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# GREEN SYNERGY: UNLEASHING CREATIVITY, INNOVATION, DYNAMIC CAPABILITY, AND PERFORMANCE OF SMALL AND MEDIUM FIRMS

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The critical role of green creativity in small firms' financial and environmental performance has attracted scholarly interest in recent times. Prior studies have reported

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inconsistent findings on this relationship, prompting the need for further investigations. This study investigates the effect of green creativity on performance through green innovation at different levels of green dynamic capability. This study collected data on 246 small firms in a developing nation, Ghana. Adopting structural equation modelling (SEM) in LISREL 8.8 to test our hypothesized relationships, this study reveals that green creativity significantly affects both financial and environmental performance. We further find that green innovation does not significantly mediate the relationship between green creativity and performance (environmental and financial). Additionally, this study reports that at high levels of green dynamic capability, the positive relationship between green creativity and environmental performance through green innovation is strengthened.

*Keywords*: Green creativity; green innovation; green dynamic capability; sustainability performance; financial performance; environmental performance.



## Introduction

In the past, paying attention to environmental issues was the goal of industrial practitioners and academic researchers (Vallaster *et al.*, 2018). Organisations focused on increasing sales and financial profit rather than investing in the ecology (Kraus *et al.*, 2018). However, in recent times, the literature suggests that it is only sustainable to focus on profit maximisation if addressing ecological concerns and sustainability (Kraus *et al.*, 2020). Therefore, global environmental concerns due to climate change have forced organisations to focus on eco-friendly activities to control their environmental impact. Accordingly, the significance of green creativity as an essential determinant of firm financial and environmental performance cannot be understated. It forms the basis of a firm's commitment to sustainability performance, encompassing the responsible utilisation and preservation of resources (Pfeffer, 2010). This pursuit necessitates a heightened level of green creativity to yield outcomes that hold both financial and environmental value (Jabbour and Santos, 2008). Moreover, scholarly investigations have indicated that the establishment of effective environmental and resource management strategies confers a competitive advantage (Jabbour *et al.*, 2015; Joshi and Dhar, 2020), particularly in the context of responding to consumer-driven environmental concerns (Zameer *et al.*, 2020). Emerging as a catalyst for the formulation of new environmentally conscious processes, products, practices, and ideas within an organisation, green creativity has emerged as a central point in organisational endeavors to ensure business prosperity (Moultrie and Young, 2009; Chen and Chang, 2013).

The paramount significance of green creativity in management practices has instigated a surge of scholarly inquiries into its implications for firm financial and environmental performance (Chen and Chang, 2013; Song *et al.*, 2019; Jiang *et al.*, 2020; Chang and Hung, 2021). However, limited attention has been directed

toward understanding the broader environmental and financial implications for small and medium-sized enterprises (SMEs) (Schrettle *et al.*, 2014; Awan *et al.*, 2019), even though SMEs represent a substantial proportion of developing economies, constituting up to 90% of their economic landscape (Baah *et al.*, 2021). Moreover, sustainability practices need to be better understood and adopted by small and medium enterprises (SMEs) in sub-Saharan Africa due to the complexity of the issue, a lack of understanding, and constraints on resources faced by SMEs (Das and Rangarajan, 2020). Therefore, there is an urgent need to address sustainability issues among SMEs in the region due to SMEs' relevance in economic development. SMEs play a crucial role in the economies of sub-Saharan Africa, contributing to employment, economic growth, GDP, entrepreneurship, and innovation. About 92% of companies registered in Ghana are small and medium firms (GCB Bank Strategy and Research Department, 2023). SMEs play a critical role in economic development, contributing 85% of manufacturing employment and 70% of GDP, fostering innovation, entrepreneurship and diversity (GCB Bank Strategy and Research Department, 2023).

Amidst the considerable exploration of the link between green creativity and SME performance, existing studies have generated inconclusive outcomes (Boso *et al.*, 2017). While some authors have established a positive correlation between green creativity and firm performance (e.g., Riva *et al.*, 2021; Souto, 2022), others have reported contradictory findings, including negative or U-shaped relationships or even the absence of a discernible association (Bigliardi, 2013). This variability underscores the likelihood of an indirect relationship, potentially mediated by intervening variables that warrant further investigation (Boso *et al.*, 2017). In this context, the role of green innovation emerges as a critical facet. Accordingly, we ask our first research question:

(1) Does green innovation serve as a mechanism through which it influences financial and environmental performance?

In pursuing organizational innovation, converting concepts into valuable and advantageous products and services has been underscored as pivotal (Wyer *et al.*, 2009; Baron and Tang, 2011). However, the field of green innovation extends further, including the creation of ecologically conscious products and processes that integrate eco-friendly raw materials, align with principles of ecological product design, minimise material consumption, reduce pollutant emissions, and curtail the utilisation of vital resources such as water and electricity (Albort-Morant *et al.*, 2016). While green creativity and innovation share some connection, they inhabit distinct roles within environmental practices and sustainability. Green creativity thrives on conceiving novel ideas or solutions

rooted in environmental awareness and sustainability, fostering avenues to address ecological concerns. In contrast, green innovation involves realizing and applying fresh products, processes, technologies, or business models to embody environmental performance. Green creativity engages in ideation and conceptualisation, laying the groundwork for potential innovation. Conversely, green innovation pivots towards realizing tangible outcomes and operationalising alterations within the market or industry to advance sustainability objectives. As such, green creativity establishes the foundation for generating original and sustainable concepts, while green innovation translates these concepts into practical solutions that serve as catalysts for achieving environmental sustainability goals and generating economic returns. These dynamics position green innovation as the conduit through which green creativity influences environmental and financial performance.

While the symbiotic relationship between green creativity, innovation, and performance is evident, the presumption that green creativity unfailingly translates into enhanced performance through green innovation warrants closer examination (Zajac *et al.*, 2000; Liu and Atuahene-Gima, 2018). Powell (1992) contends that realizing environmental and economic rents hinges upon aligning multiple variables with distinct business imperatives. Consequently, this study explores the conditions that either augment or curtail the impact of green creativity on financial and environmental performances, particularly through green innovation. This inquiry draws attention to the role of green dynamic capabilities — an organisation's capacity to integrate, construct, and reconfigure essential competencies to navigate swiftly changing business landscapes (Teece *et al.*, 1997).

Underpinned by dynamic capability, green dynamic capability pertains to an organisation's proactive aptitude in deploying, employing, integrating, and adapting environmentally sustainable practices and innovations in response to evolving business environments, regulatory demands, and stakeholder expectations (Kabongo and Boiral, 2017). Green dynamic capability empowers organisations to optimise environmental resources, mitigate ecological footprints, and foster positive contributions to ecological and societal well-being while sustaining a competitive edge within the marketplace. Embracing green dynamic capability involves integrating environmentally-conscious practices across operational domains, encompassing product design, production processes, waste reduction, energy efficiency, and stakeholder engagement (Dangelico *et al.*, 2016). This capacity also encompasses the ability to discern emergent environmental trends, assess their implications, and swiftly recalibrate strategies and practices to align with sustainable objectives (Yuan and Cao, 2022). In alignment with this notion, this study contends that a firm's ability to translate green creativity into pertinent and valuable innovations is contingent upon the

presence of green dynamic capabilities — the acquisition, release, and exploitation of resources through dynamic capabilities (Eisenhardt and Martin, 2000) — which amplifies the influence of green creativity on innovation and, by extension, financial and environmental performances. Situated within this complex interplay, the moderating role of dynamic capabilities within the green creativity-performance nexus emerges as a crucial indirect relationship, extending the argument posited by Lin and Chen (2017). Accordingly, we ask our second research question:

(2) Can the relationship between green creativity and financial/environmental performance via green innovation be enhanced at different levels of green dynamic capability?

Utilizing the lens of the resource-based view (RBV), this study contends that green innovation is a pivotal facilitator of this relationship. Moreover, green creativity is fundamentally an idiosyncratic resource, endowing firms with the capacity to generate economic rents alongside accomplishing financial and environmental objectives. As such, a firm's ability to translate creative concepts into tangible, valuable, and pertinent innovations hinges upon its green dynamic capabilities, which enable the adept selection, application, and tailoring of diverse ideas into meaningful products and processes. This endeavor thus contributes to bridging a knowledge lacuna, elucidating the degree to which green creativity can enhance performance through green innovation under the moderating influence of green dynamic capabilities.

Beyond the novelty of context, this study extends its contributions to theoretical comprehension and practical application. It accentuates the role of green innovation as the conduit through which green creativity improves environmental and financial performance. By delving into the mediating role of green innovation, this study enriches the theoretical understanding of how green creativity improves financial and environmental performance. Furthermore, this study underscores the contextual parameters that delineate the contours of this indirect relationship, spotlighting the role of green dynamic capabilities in enhancing environmental and financial outcomes. This study examines how green dynamic capabilities moderate the link between green creativity and SME performance, specifically through green innovation. It provides insight into how the strength of green dynamic capabilities can amplify or weaken the impact of green creative efforts on environmental and financial performances.

This study bridges these conceptual frameworks with diverse management domains by extending theoretical knowledge rooted in RBV and dynamic capability theories. While adopting green production practices and processes has long been

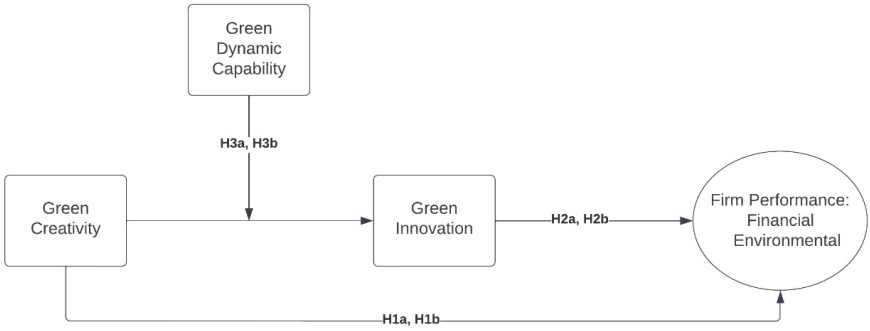


Fig. 1. Conceptual framework.

explored within developed economies, the increasing adoption within emerging markets assumes greater prominence. Thus, this study contributes to theory development by engaging with Ghanaian SMEs' operational realities and convictions. Leveraging firm-level data, this study aligns green innovation theories with the broader dynamics of African values and conceptualizations about environmental sustainability. The conceptual framework guiding this study is shown in Fig. 1.

## Hypothesis Development

### Green creativity and performance

Chen and Chang (2013) defined green creativity as the generation of original concepts that lead to the creation of environmentally friendly products, services, processes, and practices. When applied to products aligned with customer needs, sustainability, and waste reduction, green creativity transforms into a firm's intrinsic resource. In response to global calls for environmentally-conscious and sustainability-oriented strategies to combat pollution and climate change (Balasubramanian *et al.*, 2021), firms worldwide have harnessed green creativity, often seeking societal and consumer validation (Li *et al.*, 2020). This trend is noteworthy given that, contrary to the historical perception of sustainability as the realm of Eikelenboom and de Jong (2019) larger corporations and SMEs play a pivotal role in a country's pursuit of sustainability objectives despite capacity constraints.

Aragón-Correa *et al.* (2008) laid the foundation for subsequent work by suggesting that SMEs, drawing upon the RBV framework, exhibit enhanced creativity, agility, and innovation in addressing social, environmental, and economic sustainability objectives. This pursuit leads to the adoption of "green" activities, such as waste reduction or the use of renewable materials (Chen *et al.*, 2016; Chen

and Chang, 2013), which can trigger improvements in environmental performance (Afum *et al.*, 2020; Kalyar *et al.*, 2020). Crucially, organisational creativity propels innovative performance (Bharadwaj and Menon, 2000; Chen *et al.*, 2016), thereby becoming a distinctive resource that confers a competitive advantage through the RBV lens (Wernerfelt, 1984; Miller, 2019; Ferreira *et al.*, 2020). Indeed, RBV posits that resources and capabilities fulfilling the VRIN criteria (valuable, rare, difficult to imitate, and non-substitutable) pave the way for competitive advantage and enhanced financial performance (Barney, 1991).

Aligned with the RBV perspective, we contend that green creativity engenders the development of environmental friendly products, cost-efficient processes, and differentiated offerings, culminating in improvements across a firm's environmental and financial performance (Afum *et al.*, 2020; Kalyar *et al.*, 2020; Noordewier and Lucas, 2020). Over time, the consistent generation of green creative ideas becomes a rarity in the industry, potentially conferring a competitive edge. Additionally, the firm's culture, knowledge, and practices that support green creativity may prove challenging for competitors to replicate. Moreover, the distinct environmental friendly innovations stemming from green creativity may be difficult for competitors to substitute or reproduce (Eikelenboom and de Jong, 2019; Afum *et al.*, 2020; Kalyar *et al.*, 2020). In essence, the RBV framework elucidates the connection between green creativity and financial and environmental performance by underscoring the role of unique and valuable resources (green creative ideas) and distinctive capabilities (innovation processes) in cultivating competitive advantage, thus leading to improved financial outcomes and enhanced environmental performance. Studies have demonstrated that an environmentally focused strategy enables firms to achieve augmented revenues through improved market access and differentiation (Ambec and Lanoie, 2008). Notably, the significant idiosyncratic resource of green creativity enables the realization of these economic gains. Moreover, when channeled into environmental management practices, green creativity empowers firms to increase revenues via heightened market access and differentiation (Ambec and Lanoie, 2008), potentially fostering cost savings and waste reduction, albeit within industry-specific contexts (Noordewier and Lucas, 2020).

The SME manufacturing sector, however, has been implicated in substantial resource consumption, air and water pollution, and waste generation, contributing significantly to global environmental challenges (Ndubisi *et al.*, 2020). Remarkably, even though the individual environmental footprint of each manufacturing SME may be relatively modest, the aggregate environmental damage attributed to SMEs in certain sectors surpasses that of larger counterparts (Dayan *et al.*, 2019). Thus, SMEs must effectively manage resources to ensure economic growth harmonizes with environmental stewardship. (Ndubisi, 2008), a crucial component of

achieving sustainable development. Furthermore, the rapid economic growth observed in developing economies, particularly in Africa, demands heightened attention. The signing of the African Continental Free Trade Area (AfCFTA) agreement in 2018 positions manufacturing as a key driver of growth, with projections estimating the sector's worth to reach 666.4 billion USD by 2030, a significant increase from 2015. Given this trajectory, addressing the sector's potential environmental impact in developing economies is imperative. Uncontrolled emissions growth within Africa's manufacturing sector could have adverse consequences on long-term economic growth, limiting financing options and increasing emissions-related penalties (Jayaram, 2021). Fortunately, the call for green creativity aligns with developing green economies as emphasized in the Africa Agenda 2063 ("Agenda 2063: The Africa We Want"). In light of these considerations, our study investigates the interplay between green creativity and performance (financial and environmental) in a crucial African market, Ghana. Ghana has significant potential for economic growth. Therefore, Leveraging green creativity can lead to innovative solutions that drive economic performance while simultaneously addressing environmental challenges. This dual focus is crucial for achieving the United Nations Sustainable Development Goals (SDGs) — economic growth (Goal 9), industry innovation (Goal 9), and responsible consumption (Goal 12) (UN, 2023). Moreover, Ghana faces several environmental challenges, including deforestation, air and water pollution, and waste management issues (EPA Ghana, 2023). Therefore, the country can leverage green solutions to mitigate ecological challenges, enhancing environmental performance (Owusu and Asumadu-Sarkodie, 2016). Again, in a resource-constrained environment such as Ghana, green creativity is required to ensure better resource management and energy efficiency to achieve cost savings and reduce environmental cost (Amankwah-Amoah, 2020).

With a dearth of research directly linking green organisational creativity to environmental and financial performance, our study seeks to fill this gap. We argue that a focus on environmental concerns, coupled with adopting green creativity, will expand a firm's market base, thereby enhancing revenue while curtailing costs. This, in turn, leads to improved financial and environmental performance. In essence, our research draws from the principles of the RBV framework to offer insights into how distinctive and valuable resources (green creative ideas) contribute to competitive advantage, ultimately yielding heightened financial outcomes and enhanced environmental performance. We therefore hypothesize that:

**H1a:** *Green creativity positively influences environmental performance.*
**H1b:** *Green creativity positively influences financial performance.*

## Mediating role of green innovation

Innovation is defined as a process of generating, refining, and executing novel or improved concepts, products, services, administrative frameworks, or programs, ultimately ushering in positive transformative change (Damanpour, 1991). It embodies creating, evolving, and implementing fresh solutions tailored to address challenges, enhance efficiency, and yield value (Damanpour and Aravind, 2012). Building upon Damanpour's framework, we conceptualise green innovation as revolving around a firm's prowess in diminishing its environmental impact and optimising sustainable resource utilisation. This is achieved through developing novel products and services or enhancing existing ones (Huang and Li, 2017, p. 312). The underlying objective of green innovation extends beyond mere market alignment and economic objectives; it contributes to environmental preservation and ecological sustainability. Even inadvertent modifications leading to reduced environmental impact fall within the purview of green innovation (Huang and Li, 2017, p. 312). By translating abstract green concepts into tangible products and processes, green innovation facilitates resource-efficient raw material utilisation, waste recycling, emissions reduction, and attainment of environmental performance objectives, consequently enhancing overall firm performance (Weng *et al.*, 2015; Xie *et al.*, 2019; Zhang and Ma, 2021). Evidential support for this proposition is demonstrated in several studies. For instance, Zhang *et al.* (2020) observed that green technology and management innovation alleviate financing constraints and partially foster financial performance among high-polluting enterprises. Huang and Li (2017) substantiated that a firm's pursuit of green products and process innovation exerts a favorable impact on both environmental and organisational performances. Consequently, substantial evidence suggests that green innovation constitutes a vehicle through which firms can augment their environmental and financial performance.

The theoretical underpinning of innovation posits that firms can secure a competitive advantage while simultaneously contributing to ecological and social well-being (Cillo *et al.*, 2019). Central to this argument is the pivotal role that green innovation plays in advancing technological frontiers, curbing environmental pollution, promoting recycling, devising eco-product designs, and embracing ecological management practices (Li *et al.*, 2017). As such, green innovation emerges as a critical conduit for organisations to generate value, foster competitive distinction, and elevate environmental and financial performance. While a substantial body of scholarly work has explored the nexus between green creativity and firm-level performance, the empirical findings remain inconclusive and inconsistent (Eryigit and Uslu, 2016; Boso *et al.*, 2017).

While a general positive correlation between green creativity and performance has been established in most studies, these prior investigations have yet to probe

how green creativity influences financial and environmental performance. Given the existing void in the literature, calls have emerged to examine the mechanisms through which creativity exerts its influence on performance (Von Nordenflycht, 2007; Boso *et al.*, 2017). We posit that while green creativity constitutes an intrinsic resource with the potential to enhance environmental and financial performance, the realization of this relationship hinges on transforming these creative concepts into innovative, valuable, and ecologically sustainable products and processes. Therefore, green creativity serves as the driving force behind the inception and introduction of innovative and valuable green products, which, in turn, cater to customer and market demands (Castillo-Vergara *et al.*, 2018; Acar *et al.*, 2019). Green innovation emerges as the bridge that translates environmentally focused creative ideas into tangible outcomes, bolstering financial and environmental performance. In essence, this study advances the boundaries of the RBV by adopting a dynamic capability perspective, asserting that the influence of green creativity on performance hinges upon the strategic transformation of such creative ideas into economically productive products and processes that generate economic returns.

Upon engaging in green creativity, novel and sustainable concepts are produced, SMEs subsequently channel these concepts into green innovation (Castillo-Vergara *et al.*, 2018; Acar *et al.*, 2019). Through the vehicle of green innovation, these creative ideas materialize into pragmatic and actionable eco-friendly products, processes, or strategies. This process subsequently propels enhanced performance among SMEs, exerting tangible effects on market competitiveness, customer satisfaction, operational efficiency, and overarching environmental stewardship (Acar *et al.*, 2019; Chen *et al.*, 2016). In this manner, green innovation functions as a mechanism, amplifying the influence of green creativity on SMEs' environmental and financial performance (Ma *et al.*, 2022). Moreover, while green creativity kindles the generation of new ideas, green innovation is the instrumental process that breathes life into those ideas (Ma *et al.*, 2022). Furthermore, our argument rests on the premise that green creativity provides the basis for all manifestations of green products, manufacturing, and green innovation, thereby driving advancements that ultimately bolster financial and environmental performance (Chen *et al.*, 2016). Given the symbiotic nature of creativity and innovation, we posit that, the association between green creativity and performance is effectively mediated by the dynamic influence of green innovation (Anderson *et al.*, 2014).

We therefore hypothesize the following:

**H2a:** *Green innovation mediates the relationship between green creativity and environmental performance.*

**H2b:** *Green innovation mediates the relationship between green creativity and financial performance.*

### Conditional indirect effect of green creativity on performance

In line with dynamic capability theory, the dynamic and ever-evolving market necessitates firms to exhibit dynamism and strategic acumen in resource utilisation to maximize economic benefits (Joshi and Dhar, 2020). Consequently, firms endowed with robust dynamic capabilities are better equipped to seamlessly integrate, learn from, and reconfigure both internal and external resources (Eisenhardt and Martin, 2000), thereby fostering the development and enhancement of innovation outcomes (Ferreira *et al.*, 2020). When transposed into a 'green' context, these dynamic capabilities assume a pivotal role in facilitating the efficacious metamorphosis of green creativity into pertinent product and process innovation (Chen and Chang, 2013; Qiu *et al.*, 2019). In alignment with the tenets of the dynamic capability theory, the green dynamic capability is conceptualised as the organisation's enduring capacity to continually adapt, assimilate, and restructure its resources, processes, and endeavors to address environmental sustainability challenges and seize opportunities effectively (Chen and Chang, 2013; Qiu *et al.*, 2019).

While green creativity can contribute to enhanced environmental performance via green innovation, the configuration, assimilation, and strategic deployment of ideas and resources accentuate the efficacy of a firm's innovative pursuits. This was underscored by Qiu *et al.* (2019), who posit that premier global enterprises maintain competitiveness through attuned responsiveness to environmental dynamics and an adept aptitude for organisational realignment. Within this context, green dynamic capabilities bestow firms with the capability for orchestrated restructuring, a catalyst for competitive advantage, and improved financial performance. Green dynamic capability empowers an organisation to proficiently harness and actualize the pool of creative ideas engendered (termed green creativity) to catalyse successful green innovation. This undertaking may necessitate resource allocation, process adaptation, and swift translation of inventive ideas into tangible solutions. The outcome of this undertaking is that the organisation is more inclined to witness an augmented blend of financial and environmental performance, underpinned by its prowess in executing green innovations (Qiu *et al.*, 2019; Ferreira *et al.*, 2020).

In contrast, an organisation characterised by a diminished level of green dynamic capability might grapple with the task of effectively channelling creative concepts into pragmatic green innovations (Qiu *et al.*, 2019; Ferreira *et al.*, 2020). Such an organisation's limited adaptability and capacity to enact

transformative changes could potentially serve as an impediment to the actualisation of both environmental and financial gains. Therefore, it follows that the presence of robust green capabilities positions firms in an advantageous position to adeptly exploit and transform green resources, which encompass green creativity, into tangible green innovation outcomes. Anchored within the green dynamic capability perspective, our argument asserts that while green creativity does indeed wield influence over environmental and financial performances through green innovation, the potency of this influence is magnified only when firms exhibit apt green dynamic capabilities, thereby effectively harnessing their green creativity to enhance distinctive, valuable, and purposeful green innovative products.

Accordingly, we hypothesize the following:

**H3a:** *Green dynamic capability moderates the relationship between green creativity and green innovation such that, at high levels of green dynamic capability, the relationship between green creativity and environmental performance through green innovation is strengthened.*

**H3b:** *Green dynamic capability moderates the relationship between green creativity and green innovation such that, at high levels of green dynamic capability, the relationship between green creativity and financial performance through green innovation is strengthened.*

## Methods

### Study context

Ghana is a lower-middle-income economy with a high growth rate, which presents an interesting context for studying firm-level attitudes toward green creativity. The Ghanaian government has implemented policies to enable businesses to adopt environmentally-friendly measures that include recycling, protecting forests and waterways, and environmental issues in the mining sector (Amankwah-Amoah and Sarpong, 2016). In addition, the lengthy history of a stable political economy fostered inward FDI and helped Ghana achieve middle-income status by 2011 (Ghana Looks to Retool Its Economy as It Reaches Middle-Income Status, 2011). SME growth was a key part of this momentum, providing employment and income (Abor and Quartey, 2010). However, recent empirical studies have shown that carbon emission is increasing with the level of growth in Ghana (and other developing countries) (Twerefou *et al.*, 2016; Sarkodie and Strezov, 2018; Minlah and Zhang, 2020). Accordingly, Ghana has introduced a plethora of industry and

market reforms under government regulatory policies that seek to encourage businesses to adopt environmental friendly practices (Amankwah-Amoah *et al.*, 2019). Therefore, this paradox presents an interesting inquiry into the attitudes and perceptions of Ghanaian SMEs, particularly concerning contemporary constructs of environmental awareness at the firm level.

Hence, we tested the theoretical model in Fig. 1 based on data collected from a sample of 246 SMEs in Ghana via a structured questionnaire. SMEs are ubiquitous businesses in Ghana. The SME sector provides employment and income to a large percentage of Ghanaians. It constitutes a significant source of output and employment (Abor and Quartey, 2010) and accounts for 85–92% of all firms operating in Ghana (Adomako *et al.*, 2021). Moreover, SMEs are the country's economic growth engine and contribute about 70% to Ghana's Gross Domestic Product (GDP). Despite this, Ghana's business environment has weak administrative and legal institutions, poor regulations, weak law enforcement, and inadequate market-supporting institutions (Saka-Helmhout *et al.*, 2020; Adomako *et al.*, 2021), which compel firms to look inward for innovative and environmental friendly strategies.

## Sampling and data collection

Data from Ghanaian SMEs were collected from a sampling frame from the Ghana Business Directory and the Registrar General's Department databases. We sourced 1,000 manufacturing SMEs 600 from the Registrar General's Department, and 400 (from the Ghana Business Directory). The firms were chosen from Accra, Kumasi, and Tema, the industrial hubs of Ghana. We used a random sampling approach, such that each respondent was selected with the same probability. Out of 1,000 participants, 520 representing 52% agreed to participate in the study, meeting the sample size criteria by Krejcie and Morgan (1970). According to Abor and Quartey (2010) categorization of SMEs, small enterprises have between 2 and 29 employees, and medium enterprises have between 30 and 99 employees. This criterion aligns with extant SMEs studies by Aidoo *et al.* (2020).

Because of the culture and peculiar nature of the Ghanaian Business Environment, (see Hinson and Sorensen, 2006), we collected our data through direct contact with key individuals in top executive or management positions such as owner–managers, operations managers, directors, and chief executive officers in the firms via a text-based questionnaire. We trained fieldworkers to deliver the questionnaires in person and collect them later. The data collection process was done in two-time periods to reduce common method bias (MacKenzie and Podsakoff, 2012; Malhotra *et al.*, 2016). In phase one, 520 questionnaires were dispatched to respondents covering green creativity, innovation, and dynamic

capability. After repeated engagement with respondents, 288 questionnaires were retrieved over five weeks between September and October 2023. In line with extant studies, we intermingled the item questions to attenuate the incidence of common variance influencing the integrity of the data (MacKenzie and Podsakoff, 2012). The second phase focused on environmental performance and financial performance. Between December and January 2024, two hundred and eighty-eight questionnaires were dispatched to the same firms. However, the second phase was administered to only finance managers, given their knowledge of the performance measurements, yielding 227 surveys. However, 17 were discarded because 17 finance managers doubled as CEOs, and 10 questionnaires were incomplete, leaving 200 usable questionnaires for analysis. A sample size of 200 is quite representative because SMEs within the study context are homogeneous regarding characteristics and challenges. The sample size is comparable to studies by other authors (Adomako *et al.*, 2021; Aidoo *et al.*, 2021) in a similar context. Table 1 shows the characteristics of the respondents and the SMEs in the study.

## Measurement of variables

Respondents were requested to rate each item on a seven-point Likert scale according to its accurate description of their firm's activities. Using LISREL software, confirmatory factor analysis (CFA) was performed to establish the psychometric properties of the items used. We used Cronbach's alpha (CA) score, composite reliability (CR), and average variance extracted (AVE) to measure the validity of the measures. Green creativity ($\alpha = 0.893$) was measured with six items adapted from (Chen and Chang, 2013). The green innovation construct was conceptualized as a two-dimensional construct involving green product innovation and green process innovation adapted from Chen (2008) and Singh *et al.* (2022). Green product innovation and green process innovation were measured with four items each. The green innovation construct ($\alpha = 0.850$) was derived by computing the mean values of the green product and process innovation items. The green dynamic capability ($\alpha = 0.932$) construct was conceptualized using seven items adapted from Teece *et al.* (1997) The sustainability performance construct was conceptualized as a two-dimensional construct including financial performance and environmental performance measured with items from Zhou *et al.* (2020). Financial performance ($\alpha = 0.884$) was measured with four items, while environmental performance ($\alpha = 0.748$) was measured with three items. We also included firm size, age, and firm type as control variables to account for how they affect the two dependent variables (financial and environmental performance). We measured the firm size as a logarithmic transformation of the number of full-time employees working in the firm (Sheng *et al.*, 2011). Consistent with the previous

Table 1. Firm and respondents demographic characteristics.

| Variables | Frequency | Percent |
|---|---|---|
| **Gender** | | |
| Male | 133 | 66.5 |
| Female | 67 | 33.5 |
| **Respondent age** | | |
| 20–29 | 10 | 4.9 |
| 30–39 | 59 | 29.1 |
| 40–49 | 66 | 32.5 |
| 50+ | 65 | 32.0 |
| **Respondent position** | | |
| Executive manager | 58 | 28.6 |
| Marketing manager | 30 | 14.8 |
| Production manager | 108 | 53.2 |
| Other | 4 | 2.0 |
| **Firm ownership type** | | |
| Fully Ghanaian-owned | 123 | 61.5 |
| Foreign and Ghanaian-owned | 77 | 38.5 |
| **Firm type** | | |
| Manufacturing | 97 | 48.5 |
| Distribution | 58 | 29.0 |
| **Other** | 45 | 22.5 |
| Firm age | | |
| $\geq 5$ years | 14 | 7.0 |
| 6–10 years | 25 | 12.5 |
| 11–15 years | 67 | 33.5 |
| 16–20 years | 56 | 28.0 |
| Above 20 years | 36 | 19.0 |
| **Number of employees (firm size)** | | |
| 2–30 | 134 | 67.0 |
| 31–99 | 66 | 33.0 |



studies, we used binary coding for firm type with manufacturing = 1 and service = 0.

## Data reliability and validity

Reliability tests were performed using LISREL 8.8 and SPSS version 21 (see Table 2). The results showed both CA and Composite reliability (CR) greater than 0.80, indicating strong internal consistency (Hair *et al.*, 2014). Validity was measured using discriminant validity (correlation) and convergent validity, AVE, and factor loadings (Fornell and Larcker, 1981). The convergent validity test results in Table 2 show factor loadings and AVEs above 0.50. Any ill-fitting items

Table 2. Constructs, Cronbach's alphas ($\alpha$), and factor loadings.

| Construct | Factor loading | *t*-value | CR | AVE | CA |
|---|---|---|---|---|---|
| Green Creativity (GC) | | | 0.906 | 0.668 | 0.893 |
| GC1 Management team members propose new green ideas to improve environmental performance. | 0.90 | Fixed | | | |
| GC2 Management suggest new ways to achieve environmental goals. | 0.89 | 20.89 | | | |
| GC3 Management project promote and champion new green ideas to others. | 0.92 | 22.52 | | | |
| GC4 Managers project and develop adequate plans for the implementation of new green ideas. | 0.83 | 17.97 | | | |
| GC5 Management would rethink new green ideas. | 0.45 | 7.46 | | | |
| Green Innovation (GI) | | | 0.872 | 0.534 | 0.850 |
| GIPD1 The company chooses the materials that produce the least amount of pollution for conducting the product development or design. | 0.65 | Fixed | | | |
| GIPD2 The company uses the least quantity of materials to comprise the product for conducting the product development or design. | 0.81 | 9.59 | | | |
| GIPD3 The company circumspectly deliberate whether the product is easy to recycle, reuse, decompose for conducting the product development or design. | 0.71 | 9.08 | | | |
| GIPC1 The company's manufacturing process effectively reduces the emission of hazardous substances or waste. | 0.78 | 13.22 | | | |
| GIPC3 The company's manufacturing process reduces the consumption of water, electricity, and coal. | 0.80 | 13.60 | | | |
| GIPC4 The company's manufacturing process reduces the use of raw materials. | 0.61 | 10.19 | | | |
| Green Dynamic Capability (GDC) | | | 0.936 | 0.677 | 0.932 |
| GDC1 The company has the ability that can fast monitor the environment to identify new green opportunities. | 0.75 | Fixed | | | |
| GDC2 The company has effective routines to identify and develop new knowledge. | 0.74 | 11.98 | | | |
| GDC3 The company can develop green technology. | 0.86 | 14.22 | | | |

Table 2. (*Continued*)

| Construct | Factor loading | *t*-value | CR | AVE | CA |
|---|---|---|---|---|---|
| GDC4 The company can assimilate, learn, generate, combine, share, transform, and apply new green knowledge. | 0.84 | 13.75 | | | |
| GDC5 The company can successfully integrate and manage specialised new green knowledge within the company. | 0.88 | 14.46 | | | |
| GDC6 The company can successfully coordinate employees to develop green technology. | 0.86 | 14.08 | | | |
| GDC7 The company can successfully allocate resources to develop green technology. | 0.82 | 13.33 | | | |
| Financial Performance (FP) | | | 0.883 | 0.654 | 0.884 |
| FP1 Return on investment (efficient of investment) has increased above industry average during the last three years. | 0.75 | Fixed | | | |
| FP2 Sales growth has increased above industry average during the last three years. | 0.80 | 12.42 | | | |
| FP3 Profit growth rate has increased above industry average during the last three years. | 0.86 | 13.20 | | | |
| FP4 Market share has increased during the last three years. | 0.82 | 12.58 | | | |
| Environmental Performance (EP) | | | 0.773 | 0.534 | 0.758 |
| EP2 The resource consumption (thermal energy, electricity, water) has decreased (e.g., per unit of income, per unit of production, . . .) during the last three years. | 0.65 | Fixed | | | |
| EP3 The percentage of recycled materials has increased during the last three years. | 0.83 | 8.53 | | | |
| EP4 The waste ratio (e.g., kg per unit of product, kg per employee per year) has decreased during the last three years. | 0.70 | 8.51 | | | |

were excluded. The discriminant validity test showed that the square root of AVE was greater than their inter-construct correlation coefficient, meeting reliability and validity criteria (Henseler *et al.*, 2014) (see Table 4). Harman's one-factor test revealed that the total variance extracted by one factor was 32.84%, less than the recommended threshold of 50% (Podsakoff *et al.*, 2003), making common method

Table 3. Model fit indices.

| CFA model | $\chi^2$ | Df | *p*-value | $\chi^2$/df | RMSEA | NNFI | CFI | SRMR | GFI |
|---|---|---|---|---|---|---|---|---|---|
| Green creativity | 11.80 | 5 | 0.038 | 2.36 | 0.075 | 0.985 | 0.992 | 0.0265 | 0.981 |
| Green innovation | 15.32 | 8 | 0.053 | 1.92 | 0.061 | 0.972 | 0.985 | 0.0302 | 0.980 |
| Green dynamic capability | 8.18 | 5 | 0.147 | 1.64 | 0.051 | 0.992 | 0.996 | 0.0153 | 0.987 |
| Performance | 24.70 | 13 | 0.025 | 1.90 | 0.061 | 0.972 | 0.982 | 0.0393 | 0.972 |
| Overall | 124.91 | 104 | 0.039 | 1.20 | 0.029 | 0.982 | 0.986 | 0.0372 | 0.943 |

bias occurrence unlikely. Again, this study conducted the three-model approach to undertake a robust *post-ante* common method bias analysis. The findings (trait only model-$\chi^2 = 995.11$, df = 367; RMSEA = 0.084; CFI = 0.947; NNFI = 0.941; SRMR = 0.060, method only model-$\chi^2$=4330.90, df = 577; RMSEA = 0.207; CFI = 0.811; NNFI = 0.796; SRMR = 0.130, method-and-trait model-$\chi^2 = 765.97$, df = 333; RMSEA = 0.072; CFI = 0.963; NNFI = 0.955; SRMR = 0.050) showed that the trait only and method-and-trait method models demonstrate better model fit than the method only model. This further demonstrates that common method bias does not significantly impact the data. Confirmatory factor analysis (CFA) was conducted to examine the model fit of the measurement construct (see Table 4), which was assessed after forming latent variables with the retained items using a number of fit indices ($\chi^2$/df, RMSEA, CFI, NNFI, SRMR) and the level of significance. The overall CFA model fit produced strong fit indices ($\chi^2$/df = 1.20, RMSEA = 0.029, CFI = 0.986, NNFI = 0.982, and SRMR = 0.0372) was significant at $p < 0.05$ (see Table 3).

## Results

### Model estimation

Table 4 displays the mean, standard deviation, and intercorrelations among the variables considered in this study. Having demonstrated that the measurement model is psychometrically acceptable, we then test the study's hypotheses using structural equation modelling (SEM) (summarized in Table 5) conducted with LISREL 8.8. Adopting SEM to test the study's hypotheses allows us to model and test a series of hypotheses that make up complex patterns of relationships simultaneously (Hoyle, 2012). Additionally, this technique allows us to combine correlation, factor, and regression analysis in analyzing the study's complex relationships. The ability to test complex relationships while conducting various important analyses simultaneously guides us to adopt SEM as the chosen technique.

Table 4. Descriptive Statistics and Inter-construct correlation.

| Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Firm type | 2.26 | 0.93 | | | | | | | | |
| 2. Firm age | 3.05 | 0.80 | –0.028 | | | | | | | |
| 3. Firm size | 3.01 | 0.80 | 0.139* | –0.020 | | | | | | |
| 4. Green creativity | 4.00 | 1.56 | 0.060 | –0.015 | 0.018 | 0.817 | | | | |
| 5. Green innovation | 5.28 | 1.07 | –0.033 | 0.003 | 0.007 | 0.520** | 0.731 | | | |
| 6. Green dynamic capability | 4.66 | 1.28 | –0.037 | 0.004 | 0.029 | 0.580** | 0.351** | 0.823 | | |
| 7. Financial performance | 4.90 | 1.38 | 0.114 | –0.038 | 0.044 | 0.520** | 0.324** | 0.389** | 0.809 | . |
| 8. Environmental performance | 5.14 | 1.10 | 0.083 | –0.020 | –0.019 | 0.400** | 0.360** | 0.272** | 0.311** | 0.731 |

*Notes*: Dummy variable; Firm type: manufacturing = 1, others = 0; Firm size = < 20 employees = 1, others = 0; Firm age (logged).

*Correlation significance at 0.05 (2-tailed).

**Correlation significance at 0.01 (2-tailed).

The figures in bold font are square root of AVE.

Table 5. SEM results.

| CFA model | $X^2$ | *df* | *P* value | $\Delta X^2$ | $\Delta df$ | RMSEA | NNFI | CFI | SRMR | $R^2$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Model 1 (Direct effect) | 650.62 | 292 | 0.00 | | | 0.071 | 0.957 | 0.961 | 0.062 | EP = 25.1%<br>FP = 31.4% |
| Model 2 (Mediation) | 651.46 | 292 | 0.00 | 0.84* | 0 | 0.071 | 0.957 | 0.961 | 0.061 | GI = 30.0%<br>EP = 24.7%<br>FP = 31.2% |
| Model 3 (Conditional Indirect) | 633.00 | 286 | 0.00 | 18.46** | 4 | 0.070 | 0.957 | 0.962 | 0.057 | GI = 30.1%<br>EP = 30.2%<br>FP = 33.2% |

## Analyses

This study first hypothesized that green creativity positively influences environmental and financial performance (H1a and H1b). With path coefficients of $\beta = 0.50$, $t$-value = 5.73 at $p \leq 0.01$ and $\beta = 0.56$, $t$-value = 7.99 at $p \leq 0.01$, respectively, analyzed in the baseline model Model 1, we find support for H1a and H1b. Additionally, the models fit indices ($X^2 = 650.62$, $df = 292$, RMSEA = 0.071) demonstrate good model fit and thus allow us to find support for H1(a and b). The results demonstrate that green creativity improves both the environmental and financial performance of firms. Secondly hypotheses H2a and H2b stated that green innovation mediates the relationship between green

creativity and performance (environmental and financial). This study compares the mediation model (models 2) with the study's baseline model. The comparison of the baseline and mediation models ($\Delta X^2 = 0.84$ with a $\Delta df = 0$, $p > 0.05$) demonstrates a negligible improvement in model fit. This is further demonstrated by the lack of a difference in degrees of freedom between the two models. Guided by Eisenhauer (2008), we argue that these results prevent us from finding evidence to support or reject our hypothesis. Thus, we fail to find support for H2a and H2b and thus present that green innovation does not significantly mediate the relationship between green creativity and performance (environmental and financial).

In testing the conditional indirect relationships hypothesized in this study, we again compare the conditional indirect model to the mediation model to assess the significance of changes in the model fit. The comparison ($\Delta X^2 = 18.46$ with a $\Delta df = 4$, $p < 0.00$) suggests that the conditional indirect model ($X^2 = 633.00$, $df = 286$, RMSEA $= 0.070$) has a superior model fit. These findings thus provide support for H3a and H3b. Figure 2 illustrates the path analysis of the conditional indirect relationship. Additional OLS analysis shown in Tables 6 and 7 confirms the results of the study's SEM analysis.

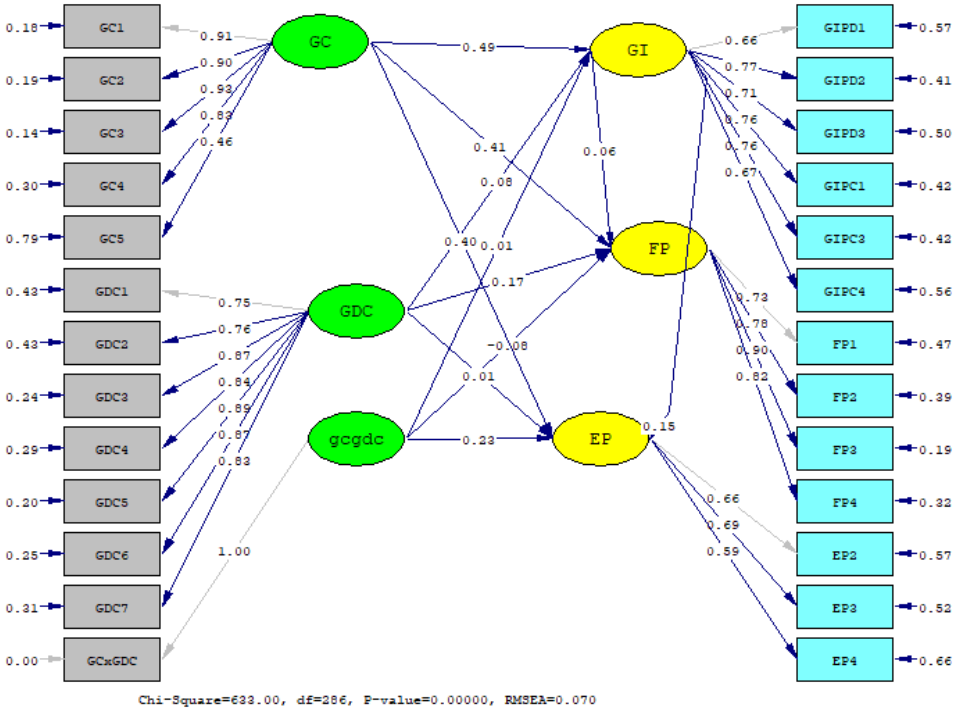


Fig. 2. Conditional indirect analysis of the relationship between green creativity and performance.

Table 6. Additional mediation analysis on financial performance.

| Effect type | Paths | Effect | (Boot) SE | (Boot) LLCI | (Boot) ULCI |
|---|---|---|---|---|---|
| [1]Direct | Green Creativity → Financial Performance | 0.428 | 0.057 | 0.315 | 0.541 |
| | Green Creativity → Green Innovation | 0.360 | 0.039 | 0.284 | 0.436 |
| | Green Innovation → Financial Performance | 0.085 | 0.083 | −0.078 | 0.248 |
| [2]Indirect | Green Creativity → Green Innovation → Financial Performance | 0.031 | 0.035 | −0.037 | 0.098 |
| | Total | 0.458 | 0.049 | 0.361 | 0.555 |

*Notes*: Dependent variables are financial performance, green innovation.
[1]Covariates in model of outcome include firm size, firm age, and firm type.
[2]Covariates in model of outcome include firm size, firm age, and firm type.
Path significant at 5% (2-tailed test).
Number of bootstrap samples = 5000.
Number of bootstrap samples = 1000.

Table 7. Additional mediation analysis on environmental performance.

| Effect type | Paths | Effect | (Boot) SE | (Boot) LLCI | (Boot) ULCI |
|---|---|---|---|---|---|
| [1]Direct | Green Creativity → Environmental Performance | 0.205 | 0.048 | 0.110 | 0.300 |
| | Green Creativity → Green Innovation | 0.362 | 0.038 | 0.287 | 0.438 |
| | Green Innovation → Environmental Performance | 0.195 | 0.070 | 0.058 | 0.333 |
| [2]Indirect | Green Creativity → Green Innovation → Environmental Performance | 0.071 | 0.028 | 0.017 | 0.124 |
| | Total | 0.276 | 0.042 | 0.193 | 0.358 |

*Notes*: Dependent variables are environmental performance, green innovation.
[1]Covariates in model of outcome include firm size, firm age, and firm type.
[2]Covariates in model of outcome include firm size, firm age, and firm type.
Path significant at 5% (2-tailed test).
Number of bootstrap samples = 5000.
Number of bootstrap samples = 100.

## Discussion and Implications

### Discussions

This study examined (1) the relationship between green creativity and performance (financial and environmental), (2) the mediating role of green innovation in the

relationship between green creativity and performance, and (3) the moderating effect of green dynamic capability on the relationship between green creativity and performance through green innovation. Based on the objectives, this study tested three hypotheses. The first hypothesis (H1a and H1b) argues that green creativity positively influences environmental and financial performance. The results support this hypothesis, demonstrating that increased investment in green creativity among SMEs improves financial and environmental performance outcomes. The results corroborate the work of Bharadwaj and Menon (2000), Chen *et al.* (2016), and Ferreira *et al.* (2020), who established that green creativity positively influences performance. From the RBV perspective, Chen *et al.* (2016) argued that green creativity is an idiosyncratic resource that creates a competitive advantage and improves firm performance. We argue that firms that invest in green creativity by focusing on environmental sustainability strategies and practices can mitigate pollution and climate change (Balasubramanian *et al.*, 2021), thus improving environmental performance and simultaneously reducing costs, improving efficiency, and enhancing financial performance (Shashi *et al.*, 2019).

Second, this study argued that green innovation mediates the relationship between green creativity and performance (environmental and financial). Our findings failed to provide enough evidence to support the hypothesis. Our findings thus highlight that although green creativity is a valuable idiosyncratic resource for designing novel and practical green ideas that result in green processes and product innovation, the value inherent in these innovations is reliant on appropriate financial, technical, technological, and infrastructural investments, without which a firm's superior green creativity efforts will be inadequate at driving competitive innovations needed to enhance the performance.

The green technologies, processes, knowledge, and infrastructure needed to effectively leverage green creativity and innovation require substantial financial investment, which poses a significant barrier for SMEs in developing countries. These barriers, coupled with institutional weaknesses (Gao *et al.*, 2017), a lack of clear green policies and training for SMEs, and a lack of government financial support to invest in green technologies makes use of novel and useful green ideas to create green innovations capable of generating substantial economic rent, an expensive endeavor for SMEs in Sub-Saharan Africa, and other resource-scarce environments. Accordingly, channeling green creativity to enhance environmental and financial performance through green innovation requires significant financial resources and government incentives, governmental policies on green technologies, and institutional support systems, without which firms cannot significantly enhance their competitive advantage and performance. This sheds more light on the green creativity–performance relationship and highlights the fact that although green creativity and innovation have the potential to improve the performance

(Shashi *et al.*, 2019) in cost-effective ways, including energy savings, waste reduction, environmental impact, financial efficiency, and profitability, among others. However, this potential cannot be realized in resource-scarce environments with little support.

Third, this study argued that green dynamic capability moderates the relationship between green creativity and green innovation such that, at high levels of green dynamic capability, the relationship between green creativity and performance (environmental and financial) through green innovation is strengthened. The results support this hypothesis and allow us to argue that firms that possess green creativity as an idiosyncratic resource are better able to improve their (environmental and financial) performance. This results from the improved activities and outputs of green innovation, which green creativity ensures. Additionally, the effect of green creativity on performance (environmental and financial) through green innovation is stronger among firms with higher levels of green dynamic capabilities. Green dynamic capabilities, which constitute integration, building, and reconfiguration capabilities to address changing environments and customer needs (with a green or sustainable focus) (Teece, 2016), are considered to be those integral capabilities needed to improve efficiency and strengthen business activities and strategies relevant for improving a firm's green innovation efforts and ensuring superior environmental and financial performance.

Well-developed green dynamic capabilities allow firms to adapt to changing market needs and opportunities in effectively directing their green creativity efforts at successful and valuable green innovation outputs and strategies (Long and Liao, 2021; Lovallo *et al.*, 2020). In essence, although a firm's green creativity can improve its green innovation and performance, the actualization and significance of its influence are only made possible within the boundary conditions of its green dynamic capabilities. Such is the case within firms with underdeveloped dynamic capabilities, where the ability to direct green creativity at increased green innovation and superior performance is limited. On the other hand, firms with high levels of green dynamic capabilities can better leverage their green creativity to improve green innovations needed to meet changing customer needs, create a competitive advantage, and enhance financial performance. This demonstrates the critical role high levels of green dynamic capabilities play in allowing firms to direct available green creativity efforts to enhance green creativity outcomes, which in turn improves the environmental and financial performance of firms. This study's findings provide evidence of the significance of this relationship and highlight the need for firms to develop suitable green dynamic capabilities, which may be used as catalysts for ensuring a stronger effect of green creativity and innovation on firm's performance.

## Theoretical implications

This study makes important theoretical contributions to knowledge. First, the study confirms that green creativity is an important predictor of environmental and financial performance. Next, we demonstrate that green innovation can serve as the mechanism through which firms leverage their green creativity to enhance performance. However, we highlight that the ability for green innovation to operate as that mechanism requires competencies, resources, and support, which remains in short supply in developing countries. Thus, this prevents firms from leveraging green innovation as a valuable, competitive, and effective conduit. Engaging and adopting green activities, perspectives, and strategies is important to improve a firm's environmental and financial performance. However, in developing economies saddled with resource scarcity and underdeveloped institutional support and infrastructure, the outcome of such strategies is scarcely competitive or economical. This study, however, extends this idea and demonstrates that in environments of institutional weakness and limited, green-focused support, emphasis must be made on developing and improving dynamic capabilities that enable firms to effectively configure and bundle opportunities, resources, and capabilities to enhance environmental and financial performance. This idea allowed us to argue that the relationship between green creativity and performance through green innovation is strengthened at high levels of green dynamic capability. Furthermore, our study contributes to theory by highlighting the integral role of dynamic capabilities, which are valuable strategic capabilities to possess in the dynamic and complex business world today. This study thus reiterates the call of revered scholars (Bicen and Johnson, 2014; Long and Liao, 2021; Ryman and Roach, 2022) who bring to the fore the increased need for flexibility, adaptability, and dynamism in upholding sustainability while ensuring value creation in today's highly competitive world.

## Practical implications

Our findings suggest that managers and policymakers must invest in novel and valuable green ideas to achieve the firm's financial and environmental objectives. This study showed managers could achieve environmental and financial objectives by investing in green creativity. Managers should channel relevant green ideas into developing green products and process innovation to influence the performance. Although this is important, we demonstrate the need to develop strong dynamic capabilities needed to drive these ideas to create valuable innovations capable of simultaneously enhancing financial and environmental performance. However, we advocate that institutional bodies begin to appreciate the need to support the SME

sector as the catalyst for ensuring sustainable and more environmental friendly activities, strategies, and outcomes. This study's mediation analysis demonstrated that green innovation, though valuable, is unable to operate as that mechanism through which green creativity influences the performance. We argue that this results from initial capital-intensive investments required to make green innovation a profitable venture in markets with institutional voids. However, the moderated-mediation results highlight the need for a focus on developing green dynamic capabilities which provide strategies, tools, and capabilities needed to reconfigure resources, strategies, and tools needed for increased efficient green innovation required to improve performance within such resource-scarce environments.



### Limitations

Although collecting data in two phases at different times helped overcome the problems of collecting data from a single source (Podsakoff *et al.*, 2003), this study has some limitations. A significant drawback is the use of a structured questionnaire, which denied the opportunity to examine the green creativity-performance phenomenon over some time. Notwithstanding, the requisite robustness checks were conducted to ascertain the validity and reliability of the data collected. We, therefore, recommend that future studies undertake longitudinal to provide deeper insights. Furthermore, although SMEs in developing economies are homogeneous, findings must be generalized with care. Studies should be conducted in various economic regions and markets to help identify those important contextual influences. Finally, while recognizing green dynamic capability as an important firm characteristic that moderates the relationships examined, future studies should also consider external firm characteristics such as stakeholder integration and institutional pressures as important contingent factors. Adopting a multifaceted view of internal and external influences would extend knowledge and guide the understanding of how firms may leverage green creativity to create a competitive advantage and improve the performance.

## Conclusion

This study argued that green dynamic capabilities enable firms to effectively exploit and leverage their green creativity, fostering the development and introduction of valuable and relevant green innovations, and contributing to enhanced financial performance. We examined the effects of green creativity on financial and environmental performance when mediated through green innovation and to understand how this relationship is affected by levels of green dynamic capabilities.

Using insights from 246 Ghanaian SMEs, some significant findings emerged that have relevance for firms operating in a developing economy context. We found the role of green creativity on financial and environmental performance to be positive and significant, consistent with the argument that green creativity serves as a resource required to effectively introduce new and relevant products that respond to customers' needs while ensuring financial and environmental sustainability. We emphasise the agility of SMEs that operate in developing countries, where creativity is a prerequisite even for survival. In addition, being creative in reducing waste and saving energy would lend itself to the use of environmentally-sustainable materials.

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