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Article

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Green entrepreneurial orientation and firm performance: do green purchasing and supply chain integration matter?

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ABSTRACT

Green entrepreneurial orientation (GEO) and green supply chain management (GSCM) have emerged as important strategic tools for environmental management. Integrating the sustainability capabilities of GEO with GSCM practices, such as green purchasing and green supply chain integration, is crucial for optimizing both environmental and commercial outcomes. Yet, how the interface of GEO and GSCM drives corporate environmental and financial performances remains underexplored. We draw on the Natural/Resource Based View to argue that the environmental and financial performance consequences of GEO may be channelled through green purchasing under varying conditions of green supplier and customer integration. We test our model using survey data from 225 SMEs in a sub-Saharan African country. We find a direct positive effect of GEO on the environmental but not on financial performance. Further results reveal that the environmental and financial performance benefits of GEO are more salient when channelled through green purchasing, particularly under greater levels of green supplier and customer integration. The theoretical and practical implications are discussed.

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1. Introduction

Green entrepreneurial orientation (GEO) has garnered considerable traction in academic and industrial spheres, as the demand for environmentally responsible business practices intensifies at both national and international levels (Ameer & Khan, 2022; Luu, 2021). Referred to as entrepreneurs' propensity to proactively and strategically pursue environmental and economic objectives through the development and introduction of green innovative products or services to the market (Chavez et al., 2021; Jiang et al., 2018), GEO cultivates a proactive, innovative, and value-driven culture toward environmental goals, facilitating firms to create environmentally conscious strategies and initiatives (Jiang et al., 2018; Luu, 2021). Such proactive posturing of firms not only enhances environmental performance but also generates superior financial benefits and long-term viability. Thus, GEO has emerged as a potent capability that not only shapes organizational behaviour to align organizational strategies with ecological goals but also facilitates the development of environmentally conscious innovative solutions for driving environmental performance while enhancing corporate economic outcomes (Jiang et al., 2018; Luu, 2021; Makhoulfi et al., 2022).

Similarly, green supply chain management (GSCM) continues to attract increasing interest among management scholars and practitioners, as the need for organisations to minimize their environmental footprint intensifies (Nisar et al., 2022; Sarkis et al., 2011; Sheng et al., 2023). The increasing relevance of

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GSCM reflects a broader recognition of the imperative to adopt eco-friendly strategies within organizational operations, underscoring its pivotal role in advancing environmental sustainability goals. In particular, GSCM practices, including green purchasing, and green supply chain integration are recognized for their significant role in the greening of supply chains and contributing to firms' economic bottom line (Wong et al., 2020; Yang et al., 2022; Zhang et al., 2020).

Both GEO and GSCM have generated substantial scholarly attention in distinct streams of literature (Ameer & Khan, 2022; Fahimnia et al., 2015; Tseng et al., 2019). For example, GEO literature has mainly focused on the concepts and drivers (Ameer & Khan, 2022; Makhouloufi et al., 2022); links with organisational culture and leadership (Guo et al., 2020; Verma & Kumar, 2022), effects on green innovation (Guo et al., 2020; Wang et al., 2022); and impact on corporate environmental and financial performance (Jiang et al., 2018; Shafique et al., 2021). Moreover, GSCM literature has largely centred on conceptual issues (Zhu et al., 2008); GSCM practices (Srivastava, 2007; Tseng et al., 2019); the antecedents (Diabat & Govindan, 2011; Tseng et al., 2019); and impacts on firm performance (Lee et al., 2012; Tseng et al., 2019).

Whilst these studies provide considerable insights into issues of GEO and GSCM as distinct concepts, there is limited insights into how the interface between these two research streams drives environmental and economic benefits. For instance, green purchasing, a key aspect of GSCM, promotes the procurement of eco-friendly goods and services to minimize environmental harm. As a gatekeeping function for securing eco-friendly inputs, green purchasing safeguards green practices and contributes to environmental sustainability within supply chains. Yet, we do not understand how GEO interfaces with green purchasing to drive environmental and financial performance outcomes.

Furthermore, GSCM research indicates that green supplier and customer integration, which denotes environmental-based cooperation between firms and their suppliers and customers, are instrumental in building green capabilities for GSCM (Flynn et al., 2010; Wang et al., 2022; Wong et al., 2020), and therefore, may be necessary conditions for achieving green objectives. For example, Toyota advocates for compatibility with supply chain partners regarding environmental concepts to achieve common sustainability goals, highlighting the importance of green suppliers and customer integration in environmental management (Zhang et al., 2020). Despite this recognition, there is little insight into the interaction effects of GEO and Supply Chain Integration—green supplier and customer integration—on GEO's link with firm performance via green purchasing.

To address this void in environmental management literature, this study develops and tests a model that argues that GEO may drive corporate environmental and financial performance outcomes, via green purchasing and that such indirect association may be conditional upon differences in levels of supplier and customer integration. We employ the natural resource-based theory and environmental principles to explain the proposed mechanism and boundary conditions. We take the view that linking GEO to GSCM practices may facilitate the consolidation and intersection of these two important streams of literature to broaden the scope and boundary of the green management theory and practices for enhanced corporate environmental and financial performance. In doing so, we seek to answer two key research questions:

Q1. Does green purchasing mediate the link between green entrepreneurial orientation and firm performance?

Q2. Does green supply chain integration moderate the link between green entrepreneurial orientation and firm performance via green purchasing?

Our paper contributes to the extant literature by expanding the current understanding of the linkage between GEO and corporate performance outcomes by showing how green purchasing may serve as a vital conduit through which GEO can be channelled into corporate environmental and financial performances. Second, by conceptualizing GEO as a firm-specific resource that stimulates green purchasing, and considering green supplier and customer integration as contingencies influencing the effects of GEO on environmental and financial performances through green purchasing, this study provides valuable managerial insights on how to amplify the corporate environmental and financial performance benefits associated with GEO. Thus, the study offers a more robust conceptualisation of the links between green entrepreneurship, green supply chain management, and corporate outcomes for enhanced management and practice of corporate sustainability interventions.

The subsequent sections of this paper are structured in the following manner. First, the study provides an extensive analysis of the extant literature on GEO and GSCM, with a specific emphasis on elucidating their intricate interplay with corporate performance outcomes. This was followed by the formulation of hypotheses; then the methodology which outlined the context of the study, measurement of constructs, data analysis and hypothesis testing. Next, the discussion section, the theoretical and managerial implications, potential limitations, as well as the prospects for future studies were presented.

2. Theoretical background

The study draws on the Natural Resource-Based View (NRBV), an extended form of the resource-based view (Barney, 1991) to incorporate environmental constraints into strategic decisions (Hart, 1995) as the theoretical framework of the study. The dominant argument of NRBV is that a firm's unique resources and capabilities, particularly those related to natural resources, can serve as a source of competitive advantage and superior performance (Hart, 1995). The theory provides the underlying reasoning that explains how firms can leverage their green entrepreneurial mindset and green supply chain practices to achieve environmental and commercial benefits (Arnold & Hockerts, 2011; Guo et al., 2020). Within the NRBV framework, we conceptualise green entrepreneurial orientation as a strategic input resource that influences firms' adoption of green supply chain management practices such as green supplier and customer integration, and green purchasing as transforming resources (Arnold & Hockerts, 2011; Guo et al., 2020). By effectively managing and leveraging these resources and capabilities, firms can create value, reduce costs, and enhance their commercial and market position while contributing to environmental sustainability goals (Hart, 1995). Thus, we adopt NRBV as a theoretical platform to explain how green entrepreneurial orientation can interface with green supply chain integration and green purchasing to drive firm financial and environmental benefits.

2.1. Green entrepreneurial orientation (GEO)

GEO continues to gain considerable traction in scholarly and industrial circles both as a concept and strategy of significant salience for addressing the environmental issues of businesses and the larger society (Ameer & Khan, 2022; Luu, 2021). A better appreciation of this concept may require an understanding of two related concepts, i.e. green entrepreneurship, and green orientation, as these are foundational concepts from which GEO is derived (Luu, 2021). Green orientation refers to the recognition of the criticality of environmental issues confronting society and the adoption of a proactive and innovative posture toward addressing these issues (Chan et al., 2012; Chavez et al., 2021). It is the proclivity for or predisposition to environmental concerns, characterised by a proactive approach and commitment to integrating environmental concerns and practices into business strategies and operations (Chavez et al., 2021; Luu, 2021). The second foundational concept, green entrepreneurship is defined by York et al., (2016, p. 725) as 'the use of both commercial and ecological logics to address environmental degradation through the creation of financially profitable organisations, products, services, and markets'. By consolidating these two concepts, GEO can be defined as a predisposition to proactively and strategically pursue economic and environmental benefits through the development and introduction of green innovative products or services into the market (Chavez et al., 2021; Jiang et al., 2018; Luu, 2021; York et al., 2016).

GEO manifests as an inclination to strategic identification and exploitation of eco-friendly business opportunities (Guo et al., 2020), and the propensity to proactively and strategically develop green innovative solutions to address existing and emerging needs. It entails the fusing of enthusiastic business ideas with green considerations, and embracing green values as a core corporate identity and a catalyst for competitive advantage (Allen & Malin, 2008). GEO emanates from two main sources of orientation: internal and external orientations (Chan et al., 2012; Chavez et al., 2021). Internal green orientation represents a corporate culture that is inherently pro-environmental in nature, leading to the development and implementation of environmental policies, procedures, and practices. This type of green orientation flows from organisational leadership and diffuses through the organisation, facilitating a collective consciousness that upholds the need to address environmental concerns through corporate decisions and actions (Chan et al., 2012; Chavez et al., 2021). Conversely, external green orientation depicts the degree

of seriousness or relevance that organisational leaders and members attach to the ecological concerns of external stakeholders. It shows how the management and members of an organisation view the potential consequences or risks that may arise if the organisation fails to address its external stakeholders' environmental concerns (Banerjee et al., 2003; Chan et al., 2012). Thus, while internal green orientation relates to a firm's green values, ethical standards, and environmental commitment, external green orientation relates to corporate ecological propensity that arises from the demands of external stakeholders (Banerjee, 2002; Chan et al., 2012).

In terms of underpinning theories, GEO and related concepts have been explored using various theories, key among these are the Resource-Based View (RBV) and related Natural Resource-Based View (NRBV) (Luu, 2021; Menguc & Ozanne, 2005); Dynamic capabilities theory (Jiang et al., 2018); organisational learning theory, and institutional theory (Chan et al., 2012). With inspiration from a resource-based view, Luu (2021) conceptualised GEO as a macro-level corporate resource which equips employees and other organisational members with a pro-environmental propensity, as well as requisite capabilities to facilitate the development of eco-friendly processes, products or services. Jiang et al. (2018) employ dynamic capabilities theory arguing that GEO facilitates the generation of novel products and processes which enables the identification and exploitation of opportunities, and value capture, thus, making GEO a dynamic capability. Chan et al. (2012) employ organisational learning theory to explain internal green orientation, arguing that the latter's influence is largely attributable to intra-organisational learning and sharing of knowledge among organisational members. Concerning external green orientation, Chan et al. (2012) employ institutional theory to explain the mechanism through which a firm may be influenced by formal or informal rules imposed by external stakeholders to induce pro-environmental inclination.

Empirical studies suggest various relationships between GEO and other organisational variables including firm performance, green employee behaviour, and green innovation (Chan et al., 2012; Chavez et al., 2021; Guo et al., 2020; Jiang et al., 2018; Luu, 2021). For instance, Jiang et al. (2018) reported the positive effects of GEO on corporate financial and environmental performance across a wide range of Chinese industries. Similarly, Luu (2021) found a positive effect of GEO on employees' green creative behaviour, via green creative self-efficacy and harmonious environmental passion under varying levels of green-quality communication.

Although existing studies have linked GEO to various organisational activities, processes and outcomes, there remain other vitally important corporate sustainability activities that are yet to receive the needed research attention. These neglected but critical corporate sustainability interventions include green purchasing and green supply chain integration, which this study seeks to integrate into the GEO literature.

2.2. Green purchasing (GP)

To align corporate practices to environmental concerns, many firms are resorting to the purchasing function mainly due to its strategic gatekeeping and boundary-spanning role (Appolloni et al., 2014; Hsu et al., 2014; Yang et al., 2022). The strategic application of the purchasing function to address corporate environmental goals is referred to as green purchasing (GP).

Min & Galle (2001) define GP to reflect environmentally conscious buying practices that minimise waste, promote recycling, and facilitate the reclamation of purchased products while ensuring that the performance requirements of the products are not compromised. In other words, GP is the acquisition of goods or services that consciously and deliberately ensures that purchased items have a limited adverse effect on both the natural environment and the well-being of individuals (Carter & Jennings, 2004). GP is reflected in practices such as setting green corporate policies and guidelines; adopting a lifecycle costing approach; product design for disassembly; and practising recycling, resource reduction, reuse, and eco-friendly disposal (Appolloni et al., 2014; Carter & Jennings, 2004; González-Benito et al., 2016; Hsu et al., 2014; Yang et al., 2022).

Scholarly works on GP has predominantly focused on its antecedents and outcomes (Eltayeb et al., 2011; Hsu et al., 2014; Yang et al., 2022; Yook et al., 2018). The main antecedents include legislation, customer pressures, expected benefits, corporate values, organisational leadership support, and

organisational culture (Appolloni et al., 2014; Eltayeb et al., 2011; Yang et al., 2022). Studies associate GP with various organisational outcomes including enhanced corporate reputation, green innovation and product improvement, financial performance, reduced operational costs, improved profitability, reduced risks of regulatory non-compliance, and enhanced corporate environmental performance (Appolloni et al., 2014; Carter et al., 2000; Yook et al., 2018). As observed in the earlier section, interactions between GP and GEO appear limited. Addressing these limited insights may be important for clarifying how green entrepreneurship may interact with green purchasing and supply to promote corporate sustainability outcomes. Hence the inclusion of GP in this study.

2.3. Green supply chain integration (GSCI)

Addressing the enormous and complex environmental challenges entailed in the management of supply chains effectively and efficiently requires collaborative and concerted efforts of supply chain partners (Dubey et al., 2015; Gölgeci et al., 2019). This recognition has brought into the limelight several supply chain relationship and collaboration concepts, key among these is *Green Supply Chain Integration* (GSCI) (Han & Huo, 2020; Wong et al., 2020; Wu, 2013). GSCI is a combination of two key supply chain management concepts, i.e. supply chain integration, and green supply chain management (Wolf, 2011; Wong et al., 2020). GSCI involves the use of supply chain integration as a strategic approach to attain environmentally sustainable outcomes within the supply chain. Flynn et al. (2010) conceptualise supply chain integration to reflect the degree to which a company strategically works with its supply chain partners and coordinates its internal and external operations to enhance the value for stakeholders effectively and efficiently. Drawing on this, GSCI is defined in this paper as the degree to which a company engages in strategic collaboration with its supply chain partners regarding environmental matters, as well as the management of internal processes aimed at enhancing stakeholder value in an environmentally sustainable and responsible manner.

GSCI can be conceptualised as consisting of two main categories of integrations: internal and external integration (Flynn et al., 2010; Wang et al., 2022). Internal GSCI denotes the degree to which a firm collaboratively structures and synchronises its internal strategies, processes and practices to achieve its environmental goals. External GSCI, in contrast, pertains to the degree to which a company engages in collaborative partnerships with its suppliers and consumers. These partnerships are aimed at jointly designing inter-organizational policies, strategies, processes, and practices that align with the objectives and outcomes of a green supply chain (Flynn et al., 2010; Wang et al., 2022; Wong et al., 2020). External GSCI can be further unpacked into green supplier and customer integration (Flynn et al., 2010; Zhao et al., 2021). These two external integrations are further elaborated as follows:

2.3.1. Green supplier integration (GSI)

The term 'GSI' relates to the extent to which a company and its suppliers collectively organise their strategies and systems to establish coordinated inter-firm environmental programmes and processes aimed at tackling environmental concerns (Du et al., 2018; Flynn et al., 2010; Zhang et al., 2020). It is the application of the concept of supplier integration to address issues of GSCM and entails practices such as forming strategic alliances with suppliers, synchronised planning, information sharing, and supplier development, to jointly address environmental issues in the supply chain (Wong et al., 2020; Zhao et al., 2021). From the conceptual perspective of Huo et al. (2013), GSI can be unpacked into system integration and process integration. System integration is a concept that pertains to the incorporation of green supplier integration, which serves as a framework for collaboration and strategic information exchange between a focal firm and its suppliers through the utilisation of technologies and networks. Process integration on the other hand represents the collaborative participation of a firm and its suppliers in the design, procurement, and production processes to facilitate improved supply chain environmental performance. Huo et al. (2013) refer to system integration as the 'hard' aspect of supplier integration, and process integration as the 'soft' side of the integration.

The system and process approach to understanding supplier integration is of vital significance to the implementation of GSI, as it brings into perspective the need to not only focus on the structural and

tangible aspects of the integration but more importantly on the relational or soft aspects as well. This perspective is echoed by several studies including Lockström & Lei (2013), Huo et al. (2013), Shah et al. (2020), and Zhang et al. (2020) which emphasise the need for supplier integration efforts to focus on the physical as well as the relational aspects of the integration.

Prior empirical studies have associated green supplier integration with various organisational performance outcomes including reduced operational costs and improved financial performance, corporate environmental performance, and green innovation (Du et al., 2018; Wong et al., 2020; Zhang et al., 2020; Zhao et al., 2021). For example, Zhang et al. (2020) found a direct positive link between green supplier integration and corporate environmental performance, and indirectly through environmental innovation. Du et al. (2018) also indicated a positive direct and indirect influence of green supplier integration on green innovation performance. In a related study, Li et al. (2016) reported a positive link between the financial success of companies and their implementation of supplier integration and green sustainability initiatives.

2.3.2. Green customer integration (GCI)

GCI is the degree to which a company integrates key downstream customers into its green product and service development, to facilitate eco-friendly purchasing, manufacturing, distribution, and marketing processes (Du et al., 2018; Wu, 2013; Zhao et al., 2020). Green customer integration is reflected in a collaborative relationship which aims at minimising negative environmental effects of outbound logistics activities and entails practices such as joint design, production, packaging, and distribution of eco-friendly products and services (Chan et al., 2012; Wong et al., 2020; Wu, 2013). Additional GCI practises include collaborative planning with customers to achieve corporate environmental objectives, collaborative identification of environmental measures to alleviate adverse environmental effects, collaboration on cleaner production initiatives, exchange of information, and establishment of strategic partnerships (Wong et al., 2020; Wu, 2013; Zhao et al., 2020).

Customer integration practices have over the years been deployed by firms as a key strategy not only for incorporating and assimilating customer needs and preferences but also as a potent mechanism for the exchange of information (Chavez et al., 2015; Wong et al., 2011), with the ultimate aim of enhancing firms' market responsiveness. Hence customer integration can serve as a vital tool for promoting effective eco-driven collaboration between a firm and its key customers to facilitate a joint design and implementation of environmental initiatives and practices (Flynn et al., 2010; Wong et al., 2011).

Empirical studies suggest diverse links between green customer integration and organisational variables. For example, Wong et al. (2020) observed that both cost savings and environmental performance outcomes of green customer integration manifest through green process innovation. Additional finding suggests that green customer integration has a beneficial impact on both product and process innovation. Du et al. (2018) also identified a positive link between green customer integration and green innovation performance under a condition of internal integration. Zhao et al. (2020), in a related study, found that the positive effect of green customer integration on green product innovation is salient when channeled through information-sharing quality.

While the notion of supply chain integration has received attention in sustainability research, there are still significant dimensions that have not been thoroughly investigated. One such dimension is the relationship between supply chain integration and green entrepreneurial orientation. Exploring this link will contribute to the integration of the two important fields of green supply chain and entrepreneurship management for a more holistic and interdisciplinary understanding of corporate green management issues. To this end, this study sought to examine the interaction effects of green supplier and customer integrations on GEO's relationship with corporate environmental and financial performance via GP practices.

2.4. Environmental performance

Environmental performance is applied in this paper to denote the degree to which a firm achieves its environmental objectives and responsibilities (Dubey et al., 2015; Yang et al., 2011). Environmental

performance manifests in outcomes such as the extent of pollution and waste reduction; minimisation of resource consumption, especially non-renewable resources; the extent of resource recycling and reuse; reduced emissions as well as and the usage of hazardous products. Other manifestations of environmental performance include the degree of compliance with relevant legal and regulatory environmental requirements, the implementation of environmental codes and standards such as ISO 14000 certifications, and the extent to which the whole-of-life approach is applied to analysing cost and benefits of products or services (Dubey et al., 2015; Esfahbodi et al., 2016; Yang et al., 2011).

Environmental performance as the resultant effect of green corporate practices has relatively strong support in the extant literature (Chavez et al., 2021; Esfahbodi et al., 2016; Jiang et al., 2018; Wong et al., 2020). For example, Esfahbodi et al. (2016) found a significant positive effect of sustainable supply chain management on corporate environmental performance. More recently, Chavez et al. (2021) found a positive link between environmental orientation and environmental performance.

2.5. Financial performance

The concept of financial performance refers to the degree to which a company attains its profit-driven goals and fulfils the economic expectations of its shareholders (Esfahbodi et al., 2016; Feng et al., 2018; Yang et al., 2011). Profitability-related outcomes, such as return on investment, return on sales, return on assets, return on capital used, and cost efficiency are common indicators of financial performance (Feng et al., 2018; Lo et al., 2012; Yang et al., 2011). The traditional approach to achieving corporate financial goals has mainly been about the pursuit of narrow economic gains and profit maximisation strategies. In recent times however, ecological and other sustainability initiatives are increasingly being deployed to achieve reliable and lasting corporate performance (Jiang et al., 2018; Laguir et al., 2021; Lo et al., 2012). Corporate environmental practices can facilitate and enhance firms' financial performance through processes such as green innovation, and product and process efficiency (Feng et al., 2018; Jiang et al., 2018). For example, green strategies and practices can create opportunities for developing innovative eco-friendly products or processes, which may contribute to resource efficiency, waste reduction, and product recovery, which have positive implications for financial performance.

Empirical findings regarding the effect of green corporate practices on financial performance have been mixed; whilst studies such as Jiang et al. (2018), and Lo et al. (2012) report a positive association between green corporate practices and financial performance, other studies including Wang & Sarkis (2013), and Yang et al. (2011) suggest that green supply chain practices alone could negatively affect corporate financial performance. Others find neither a positive nor negative link between GSCPs and financial performance (Esfahbodi et al., 2016; Galeazzo et al., 2021). These inconsistent and contradictory results warrant further exploration of the link between GSCPs and firm performance. In this study, we explore further the link between GEO and firm financial and environmental performance under intervening conditions of green purchasing practices and green supply chain integration (see Figure 1). The research hypotheses are formulated in the ensuing sections.

2.6. Hypothesis formulation

2.6.1. Green entrepreneurial orientation and environmental performance

Environmental degradation and its implications on sustainability remain a global concern for all governments and policymakers (Kasayanond et al., 2019). Businesses are constantly urged to embrace responsible business practices that address the current economic needs while protecting the environment (Jiang et al., 2018). Consequently, green entrepreneurship orientation (GEO) emerges as a critical driver of environmental sustainability that encourages green business practices to reduce ecological consequences (Makhloufi et al., 2022). The literature highlights the cultural influence and leadership capabilities of GEO, which can motivate companies to adopt proactive and voluntary green practices (Arnold & Hockerts, 2011; Guo et al., 2020). The Natural Resource-Based View (NRBV) recognises GEO as a strategic resource embedded within the core organizational culture that can be harnessed to drive environmental goals (Hart, 1995). Accordingly, drawing on NRBV, we contend that firms with strong GEO are likely to demonstrate environmentally responsible business practices to enhance environmental performance.

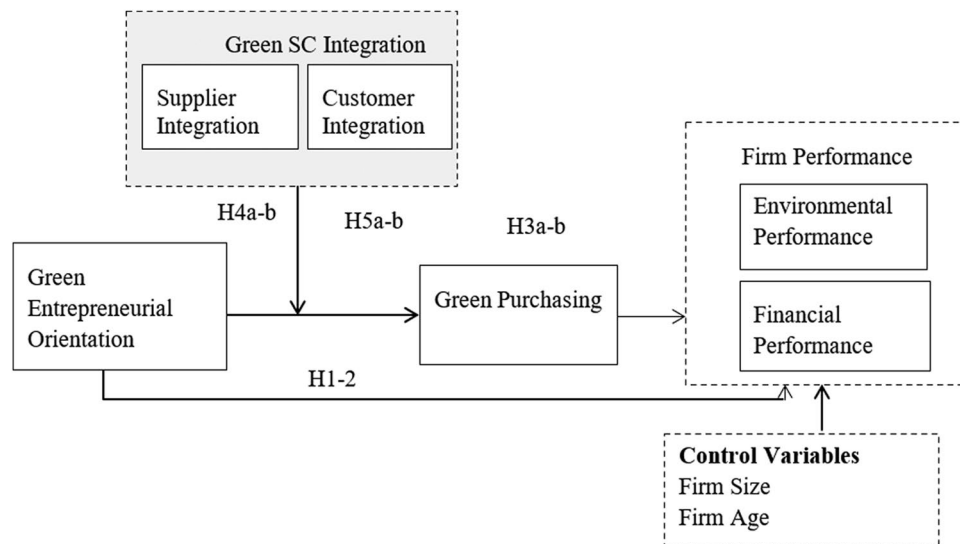


Figure 1. Research model.

First, as entrepreneurship literature indicates, truly green entrepreneurial-oriented firms should be characterized by proactive, innovative, and risk-taking tendencies (Guo et al., 2020). The proactiveness and innovativeness embedded in GEO enable green entrepreneurial firms to strategically develop green innovative culture and capacity through green human resource training and environmental consciousness to drive environmental management programmes. In particular, the green innovativeness of GEO allows firms to create novel products and processes through R&D and creativity to contribute to environmental cleaning, healing, and recovery (Rehman et al., 2021). As Weng et al. (2015) suggest, green products and process development reduce firms' detrimental effects on the environment.

Second, the risk-taking characteristics of GEO inspire green entrepreneurs to explore and utilize technologies that can provide efficient solutions for green product designs and cleaner production by exploiting renewable energy, water quality, and eco-friendly production processes (Gobbo et al., 2018; Li et al., 2020). Such initiatives not only reduce harmful emissions and consumption of toxic substances but also safeguard the safety and health of employees and the public (Chuang & Yang, 2014). Thus, pro-environmental entrepreneurs have the proclivity to explore technologies and develop green innovative business practices such as recycling, product recovery, and reuse to create market value while reducing environmental degradation to enhance environmental performance. This proposition is supported by prior evidence (Jiang et al., 2018; Makhouloufi et al., 2022). We accordingly hypothesize that:

H1: Green entrepreneurial orientation has a positive effect on environmental performance.

2.6.2. Green entrepreneurial orientation and financial performance

The NRBV theory posits that the adoption of environmental initiatives such as pollution avoidance, product stewardship, and sustainable development can significantly improve companies' competitiveness and economic performance (Hart, 1995). Consequently, by its capacity to harmonize ecological and economic logic, we further argue that beyond its environmental benefits, GEO may drive financial performance.

Green entrepreneurship focuses on stimulating demand for green products and services and fulfilling environmental and commercial needs via the production of eco-friendly products and services (Guo et al., 2020). The proactive and innovative nature of GEO helps fulfil these goals by allowing green entrepreneurial firms to design and produce environmentally friendly products and services that satisfy consumer needs while addressing market failure. Specifically, GEO promotes efficient and sustainable utilisation of resources in the value creation processes through the exploitation of new ideas and economically sustainable resources such as solar energy to improve cost savings. In the wake of intense global campaigns for environmental sustainability, firms can reap financial benefits for being ecologically responsible as consumers purchasing behaviours are influenced by environmental consciousness.

In addition, with their risk-taking propensity and the willingness to exploit untapped opportunities, including investing in high-uncertainty environments, green entrepreneurs are likely to benefit from first-mover advantage by leveraging their green creativity and innovativeness to offer new products and services that address the ecological and market needs (Jiang et al., 2018). These market offerings also confer a competitive advantage to environmentally conscious firms and establish a profitable market position that is difficult for competitors to imitate (Boso et al., 2017). Thus, more sustainable financial performance is expected to accrue to firms with strong GEO.

Furthermore, financial performance is influenced by the positive image and reputation associated with a firm. The green creativity mindset and environmental consciousness characterising green entrepreneurship encourage adherence and compliance with environmental laws and protection requirements to avoid penalties, fines, and bans (Jiang et al., 2018). This not only safeguards and enhances corporate reputation and image, but also helps establish a more distinctive picture publicly and build a positive brand image in consumers' minds (Leonidou et al., 2015), thereby enhancing firms' competitive position and financial performance. We, therefore, propose the following hypothesis:

H2: Green entrepreneurial orientation has a positive effect on financial performance.

2.6.3. The mediating role of green purchasing

While GEO may be closely associated with environmental and commercial outcomes, firms with GEO may not successfully achieve these automatically because the green business process is more complex and demanding than conventional business routines (Guo et al., 2020). As such, achieving both environmental and commercial goals simultaneously requires deliberate corporate-wide green policy which can be attained through initiatives such as green purchasing. Purchasing takes on a boundary-spanning role within organisations through which the inputs of production and services are supplied for organisations' operations (Bals et al., 2019; Yee et al., 2021). As an input phase of firms' operations, the green purchasing function seeks to balance the strategic priorities of firms on an ongoing basis (Yee et al., 2021). Green Purchasing (GP) depicts the degree to which a firm engages in ecologically conscious buying practices to secure environmentally sustainable inputs to meet the firm's environmental objectives (Carter & Jennings, 2004; Hsu et al., 2014; Yang et al., 2022).

The argument of NRBV assumes that organizations can achieve competitive advantage and superior performance in the marketplace by focusing on environmentally responsible initiatives including green purchasing practices (Hart, 1995; Singh et al., 2020). Prior studies indicate that the industrial development of environmental and commercial management at the firm level largely reflects on green purchasing practices such as buying eco-friendly products that have less deleterious impacts on the environment and are also economically beneficial (Chan, 2013; Chan et al., 2012; Haden et al., 2009; Yee et al., 2021). From the NRBV logic, and with its role of securing green inputs for a firm's pro-environment economic activities, GP represents an important operational vehicle for environmental management and firm financial benefits (Yee et al., 2021). Along this line, we argue that, since GEO focuses on promoting green production processes to generate economic value while safeguarding the environment, the environmental and financial performance benefits of GEO can be explained by GP.

First, as a support function in the firms' value-creating process (Porter & Advantage, 1985), and with its organisation-wide influence on green practices, GP facilitates the execution of green entrepreneurial policies and activities through the sourcing and supply of green inputs and supplies to drive firms' environmental objectives (Zhu et al., 2008; Zhu & Sarkis, 2007). Second, with its capacity to reduce pollution and utilise recycled and reusable materials as raw materials through green specifications, GP not only contributes to environmental stewardship but also improves cost saving and maximises profit (Hasan et al., 2019). Thus, beyond its being an environment-protecting mechanism and initiative, GP also offers cost-saving and revenue-maximization benefits. In addition, GP enables green entrepreneurs to capitalize on competitive advantages by enhancing brand reputation, attracting green-oriented consumers, and improving profit. Third, establishing a long-term quality relationship with pro-environmental suppliers is key to achieving green entrepreneurial goals (Du et al., 2018). GP facilitates such relationships by embedding green criteria in the supplier selection process. Such utilitarian characteristics of green purchasing enable firms to integrate ecological and commercial logic to address environmental challenges while pursuing economic efficiency.

Consequently, green entrepreneurial-oriented firms are more likely to adopt GP practices to drive green entrepreneurial activities. The underlying logic is that GEO can influence GP by fostering a corporate culture that prioritizes environmentally responsible decision-making and innovation, thereby encouraging the procurement of environmentally friendly products, inputs, and services. This orientation is likely to inspire green sourcing practices, and supplier selection based on environmental criteria, resulting in increased GP behaviour. In turn, GP is expected to facilitate firms' green activities such as green innovation and cleaner production practices to deliver environmentally friendly products and services in response to customer needs and improve environmental performance. It is also likely to enhance firms' competitive position and financial performance through cost-saving and product differentiation (Leonidou et al., 2015). As prior research indicates, GP plays a crucial role in attaining the triple-bottom-line goals of a firm (Yee et al., 2021). Accordingly, we argue that GP serves as a mechanism through which GEO may translate into environmental and economic benefits. This proposition is consistent with prior evidence (Appolloni et al., 2014; Ghosh, 2018; Jia & Wang, 2019; Yook et al., 2018). Hence it is hypothesized that:

H3a: Green entrepreneurial has an indirect, positive relationship, via green purchasing, with environmental performance.

H3b: Green entrepreneurial has an indirect, positive relationship, via green purchasing, with financial performance.

2.6.4. The moderating role of green supply integration

Although GEO aims at driving ecological protection and firm financial performance (Habib et al., 2020), firms may find it more difficult to achieve such objectives on their own because the challenges involved exceed the organization's internal capabilities, particularly in developing economies (Chiou et al., 2011; Guo et al., 2020; Wu et al., 2012). Scholarly works emphasise that beyond firms' internal cooperation, integration with suppliers and customers is especially necessary for successful environmental management (Yang et al., 2020; Zhang et al., 2019; Yu et al., 2014). The reason is that such a collaborative network offers a strategy that bridges organizational boundaries to provide access to a broader pool of novel knowledge and unique capabilities to advance environmental initiatives (de Sousa Jabbour et al., 2014; Du et al., 2018; Woo et al., 2016; Wu et al., 2014; Yang et al., 2020). Thus, green supplier and customer integration, referred to as the extent to which suppliers and customers are involved in the firm's environmental management practices through the exchange of information and knowledge (Feng et al., 2021; Vachon & Klassen, 2008; Woo et al., 2016), take on a crucial role in widening an organization's knowledge and technology boundaries towards green practices.

From the resource-based view logic, an organisation has the potential to achieve and maintain a competitive advantage and superior performance by effectively developing and utilising its resources, including assets, capabilities, processes, information, and knowledge (Eisenhardt & Martin, 2000). To ensure its survival, a firm should engage in the creation of novel resources, develop its existing capabilities, and enhance its level of inimitability for competitive benefit (Barney, 1991; Peteraf, 1993). From the RBV line of reasoning, we argue that the resources embedded in green supplier and customer integration provide the necessary capabilities and conditions for the implementation of environmental initiatives such as GP practices (Yu et al., 2017).

In the green entrepreneurship context, integration can influence suppliers environmental perceptions, which in turn may stimulate their green behaviour. In particular, when suppliers perceive high value from the green integrative relationship, they will be motivated to exchange the knowledge and resources required to develop capabilities for GP practices collectively. As environmental literature suggests, firms with strong integrated partnerships have the benefit of green knowledge and information exchange which provide flexible solutions for green supply chain practices (Du et al., 2018). More specifically, green supplier integration allows firms to, not only have access to suppliers' technical resources such as technology for recycling and eco-design but also benefit from joint specification development and design of green supplies. Such specialised resources facilitate and enhance green entrepreneurial firms' ability to implement GP practices to drive green production activities. Even suppliers, particularly small and medium-sized firms, that lack green competencies and resources due to the liability of smallness and

newness can be oriented and trained through integration to develop their green capabilities to facilitate green activities. In sum, involving suppliers in the green initiatives contributes to firms' knowledge and experience about novel concepts and technologies that embolden firms' green entrepreneurial proclivity in pursuing environmental operations such as GP practices (Du et al., 2018). Thus, the influence of GEO on green purchasing practices is expected to improve under high conditions of supplier integration. We, therefore, hypothesize that:

H4a: Green supplier integration moderates the positive indirect relationship between green entrepreneurial orientation and environmental performance, via green purchasing.

H4b: Green supplier integration moderates the positive indirect relationship between green entrepreneurial orientation and financial performance, via green purchasing.

Similarly, green customer integration fosters partnerships between firms and their downstream partners on green solutions (Woo et al., 2016; Yang et al., 2020). Such collaborative partnership efficiently provides access to information and knowledge resources that enable green entrepreneurial firms to understand customers' green needs to facilitate GP decisions and practices (Feng et al., 2021; Vachon & Klassen, 2008; Wong et al., 2015). Thus, firms that involve customers in environmental management are more likely to create an atmosphere of shared and mutual responsibility for environmental solutions (Du et al., 2018; Feng et al., 2021; Woo et al., 2016). The underlying logic is that environmentally conscious consumers prioritise the ecological attributes of novel products (Chen & Liu, 2022) and as such are better positioned to offer market-driven perspectives on green developmental issues to inform green solutions. Hence, we contend that firms with a focus on environmental sustainability are likely to experience greater benefits when they embrace customer integration to promote and implement green practices. Thus, under high levels of green customer integration, the instrumental benefit of GEO for driving green purchasing practices is likely to be more salient. Thus, we propose the following hypotheses:

H5a: Green customer integration moderates the positive indirect relationship between green entrepreneurial orientation and environmental performance, via green purchasing.

H5b: Green customer integration moderates the positive indirect relationship between green entrepreneurial orientation and financial performance, via green purchasing.

3. Methods

3.1. Sampling and data collection

We obtained data from Ghana, a sub-Saharan African emerging economy (African Development Bank Group, 2020). Ghana, like other economies in sub-Saharan Africa, exhibits deficiencies in market-supporting institutions and regulatory enforcement capacity, despite its recognition as one of the rapidly expanding economies in the sub-region (Acquaah, 2007; Adomako et al., 2021; African Development Bank Group, 2020). Consequently, firms operating in Ghana's manufacturing and service sector tend to explore strategies such as supply chain integration as a buffering mechanism to cope with constraints and uncertainty due to institutional weakness, and underdeveloped capital markets and supply chain infrastructure (Adomako et al., 2021; Essuman et al., 2022). Additionally, Ghana is institutionally weak in monitoring, rewarding, and punishing undesirable corporate behaviour (Boso et al., 2017). Such an institutional environment offers a suitable context to test sustainability and economic performance outcomes. Furthermore, similar to other Sub-Saharan African countries, Ghana faces environmental challenges due to industrial activities, particularly from the manufacturing and service sectors (Ali et al., 2021; Nkrumah et al., 2021). Accordingly, studying the interface of green entrepreneurial orientation and green supply chain management practices in the service and manufacturing sectors in Ghana is important in addressing environmental concerns and fostering eco-friendly business practices. Again, Ghana shares similar characteristics of environmental issues with other developing economies, offering a perspective and insight that are relevant to other developing markets. Hence, Ghana offers a unique context to evaluate the study model to offer insight from an underdeveloped market perspective.

Following previous research (Danso et al., 2020; Jiang et al., 2018), our study model was examined using cross-sectional survey data. This approach aligns with the general positivist paradigm, emphasizing objective measurement, quantification, and generalizability (Bonache, 2021). Our study primarily concentrated on firms that have operated for a minimum of three years with full-time employees of not less than 5. To enhance the external validity of the study, we targeted firms operating in the service and manufacturing sectors. Furthermore, in keeping with prior research (Essuman et al., 2022), we focused on firms that had top/senior managers with considerable knowledge about the issues under investigation (Anin et al., 2024), at least three years of managerial experience, are literate enough to self-respond to the survey instrument; and willing to participate in the study. We targeted firms situated in two prominent commercial and industrial centres within the country, namely the Greater Accra and Ashanti regions (Essuman et al., 2022) as these cities represent the business hubs in Ghana. The organisations included in this study were selected from a database of organisations provided by the Ghana Statistical Service Department. In line with prior research (Chowdhury et al., 2019), we employed purposive sampling technique at the firm level to select competent and literate informants from whom relevant information could be obtained to address the study objectives. Given the underdeveloped mailing systems in Ghana, we adopted a face-to-face approach to administer the questionnaires using a team of trained field agents.

Prior to data collection, we received ethical approval from the Kumasi Technical University Research Ethics Committee, ensuring adherence to ethical standards for research involving human participants. To better understand our purposes and for ethical reasons, the questionnaires sent to respondents were accompanied by a written consent and a description of this survey. A total of 600 questionnaires were distributed to senior managers through personal delivery after initial engagement via telephone to secure their consent to participate in the research. After a few rounds of follow-ups, 248 questionnaires were obtained. Due to incomplete responses, 23 questionnaires were discarded leaving 225 valid responses, representing an effective response rate of 37.5%. An average organisation had operated for 15 years (std. Dev. = 7.46) with an average of 21 full-time employees (std. Dev. = 34.54).

3.2. Variables and measures

Measures for the study constructs were drawn from the extant literature. We reviewed the existing pool of measures to identify items that tap into the conceptual domain of the constructs in the study. Notably, we employed indicators that align with the operational definitions of the constructs under investigation and are pertinent to the research context. An initial version of the survey questionnaire was developed and afterward distributed to a group of five experienced practitioners and two academics who possess specialised knowledge in the subject matter being investigated. This exercise facilitated the revision of the questionnaire to enhance the clarity of items, establish face validity, ensure content validity, promote conciseness, and achieve contextual appropriateness. Table 1 presents the final measures for each construct.

Green entrepreneurial orientation was measured with three items adapted from Jiang et al., (2018) to reflect the extent of green innovativeness, market proactiveness, and risk-taking regarding the way a firm operates. The items were anchored on a 7-point scale, where 1 = strongly disagree and 7 = strongly agree.

Green purchasing was operationalised as the process of procuring goods, services, and works with a reduced whole-life environmental impact (Carter & Jennings, 2004; OECD, 2011). Four items were adapted from Carter & Jennings (2004) with complementary insights from Chan et al. (2012) to measure the construct. The items were anchored on a 7-point scale from 'not at all (=1)' to 'to an extreme extent (=7)'.

Given that the broad perspective of green integration does not account for the potential variation in performance outcomes from different dimensions of green supply chain integration, the study, in line with prior research (Wong et al., 2020), conceived green supply chain integration into green supplier integration and green customer integration.

Green supplier integration represents the extent of a firm's collaboration with suppliers to jointly address environmental issues through information sharing with suppliers (Wong et al., 2020). The construct was measured with four items adapted from Wong et al. (2020). *Green customer integration*, on the other hand, was captured with four items adapted from Wong et al. (2020) to reflect the degree of the firm's collaboration with customers to jointly address environmental issues through shared environmental

Table 1. Confirmatory factor analysis.

Construct/Items	Loading	t-value
Green Entrepreneurial Orientation (CR = .72; AVE = .65; CA = .71)		
We have a strong propensity for high-risk green product development projects which have a chance for very high returns	0.58	Fixed
Our firm possesses a proactive and adventurous mindset towards green initiatives in the face of uncertainties.	0.74	6.79
We initiate green actions for competitors to respond to.	0.71	6.76
Green Purchasing (CR = .94; AVE = .76; CA = .94)		
Buying products designed for recycling or reuse	0.93	Fixed
Buying environmentally friendly products	0.95	28.06
Dealing with environment-friendly suppliers	0.89	22.76
Providing design specifications to suppliers that include environmental requirements for the purchased item	0.79	16.74
Green Supplier Integration (CR = .88; AVE = .64; CA = .87)		
Work with our suppliers to achieve environmental goals collectively	0.84	Fixed
Work with our suppliers to gain a mutual understanding of environmental responsibilities	0.68	10.96
Work with our suppliers to reduce environmental impacts	0.86	14.70
Jointly plan with suppliers to resolve environmental-related problems	0.80	13.57
Green Customer Integration (CR = .84; AVE = .57; CA = .83)		
Cooperate with customers to achieve environmental goals collectively	0.74	Fixed
Work with customers to gain a mutual understanding of environmental responsibilities	0.79	11.05
Work with customers to reduce environmental impacts	0.85	11.57
Jointly plan with customers to resolve environmental-related problems	0.61	8.61
Environmental Performance (CR = .93; AVE = .82; CA = .93)		
Reduction of wastes and emissions (such as air emissions, wastewater and solid wastes)	0.92	Fixed
Reduction of environmental impacts of our products/service	0.93	22.29
Reduction of energy and materials consumption	0.86	19.02
Financial Performance (CR = .89; AVE = .73; CA = .89)		
Sales growth	0.82	Fixed
Market share growth	0.93	15.64
Profit growth	0.81	14.06
Model Fit Indices: $\chi^2=209.15$; $df = 174$; $\chi^2/df = 1.20$; $p=0.04$; RMSEA = 0.03; NNFI = .98; IFI = .99; CFI = .99		

information sharing with customers. Each set of items for both green supplier integration and green customer integration was anchored on a 7-point scale ranging from 'strongly disagree (=1)' to 'strongly agree (=7)'.

Environmental performance was operationalised to reflect the degree to which a firm operates to meet its environmental goals (Jiang et al., 2020). We adapted three items from Jiang et al. (2020) to capture the environmental performance.

Finally, we measured *financial performance* with three items from Jiang et al. (2020) to reflect the degree to which the firm meets its financial goals. Both environmental performance and financial performance were rated on a 7-point scale ranging from 'strongly disagree (=1)' to 'strongly agree (=7)'.

3.2.1. Control variables

Consistent with prior empirical studies (Boso et al., 2017; Danso et al., 2020), we controlled for firm size (i.e. natural log of the number of full-time employees), and firm age (i.e. natural log of the number of years of operation as firm performance consequences of green entrepreneurial orientation might vary along with these characteristics).

4. Data analysis and results

4.1. Measurement validation and reliability

To evaluate the validity and reliability of the measures, we adopted a covariance-based CFA with a maximum likelihood (ML) estimator in LISREL 8.5 (Hair et al., 2014). As presented in Table 1, the model has a good fit for the data given: $\chi^2=209.15$; $df = 174$; $\chi^2/df = 1.20$; $p=0.04$; RMSEA = 0.03; NNFI = .98; IFI = .99; CFI = .99 (Bagozzi & Yi, 2012; Hair et al., 2014). Also, Table 1 displays the factor loadings and their corresponding t-values, Cronbach's alpha (CA), average variance extracted (AVE) and composite reliability

(CR). Almost all the factor loadings are greater than 0.60 and they are statistically significant. Also, the CA, AVE and CR values for each of the set of measures are greater than the recommended thresholds of 0.60, 0.50 and 0.70, respectively. This demonstrates that uni-dimensionality, convergent validity and reliability are achieved in the set of measures (Bagozzi & Yi, 2012; Hair et al., 2014). Additionally, as shown in Table 2, the AVE values are greater than the squared correlations between the constructs. Discriminant validity is therefore achieved.

4.2. Common method bias assessment

To reduce common method bias (CMB), we employed procedural remedies in the main survey. Following the guidance provided by measurement experts (Podsakoff et al., 2012), a cover letter was used to elucidate the scholarly nature of the research and ensure the confidentiality of participants, thereby mitigating the influence of social desirability bias. Various scale formats were employed to assess the predictor, mediators, moderators, and outcome variables, to minimise acquiescence biases. In addition, to mitigate the effects of the consistency motif and illusionary correlation biases, we incorporated additional items into the questionnaire to temporarily disentangle the measures for the predictor and outcome variables.

Not only did the study follow procedural remedies to check for CMB. Statistically, the potential CMB issue was also addressed (Podsakoff et al., 2012). Specifically, three alternative models were generated in line with Cote and Buckley' (1987) guidelines (see Table 3). The initial model estimated was the method-only model. In this model, all the indicators were put onto a single latent factor without any exclusions and the fit indices were $\chi^2=5179.97$; $df = 434$; $\chi^2/df = 11.94$; $p=0.00$; RMSEA = 0.22; NNFI = .44; CFI = .47; and SRMR = 0.19. Secondly, we estimated the trait-only model. Here, each indicator was loaded on its latent factor and the fits indices were $\chi^2=1014.03$; $df = 419$; $\chi^2/df = 2.42$; $p=0.00$; RMSEA = 0.08; NNFI = .90; CFI = .91; and SRMR = 0.05. The third was the method and trait model. In this model, we included a common factor which linked all the indicators in the second model given $\chi^2=762.19$; $df = 382$; $\chi^2/df = 2.00$; $p=0.00$; RMSEA = 0.07; NNFI = .92; CFI = .93; and SRMR = 0.05. Assessment of the three models shows that models 2 and 3 are better than the trait-only and the trait and method models are significantly better than the method-only model, suggesting that CMB does not characterize the data.

4.3. Hypothesis testing

Table 2 presents the descriptive statistics, the correlation between the constructs and the discriminant validity results. In Table 4, the main hypotheses and results of the study are displayed. Specifically, we employed Hayes' PROCESS Models 4 and 7 in SPSS to test the hypotheses because it helped the researchers to test for the statistical strength of the indirect and conditional indirect effects using the bootstrap procedure (Essuman et al., 2021; Hayes, 2018). As presented in Table 4, the results show that GEO

Table 2. Descriptive, correlation and discriminant validity results.

Variables	1	2	3	4	5	6	7	8
1. Green Entrepreneurial Orientation	(.65)	.04	.12	.04	.05	.01	–	–
2. Green Purchasing	.21**	(.76)	.01	.00	.18	.16	–	–
3. Green Supplier Integration	.34**	.12	(.64)	.08	.04	.01	–	–
4. Green Customer Integration	.20**	–.01	.29**	(.57)	.01	.00	–	–
5. Environmental Performance	.22**	.42**	.19**	.10	(.82)	.07	–	–
6. Financial Performance	.12	.40**	.09	–.03	.26**	(.73)	–	–
7. Firm size (log)	.04	.04	.07	–.11	.01	–.09	(-)	–
8. Firm Experience (log)	.04	.01	.00	–.06	.06	.03	.41**	(-)
Mean	6.39	3.68	5.43	5.91	5.03	3.83	2.66	2.61
Standard Deviation	0.59	2.04	1.07	0.87	1.65	1.84	0.75	0.46

Notes: Values along the diagonal are average variance extracted; Values above the diagonal are the squared correlations between the constructs.

** $p < 0.01$ (2-tailed).

$N=225$.

Table 3. CMB assessment.

Measurement Model	χ^2	df	χ^2/df	P	RMSEA	NNFI	CFI	SRMR
Method-only	5179.97	434	11.94	0.00	0.22	0.44	0.47	0.19
Trait-only	1014.03	419	2.42	0.00	0.08	0.90	0.91	0.05
Trait and Method	762.19	382	2.00	0.00	0.07	0.92	0.93	0.05

Note: χ^2 : Chi-square; df: degree of freedom; χ^2/df : Normed Chi-square; RMSEA: root mean square error of approximation; NNFI: non-normed fit index; CFI: comparative fit index; SRMR: standardized root means square residual.

positively affects environmental performance ($\beta = .370$, $SE = .171$, $p < .05$) in support of H1. On the contrary, GEO did not have a significant effect on financial performance ($\beta = .126$, $SE = .194$, $p > .05$), thus rejecting H2. Further, the study found that GP positively affects environmental performance ($\beta = .320$, $SE = .050$, $p < .01$) and financial performance ($\beta = .358$, $SE = .057$, $p < .01$). Moreover, green entrepreneurial orientation positively affects GP ($\beta = .671$, $SE = .244$, $p < .01$) and ($\beta = .750$, $SE = .230$, $p < .01$).

In H3a and H3b, we argued that GP mediates the link between GEO and environmental and financial performances. As displayed in Table 4, the results demonstrated that GEO has a significant positive indirect effect on environmental performance via GP (*indirect effect* = .231, $SE = .074$, 95% *bootstrap confidence interval*: .100 to .391). Similarly, the results indicate a full mediation effect of GP in the GEO-financial performance relationship (*indirect effect* = .259, $SE = .085$, 95% *bootstrap confidence interval*: .103 to .439), offering support for both H3a and H3b.

Furthermore, results for the conditional indirect effect of green supplier integration in the relationship between GEO and environmental performance via GP demonstrated an index of .010, $SE = .053$ and 95% bootstrap confidence interval: -.087 to .116. However, further analysis revealed that the effect is significant at both low (*effect* = .204, $SE = .084$, 95% *bootstrap confidence interval*: .041 to .372) and high (*effect* = .225, $SE = .111$, 95% *bootstrap confidence interval*: .009 to .444) levels of green supplier integration. Though both extreme levels were significant, the effect is stronger at high levels, suggesting that the conditional indirect effect of GEO on environmental performance via GP is stronger at high levels of green supplier integration (see Figure 2). Hence H4a is supported. In the same vein, results for the conditional indirect effect of green customer integration in the relationship between GEO and environmental performance via GP demonstrated an index of .103, $SE = .075$ and 95% bootstrap confidence interval: -.061 to .240. Again, further analysis revealed that the effect is significant at high levels of green customer integration (*effect* = .330, $SE = .100$, 95% *bootstrap confidence interval*: .145 to .537). This means that the conditional indirect effect of GEO on environmental performance via GP is significant at high levels of green customer integration, providing support for H4b (see Figure 3).

Finally, results for the conditional indirect effect of green supplier integration in the relationship between GEO and financial performance via GP demonstrated an index of .011, $SE = .056$ and 95% bootstrap confidence interval: -.098 to .126. However, further analysis revealed that the effect is significant at both low (*effect* = .228, $SE = .098$, 95% *bootstrap confidence interval*: .040 to .423) and high (*effect* = .252, $SE = .124$, 95% *bootstrap confidence interval*: .013 to .498) levels of green supplier integration. Likewise, the effect is stronger at high levels and thus suggests that the conditional indirect effect of GEO on financial performance via GP is stronger at high levels of green supplier integration. H5a is thus supported. Equally, results for the conditional indirect effect of green customer integration in the relationship between GEO and financial performance via GP demonstrated an index of .115, $SE = .083$ and 95% bootstrap confidence interval: -.066 to .268. Once more, further analysis revealed that the effect is significant at high levels of green customer integration (*effect* = .369, $SE = .118$, 95% *bootstrap confidence interval*: .154 to .623). This means that the indirect effect of GEO on financial performance via GP is significant at high levels of green customer integration, providing support for H5b. Table 5 provides summary of findings.

5. Discussions

While green entrepreneurship and green supply chain management (GSCM) are acknowledged as vital industrial strategies for ecological management (Jiang et al., 2018; Makhoulfi et al., 2022; Wong et al., 2020; Yang et al., 2022), there remains a gap in understanding how the intersection of Green entrepreneurial orientation (GEO) and GSCM may be leveraged to optimize corporate environmental and financial

Table 4. Hypothesis results.

Predictors	Outcome Variables			
	GP	GP	ENVP	FINP
	β (SE)	β (SE)	β (SE)	β (SE)
Controls				
Firm Size (log)	.097 (.198)	.101 (.197)	-.082 (.146)	-.337 (.166)*
Firm Experience (log)	-.055 (.318)	-.076 (.316)	.238 (.235)	.330 (.267)
Main Effect				
Green Entrepreneurial Orientation (GEO)	.671 (.244)**	.750 (.230)**	.370 (.171)*	.126 (.194)
Green Purchasing (GP)	—	—	.320 (.050)**	.358 (.057)**
Green Supplier Integration (GSI)	.102 (.136)	—	—	—
Green Customer Integration (GCI)	—	-.082 (.160)	—	—
Indirect Effect				
GEO \rightarrow GP \rightarrow ENVP			.231 (.074)**	—
GEO \rightarrow GP \rightarrow FINP			—	.259 (.085)**
Interaction Effect				
(GEO x GSI) \rightarrow GP	.031 (.185)			
(GEO x GCI) \rightarrow GP		.322 (.234)		
Conditional Indirect Effect				
(GEO x GSI) \rightarrow GP \rightarrow ENVP			.010 (.053)	
(GEO x low GSI) \rightarrow GP \rightarrow ENVP			.204 (.084)*	
(GEO x high GSI) \rightarrow GP \rightarrow ENVP			.225 (.111)*	
(GEO x GCI) \rightarrow GP \rightarrow ENVP			.103 (.075)	
(GEO x low GCI) \rightarrow GP \rightarrow ENVP			.151 (.099)	
(GEO x high GCI) \rightarrow GP \rightarrow ENVP			.330 (.100)*	
(GEO x GSI) \rightarrow GP \rightarrow FINP				.011 (.056)
(GEO x low GSI) \rightarrow GP \rightarrow FINP				.228 (.098)*
(GEO x high GSI) \rightarrow GP \rightarrow FINP				.252 (.124)*
(GEO x GCI) \rightarrow GP \rightarrow FINP				.115 (.083)
(GEO x low GCI) \rightarrow GP \rightarrow FINP				.169 (.112)
(GEO x high GCI) \rightarrow GP \rightarrow FINP				.369 (.118)*
Model Fit Indicators				
R	.221	.238	.447	.421
R ²	.049	.056	.200	.177
F	2.240	2.620	13.768	11.832

Notes: N = 225.

** $p < 0.01$.* $p < 0.05$.

SE: Standard Error.

outcomes. Drawing on the NRBV/RBV logic, the study sought to investigate the effect of GEO on environmental and financial performances, and the mediating role of green purchasing (GP). We also examined the supplier and customer integration conditions under which GEO drives environmental and financial performances via GP. Our conceptual model is grounded in the argument that green entrepreneurial-oriented firms are intrinsically motivated to embrace green values as their core corporate identity and as such, their strategic and operational decisions are informed by their green mindset and beliefs that result in better environmental and economic outcomes (Allen & Malin, 2008; Habib et al., 2020). Our findings generally align with the key objectives of the study, largely elucidating how and when variations of GEO may account for the differences in environmental and commercial benefits.

Consistent with this logic, our results indicate that GEO has a direct positive impact on environmental performance. The findings align with the theoretical arguments suggesting that GEO fosters a corporate culture and consciousness of environmental stewardship, leading to positive environmental performance. This supports the notion that GEO initiatives instil a sense of environmental responsibility within organizations, which in turn translates into tangible environmental benefits. The direct positive impact of GEO on environmental performance, as indicated by our results, underscores the significance of integrating green-oriented strategies into business operations. Moreover, our findings offer further empirical validation to previous scholarly works that have highlighted the pivotal role of GEO in achieving green outcomes (Chavez et al., 2021; Esfahbodi et al., 2016; Jiang et al., 2018; Lin & Chen, 2018; Wong et al., 2020). This convergence of findings underscores the robustness of our theoretical modelling that links GEO to environmental performance, lending further credence to the importance of fostering a green entrepreneurial mindset within organizations.

However, contrary to our prediction, the results did not support our argument that GEO drives financial performance, contradicting prior evidence (Jiang et al., 2018). A plausible explanation may be that while

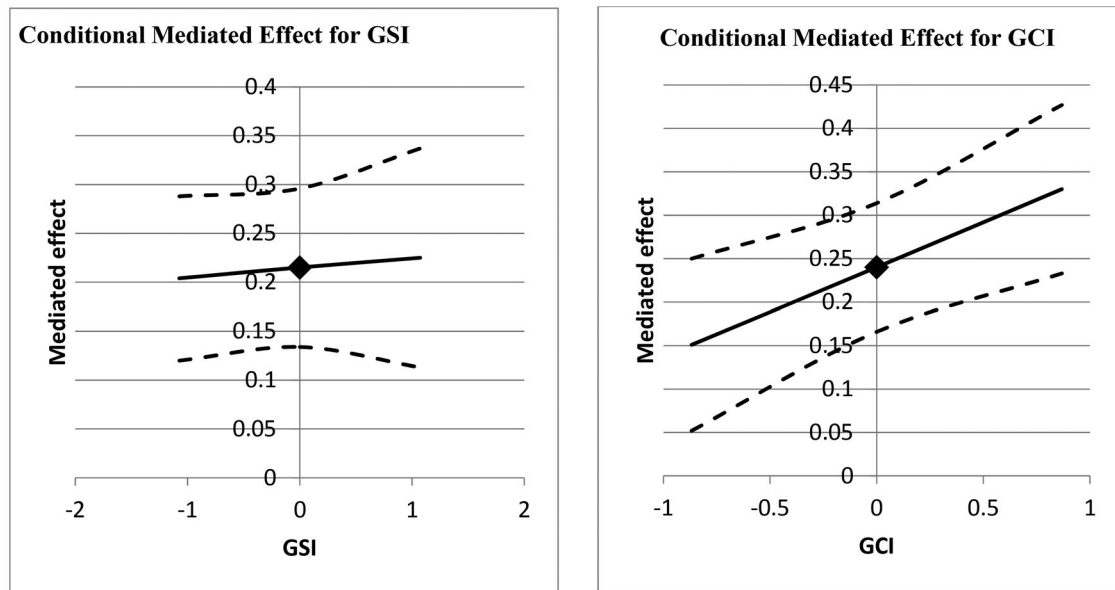


Figure 2. Environmental performance as outcome.

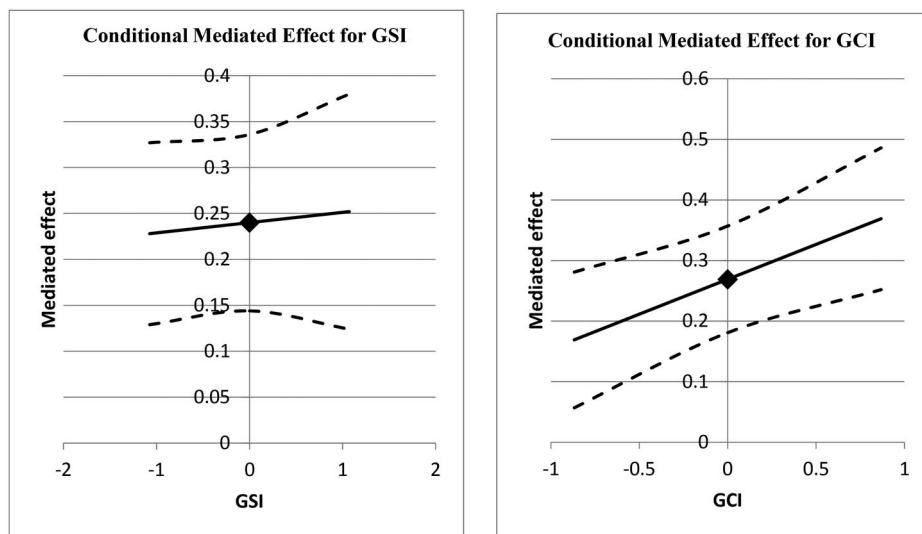


Figure 3. Financial performance as outcome.

Table 5. Summary of results.

Hypothesis	Path	Effect	Remarks
Direct Effect			
H1	GEO → ENVP	Positive and significant	Supported
H2	GEO → FINP	Positive but not significant	Not Supported
Mediation Effect			
H3a	GEO → GP → ENVP	Partial mediation	Supported
H3b	GEO → GP → FINP	Full mediation	Supported
Conditional Indirect Effect			
H4a	GEO*GSI → GP → ENVP	(Conditional indirect) Significant at low and high levels with the highest having a greater effect.	Supported
H4b	GEO*GSI → GP → FINP	(Conditional indirect) Significant at low and high levels with the highest having a greater effect.	Supported
H5a	GEO*GCI → GP → ENVP	Significant at only high levels.	Supported
H5b	GEO*GCI → GP → FINP	Significant at only high levels.	Supported

GEO can enhance firms' ecological stewardship and reputation, it may not directly lead to improved financial benefit without actionable green interventions at the firm level. To benefit financially from GEO, therefore, green entrepreneurial-oriented firms need to consciously develop and implement efficient green practices at the firm level to optimize resource utilization, minimize cost, and improve productivity (Jiang et al., 2018). Thus, a firm-level green intervention may be required to translate GEO into financial benefits.

Our study also explains how these relationships are activated through GP. Specifically, the results indicate that the theoretical association of GEO with environmental and financial performances is mediated by GP practices, confirming the important intervening role of GP. Our findings suggest that green entrepreneurial-oriented organizations that sustainably adopt GP are more likely to record superior environmental and financial performances. More significantly, our results indicate that firms with a strong sense of GEO are more likely to prioritize environmentally sustainable practices and initiatives such as GP, resulting in improved environmental and commercial benefits. The underlying rationale is that GP offers a boundary-spanning role through which organisations secure green inputs for their operational activities. To this end, GP can facilitate a firm's green production activities to deliver environmentally friendly products and services in response to customer needs. Also, GP can improve not only the firm's ability to secure green inputs at reduced costs but also leverage its green innovation to capitalize on market opportunities related to environmental sustainability to improve productivity, a lack of which can undermine the financial gains of GEO. Thus, being the input phase of organisations, GP provides the pathway by which organisations' GEO resource is translated into environmental and financial benefits as it serves as a key green initiative that enables organisations to operationalise environmental management intentions. Our findings reinforce prior evidence that GEO has a significant relationship with both environmental and financial performance via environmental practices (Chavez et al., 2021; Jiang et al., 2018; Yee et al., 2021).

The results further show that the indirect effect of GEO on environmental and financial performances, via GP is stronger when levels of green supplier integration are greater. Similarly, green customer integration was found to moderate the indirect association of GEO with environmental and financial performances through GP, reinforcing existing evidence that both green supplier integration and green customer integration are vital in achieving the potential environmental and commercial benefits of GEO (Du et al., 2018; Wong et al., 2020; Zhang et al., 2020; Zhao et al., 2021). Our findings suggest that firms need greater levels of integration with suppliers and customers to better channel their green entrepreneurial resources through GP to environmental and financial performances. Thus, building collaborative networks with suppliers and customers in environmental management efforts offers a critical source of complementary resources that enable green entrepreneurial firms to translate their green entrepreneurial intention, through GP, to stronger environmental and financial performances (Du et al., 2018; Wong et al., 2020).

5.1. Theoretical implications

Our study extends the existing environmental management literature by integrating NRBV logic with entrepreneurship and environmental management research to show that greater GEO drives environmental performance. Consistent with prior research (Chavez et al., 2021; Habib et al., 2020; Jiang et al., 2018; Luu, 2021; Wong et al., 2020; Yee et al., 2021), our results demonstrate the importance of GEO as a critical resource for meeting environmental goals.

Second, the study also elucidates the influence mechanism of the link between GEO and environmental performance as well as financial performance by offering evidence to show that GP mediates the association of GEO with environmental and financial performance. Significantly, our model helps open the GEO-organisational performance link 'black box' by accounting for a mechanism that explains how GEO may be channelled into environmental and commercial benefits. This answers the question of how GEO contributes to environmental stewardship and maximises financial outcomes (Chavez et al., 2021; Jiang et al., 2018).

Third, the study further makes a significant contribution by offering a theoretical specification and empirical validation of the conditions under which GEO impacts environmental and financial performances. By introducing green supplier and customer integration as moderating variables, the study offers a nuanced understanding of when the environmental and financial benefits of GEO, via GP, may

be more salient. Thus, our theory explains how supplier and customer integration shape the effect of GEO on environmental and financial performances through GP. The findings lend credence to the role of GEO as an input resource and green integration and purchasing as transforming resources for enhancing environmental and financial performances. Overall, our study integrates GEO and GSCMPs such as green purchasing and green supplier and customer integration to streamline their sustainability resources to optimize environmental and commercial benefits.

5.2. Managerial implications

The study also offers managerial implications. First, the study establishes the importance of GEO in responding to environmental degradation and associated strict environmental regulations by showing that GEO can help drive environmental stewardship and financial benefit. The rationale is that the ecological commitment characterising green entrepreneurial-oriented organisations reduces the tendency of non-compliance with legal requirements on environmental protection and their associated penalties, fines, and bans (Jiang et al., 2018). In addition, green practices enhance corporate reputation, establish a more distinctive picture in the eyes of the public and build a positive brand image in consumers' minds to yield economic benefits (Leonidou et al., 2015). Therefore, managers of green entrepreneurial firms should leverage their strategic posture by establishing communication channels that promote environmental responsibility awareness to advance eco-initiatives and achieve both environmental and economic goals.

Second, the significant indirect effects of GEO on environmental and financial performances highlight the fact that although GEO is critical in achieving environmental outcomes, it pays for green entrepreneurial-oriented firms to channel GEO resources into actual green activities to realise economic objectives. To this end, GP, with its boundary-spanning roles of securing green inputs for firms' operations, becomes an instrumental vehicle for translating GEO into environmental and financial benefits. This convergence between GEO and GP finds consistency with environmental management literature that asserts that GP enables firms to utilise green inputs such as eco-friendly and reusable materials through green specifications to facilitate environmentally driven operations (Zhu et al., 2008; Zhu & Sarkis, 2007). Thus, managers should attach more importance to GP practices to drive green entrepreneurial activities and maximize environmental and economic outcomes.

Third, the results further highlight the need for green entrepreneurs to align their green intentions with green supplier and customer integration. While a green collaborative alliance with customers provides green entrepreneurial firms with access to information and knowledge that enable them to understand customers' green needs, green supplier integration allows them to tap into suppliers' green technical resources and expertise including recycling and eco-design technologies to inform GP decisions and practices (Feng et al., 2021). From our findings on the interaction effects of GEO and green supplier integration as well as green customer integration, managers can improve GP by leveraging the resources embedded in green supplier and customer integration to achieve their ecological and financial goals. Thus, the leadership of green entrepreneurial firms should attach greater attention to green supplier and customer integration to better implement green practices and optimise environmental and financial benefits.

6. Limitations and avenues for future research

Our study has some limitations that provide avenues for future research. First, the study relied on cross-sectional data, which makes it difficult to explain causality. While cross-sectional data has been extensively utilised in sustainability research to examine linkages (Du et al., 2018; Guo et al., 2020), a longitudinal approach may help delve deeper into the interactions between GEO, green customer and supplier integration, and GP in influencing organisational performance. Future studies may explore this approach. Furthermore, the present study focuses its investigation on a single mediator and two moderating variables. Research interest would be served if further studies could investigate green creativity and manufacturing as mediators and environmental proactiveness and competitive intensity as conditioning variables to offer a nuanced understanding of the relationship between these factors. Finally, the study

focused on the effect of GEO on environmental and economic performances. However, GEO and GP also play a significant role in ensuring social well-being. Thus, future research should link GEO to the triple bottom line to offer a more detailed understanding of the GEO-organisational performance link.

Authors' contributions

Emmanuel Kwabena Anin: Study conception, study design, questionnaire development, and manuscript preparation. Daniel Etse: Literature review, study design, discussion of results, and manuscript preparation. Gilbert Anyowuo Okyere: Data collection, data curation, and data analysis. Darlington Bright Yao Adanfo: Literature review, data collection, and editing.

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author.

References

- Acquaah, M. (2007). Managerial social capital, strategic orientation, and organizational performance in an emerging economy. *Strategic Management Journal*, 28(12), 1235–1255. <https://doi.org/10.1002/smj.632>
- Adomako, S., Amankwah-Amoah, J., Debrah, Y. A., Khan, Z., Chu, I., & Robinson, C. (2021). Institutional voids, economic adversity and inter-firm cooperation in an emerging market: the mediating role of government R&D support. *British Journal of Management*, 32(1), 40–58. <https://doi.org/10.1111/1467-8551.12443>

- African Development Bank Group. (2020). African economic outlook: Developing Africa's workforce for the future. Retrieved from <https://www.afdb.org/en/knowledge/publications/african-economic-outlook>
- Ali, E. B., Anufriev, V. P., & Amfo, B. (2021). Green economy implementation in Ghana as a road map for a sustainable development drive: A review. *Scientific African*, 12, e00756. <https://doi.org/10.1016/j.sciaf.2021.e00756>
- Allen, J. C., & Malin, S. (2008). Green entrepreneurship: A method for managing natural resources? *Society & Natural Resources*, 21(9), 828–844. <https://doi.org/10.1080/08941920701612917>
- Ameer, F., & Khan, N. R. (2022). Green entrepreneurial orientation and corporate environmental performance: A systematic literature review. *European Management Journal*, 41(5), 755–778. <https://doi.org/10.1016/j.emj.2022.04.003>
- Anin, E. K., Etse, D., Okyere, G. A., & Adanfo, D. B. Y. (2024). Driving green procurement in a developing country: The roles of corporate environmental ethics, environmental training, and top management commitment. *Africa Journal of Management*, 10(1), 24–49. <https://doi.org/10.1080/23322373.2024.2313963>
- Appolloni, A., Sun, H., Jia, F., & Li, X. (2014). Green Procurement in the private sector: a state of the art review between 1996 and 2013. *Journal of Cleaner Production*, 85, 122–133. <https://doi.org/10.1016/j.jclepro.2014.08.106>
- Arnold, M. G., & Hockerts, K. (2011). The greening Dutchman: Philips' process of green flagging to drive sustainable innovations. *Business Strategy and the Environment*, 20(6), 394–407. <https://doi.org/10.1002/bse.700>
- Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, 40(1), 8–34. <https://doi.org/10.1007/s11747-011-0278-x>
- Bals, L., Schulze, H., Kelly, S., & Stek, K. (2019). Purchasing and supply management (PSM) competencies: Current and future requirements. *Journal of Purchasing and Supply Management*, 25(5), 100572. <https://doi.org/10.1016/j.pur-sup.2019.100572>
- Banerjee, S. B. (2002). Corporate environmentalism: the construct and its measurement. *Journal of Business Research*, 55(3), 177–191. [https://doi.org/10.1016/S0148-2963\(00\)00135-1](https://doi.org/10.1016/S0148-2963(00)00135-1)
- Banerjee, S. B., Iyer, E. S., & Kashyap, R. K. (2003). Corporate Environmentalism: Antecedents and Influence of Industry Type. *Journal of Marketing*, 67(2), 106–122. <https://doi.org/10.1509/jmkg.67.2.106.18604>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Bonache, J. (2021). The challenge of using a 'non-positivist' paradigm and getting through the peer-review process. *Human Resource Management Journal*, 31(1), 37–48. <https://doi.org/10.1111/1748-8583.12319>
- Boso, N., Danso, A., Leonidou, C., Uddin, M., Adeola, O., & Hultman, M. (2017). Does financial resource slack drive sustainability expenditure in developing economy small and medium-sized enterprises? *Journal of Business Research*, 80, 247–256. <https://doi.org/10.1016/j.jbusres.2017.06.016>
- Boso, N., Donbesuur, F., Bendega, T., Annan, J., & Adeola, O. (2017). Does organizational creativity always drive market performance? *Psychology & Marketing*, 34(11), 1004–1015. <https://doi.org/10.1002/mar.21039>
- Carter, C. R., Kale, R., & Grimm, C. M. (2000). Environmental purchasing and firm performance: an empirical investigation. *Transportation Research Part E: Logistics and Transportation Review*, 36(3), 219–228. [https://doi.org/10.1016/S1366-5545\(99\)00034-4](https://doi.org/10.1016/S1366-5545(99)00034-4)
- Carter, R., & Jennings, M. (2004). The role of purchasing in corporate social responsibility: a structural equation analysis. *Journal of Business Logistics*, 25(1), 145–186. <https://doi.org/10.1002/j.2158-1592.2004.tb00173.x>
- Chan, E. S. W. (2013). Managing green marketing: Hong Kong hotel managers' perspective. *International Journal of Hospitality Management*, 34, 442–461. <https://doi.org/10.1016/j.ijhm.2012.12.007>
- Chan, R. Y., He, H., Chan, H. K., & Wang, W. Y. (2012). Environmental orientation and corporate performance: The mediation mechanism of green supply chain management and the moderating effect of competitive intensity. *Industrial Marketing Management*, 41(4), 621–630. <https://doi.org/10.1016/j.indmarman.2012.04.009>
- Chavez, R., Malik, M., Ghaderi, H., & Yu, W. (2021). Environmental orientation, external environmental information exchange and environmental performance: Examining mediation and moderation effects. *International Journal of Production Economics*, 240, 108222. <https://doi.org/10.1016/j.ijpe.2021.108222>
- Chavez, R., Yu, W., Gimenez, C., Fynes, B., & Wiengarten, F. (2015). Customer integration and operational performance: The mediating role of information quality. *Decision Support Systems*, 80, 83–95. <https://doi.org/10.1016/j.dss.2015.10.001>
- Chen, J., & Liu, L. (2022). Is green customer integration always a facilitator for green product innovation? A conflict-based view. *European Journal of Innovation Management*, 26(6), 1524–1546. <https://doi.org/10.1108/EJIM-09-2021-0477>
- Chiou, T. Y., Chan, H. K., Lettice, F., & Chung, S. H. (2011). The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan. *Transportation Research Part E: Logistics and Transportation Review*, 47(6), 822–836. <https://doi.org/10.1016/j.tre.2011.05.016>
- Chowdhury, M. M. H., Quaddus, M., & Agarwal, R. (2019). Supply chain resilience for performance: role of relational practices and network complexities. *Supply Chain Management: An International Journal*, 24(5), 659–676. <https://doi.org/10.1108/SCM-09-2018-0332>
- Chuang, S. P., & Yang, C. L. (2014). Key success factors when implementing a green-manufacturing system. *Production Planning & Control*, 25(11), 923–937. <https://doi.org/10.1080/09537287.2013.780314>
- Danso, A., Adomako, S., Lartey, T., Amankwah-Amoah, J., & Owusu-Yirenkyi, D. (2020). Stakeholder integration, environmental sustainability orientation and financial performance. *Journal of Business Research*, 119, 652–662. <https://doi.org/10.1016/j.jbusres.2019.02.038>

- de Sousa Jabbour, A. B. L., Jabbour, C. J. C., Latan, H., Teixeira, A. A., & de Oliveira, J. H. C. (2014). Quality management, environmental management maturity, green supply chain practices and green performance of Brazilian companies with ISO 14001 certification: Direct and indirect effects. *Transportation Research Part E: Logistics and Transportation Review*, 67, 39–51. <https://doi.org/10.1016/j.tre.2014.03.005>
- Diabat, A., & Govindan, K. (2011). An analysis of the drivers affecting the implementation of green supply chain management. *Resources, Conservation and Recycling*, 55(6), 659–667. <https://doi.org/10.1016/j.resconrec.2010.12.002>
- Du, L., Zhang, Z., & Feng, T. (2018). Linking green customer and supplier integration with green innovation performance: The role of internal integration. *Business Strategy and the Environment*, 27(8), 1583–1595. <https://doi.org/10.1002/bse.2223>
- Dubey, R., Gunasekaran, A., & Ali, S. (2015). Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: A framework for the green supply chain. *International Journal of Production Economics*, 160, 120–132. <https://doi.org/10.1016/j.ijpe.2014.10.001>
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21(10–11), 1105–1121. [https://doi.org/10.1002/1097-0266\(200010/11\)21:10/11<1105::AID-SMJ133>3.0.CO;2-E](https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E)
- Eltayeb, K., Zailani, S., & Ramayah, T. (2011). Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: Investigating the outcomes. *Resources, Conservation and Recycling*, 55(5), 495–506. <https://doi.org/10.1016/j.resconrec.2010.09.003>
- Esfahbodi, A., Zhang, Y., & Watson, G. (2016). Sustainable supply chain management in emerging economies: Trade-offs between environmental and cost performance. *International Journal of Production Economics*, 181, 350–366. <https://doi.org/10.1016/j.ijpe.2016.02.013>
- Essuman, D., Asamoah, D., & Anin, E. K. (2021). How interfirm governance mechanisms and capabilities determine supply chain responsiveness in small businesses: Evidence from an African market. *Africa Journal of Management*, 7(3), 423–446. <https://doi.org/10.1080/23322373.2021.1927449>
- Essuman, D., Bruce, P. A., Ataburo, H., Asiedu-Appiah, F., & Boso, N. (2022). Linking resource slack to operational resilience: Integration of resource-based and attention-based perspectives. *International Journal of Production Economics*, 254, 108652. <https://doi.org/10.1016/j.ijpe.2022.108652>
- Fahimnia, B., Sarkis, J., & Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. *International Journal of Production Economics*, 162, 101–114. <https://doi.org/10.1016/j.ijpe.2015.01.003>
- Feng, T., Sheng, H., & Li, M. (2021). The bright and dark sides of green customer integration (GCI): evidence from Chinese manufacturers. *Business Process Management Journal*, 27(5), 1610–1632. <https://doi.org/10.1108/BPMJ-11-2020-0502>
- Feng, Y., Chen, H. H., & Tang, J. (2018). The impacts of social responsibility and ownership structure on sustainable financial development of China's energy industry. *Sustainability*, 10(2), 301. <https://doi.org/10.3390/su10020301>
- Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 28(1), 58–71. <https://doi.org/10.1016/j.jom.2009.06.001>
- Galeazzo, A., Ortiz-de-Mandojana, N., & Delgado-Ceballos, J. (2021). Green procurement and financial performance in the tourism industry: the moderating role of tourists' green purchasing behaviour. *Current Issues in Tourism*, 24(5), 700–716. <https://doi.org/10.1080/13683500.2020.1734546>
- Ghosh, M. (2018). Determinants of green procurement implementation and its impact on firm performance. *Journal of Manufacturing Technology Management*, 30(2), 462–482. <https://doi.org/10.1108/JMTM-06-2018-0168>
- Gobbo, J. A., Busso, C. M., Gobbo, S. C. O., & Carreão, H. (2018). Making the links among environmental protection, process safety, and industry 4.0. *Process Safety and Environmental Protection*, 117, 372–382. <https://doi.org/10.1016/j.psep.2018.05.017>
- Gölgeci, I., Gligor, D. M., Tatoglu, E., & Arda, O. A. (2019). A relational view of environmental performance: What role do environmental collaboration and cross-functional alignment play? *Journal of Business Research*, 96, 35–46. <https://doi.org/10.1016/j.jbusres.2018.10.058>
- González-Benito, J., Lannelongue, G., Ferreira, L. M., & Gonzalez-Zapatero, C. (2016). The effect of green purchasing on purchasing performance: the moderating role played by long-term relationships and strategic integration. *Journal of Business & Industrial Marketing*, 31(2), 312–324. <https://doi.org/10.1108/JBIM-09-2014-0188>
- Guo, Y., Wang, L., & Chen, Y. (2020). Green entrepreneurial orientation and green innovation: The mediating effect of supply chain learning. *SAGE Open*, 10(1), 215824401989879. <https://doi.org/10.1177/2158244019898798>
- Habib, M. A., Bao, Y., & Ilmudeen, A. (2020). The impact of green entrepreneurial orientation, market orientation and green supply chain management practices on sustainable firm performance. *Cogent Business & Management*, 7(1), 1743616. <https://doi.org/10.1080/23311975.2020.1743616>
- Haden, S. S. P., Oyler, J. D., & Humphreys, J. H. (2009). Historical, practical, and theoretical perspectives on green management: An exploratory analysis. *Management Decision*, 47(7), 1041–1055. <https://doi.org/10.1108/00251740910978287>
- Hair, J. F. J., Black, C. W., Babin, J. B., & Anderson, E. R. (2014). *Multivariate data analysis*. Pearson Education.
- Han, Z., & Huo, B. (2020). The impact of green supply chain integration on sustainable performance. *Industrial Management & Data Systems*, 120(4), 657–674. <https://doi.org/10.1108/IMDS-07-2019-0373>
- Hart, S. L. (1995). A natural-resource-based view of the firm. *The Academy of Management Review*, 20(4), 986–1014. <https://doi.org/10.2307/258963>
- Hasan, M. M., Nekmahmud, M., Yajuan, L., & Patwary, M. A. (2019). Green business value chain: A systematic review. *Sustainable Production and Consumption*, 20, 326–339. <https://doi.org/10.1016/j.spc.2019.08.003>

- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.
- Hsu, P.-F., Hu, P. J.-H., Wei, C.-P., & Huang, J.-W. (2014). Green Purchasing by MNC Subsidiaries: The role of local tailoring in the presence of institutional duality. *Decision Sciences*, 45(4), 647–682. <https://doi.org/10.1111/dec.12088>
- Huo, B., Han, Z., Zhao, X., Zhou, H., Wood, C. H., & Zhai, X. (2013). The impact of institutional pressures on supplier integration and financial performance: Evidence from China. *International Journal of Production Economics*, 146(1), 82–94. <https://doi.org/10.1016/j.ijpe.2013.01.013>
- Jia, X., & Wang, M. (2019). The impact of green supply chain management practices on competitive advantages and firm performance. In *Environmental sustainability in Asian logistics and supply chains* (pp. 121–134). Springer. https://doi.org/10.1007/978-981-13-0451-4_7
- Jiang, W., Chai, H., Shao, J., & Feng, T. (2018). Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective. *Journal of Cleaner Production*, 198, 1311–1323. <https://doi.org/10.1016/j.jclepro.2018.07.104>
- Jiang, W., Rosati, F., Chai, H., & Feng, T. (2020). Market orientation practices enhancing corporate environmental performance via knowledge creation: Does environmental management system implementation matter? *Business Strategy and the Environment*, 29(5), 1899–1924. <https://doi.org/10.1002/bse.2478>
- Kasayanond, A., Umam, R., & Jermisittiparsert, K. (2019). Environmental sustainability and its growth in Malaysia by elaborating the green economy and environmental efficiency. *International Journal of Energy Economics and Policy*, 9(5), 465–473. <https://doi.org/10.32479/ijeep.8310>
- Laguir, I., Stekelorum, R., & El Baz, J. (2021). Proactive environmental strategy and performances of third-party logistics providers (TPLs): Investigating the role of eco-control systems. *International Journal of Production Economics*, 240, 108249. <https://doi.org/10.1016/j.ijpe.2021.108249>
- Lee, S. M., Kim, S. T., & Choi, D. (2012). Green supply chain management and organizational performance. *Industrial Management & Data Systems*, 112(8), 1148–1180. <https://doi.org/10.1108/02635571211264609>
- Leonidou, L. C., Fotiadis, T. A., Christodoulides, P., Spyropoulou, S., & Katsikeas, C. S. (2015). Environmentally friendly export business strategy: Its determinants and effects on competitive advantage and performance. *International Business Review*, 24(5), 798–811. <https://doi.org/10.1016/j.ibusrev.2015.02.001>
- Li, W. Y., Chow, P. S., Choi, T. M., & Chan, H. L. (2016). Supplier integration, green sustainability programs, and financial performance of fashion enterprises under global financial crisis. *Journal of Cleaner Production*, 135, 57–70. <https://doi.org/10.1016/j.jclepro.2016.06.048>
- Li, Y., Dai, J., & Cui, L. (2020). The impact of digital technologies on economic and environmental performance in the context of industry 4.0: A moderated mediation model. *International Journal of Production Economics*, 229, 107777.
- Lin, Y. H., & Chen, H. C. (2018). Critical factors for enhancing green service innovation: Linking green relationship quality and green entrepreneurial orientation. *Journal of Hospitality and Tourism Technology*, 9(2), 188–203. <https://doi.org/10.1108/JHTT-02-2017-0014>
- Lo, C. K., Yeung, A. C., & Cheng, T. C. E. (2012). The impact of environmental management systems on financial performance in fashion and textiles industries. *International Journal of Production Economics*, 135(2), 561–567. <https://doi.org/10.1016/j.ijpe.2011.05.010>
- Lockström, M., & Lei, L. (2013). Antecedents to supplier integration in China: A partial least squares analysis. *International Journal of Production Economics*, 141(1), 295–306. <https://doi.org/10.1016/j.ijpe.2012.08.007>
- Luu, T. T. (2021). Green creative behaviour in the tourism industry: the role of green entrepreneurial orientation and a dual-mediation mechanism. *Journal of Sustainable Tourism*, 29(8), 1290–1318. <https://doi.org/10.1080/09669582.2020.1834565>
- Makhloufi, L., Laghouag, A. A., Meirun, T., & Belaid, F. (2022). Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view and environmental policy perspective. *Business Strategy and the Environment*, 31(1), 425–444. <https://doi.org/10.1002/bse.2902>
- Menguc, B., & Ozanne, L. K. (2005). Challenges of the “green imperative”: a natural resource-based approach to the environmental orientation–business performance relationship. *Journal of Business Research*, 58(4), 430–438. <https://doi.org/10.1016/j.jbusres.2003.09.002>
- Min, H., & Galle, P. (2001). Green purchasing practices of US firms. *International Journal of Operations & Production Management*, 21(9), 1222–1238. <https://doi.org/10.1108/EUM000000005923>
- Nisar, Q. A., Haider, S., Ameer, I., Hussain, M. S., Gill, S. S., & Usama, A. (2022). Sustainable supply chain management performance in post COVID-19 era in an emerging economy: a big data perspective. *International Journal of Emerging Markets*, 18(12), 5900–5920. <https://doi.org/10.1108/IJOEM-12-2021-1807>
- Nkrumah, S. K., Asamoah, D., Annan, J., & Agyei-Owusu, B. (2021). Examining green capabilities as drivers of green supply chain management adoption. *Management Research Review*, 44(1), 94–111. <https://doi.org/10.1108/MRR-01-2020-0015>
- OECD. (2011). *Special feature: green procurement. Government at a glance*.
- Peteraf, M. A. (1993). The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal*, 14(3), 179–191. <https://doi.org/10.1002/smj.4250140303>
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63(1), 539–569. <https://doi.org/10.1146/annurev-psych-120710-100452>

- Porter, M. E., & Advantage, C. (1985). Creating and sustaining superior performance. *Competitive Advantage*, 167, 167–206.
- Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D., & Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. *Technological Forecasting and Social Change*, 163, 120481. <https://doi.org/10.1016/j.techfore.2020.120481>
- Sarkis, J., Zhu, Q., & Lai, K-h (2011). An organizational theoretic review of green supply chain management literature. *International Journal of Production Economics*, 130(1), 1–15. <https://doi.org/10.1016/j.ijpe.2010.11.010>
- Shafique, I., Kalyar, M. N., & Mehwish, N. (2021). Organizational ambidexterity, green entrepreneurial orientation, and environmental performance in SMEs context: Examining the moderating role of perceived CSR. *Corporate Social Responsibility and Environmental Management*, 28(1), 446–456. <https://doi.org/10.1002/csr.2060>
- Shah, S. A. A., Jajja, M. S. S., Chatha, K. A., & Farooq, S. (2020). Servitization and supply chain integration: An empirical analysis. *International Journal of Production Economics*, 229, 107765. <https://doi.org/10.1016/j.ijpe.2020.107765>
- Sheng, X., Chen, L., Yuan, X., Tang, Y., Yuan, Q., Chen, R., Wang, Q., Ma, Q., Zuo, J., & Liu, H. (2023). Green supply chain management for a more sustainable manufacturing industry in China: a critical review. *Environment, Development and Sustainability*, 25(2), 1151–1183. <https://doi.org/10.1007/s10668-022-02109-9>
- Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150, 119762. <https://doi.org/10.1016/j.techfore.2019.119762>
- Srivastava, S. K. (2007). Green supply-chain management: A state-of-the-art literature review. *International Journal of Management Reviews*, 9(1), 53–80. <https://doi.org/10.1111/j.1468-2370.2007.00202.x>
- Tseng, M.-L., Islam, M. S., Karia, N., Fauzi, F. A., & Afrin, S. (2019). A literature review on green supply chain management: Trends and future challenges. *Resources, Conservation and Recycling*, 141, 145–162. <https://doi.org/10.1016/j.resconrec.2018.10.009>
- Vachon, S., & Klassen, R. D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111(2), 299–315. <https://doi.org/10.1016/j.ijpe.2006.11.030>
- Verma, P., & Kumar, V. (2022). Developing leadership styles and green entrepreneurial orientation to measure organization growth: a study on Indian green organizations. *Journal of Entrepreneurship in Emerging Economies*, 14(6), 1299–1324. <https://doi.org/10.1108/JEEE-01-2021-0035>
- Wang, G., Feng, T., Zhu, Z., & Jiang, Y. (2022). Enabling green supply chain integration via green entrepreneurial orientation: Does environmental leadership matter? *Corporate Social Responsibility and Environmental Management*, 30(2), 518–530. <https://doi.org/10.1002/csr.2371>
- Wang, Z., & Sarkis, J. (2013). Investigating the relationship of sustainable supply chain management with corporate financial performance. *International Journal of Productivity and Performance Management*, 62(8), 871–888. <https://doi.org/10.1108/IJPPM-03-2013-0033>
- Weng, H. H., Chen, J. S., & Chen, P. C. (2015). Effects of green innovation on environmental and corporate performance: A stakeholder perspective. *Sustainability*, 7(5), 4997–5026. <https://doi.org/10.3390/su7054997>
- Wolf, J. (2011). Sustainable supply chain management integration: a qualitative analysis of the German manufacturing industry. *Journal of Business Ethics*, 102(2), 221–235. <https://doi.org/10.1007/s10551-011-0806-0>
- Wong, C. Y., Boon-Itt, S., & Wong, C. W. (2011). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. *Journal of Operations Management*, 29(6), 604–615. <https://doi.org/10.1016/j.jom.2011.01.003>
- Wong, C. Y., Wong, C. W., & Boon-Itt, S. (2015). Integrating environmental management into supply chains: a systematic literature review and theoretical framework. *International Journal of Physical Distribution & Logistics Management*, 45(1/2), 43–68. <https://doi.org/10.1108/IJPDLM-05-2013-0110>
- Wong, C. Y., Wong, C. W., & Boon-Itt, S. (2020). Effects of green supply chain integration and green innovation on environmental and cost performance. *International Journal of Production Research*, 58(15), 4589–4609. <https://doi.org/10.1080/00207543.2020.1756510>
- Woo, C., Kim, M. G., Chung, Y., & Rho, J. J. (2016). Suppliers' communication capability and external green integration for green and financial performance in the Korean construction industry. *Journal of Cleaner Production*, 112, 483–493. <https://doi.org/10.1016/j.jclepro.2015.05.119>
- Wu, G. C. (2013). The influence of green supply chain integration and environmental uncertainty on green innovation in Taiwan's IT industry. *Supply Chain Management: An International Journal*, 18(5), 539–552. <https://doi.org/10.1108/SCM-06-2012-0201>
- Wu, G. C., Ding, J. H., & Chen, P. S. (2012). The effects of GSCM drivers and institutional pressures on GSCM practices in Taiwan's textile and apparel industry. *International Journal of Production Economics*, 135(2), 618–636. <https://doi.org/10.1016/j.ijpe.2011.05.023>
- Wu, T., Wu, Y. C. J., Chen, Y. J., & Goh, M. (2014). Aligning supply chain strategy with corporate environmental strategy: A contingency approach. *International Journal of Production Economics*, 147, 220–229. <https://doi.org/10.1016/j.ijpe.2013.02.027>
- Yang, J., Wang, Y., Gu, Q., & Xie, H. (2022). The antecedents and consequences of green purchasing: an empirical investigation. *Benchmarking: An International Journal*, 29(1), 1–21. <https://doi.org/10.1108/BIJ-11-2020-0564>

- Yang, M. G. M., Hong, P., & Modi, S. B. (2011). Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms. *International Journal of Production Economics*, 129(2), 251–261. <https://doi.org/10.1016/j.ijpe.2010.10.017>
- Yang, Q., Geng, R., & Feng, T. (2020). Does the configuration of macro-and micro-institutional environments affect the effectiveness of green supply chain integration? *Business Strategy and the Environment*, 29(4), 1695–1713. <https://doi.org/10.1002/bse.2462>
- Yee, F. M., Shaharudin, M. R., Ma, G., Zailani, S. H. M., & Kanapathy, K. (2021). Green purchasing capabilities and practices towards Firm's triple bottom line in Malaysia. *Journal of Cleaner Production*, 307, 127268. <https://doi.org/10.1016/j.jclepro.2021.127268>
- Yook, K. H., Choi, J. H., & Suresh, N. C. (2018). Linking green purchasing capabilities to environmental and economic performance: The moderating role of firm size. *Journal of Purchasing and Supply Management*, 24(4), 326–337. <https://doi.org/10.1016/j.pursup.2017.09.001>
- York, J. G., O'Neil, I., & Sarasvathy, S. D. (2016). Exploring environmental entrepreneurship: identity coupling, venture goals, and stakeholder incentives. *Journal of Management Studies*, 53(5), 695–737. <https://doi.org/10.1111/joms.12198>
- Yu, W., Chavez, R., & Feng, M. (2017). Green supply management and performance: a resource-based view. *Production Planning & Control*, 28(6-8), 659–670. <https://doi.org/10.1080/09537287.2017.1309708>
- Yu, W., Chavez, R., Feng, M., & Wiengarten, F. (2014). Integrated green supply chain management and operational performance. *Supply Chain Management: An International Journal*, 19(5/6), 683–696. <https://doi.org/10.1108/SCM-07-2013-0225>
- Zhang, Q., Pan, J., Jiang, Y., & Feng, T. (2020). The impact of green supplier integration on firm performance: The mediating role of social capital accumulation. *Journal of Purchasing and Supply Management*, 26(2), 100579. <https://doi.org/10.1016/j.pursup.2019.100579>
- Zhao, X., Wang, P., & Pal, R. (2021). The effects of agro-food supply chain integration on product quality and financial performance: Evidence from Chinese agro-food processing business. *International Journal of Production Economics*, 231, 107832. <https://doi.org/10.1016/j.ijpe.2020.107832>
- Zhao, Y., Zhang, N., Feng, T., Zhao, C., & Zhang, J. (2020). The green spillover effect of green customer integration: Does internal integration matter? *Corporate Social Responsibility and Environmental Management*, 27(1), 325–338. <https://doi.org/10.1002/csr.1808>
- Zhang, Y., Zhao, X., & Huo, B. (2019). The impacts of intra-organizational structural elements on supply chain integration. *Industrial Management & Data Systems*, 119(5), 1031–1045. <https://doi.org/10.1108/IMDS-08-2018-0353>
- Zhao, Y., Zhao, C., Guo, Y., Sheng, H., & Feng, T. (2021). Green supplier integration and environmental innovation in Chinese firms: The joint effect of governance mechanism and trust. *Corporate Social Responsibility and Environmental Management*, 28(1), 169–183.
- Zhu, Q., & Sarkis, J. (2007). The moderating effects of institutional pressures on emergent green supply chain practices and performance. *International Journal of Production Research*, 45(18-19), 4333–4355. <https://doi.org/10.1080/00207540701440345>
- Zhu, Q., Sarkis, J., & Lai, K. H. (2008). Confirmation of a measurement model for green supply chain management practices implementation. *International Journal of Production Economics*, 111(2), 261–273. <https://doi.org/10.1016/j.ijpe.2006.11.029>