

Supply chain management practices and the organizational performance of manufacturing SMEs in an emerging economy: the mediating role of supply chain performance

Hanson Obiri-Yeboah

*Department of Procurement and Supply Chain Management,
Accra Technical University, Accra, Ghana, and*

*Charles Teye Amoatey, Jemima Ottou and Adwoa Yirenkyi-Fianko
Business School, GIMPA, Accra, Ghana*

Abstract

Purpose – This study assesses the impact of supply chain management practices (SCMP) on the performance of manufacturing Small and Medium Enterprises (SMEs) in the burgeoning economy of Ghana, utilizing supply chain performance (SCP) as a mediator. The study is grounded in relational view theory. The comprehensive metrics for SCMP, SCP, and operational performance (OP) were derived from an extensive review of the authoritative literature.

Design/methodology/approach – Questionnaires were administered to gather data from 454 participants. Data were analyzed using Partial Least Squares (PLS)-based Structural Equation Modeling (SEM).

Findings – The analysis revealed that three dimensions of SCMP—customer relationship, postponement, and strategic supplier relationship—significantly influence OP, whereas information sharing and logistics integration do not. Furthermore, the study found no mediation effect of the four mediators on the relationships among supplier relationships, postponement, customer relationships, and OP. However, all SCP dimensions fully mediate the relationships among logistic integration, information sharing, and OP. These findings imply that excellence in SCMP alone does not guarantee superior organizational performance.

Practical implications – The findings imply that investing in SCMP alone may not be sufficient to drive superior OP; however, SCPs are crucial to fully realize the full potential of SCMPs in enabling OP, especially in the context of SMEs.

Originality/value – This study contributes to the existing SCM literature by examining how SCMPs and SCP facilitate OP in developing countries. The paper also advances the SCMP literature by theorizing and validating an important but rarely studied role of the SCP. Thus, this study extends our understanding of the mechanisms through which SCMPs affect OP.

Keywords Supply chain management practices (SCMP), Supply chain performance (SCP), Organizational performance (OP)

Paper type Research article

1. Introduction

Supply Chain Management (SCM) is a critical process that involves the integration of various organizational units across the supply chain. It coordinates the flow of materials, information, and finances to fulfill consumer needs and enhance supply chain competitiveness, as described by Hartmut *et al.* (2016). Supply chain management practices have been extensively discussed and have gained significant importance in both academic and business environments in recent



years. Recent studies (Alahmad, 2021; Alam, 2022; Carter *et al.*, 2017; Cahyono *et al.*, 2023; Kumar and Singh, 2023; Ogomegbunam, 2023) have shown a clear interest in exploring the impact of SCM practices on business and organizational performance. Kotler *et al.* (2019) highlight that in today's competitive market, successful manufacturers differentiate themselves by delivering superior products and services, thereby creating customer value. Consequently, the pivotal role of Small and Medium-Sized Enterprises (SMEs) in the sustained growth of any economy is indisputable. SMEs are regarded as engines of economic growth in both developed and developing countries (Quaye and Mensah, 2019). In Ghana, the Micro, Small, and Medium Enterprises Regulations (2021) define enterprises based on employee counts and turnover. Micro-enterprises have 1–5 employees and a turnover or asset value of up to GH¢150,000. Small enterprises employ 6–30 individuals, with turnover ranging from GH¢150,006 to GH¢6,000,000, while medium enterprises have 31–100 employees, with turnover from GH¢6,000,006 to GH¢18,000,000. The Ghana Statistical Service (GSS) 2018 industry survey classified SMEs in the manufacturing sector as entities involved in production and processing, with a focus on developing new products or adding value to existing ones. The Ghanaian economy is significantly dependent on its Small and Medium-Sized Enterprises (SMEs). The Medium-Term Expenditure Framework (MTEF) for 2022–2025, published by the Ministry of Trade and Industry, highlights that Ghana's SMEs have not only excelled in regional markets but also show promising prospects for robust growth in the coming years. Research indicates that the absence of effective and efficient supply chain management practices (SCMP) often culminates in suboptimal decision-making, diminishing competitive advantage, and eroding shareholder value (Cahyono *et al.*, 2023; Corrales-Estrada *et al.*, 2021; Dyduch *et al.*, 2021; Jahanbakhsh *et al.*, 2023; Sharma *et al.*, 2022). This issue is exacerbated by challenges such as misaligned product delivery timelines with market demand, inability to meet customer orders promptly due to inventory shortages or supply chain disruptions, and an overall lack of supply chain visibility. To remain competitive, SMEs must focus on delivering high-quality products, ensuring on-time delivery, maintaining flexibility and agility, and minimizing operating costs achievable through enhanced SCMP. Manufacturing SMEs in Ghana are grappling with the challenges of competitive product pricing and quality to sustain their competitiveness in the global market (Deku *et al.*, 2021; Hamidu *et al.*, 2023; Oduro, 2020; Tetteh *et al.*, 2024a, b).

The research model developed by Li *et al.* (2006), which encompasses strategic supplier relationships, customer relationships, the quality of information exchange, logistical integration, and postponement, has been widely utilized in academic investigations. Numerous studies, including those by Alahmad (2021), Alam (2022), Carter *et al.* (2017), Gandhi *et al.* (2017), Khalil *et al.* (2019) and others have sought to explore the direct relationship between supply chain management practices (SCMP) and organizational performance. Generally, these studies indicate a positive correlation between SCM practices and firm performance across various operational and business metrics. However, there are notable exceptions that reveal significant theoretical and empirical inconsistencies in the literature. Several studies, including Abdallah *et al.* (2014), Khalil *et al.* (2019), Nkrumah *et al.* (2020), Quynh and Huy (2018), and Ringim *et al.* (2020), have reported no or a less significant relationship between some SCM practice constructs and performance outcomes. These inconsistent findings manifest across multiple dimensions of the SCMP-performance relationship. For instance, while strategic supplier partnerships have been consistently linked to improved performance in developed market contexts (Li *et al.*, 2006; Gandhi *et al.*, 2017), studies in emerging economies have yielded mixed results, with some finding weak or non-significant relationships (Abdallah *et al.*, 2014; Nkrumah *et al.*, 2020). Similarly, information sharing and logistics integration, widely considered fundamental SCM practices, have demonstrated varying effects on performance across different studies and contexts. Khalil *et al.* (2019) found that certain information sharing practices failed to significantly impact operational performance in their study of manufacturing firms, while Quynh and Huy (2018) reported negligible effects of logistics integration on financial performance metrics.

Furthermore, customer relationship management as a supply chain practice has shown contradictory results, with some studies demonstrating strong positive effects on performance (Alam, 2022) while others report minimal or context-dependent impacts (Ringim *et al.*, 2020).

The theoretical implications of these inconsistencies are profound, suggesting that the direct linear relationship between SCMP and organizational performance may be overly simplistic and potentially misleading. The conflicting evidence indicates that the assumed universality of SCMP effects across different contexts, firm sizes, and institutional environments may be theoretically unfounded. This pattern of inconsistent findings suggests the presence of unexamined mediating mechanisms, moderating factors, or contextual variables that influence the SCMP-performance relationship. Such inconsistencies in empirical findings have prompted researchers to question whether the direct relationship model adequately captures the complexity of supply chain value creation processes, particularly in resource-constrained environments such as SMEs in developing economies. This inconsistency in findings and gaps in the literature has prompted researchers to conduct new studies focusing on the manufacturing SME sector in Ghana's emerging economy (Tetteh *et al.*, 2025a, b, c, d).

Previous research (see Table 1) often overlooked the mediating role of supply chain performance, measured through metrics such as reduced cost, quality, delivery speed, and flexibility, in the relationship between SCMP and Organizational Performance (OP). This oversight may partially explain the inconsistent findings in the literature, as the absence of mediating variables could mask the true causal pathways through which SCM practices influence organizational outcomes. The failure to account for intermediate performance indicators may result in incomplete model specifications that underestimate or misrepresent the actual impact of supply chain investments on firm performance. Utilizing the model by Li *et al.* (2006), this study employs partial least squares structural equation modeling (PLS-SEM). The goal is to analyze the interplay between SCMPs and OP and investigate whether the inclusion of SCP as a mediator yields similar or distinct outcomes, thereby potentially resolving some of the theoretical ambiguities evident in existing literature.

Despite numerous studies on SCM practices and performance, SMEs in developing countries, such as Ghana, have been relatively under-researched (Alahmad, 2021; Alam, 2022; Carter *et al.*, 2017; Fang, 2015; Gandhi *et al.*, 2017; and others). The limited research in this context is particularly problematic given that institutional, infrastructural, and resource constraints in developing economies may fundamentally alter the mechanisms through which SCM practices generate performance outcomes. However, these studies have not adequately demonstrated the link between SCM practices and organizational performance in the Ghanaian context, nor have they accounted for the unique challenges and opportunities that characterize SME operations in sub-Saharan African markets. The researcher notes that although extensive literature exists on SCM, research specifically addressing SCM practices in SMEs, especially in developing countries such as Ghana, remains in its early stages, creating a significant knowledge gap that limits both theoretical understanding and practical application of supply chain management principles in these critical economic contexts.

This paper is anchored in the imperative to advance supply chain management theory by addressing critical theoretical and empirical lacunae that constrain both scholarly understanding and managerial efficacy in emerging market contexts. The first research gap the overlooked mediating role of supply chain performance represents a significant theoretical void that undermines the explanatory power of existing SCMP-organizational performance models and limits scholars' ability to delineate the causal mechanisms through which supply chain investments yield strategic outcomes. This theoretical insufficiency perpetuates incomplete understanding of the intermediate processes that transform supply chain capabilities into competitive advantages, thereby constraining the development of more sophisticated theoretical frameworks that can adequately capture the complexity of supply chain value creation. The second gap inadequate contextualization of SCMP-organizational performance relationships in sub-Saharan African economies reflects a broader theoretical

Table 1. Summary of research gap

Year	Author	Constructs	Theories	Contextual	Results
2020	Ringim <i>et al.</i>	Strategic Supplier Partnership (SSP), Customer Relationship (CR) Information Sharing (IS) and Organization Performance (OP)		Asia	SPP → OP Insignificant CR → OP Significant IS → OP Significant
2020	Nkrumah <i>et al.</i>	Strategic Supplier Partnership (SSP), Customer Relationship (CR), Supply Chain Information Management (SIM), Logistics Integration (LI) Postponement(PO) and Operational Performance(OP)	Resource-based view theory	Ghana	SSP → OP Significant CR → OP Insignificant SIM → OP Significant LI → OP Significant P → OOP Insignificant
2019	Khalil <i>et al.</i>	Strategic supplier partnerships (SSP), Logistics Integration (LI), Information Sharing(IS), Lean Techniques (LT), Internal Supply Chain Mechanism (ISCM) and Organizational Performance (OP)	Resource-based view theory	Pakistan	SSP → OP Insignificant LI → OP Insignificant IS → OP Significant LT → OP Significant ISCM → OP Significant
2018	Quynh <i>et al.</i>	Strategic Supplier Partnership (SSP), Customer Relationship (CR), Supply Chain Information Management (SIM), Logistics Integration (LI) and Postponement(PO) and Firms Performance(FP)		Vietnam	SSP → FP Insignificant CR → FP Significant SIM → FP Significant LI → FP Significant PO → FP Significant
2014	Abdallah <i>et al.</i>	Strategic Supplier Partnership (SSP), Customer Relationship (CR), Supply Chain Information Management (SIM), Logistics Integration (LI) and Postponement(PO) and Supplier Chain Performance(SCP)	Resource-based view theory	Jordan	SSP → SCP Insignificant CR → SCP Insignificant SIM → SCP Significant LI → SCP Significant PO → SCP Significant
2006	Li <i>et al.</i>	Strategic Supplier Partnership (SSP), Customer Relationship (CR), Information Sharing (IS) Logistics Integration(LI), Postponement(PO) and Organization Performance (OP)		USA	SSP → OP Significant CR → OP Significant IS → OP Significant LP → OP Significant POS → OP Significant

Source(s): Authors' own creation/work

limitation whereby predominantly Western-derived models may lack external validity when applied to institutional environments characterized by distinct resource constraints, infrastructure limitations, and market dynamics. This geographic and institutional bias in existing literature not only limits the generalizability of current theoretical propositions but also perpetuates the marginalization of emerging market phenomena in mainstream supply chain scholarship. Addressing these gaps is theoretically and practically significant because it enables the development of more nuanced theoretical models that can better explain supply chain performance heterogeneity across different institutional contexts, while simultaneously generating actionable insights for enhancing the operational effectiveness and competitive positioning of resource-constrained SMEs in developing economies, thereby contributing to

2. Literature review

2.1 Theoretical framework

This study is grounded in the Relational View (RV) theory, which extends beyond firm boundaries to explain how competitive advantage emerges from inter-organizational relationships and collaborative networks (Dyer *et al.*, 2018). Unlike the Resource-Based View's focus on internal resources, the Relational View posits that critical resources often span firm boundaries and are embedded within inter-firm routines and processes (Dyer and Singh, 1998; Lavie, 2006). The Relational View is particularly relevant for supply chain management research as it addresses how organizations can develop valuable inter-organizational capabilities through collaborative relationships (Cao and Zhang, 2011). According to this perspective, firms can generate relational rents—supernormal profits jointly generated through collaborative relationships—that cannot be created by either firm in isolation (Dyer and Singh, 1998). This study examines five key supply chain management practices (SCMP) through the lens of Relational View theory: Strategic Supplier Collaboration represents a relationship-based capability that involves joint problem-solving routines, knowledge-sharing mechanisms, and complementary resource investments with suppliers (Nyaga *et al.*, 2010). These collaborative relationships create idiosyncratic inter-firm linkages that competitors cannot easily imitate, generating relational rents through reduced transaction costs, enhanced knowledge exchange, and aligned processes. Customer Relationship practices embody relation-specific investments and joint value creation processes with customers (Rašković and Mörec, 2013). By developing close customer ties, firms can build relationship-specific assets, jointly develop complementary capabilities, and establish effective governance mechanisms. This relational capability enables organizations to better understand market requirements, improve responsiveness, and co-create value—all distinctive advantages explained by the Relational View. Quality of Information Sharing constitutes a critical knowledge-sharing routine that the Relational View identifies as a key source of relational rents (Paulraj *et al.*, 2008). When supply chain partners share proprietary information, they create inter-organizational knowledge-sharing routines that facilitate joint learning, reduce information asymmetry, and enable coordinated action across firm boundaries. Postponement strategies, while seemingly operational, represent sophisticated relationship-based capabilities that require synchronized processes between supply chain partners (Yang *et al.*, 2005). The Relational View explains how postponement requires specialized interfirm coordination mechanisms, shared knowledge assets, and complementary organizational systems that create unique collaborative advantages. Logistical Integration embodies the development of cross-boundary routines and processes that link organizations physically and operationally (Prajogo and Olhager, 2012). This practice aligns with the Relational View's emphasis on developing specialized governance mechanisms and inter-organizational process integration that competitors cannot easily replicate. Through these five interrelated relationship-based practices, manufacturing SMEs in Ghana can develop supply chain capabilities that enhance Supply Chain Performance (SCP) metrics of reduced cost, delivery speed, flexibility, and quality. The Relational View offers a comprehensive theoretical lens to understand how these collaborative practices generate competitive advantage through partner-specific absorptive capacity, joint resource creation, and effective inter-organizational governance (Mesquita *et al.*, 2008). This theoretical framework examines the moderating effect of SCP on the relationships between SCMP and organizational performance (financial and operational) of manufacturing SMEs in Ghana, highlighting how relational resources and capabilities drive sustainable competitive advantage through supply chain relationships rather than through isolated firm resources as shown in Figure 1.

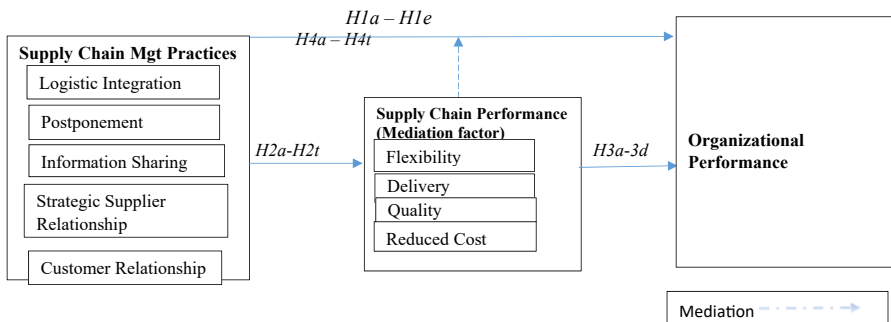


Figure 1. A conceptual framework. Source: Authors' own creation/work

2.2 Conceptual framework and hypotheses development

The study's conceptual framework consists of five independent variables: strategic supplier partnership, customer relationship, information-sharing quality, logistical integration, and postponement as constructs of supply chain management practices. The independent variable OP is functionalized as financial performance. A moderating factor, supply chain performance, is introduced with broken lines and operationalized as reduced cost, delivery speed, flexibility, and quality (see Figure 1).

2.2.1 Hypotheses development. Four (4) hypotheses were examined in this study. The first hypothesis was broken down into five sub-hypotheses (H1a-H1e), each of which contained the elements of first-order SCM practices. Exogenous variables (SCMP) were analyzed for their impact on organizational performance (endogenous). The second hypothesis examines the relationship between SCMP and SCP. Twenty (20) sub-hypotheses were derived from the second hypothesis (H2a-H2t). The third hypothesis examined the relationship between supply chain performance and overall company performance. The third hypothesis is divided into four (4) sub-hypotheses (H3a-H3d). The last hypothesis examined how supply chain performance mediates the relationship between supply chain management practices' performance and organizational performance. Twenty (20) sub-hypotheses constituted the fourth hypothesis (H4a-H4t).

The relationship between supply chain management (SCM) practices and organizational performance is an important area of research in the context of manufacturing SMEs. Effective SCM techniques are crucial for improving these businesses' performance and guaranteeing long-term survival, because they compete in a dynamic and increasingly competitive global market (Gunasekaran *et al.*, 2018). Manufacturing SMEs can reduce operating costs and increase efficiency by optimizing their supply chain procedures. Effective SCM practices lower waste, expedite production, and minimize the expense of keeping inventory on hand, contributing to cost savings and higher profit margins (Istimaroh *et al.*, 2023). Manufacturing SMEs frequently deal with erratic consumer demand and unstable market conditions. Manufacturing SMEs can meet customer expectations, adjust swiftly to changes, and preserve their competitive edge by implementing SCM practices that prioritize responsiveness and flexibility (Varma *et al.*, 2024). By lowering lead times, increasing customer satisfaction, and improving product quality, efficient SCM techniques can help SMEs stand out from their rivals. Manufacturing SMEs can produce value-added services and cultivate devoted clientele by forging strong bonds with suppliers and consumers (Al-Hakimi *et al.*, 2022).

Studies have shown that SCM practices and manufacturing SMEs' organizational performance are positively correlated. Numerous performance metrics, including financial performance, operational performance, and customer satisfaction, are frequently used to analyze this relationship. According to several studies, effective SCM practices are linked to better financial performance in SMEs. For example, Manufacturing SMEs that collaborate

with suppliers and employ strategic sourcing typically experience higher profitability and lower procurement costs (Lysons and Farrington, 2020). The financial performance of manufacturing SMEs is directly affected by SCM practices. Practices such as postponement, information sharing, logistics integration, supplier and customer relationships, and lead time reduction increase production efficiency and improve product quality (Abdallah *et al.*, 2023). These advancements have resulted in higher productivity and better resource utilization. Financial performance is a crucial metric for manufacturing SMEs. SMEs can fulfill quality standards, deliver products on schedule, and offer top-notch customer services when implementing effective SCM practices. Research has demonstrated that SMEs with robust supply chain management (SCM) capabilities have better customer loyalty and retention rates (Rane *et al.*, 2023). SCM practices have a positive effect on the organizational performance of manufacturing SMEs, as several studies have consistently shown. SMEs must overcome a number of obstacles to fully benefit from effective supply chain management (SCM) practices, which can significantly improve financial performance. A crucial theory is crucial for understanding the relationship between SCM practices and the organizational performance of manufacturing SMEs. RVT posits that a firm's resources and capabilities are fundamental to achieving competitive advantage and superior performance (Barney, 1991). The application of RVT in the context of SCM practices underscores the importance of leveraging resources to enhance organizational performance. Building strong relationships with suppliers is a critical SCM practice that aligns with the RV theory. Strategic supplier partnerships give manufacturing SMEs access to superior supplies, favorable terms, and cooperative innovation opportunities, which can result in the creation of valuable and uncommon resources (Baah and Ofori, 2022). These alliances may improve the company's capacity to provide clients with better value and a competitive advantage.

RV theory also applies to the integration of logistics, including information systems and data analytics, into supply chain management procedures. The adoption of technology is a valuable and unique resource that helps SMEs make better decisions, optimize supply chain operations, and increase operational efficiency (Gunasekaran *et al.*, 2018). Manufacturing SMEs can increase their agility and responsiveness to market changes by utilizing technology. Studies reveal that SMEs possessing robust supply chain management (SCM) capabilities exhibit superior financial outcomes, including increased profitability, return on investment (ROI), and cost-effectiveness (Donkor *et al.*, 2018; Ofori-Amanfo *et al.*, 2022). By cutting expenses and raising income streams, efficient supply chain management and resource allocation can lead to better financial results. The development of a sustainable competitive advantage for SMEs is facilitated by SCM practices grounded in RV theory. The ability to harness unique resources and capabilities enables SMEs to differentiate themselves in the market, respond to customer needs more effectively, and maintain a strong market position (Le *et al.*, 2024; Siagian *et al.*, 2024).

The RV theory also emphasizes how critical it is for manufacturing SMEs to have strong customer relationships. A better alignment with market demands and higher customer satisfaction can result from involving customers as partners in product development and service delivery (Zacharias and Boopathy, 2022). SMEs can co-create value and acquire insightful knowledge about customer preferences through collaborative customer relationships, leading to improved performance and competitive differentiation. SMEs in the manufacturing sector can gain from joining larger industry clusters and supply chain networks. According to the RV theory, such network-based partnerships offer access to a larger pool of resources, knowledge, and business opportunities (Abdallah *et al.*, 2023). Businesses can improve their operational and financial performance by utilizing these networks to increase their agility and responsiveness to market changes. According to the RV theory, relational resources play a key role in encouraging creativity and knowledge exchange among supply chain participants. According to Baah and Ofori (2022), collaborative relationships offer a forum for cooperative research and development (R&D) endeavors as well as the sharing of implicit knowledge, which ultimately results in the development of novel products

and procedures. In SMEs, this capacity for innovation can boost organizational performance and provide a competitive edge. Strong ties between firms can improve the capacity of manufacturing SMEs to reduce risk. SMEs can improve supply chain resilience to disruptions, share risks, and create backup plans by working with partners (Chowdhury *et al.*, 2023). In volatile markets, resilience is essential for preserving steady operation and guaranteeing long-term performance. Collaborative SCM practices can lead to cost efficiency and improved operational performance by optimizing resource utilization and eliminating redundancies (Zaridis *et al.*, 2021). Joint process improvements and shared logistics solutions among manufacturing SMEs can reduce costs and enhance the speed and reliability of supply chain operations, thereby leading to higher financial returns.

A company's market share, Return on Investment (ROI), and competitive standing should improve as a result of supply chain management activities (Das, 2018; Gilal *et al.*, 2016). For instance, strategic supplier alliances have been shown to improve the financial success of individual organizations (Beuren and Dal Vesco, 2021). Strategic alliances are coordinated with suppliers to build and sustain a network of qualified suppliers. This study covers the activities necessary to enhance suppliers' present performance. Strategic partnerships emphasize direct and long-term partnerships and foster joint planning and efforts to solve problems. Provider groups should coordinate their efforts and eliminate superfluous activities (Li *et al.*, 2006).

It has also been demonstrated that using strategies to foster relationships with customers significantly boosts an organization's productivity (Guha *et al.*, 2018). It covers the full range of procedures used to handle customer complaints, create lasting connections with clients, and increase customer satisfaction (Dwiastuti *et al.*, 2018). They consider customer relationship management a crucial part of supply chain management. Recognizing the value of customer relationships for long-term organizational survival, tailored goods and personalized services are moving forward (Li *et al.*, 2006).

A higher amount of information exchange is linked to reduced overall costs, higher rate of order fulfillment, and shorter order cycle time (Colicchia *et al.*, 2019). Information sharing is the ability of businesses to share knowledge and information effectively and efficiently with supply chain partners. In an integrated supply chain system, information-sharing includes exchanges between mutual partners and supply chain networks. Therefore, information sharing is important for efficient and successful relationship interactions (Jernsittiparsert and Rungsrisawat, 2019). The level of information-sharing (quantity aspect) refers to the extent to which sensitive and proprietary information is transmitted to one's supply chain partner. Moreover, information can be used as a means of competitive advantage by gathering available information and exchanging it with other parties within the supply chain (Christopher and Martin, 2016). Considering the complexity of SCM practices, the level of logistics integration in the supply chain and business performance is critical (Kaliani Sundram *et al.*, 2018). For example, examining the upstream and downstream chains, measuring the level of integration, and considering the following practices: production plan sharing, full use of electronic data interchange, level of knowledge and inventory combination, customization of packaging, frequency of delivery, shared use of containers, equipment, and logistics services. According to the main conclusion of the research by Kaliani Sundram *et al.* (2018), the greater the SCM integration level, the stronger the association with performance improvement; postponing is the process of delaying one or more operations or activities (producing, procuring, and delivering) until a much later stage in the supply chain (Ambe, 2017). Postponing enables a company to be versatile in designing multiple product versions to satisfy evolving customer needs and differentiate a product or change a market feature (Ferreira *et al.*, 2015). Research has also found that supply chain management activities affect the performance of organizations (Alam, 2022; Gandhi *et al.*, 2017; Gorane and Kant, 2015; Khalil *et al.*, 2019; Kumar and Singh, 2023; Kumar and Rajeev, 2020; Li *et al.*, 2006; Mutuerandu and Iravo, 2014; Mwale, 2014; Nkrumah *et al.*, 2020; Ogamegbunam, 2023; Pati *et al.*, 2016; Quynh and Huy, 2018). Therefore, based on the above literature, this study proposes the first set of hypotheses:

The SCP is defined as an objective measurement of the effectiveness and efficiency of supply chain operations (Anand *et al.*, 2015). Improvements in SCP are expected through lower costs, enhanced quality, production reliability, market speed, and flexibility. Research has shown that strategic supplier collaboration and other SCM activities can boost supply chain efficiency in various ways, including cost reduction (Nandi *et al.*, 2020). For instance, strategic supplier agreements can enhance supplier effectiveness, accelerate market speed, and improve customer responses and satisfaction. RV theory offers a powerful lens for understanding how firms can achieve superior supply chain performance through the effective management of their unique resources and capabilities. The context of manufacturing SMEs. To improve supply chain performance, especially in terms of lower costs, more flexibility, better quality, and on-time delivery, the RV theory emphasizes the significance of utilizing internal resources. Effective SCM practices can help manufacturing SMEs optimize these resources to achieve superior supply chain performance. RV theory emphasizes the strategic allocation of resources to SCM practices that maximize value and efficiency. Manufacturing SMEs often face resource constraints, making it crucial to prioritize supply chain practices that support cost-effective operations (Barney and Clark, 2007).

Production and logistics processes can be optimized through effective SCM practices, which can improve delivery performance. SMEs may increase delivery speed and dependability, which will increase customer satisfaction and encourage repeat businesses by investing in coordination and integration throughout their supply chain (Abdallah *et al.*, 2023). The application of the RV theory provides valuable insights into the relationship between SCM practices and supply chain performance in manufacturing SMEs. By focusing on the strategic utilization of valuable, rare, inimitable, and non-substitutable resources, SMEs can enhance their supply chain capabilities and achieve superior performance in terms of reduced costs, increased flexibility, improved quality, and timely delivery. The RV theory provides a strategic perspective on how firms achieve superior performance through collaborative relationships within their supply chains. In the context of manufacturing SMEs, RV theory highlights the importance of inter-organizational relationships and networks as critical drivers of supply chain performance, particularly in terms of reduced cost, increased flexibility, improved quality, and timely delivery. According to RV theory, a firm's ability to create and capitalize on inter-organizational relationships and networks gives it a competitive advantage in addition to its internal resources. Superior performance outcomes achieved through cooperative efforts and shared resources between partnering firms can result from these relationships in the form of relational rent (Dyer and Singh, 1998). Establishing robust and dependable connections with suppliers, customers, and other relevant parties is imperative for manufacturing SMEs to improve their supply chain efficiency and gain a competitive edge. RV theory emphasizes the value of collaborative partnerships in reducing costs and achieving operational efficiency. According to Liu *et al.* (2023), manufacturing SMEs can attain economies of scale, streamline processes, and optimize resource utilization by forming strategic alliances with suppliers and customers. Collaborative efforts, such as buying in bulk, sharing logistics, and co-developing products, can result in substantial cost savings and increased competitiveness. The RV theory emphasizes how crucial flexible partnerships and agile networks adjust to shifting market conditions. Manufacturing SMEs can improve their capacity to react swiftly to changes in demand, supply disruptions, and market opportunities by working with supply chain partners (Zacharias and Boopathy, 2022). Logistics integration and postponement are two flexible supply chain practices that help SMEs respond better to customer demand and align their operations.

According to RV theory, cooperative partnerships can result in cooperative quality management initiatives and high-quality products. Manufacturing SMEs can participate in joint audits, continuous improvement initiatives, and quality standard implementation by

collaborating closely with suppliers and customers (Baah and Ofori, 2022). These cooperative practices improve product dependability, lower defect rates, and guarantee that the supply chain quality standards are fulfilled. Timely delivery is a crucial performance metric for manufacturing SMEs. RV theory emphasizes the importance of integrated operations in accomplishing this. Manufacturing SMEs can enhance delivery reliability, optimize transportation routes, and improve production schedules by collaborating and exchanging information with supply chain partners (Doumbia *et al.*, 2021). Integrated SCM practices such as electronic data interchange (EDI) and collaborative planning, forecasting, and replenishment (CPFR) enable SMEs to achieve faster and more reliable delivery performance. Significant operational cost reductions are possible with collaborative SCM practices backed by relational resources. SMEs can increase profitability and cut costs by collaborating on cost management projects and pooling resources (Le *et al.*, 2024; Siagian *et al.*, 2024). SMEs can improve responsiveness and flexibility of their supply chains by creating cooperative networks. Supply chain management (SCM) practices, such as information sharing and customer relationships, help SMEs become more competitive by enabling them to react swiftly to changes in the market and customer demands (Zaridis *et al.*, 2021). SCM practices informed by the RV theory can lead to superior product quality and customer satisfaction. By leveraging relational resources and engaging in joint quality initiatives, SMEs can enhance their product reliability and performance, leading to increased customer loyalty and market share (Abdallah *et al.*, 2023). Integrated supply chain management practices can improve delivery performance through the optimization of production and logistics procedures. Manufacturing SMEs can enhance delivery speed and reliability, leading to higher customer satisfaction and repeat business by investing in coordination and integration throughout their supply chains (Doumbia *et al.*, 2021).

The application of the Relational View theory provides valuable insights into the role of inter-firm relationships in enhancing the supply chain performance of manufacturing SMEs. By focusing on building and leveraging collaborative networks, SMEs can create relational rent and achieve a sustainable competitive advantage.

Fang (2015) investigated the relationship between SCM practices and SCP, finding a statistically significant correlation between SCMP and SCP. Additional research from developing countries such as Bangladesh, Kenya, Sudan, and Nigeria (Adebayo, 2012; Anand *et al.*, 2015; Chavosh *et al.*, 2011; Gandhi *et al.*, 2017; Janaki *et al.*, 2018; Pati *et al.*, 2016) indicates a positive link between SCM practices and supply chain performance. These findings underscore the critical role of SCM activities in enhancing SCP, illustrating that strategic supplier relationships, effective information sharing, logistics integration, and the practice of postponement are key contributors to improving supply chain performance. This relationship is not only evident in developed economies but also holds significant relevance in developing countries, where SCM practices play a pivotal role in the efficiency and competitiveness of businesses. The second hypothesis was based on the aforementioned research. Based on the above literature, the second hypothesis is proposed as follows:

- H2. There is a significant relationship between SCM practices and the Supply Chain Performance.

In the context of manufacturing SMEs, RV theory emphasizes the strategic importance of internal resources in driving competitive advantage and improving performance outcomes. RV theory emphasizes the strategic allocation of resources to SCM practices that maximize value and efficiency. The application of RV theory provides valuable insights into the relationship between supply chain performance and organizational performance in manufacturing SMEs. By focusing on the strategic utilization of valuable, rare, inimitable, and non-substitutable resources, manufacturing SMEs can enhance their supply chain capabilities and achieve superior performance in terms of reduced costs, increased flexibility, improved quality, and timely delivery. RV theory emphasizes the importance of cost-effectiveness as a factor in determining financial performance. By leveraging unique resources

and capabilities, manufacturing SMEs can implement manufacturing practices, optimize inventory management, and streamline logistics to reduce operational costs (Hitt *et al.*, 2016). Profit margins can increase and financial performance can be enhanced when supply chain operations are efficient and costs are reduced (Baah and Ofori, 2022). Flexibility in supply chain operations allows manufacturing SMEs to quickly adapt to changes in market demand, supply disruptions, and competitive pressures. RV theory suggests that firms with dynamic capabilities can reconfigure their resources to respond effectively to environmental changes. Increased flexibility enables manufacturing SMEs to capture new market opportunities, enhance customer satisfaction, and ultimately improve their financial performance (Varma *et al.*, 2024).

Superior product quality is a major factor in determining customer loyalty and satisfaction. According to RV theory, maintaining a competitive edge and meeting high standards requires unique capabilities (Le *et al.*, 2024; Siagian *et al.*, 2024). Manufacturing SMEs can improve their financial results by increasing market share, reducing defects, and improving product quality by implementing total quality management (TQM) practices and cultivating a culture of continuous improvement (Abdallah *et al.*, 2023). To satisfy customers and maintain a competitive edge, timely delivery is crucial. Efficient supply chain operations supported by integrated logistics and advanced information systems can improve delivery performance (Gunasekaran *et al.*, 2018). On-time delivery enhances customer satisfaction, reduces order cancellations, and increases repeat business, thus contributing to improved financial performance (Zaridis *et al.*, 2021).

Superior product quality significantly influences customer loyalty and satisfaction. Based on a study by Abdallah *et al.* (2023), RV theory places strong emphasis on the value of cooperative relationships in meeting high standards and preserving a competitive advantage. By working closely with supply chain partners to implement joint quality management initiatives, manufacturing SMEs can enhance product quality, reduce defects, and increase market share, thereby leading to better financial outcomes (Siagian *et al.*, 2024). Timely delivery is essential for meeting customer expectations and maintaining a competitive advantage. Efficient supply chain operations supported by integrated logistics and advanced information systems can improve delivery performance (Gunasekaran *et al.*, 2018). On-time delivery enhances customer satisfaction, reduces order cancellations, and increases repeat business, contributing to improved financial performance (Zaridis *et al.*, 2021). The interdependence between supply chain efficacy and organizational effectiveness has been highlighted in studies such as that conducted by Janaki *et al.* (2018). Furthermore, Lee *et al.* (2011) delved into the dynamics of supply chain innovation and its impact on the performance of organizations in the service sector. Their findings reinforce the notion that a well-performing supply chain is positively correlated with enhanced organizational performance. These studies collectively underscore the critical role that effective supply chain management plays in bolstering an organization's overall performance. A proficient supply chain not only meets operational goals efficiently, but also contributes significantly to the achievement of broader organizational objectives, including financial performance, market competitiveness, and customer satisfaction. Hence, prioritizing and optimizing supply chain processes is essential for organizations seeking to achieve excellence and maintain a competitive edge in their respective markets. Based on the existing literature, the researcher therefore proposed the third hypothesis as.

H3. There is a significant relationship between the SCM performance and Organizational Performance of manufacturing SMEs.

Effective customer relationship management is essential to understand customer needs, improve service quality, and ensure timely delivery. RV theory highlights the importance of engaging customers as partners in co-creating value and enhancing product offerings. RV theory suggests that leveraging customer insights as a unique resource can drive innovation and improve organizational performance (Abdallah *et al.*, 2023). Logistics integration

involves the seamless coordination of transportation, warehousing, and inventory management to improve delivery performance. RV theory emphasizes the role of collaborative logistics networks in reducing costs and increasing flexibility (Zacharias and Boopathy, 2022). RV theory highlights the strategic importance of logistics capabilities as a valuable resource for enhancing operational efficiency and delivery reliability (Gunasekaran *et al.*, 2018).

Postponement strategies involve delaying product customization until closer to the point of sale, thereby enhancing flexibility and responsiveness. RV theory suggests that effective postponement relies on collaboration and information sharing across the supply chain (Al-Hakimi *et al.*, 2022). RV theory emphasizes the role of postponement as a capability that allows SMEs to optimize resource utilization and respond quickly to market changes (Zaridis *et al.*, 2021).

Information sharing is a fundamental SCM practice that enhances visibility and coordination across the supply chain. RV theory highlights the role of trust-based relationships in facilitating open communication and data exchange (Zhang *et al.*, 2021). RV theory underscores the strategic importance of information as a resource that enables better decision-making and performance optimization (Ferne, 2023). Supply chain performance mediates the relationship between SCM practices and organizational performance. Collaborative SCM practices and strategic resource utilization lead to cost efficiency, which enhances financial performance. SMEs can reduce operational costs and improve profitability by leveraging relational networks and optimizing resources (Dyer and Singh, 1998; Barney, 1991). Manufacturing SMEs that develop relational capabilities and dynamic resources can enhance their supply chain flexibility, allowing them to quickly adapt to market changes. This flexibility enables SMEs to capture new opportunities and to improve their financial outcomes (Varma *et al.*, 2024). Collaborative quality performance initiatives and strategic resource allocation can lead to superior product quality that enhances customer satisfaction and loyalty. High-quality products contribute to increased sales and improve financial performance (Abdallah *et al.*, 2023).

Efficient logistics integration and strategic information sharing enhance delivery performance, reduce lead-times, and increase reliability. Timely delivery improves customer satisfaction and repeat business, thus positively impacting financial performance (Gunasekaran *et al.*, 2018; Liu *et al.*, 2023). The relational view provides valuable insights into the mediating role of supply chain performance between SCM practices and organizational performance in manufacturing SMEs. By focusing on building collaborative networks and leveraging unique resources, SMEs can achieve superior supply chain performance and enhance financial outcomes. With innovation serving as a mediating factor in SMEs, Khalil *et al.* (2019) explored the connection between supply chain management techniques and organizational performance. It concluded that all five supply chain management methods had a significant and favorable impact on innovation. In addition, it was found that SCI totally or partially mediates the effects of SCMP on the two performance measures of the firm, and this variation could be attributable to various cultural contexts. Based on the existing literature, this study proposes the following fourth hypothesis:

- H4. Supply Chain Performance mediates the relationship between Supply Chain Management Practices and Organizational Performance of Manufacturing SMEs.

3. Research methods

In this study, the belief is that the effects of SCMP and SCP on SME performance are a static reality that exists independently and can be measured objectively. Hence, this study is rooted in the positivistic research paradigm; a research paradigm that is rooted in the search for “the truth” or “fact about reality.” (Bryman, 2016). The positivist paradigm adopted by this study dictates the use of a quantitative approach (Roulet *et al.*, 2017; Tetteh *et al.*, 2025a, b, c, d). According to

Creswell (2014), quantitative research methods employ strategies of inquiry such as experimental and survey to collect data on predetermined instruments that yield statistical data”.

The population for this study included 2,577 individuals from manufacturing SMEs, as captured in the Ghana Statistical Service Integrated Business Establishment Survey, Comprehensive Sector Reports 2018; GSS IBES, 2018), in the following four sectors: food, water, and beverage; metal, glass, and aluminum works; pharmaceutical, drug, and detergent products; clothing, textile, and garment works; and wood and ceramics work. The Greater Accra Region was chosen as the focal point for several reasons, including the fact that it is widely regarded as Ghana’s business center and is home to companies of all sizes and types (micro, small, medium, and large) operating in all three economic sectors (Bonsu and Bonin, 2023; Buame, 2012; Møller-Jensen *et al.*, 2020; Tetteh *et al.*, 2025a, b, c, d). Second, the Greater Accra Area is a multicultural area thought to feature businesses similar to those in other parts of Ghana (Buame, 2012; Møller-Jensen *et al.*, 2020).

This study utilized a multi-stage sampling technique to create a sample representative of a broader population. This sampling method is particularly effective for dealing with diverse populations that spread across various segments. Hence, based on Slovin’s formula, the estimated sample size for this study was 503. While the sample size of 500 may appear modest, it is deemed sufficiently large to adequately estimate the partial least squares structural equation Modeling (PLS-SEM) path model. This perspective is supported by Becker and Ismail (2016) and Cheah *et al.* (2021), who acknowledge that even smaller sample sizes can be effective in PLS-SEM, provided that they are sufficiently large to capture the complexity of the model and the relationships being examined.

This approach ensures a balance between statistical power and practical constraints, allowing for a comprehensive and accurate analysis of the relationships among supply chain management practices, supply chain performance, and organizational performance among manufacturing SMEs in the Greater Accra Region of Ghana. The questionnaire sequence was meticulously structured for clarity and was adapted from established sources (see Appendix I). To ensure validity, the questionnaire was first subjected to expert review, after which it was pretested twice by giving it to three respondents of the target group before the pilot study. The consistency of their responses confirms the validity of the research instrument.

The questionnaire was divided into three main sections. Section A describes respondents’ background data. Section B collected data on SCMPs (strategic supplier partnerships, customer relationships, information sharing level, information quality level, and postponement). Section C collects data on performance (operational and financial performance). All items were assessed using 7 point Likert scale (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neutral, 5 = Slightly Agree, 6 = agree, and 7 = Strongly Agree). The instrument for data collection was provided to Manufacturing/Product Managers, Chief Finance Officers, CEOs/ Presidents/Vice Presidents, Procurement/Supply Chain Officers, Chief Procurement Officers, Transport Managers, and Logistics Managers, who had a better understanding of the practices, supply chain performance, and problems that impact their companies’ performance from a supply chain management perspective.

4. Findings

4.1 Assessment of the measurement model

In this study, confirmatory analysis was conducted using SmartPLS 4.0, emphasizing the need to ascertain satisfactory levels of validity and reliability in the measurement model before proceeding to hypothesis testing. Initially, this study undertook a construct reliability analysis employing both Cronbach’s alpha (CA) and Composite Reliability (CR) methods. While both techniques assess internal consistency, CR offers a more comprehensive evaluation of overall reliability, assessing both the stability and equivalence of the construct. As noted by Black and Babin (2019) and Hair *et al.* (2019), a reliability value of 0.70 or higher is considered indicative of robust scale reliability. The results in Table 2 demonstrate that the CA and CR values of all

latent variables exceeded this threshold, with values ranging from 0.749 to 0.954, confirming the reliability of the latent variables. Regarding validity, convergent validity analysis was performed to determine the extent to which the indicators of a specific construct shared a high proportion of variance. This analysis utilized standardized factor loadings, with [Byrne \(2001\)](#) and [Hair et al. \(2019\)](#) recommending that factor loadings should exceed 0.50 for adequate validity. As displayed in [Table 2](#), the results showed that all loadings were satisfactory, ranging from 0.537 to 0.943, thus supporting the convergent validity of the constructs. Discriminant validity was assessed to determine the independence of constructs within the model. Three criteria were used for this assessment: the Fornell and Larcker criterion, cross-loadings, and heterotrait-monotrait (HTMT) correlations.

HTMT ratio: The HTMT ratio is a measure of the ratio between heterotrait correlations (correlations between constructs) and monotrait correlations (correlations between each construct and itself). According to [Franke and Sarstedt \(2019\)](#), HTMT values should fall below the threshold of 0.85 for adequate discriminant validity. The HTMT ratios between various constructs, such as Customer Relationship and Delivery (0.541), Delivery and Flexibility (0.518), and others, all fell within this threshold, as shown in [Table 3](#).

Fornell–Larcker criterion: The Fornell–Larcker criterion was also employed, comparing the square root of the Average Variance Extracted (AVE) values to the correlations between constructs. The criterion, as outlined by [Fornell and Larcker \(1981\)](#), suggests that for discriminant validity to be established, AVE values should exceed the correlations between constructs. The analysis confirmed that all AVE values were greater than the corresponding correlation values, indicating discriminant validity among the constructs (see [Table 4](#)).

Cross-Loading: In cross-loading, various items are examined to identify those that have high loadings on the same construct and those that load highly on multiple constructs. Thus, to establish discriminant validity at the item level, there should be a high correlation between items of the same construct and a very weak correlation between items of a different construct. An examination of the cross-loadings across the studies in [Table 5](#) shows that all indicator loadings per construct were higher than their respective cross-loadings on the other constructs. ([Hair et al., 2017](#); [Tetteh et al., 2025a, b, c, d](#)). As shown in [Table 5](#), this requirement is met. Based on these three criteria, discriminant validity was attained.

4.2 Assessment of the structural model results

Several tests were conducted to assess the adequacy of the proposed model. According to ([Cho et al., 2020](#); [Henseler et al., 2016](#)), the standardized root mean square (SRMR) values should be lower than 0.08 (for a sample size greater than 100). The SRMR value from the model was estimated to be approximately (0.067), suggesting a significant model fit for this study (0.067). In addition, the coefficient of determination (value is one of the approaches used to determine model adequacy. The coefficient of determination (R-square value) represents the amount of variance of endogenous constructs. The R-square takes values ranging from 0.00 to 1.00 and an R-square value > 0.10 is considered acceptable ([Chin, 1998](#)). As this study focuses on the behavioral aspect in the field of marketing, the rules of thumb are 0.75, 0.50, and 0.25, described as substantial, moderate, and weak, respectively ([Hair et al., 2017, 2011](#); [Henseler et al., 2016](#)). The R-square and adjusted R-square values for this study ranged from 0.181 to 0.436 and 0.171 to 0.425, respectively, which suggests that there is a weak to moderate effect. For instance, the amount of variance explained by the other constructs on organizational performance was estimated to be 43.6%. Another approach to assessing the structural model fit is the f-square. The test examined the effects of the latent variables. [Jumani and Sukhabot, 2020](#) indicated that if the f-square value is below or equal to 0.02, it indicates a small effect; if it is 0.15 medium effect; and if it is equal to or higher than 0.35 indicates a strong effect. The results obtained in this study suggest that the f-square values were between 0.000 and 0.218, indicating small and medium effect levels, respectively.

Table 2. Results of the measurement model

Construct	Item	Loadings	CA	CR	AVE
Customer relationship	SCMPCR1	0.917	0.954	0.965	0.844
	SCMPCR2	0.943			
	SCMPCR3	0.933			
	SCMPCR4	0.931			
	SCMPCR5	0.867			
Information sharing	SCMPIS4	0.819	0.863	0.869	0.587
	SCMPIS5	0.881			
	SCMPIS6	0.904			
Logistic integration	SCMPLI1	0.834	0.749	0.855	0.663
	SCMPLI2	0.844			
	SCMPLI3	0.763			
Postponement	SCMPPOS1	0.803	0.845	0.903	0.758
	SCMPPOS2	0.892			
	SCMPPOS3	0.913			
Strategic supplier relationship	SCMPSSR1	0.922	0.950	0.961	0.833
	SCMPSSR2	0.932			
	SCMPSSR3	0.938			
	SCMPSSR4	0.903			
	SCMPSSR5	0.867			
Delivery	SCPDEL1	0.868	0.876	0.908	0.668
	SCPDEL2	0.882			
	SCPDEL3	0.884			
	SCPDEL4	0.834			
Flexibility	SCPFLE1	0.824	0.787	0.854	0.549
	SCPFLE2	0.885			
	SCPFLE3	0.907			
Quality	SCPQL2	0.932	0.781	0.855	0.748
	SCPQL3	0.791			
Reduced cost	SCPRC1	0.869	0.852	0.909	0.769
	SCPRC2	0.851			
	SCPRC3	0.911			
Organization performance	OP2	0.774	0.901	0.927	0.718
	OP3	0.904			
	OP4	0.891			
	OP5	0.876			
Customer relationship	SCMPCR1	0.917	0.954	0.965	0.844
	SCMPCR2	0.943			
	SCMPCR3	0.933			
	SCMPCR4	0.931			
	SCMPCR5	0.867			
Information sharing	SCMPIS4	0.819	0.863	0.869	0.587
	SCMPIS5	0.881			
	SCMPIS6	0.904			
Logistic integration	SCMPLI1	0.834	0.749	0.855	0.663
	SCMPLI2	0.844			
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Postponement	SCMPPOS1	0.803	0.845	0.903	0.758
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	SCMPPOS3	0.913			
Strategic supplier relationship	SCMPSSR1	0.922	0.950	0.961	0.833
	SCMPSSR2	0.932			
	SCMPSSR3	0.938			
	SCMPSSR4	0.903			
	SCMPSSR5	0.867			

(continued)

Table 2. Continued

Construct	Item	Loadings	CA	CR	AVE
Delivery	SCPDEL1	0.868	0.876	0.908	0.668
	SCPDEL2	0.882			
	SCPDEL3	0.884			
	SCPDEL4	0.834			
Flexibility	SCPFLE1	0.824	0.787	0.854	0.549
	SCPFLE2	0.885			
	SCPFLE3	0.907			
Quality	SCPQL2	0.932	0.781	0.855	0.748
	SCPQL3	0.791			
Reduced cost	SCPRC1	0.869	0.852	0.909	0.769
	SCPRC2	0.851			
	SCPRC3	0.911			

Source(s): Authors' own creation/work

4.3 Path coefficient (direct effect and mediation)

The objective of this research was to investigate the impact of supply chain management practices on the performance of manufacturing SMEs, with supply chain performance (SCP) functioning as a mediator, and employing PLS-SEM as an evaluation tool to scrutinize the interrelationships among the constructs of SCMP, SCP, and OP. To validate the research instrument, a series of assessments, including convergent validity, composite reliability, and average variance extraction, were conducted using SmartPLS 4.0 SEM (Hair *et al.*, 2019). The findings confirmed discriminant validity, ensuring that the variables within the research instrument were not excessively interrelated (Fornell and Larcker, 1981). These constructs exhibited robust internal consistency. The reliability, validity, and model fit indicators demonstrated that the study's model for predicting the influence of SCMP and SCP on organizational performance (OP) was effective. Four hypotheses within the study were examined, using both direct path coefficients and indirect (using the specific indirect effect in PLS-SEM) relationships among the research constructs.

To begin with, the mediating effect of SCP on the relationship between strategic supplier relationship and organizational performance, the results show that mediation through delivery ($\beta = 0.017$, $t = 3.313$, $p < 0.001$), quality ($\beta = 0.044$, $t = 4.018$, $p < 0.000$), reduced cost ($\beta = 0.022$, $t = 3.108$, $p < 0.002$), and flexibility ($\beta = 0.012$, $t = 3.937$, $p < 0.000$). However, the direct relationship between supplier relationships and organizational performance was also found to be significant. This suggests that the four mediators (delivery, quality, reduced cost, and flexibility) have no mediation effect on the relationship between strategic supplier relationships and organizational performance. This means that supplier relationship management can independently improve organizational performance. Research shows that efficient supplier management is directly associated with SME performance (Alahmad, 2021; Alam, 2022; Nkrumah *et al.*, 2020; Azeem and Ahmed, 2015; Bag, 2018; Doumbia *et al.*, 2021; Kosgei and Gitau, 2016; Liu *et al.*, 2021; Nkwabi and Fallon, 2020; Ogomegbunam, 2023).

Second, the indirect effect of the SCP constructs delivery ($\beta = 0.029$, $t = 2.083$, $p < 0.005$), reduced cost ($\beta = 0.014$, $t = 3.225$, $p < 0.0001$), quality ($\beta = 0.060$, $t = 4.019$, $p < 0.000$), and flexibility ($\beta = 0.035$, $t = 3.870$, $p < 0.000$) on the mediating relationship between logistic integration and organizational performance showed a significant influence. However, the direct relationship between logistic integration and organizational performance was not significant, suggesting that all SCP fully mediate the relationship between logistics integration and performance. This means that the link between logistics integration and company performance is mediated by SCP constructs. These findings emphasize the importance of the

Table 3. Heterotrait-monotrait ratio (HTMT) - matrix

	Customer relationship	Delivery	Flexibility	Information sharing	Logistic integration	Organisational performance	Postponement	Quality	Reduce cost	Strategic supplier relationship
Customer relationship										
Delivery	0.541									
Flexibility	0.420	0.518								
Information sharing	0.143	0.315	0.415							
Logistic integration	0.226	0.399	0.463	0.444						
Organisational performance	0.412	0.432	0.641	0.276	0.402					
Postponement	0.326	0.283	0.340	0.117	0.251	0.375				
Quality	0.056	0.226	0.169	0.226	0.399	0.172	0.108			
Reduce cost	0.305	0.261	0.312	0.108	0.143	0.350	0.332	0.164		
Strategic supplier relationship	0.082	0.069	0.097	0.129	0.129	0.177	0.119	0.312	0.240	
Source(s): Authors' own creation/work										

Table 4. Fornell-Larcker criterion

	Customer relationship	Delivery	Flexibility	Information sharing	Logistic integration	Organisational performance	Postponement	Quality	Reduce cost	Strategic supplier relationship
Customer relationship	0.919									
Delivery	0.505	0.867								
Flexibility	0.381	0.456	0.873							
Information sharing	0.138	0.291	0.366	0.869						
Logistic integration	0.190	0.337	0.368	0.356	0.814					
Organisational performance	0.392	0.401	0.553	0.255	0.327	0.863				
Postponement	0.311	0.265	0.300	0.108	0.199	0.340	0.870			
Quality	0.030	0.164	0.119	0.163	0.315	0.102	0.095	0.865		
Reduce cost	0.283	0.238	0.268	0.108	0.113	0.318	0.303	0.128	0.877	
Strategic supplier relationship	0.011	0.032	0.084	0.088	0.114	0.170	0.077	0.275	0.228	0.913
Source(s): Authors' own creation/work										

Table 5. Path coefficient for direct relationship

Direct relationship		Original sample (O)	Standard deviation (STDEV)	t-statistics (O/ STDEV)	p-values	Remarks
H1a	Customer Relationship → Organisational Performance	0.135	0.030	4.564	0.000	Significant
H1b	Information Sharing → Organisational Performance	0.010	0.024	0.432	0.666	Not significant
H1c	Logistic Integration → Organisational Performance	0.018	0.026	0.678	0.498	Not significant
H1d	Postponement → Organisational Performance	0.069	0.024	2.855	0.005	Significant
H1e	Strategic Supplier Relationship → Organisational Performance	0.126	0.023	5.563	0.000	Significant
H2a	Customer Relationship → Delivery	0.424	0.039	10.895	0.000	Significant
H2b	Customer Relationship → Flexibility	0.262	0.043	6.062	0.000	Significant
H2c	Customer Relationship → Quality	0.154	0.049	3.109	0.002	Significant
H2d	Customer Relationship → Reduce Cost	0.199	0.042	4.690	0.000	Significant
H2e	Information Sharing → Delivery	0.158	0.043	3.647	0.000	Significant
H2f	Information Sharing → Flexibility	0.238	0.044	5.449	0.000	Significant
H2g	Information Sharin → Quality	0.156	0.050	3.129	0.002	Significant
H2h	Information Sharing → Reduce Cost	0.164	0.048	3.396	0.001	Significant
H2i	Logistic Integration → Delivery	0.183	0.046	4.013	0.000	Significant
H2j	Logistic Integration → Flexibility	0.196	0.045	4.355	0.000	Significant
H2k	Logistic Integration → Quality	0.304	0.045	6.801	0.000	Significant
H2l	Logistic Integration → Reduce Cost	0.136	0.045	3.039	0.003	Significant
H2m	Postponement → Delivery	0.081	0.046	1.752	0.081	Significant
H2n	Postponement → Flexibility	0.158	0.049	3.227	0.001	Significant
H2o	Postponement → Quality	0.127	0.051	2.482	0.013	Significant
H2p	Postponement → Reduce Cost	0.210	0.046	4.614	0.000	Significant
H2q	Strategic Supplier Relationship → Delivery	0.108	0.041	2.632	0.009	Significant
H2r	Strategic Supplier Relationship → Flexibility	0.066	0.023	2.841	0.005	Significant
H2s	Strategic Supplier Relationship → Quality	0.225	0.047	4.811	0.000	Significant
H2t	Strategic Supplier Relationship → Reduce Cost	0.219	0.044	5.010	0.000	Significant
H3a	Delivery → Organisational Performance	0.161	0.054	2.971	0.003	Significant
H3b	Flexibility → Organisational Performance	0.179	0.051	3.524	0.000	Significant
H3c	Quality → Organisational Performance	0.197	0.044	4.424	0.000	Significant
H3d	Reduce Cost → Organisational Performance	0.099	0.042	2.372	0.018	Significant
Indirect effect (mediation effect)						
Indirect relationship		Original sample (O)	Standard deviation (STDEV)	t-statistics (O/ STDEV)	p-values	Remarks
H4a	Strategic Supplier Relationship → Delivery → Organisational Performance	0.017	0.005	3.313	0.001	Significant
H4b	Strategic Supplier Relationship → Quality → Organisational Performance	0.044	0.011	4.018	0.000	Significant
H4c	Strategic Supplier Relationship → Reduce Cost → Organisational Performance	0.022	0.007	3.108	0.002	Significant
H4d	Strategic Supplier Relationship → Flexibility → Organisational Performance	0.012	0.003	3.937	0.000	Significant

(continued)

Table 5. Continued

Indirect effect (mediation effect)		Original sample (O)	Standard deviation (STDEV)	t-statistics (O/ STDEV)	p-values	Remarks
Indirect relationship						
H4e	Logistic Integration → Delivery → Organisational Performance	0.029	0.011	2.803	0.005	Significant
H4f	Logistic Integration → Reduce Cost → Organisational Performance	0.014	0.004	3.225	0.001	Significant
H4g	Logistic Integration → Quality → Organisational Performance	0.060	0.015	4.019	0.000	Significant
H4h	Logistic Integration → Flexibility → Organisational Performance	0.035	0.009	3.870	0.000	Significant
H4i	Information Sharing → Quality → Organisational Performance	0.031	0.004	7.666	0.000	Significant
H4j	Information Sharing → Reduce Cost → Organisational Performance	0.016	0.005	3.107	0.002	Significant
H4k	Information Sharing → Flexibility → Organisational Performance	0.043	0.008	5.327	0.000	Significant
H4l	Information Sharing → Delivery → Organisational Performance	0.025	0.008	3.058	0.002	Significant
H4m	Postponement → Flexibility → Organisational Performance	0.028	0.004	6.293	0.000	Significant
H4n	Postponement → Delivery → Organisational Performance	0.013	0.004	3.276	0.001	Significant
H4o	Postponement → Reduce Cost → Organisational Performance	0.021	0.005	3.862	0.000	Significant
H4p	Postponement → Quality → Organisational Performance	0.025	0.008	3.194	0.001	Significant
H4q	Customer Relationship → Reduce Cost → Organisational Performance	0.020	0.003	7.850	0.000	Significant
H4r	Customer Relationship → Quality → Organisational Performance	0.030	0.006	5.296	0.000	Significant
H4s	Customer Relationship → Flexibility → Organisational Performance	0.047	0.008	6.046	0.000	Significant
H4t	Customer Relationship → Delivery → Organisational Performance	0.068	0.010	6.788	0.000	Significant

Note(s): Original Sample (O); Standard Deviation (SD); t-Statistics (|O/STDEV|); p-values

Source(s): Authors' own creation/work

relational view theory in the development of logistics integration that aligns with various supply chain performance initiatives to enhance performance. (Saripalle, 2018; Swink *et al.*, 2015). Therefore, to reach their financial targets, businesses must connect and collaborate efficiently to plan, coordinate, and implement strategic initiatives. This finding is consistent with those of previous studies (Alam *et al.*, 2014; Prajogo *et al.*, 2016) that stress the importance of a firm's ongoing integration with networks and organizations to enhance its competitiveness.

Furthermore, the indirect effect of the SCP constructs of quality ($\beta = 0.031, t = 7.66, p < 0.000$), reduced cost ($\beta = 0.016, t = 3.107, p < 0.002$), flexibility ($\beta = 0.043, t = 5.327, p < 0.000$), and delivery ($\beta = 0.025, t = 3.058, p < 0.002$) on the mediating relationship between information sharing and organizational performance showed a significant influence. The direct relationship between information sharing and organizational performance showed no significant relationship, suggesting that all SCPs fully mediated the relationship between information sharing and performance. The findings of this study emphasize the significance of the relational view theory in the establishment of information-sharing activities that connect with various supply chain performance initiatives to improve performance. (Huo *et al.*, 2021; Yang *et al.*, 2021; Zhang *et al.*, 2019). Researchers went on to say that organizations' ability to share information effectively is a key strategic tool in today's world of constant and unpredictable change. Supply chain management relies heavily on the accuracy and timeliness of information sent between businesses regarding.

The four constructs under SCP, Flexibility ($\beta = 0.028, t = 6.293, p < 0.000$), delivery ($\beta = 0.013, t = 3.276, p < 0.001$), reduced cost ($\beta = 0.021, t = 3.862, p < 0.000$), and quality ($\beta = 0.025, t = 3.194, p < 0.001$), showed a positive mediating relationship between postponement and organizational performance. The direct relationship between postponement and performance was positive and significant. This suggests that there is no mediating effect of the four mediators (Delivery, Quality, reduced cost, and flexibility) on the relationship between postponement and organizational performance. This implies that postponement can independently lead to improved organizational performance, as found in the literature. Previous research (Ambe, 2017; Seth and Panigrahi, 2015; Zinn, 2019) has emphasized the direct connection between delay and organizational performance; therefore, these results are consistent with this. They restated that improved lead times, lower inventory values, and greater cash flow resulted from a well-executed postponement strategy.

Finally from Table 5, in examining the indirect effect, the influence of the SCP on the relationship between customer relationship and organization performance as evidenced by the results, Flexibility ($\beta = 0.047, t = 6.046, p < 0.000$); Delivery ($\beta = 0.068, t = 6.788, p < 0.000$); Reduced cost ($\beta = 0.020, t = 7.850, p < 0.000$) and Quality ($\beta = 0.030, t = 5.296, p < 0.000$); showed a significant mediating relationship between customer relationship and organization performance. The direct relationship between customers and performance is positive and significant. This suggests that there is no mediating effect of the four mediators (Delivery, Quality, reduced cost, and flexibility) on the relationship between customer relationships and organizational performance. This result is in line with the findings of studies by (Bin-Nashwan and Hassan, 2017; Guha *et al.*, 2018; Juanamasta *et al.*, 2019; Minh Ngo, Pavelkova, Thi Phan and Nguyen, 2018).

5. Conclusion and implications

This study makes significant contributions to understanding the relationship between Supply Chain Management Practices (SCMP), Supply Chain Performance (SCP), and Organizational Performance (OP) in the context of manufacturing Small and Medium-sized Enterprises (SMEs) in Ghana's Greater Accra Region. Utilizing the Relational View (RV) as the theoretical underpinning, this research delved into how inter-organizational relationships and collaborative network practices influence organizational outcomes. The Relational View theory provides a powerful explanatory framework for the Ghanaian manufacturing context, where traditional business networks and social capital play crucial roles in business success. In Ghana's collectivist society, the RV theory's emphasis on collaborative advantage resonates strongly with local business practices, particularly within the dense industrial clusters of the Greater Accra Region, such as Tema Industrial Area and Spintex Road, where proximity facilitates inter-firm knowledge sharing and resource complementarity. As applied in this study, the Relational View theory emphasizes the critical role of inter-organizational networks and collaborative relationships in achieving superior performance, particularly vital for

resource-constrained SMEs in Ghana's challenging business environment characterized by infrastructure limitations and institutional voids. The theory posits that success hinges on developing relation-specific assets, knowledge-sharing routines, complementary resources, and effective governance mechanisms, as evidenced by the manufacturing SMEs that have successfully navigated Ghana's periodic power fluctuations (dumsor) through collaborative supplier arrangements.

This study revealed that certain components of SCMP, such as customer relationships, postponement, and strategic supplier relationships, directly influence OP. These findings align with the RV theory's core proposition that inter-organizational relationships generate relational rents that individual firms cannot create in isolation. For Ghanaian manufacturing SMEs operating in a market with unreliable raw material availability and frequent currency fluctuations, these collaborative practices represent crucial relational capabilities that create competitive advantages through trust-based partnerships with local suppliers and customers.

The study concludes that while relationship-based supply chain practices are crucial, they must be systematically cultivated within Ghana's unique business ecosystem, which blends formal and informal institutional frameworks. A holistic commitment to developing inter-organizational routines and relation-specific investments that enhance supply chain performance is essential for sustaining high organizational performance. This is particularly evident in how successful Ghanaian manufacturing SMEs have developed specialized approaches to managing import relationships through the port of Tema and navigating complex customs procedures through collaborative networks.

This study makes three distinct theoretical contributions to supply chain management literature. First, it advances our understanding of the causal mechanisms underlying the SCMP-organizational performance relationship by theoretically positioning and empirically validating supply chain performance as a critical mediating variable, thereby moving beyond simplistic direct-effect models toward a more nuanced explanation of how supply chain investments translate into competitive advantages. Second, the research extends the boundary conditions of existing supply chain management theory by demonstrating how institutional and resource constraints in emerging market contexts fundamentally alter the operationalization and effectiveness of established SCM practices, challenging the assumed universality of Western-derived theoretical frameworks. Third, it contributes to the theoretical refinement of SME supply chain management by providing empirical evidence of how firm size and resource limitations create unique contingency conditions that moderate the relationship between supply chain practices and performance outcomes, thereby offering a more contextually sensitive theoretical foundation for understanding supply chain value creation in resource-constrained environments.

This study also provides valuable insights for managers of manufacturing SMEs in Ghana, highlighting how relationship-specific investments with suppliers and customers create unique collaborative advantages that competitors cannot easily imitate. For example, SMEs in Ghana's aluminum and plastic manufacturing sectors have demonstrated how co-developed knowledge-sharing routines with their distribution partners can significantly reduce cost structures while improving responsiveness to market demands in both urban centers and rural areas.

The findings also offer a basis for policymakers and government institutions to understand the dynamics of inter-firm relationships in Ghana's manufacturing sector and support the development of industrial clusters that facilitate relation-specific asset development and knowledge transfer. This is particularly relevant for agencies like the Ghana Free Zones Authority and the Association of Ghana Industries, which can design programs that strengthen collaborative capabilities among manufacturing SMEs. The main implications for supply chain function managers in Ghana emphasize the importance of developing specialized interfirm linkages rather than focusing solely on internal capabilities. Managers of manufacturing SMEs in Greater Accra can further improve their business performance by cultivating trust-based governance mechanisms with suppliers and customers, establishing

joint problem-solving routines that address Ghana-specific challenges such as logistics complexities and variable market conditions, and investing in complementary resource configurations across their supply chain networks.

These findings are expected to encourage manufacturing SMEs managers to invest in relationship-specific assets and collaborative routines that enhance supply chain performance through trust-building, information sharing, and joint value creation with their Ghanaian and international partners. This study confirms that in Ghana's manufacturing context, inter-organizational relationships and collaborative networks are critical sources of competitive advantage, providing strong justification for implementing relational approaches to supply chain management.

Supplementary material

The supplementary material for this article can be found online.

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Corresponding author

Hanson Obiri-Yeboah can be contacted at: hansobiriyeboah@atu.edu.gh