE4	0.780	25.499	0.000	0.157	15.476	0.000	2.099