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THE ROLE OF DYNAMIC CAPABILITIES IN TRANSLATING MARKETING SUPPLY CHAIN ALIGNMENT INTO FIRM PERFORMANCE: MODERATING ROLES OF SUPPLY CHAIN RESILIENCE AND ENVIRONMENTAL UNCERTAINTY

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Abstract

Firms face pressure to integrate strategic functions like marketing and supply chain management. However, limited empirical research examines how such alignment interacts with dynamic capabilities and resilience to influence performance, particularly under environmental uncertainty in emerging economies such as Pakistan. This study aims to investigate the integrated effects of Marketing–Supply Chain Management Alignment (MSCA), Dynamic Capabilities (DC), and Supply Chain Resilience (SCR) on Firm Performance (FP), with Environmental Uncertainty (EU) as a moderating variable. Grounded in the Dynamic Capabilities View, the research explores how MSCA enhances performance directly and indirectly through DC, and whether EU and SCR moderate the effect of DC on FP. The study intends to bridge theoretical and empirical gaps by developing a moderated mediation model, offering strategic insights into how firms can optimize internal resource configurations and adapt effectively to environmental volatility for sustainable competitive advantage. The study employs a quantitative, cross-sectional design using survey data collected from managerial respondents in Pakistan's Fast-Moving Consumer Goods (FMCG) sector. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test direct, indirect, and moderating relationships among the constructs. Measurement reliability and validity were confirmed through Cronbach's alpha, composite reliability, average variance extracted, and discriminant validity metrics, ensuring robust empirical analysis. Results reveal that MSCA significantly enhances firm performance both directly and indirectly via dynamic capabilities. Dynamic capabilities mediate the relationship between MSCA and performance, confirming their role as strategic enablers. However,

environmental uncertainty negatively moderates the impact of dynamic capabilities on performance, suggesting that excessive turbulence can hinder adaptive effectiveness. The moderating role of supply chain resilience was found to be insignificant. These findings highlight the importance of aligning strategic functions and fostering adaptive capacity while also recognizing contextual constraints. The study offers critical implications for firms operating in uncertain environments, particularly in emerging markets, seeking to strengthen performance outcomes.

INTRODUCTION

The interplay between marketing and supply chain management has garnered increasing attention as firms strive to enhance performance amid a volatile global landscape. In today's context, organizations confront rapid technological transformation, shifting customer expectations, and trade disruptions that challenge traditional value delivery systems (Banerjee & Gupta, 2023). Scholars highlight that integrating marketing strategies with supply chain processes fosters a unified orientation, termed Marketing–Supply Chain Alignment (MSCA)—which is essential for instituting dynamic capabilities capable of sensing opportunities, seizing them, and reconfiguring resources effectively (Lopez et al., 2022). Concurrently, resilience within the supply chain has emerged as a critical buffer against shocks such as natural disasters, geopolitical tensions, and pandemics. Dynamic capabilities act as the linchpin, transforming MSCA and resilience initiatives into sustained competitive advantage, ultimately influencing firm performance (Zhang & Park, 2023). However, extant studies often treat these constructs in isolation, neglecting their interactive effects under conditions of environmental uncertainty (Salam & Bajaba, 2023). This study investigates how dynamic capabilities mediate the effects of MSCA and supply chain resilience on firm performance, and how this mediation is moderated by environmental uncertainty offering fresh insights into integrated organizational strategies.

The literature establishes that MSCA enhances information sharing, customer responsiveness, and cost efficiency (Chen et al., 2022). Dynamic capabilities, conceptualized by Teece (2022), enable firms to adapt, rebuild, and innovate in response to changing environments. Their strategic role in integrating marketing and supply chain functions is acknowledged, but rarely examined empirically in tandem with resilience mechanisms (Kong & Feng, 2025). On the other hand, supply chain resilience comprises proactive risk detection, flexibility, and recovery planning, which safeguard against disruptions (Singh & Roy, 2023). Although both concepts individually relate to better operational outcomes, there is limited empirical understanding of how they collectively influence firm performance, and under what external conditions that relationship strengthens or weakens.

Globally, firms face intertwined challenges like pandemic-induced lockdowns, semiconductor shortages, and freight cost volatility have highlighted vulnerabilities in supply chains (Ivanov & Dolgui, 2023). Governments worldwide emphasize resilience strategies, but businesses struggle to align these with market orientation and dynamic responsiveness. Nationally, in Pakistan, industries contend with power supply unpredictability and rising logistics expenditures, threatening competitiveness in textile and manufacturing sectors (Khan & Ahmed, 2022). Locally the broader Punjab region experience infrastructural bottlenecks that amplify delays in delivery and market responsiveness (Kim et al., 2024). These disruptions not only erode operational efficiency but also strain firm capabilities to respond to shifting customer demands. As a result, there is mounting pressure on firms to create cohesive systems where marketing intelligence aligns with agile supply strategies to improve responsiveness and guard against shocks (Salam & Bajaba, 2023). Firms that fail to integrate these domains risk falling behind in an increasingly uncertain marketplace, underscoring the urgency of multidisciplinary models that bridge marketing, resilience, and dynamic strategies.

Despite ample theoretical constructs surrounding MSCA, dynamic capabilities, and supply chain resilience, empirical research seldom examines their

integrated effects on firm performance while accounting for environmental uncertainty. Studies existing in the literature are inclined to split these constructs: MSCA is correlated with the service quality and cost-efficiency (Lopez et al., 2022), dynamic capabilities are found to be related to innovation and adaptability (Teece, 2022), and resilience to disruption is correlated with disruption recovery (Singh & Roy, 2023). But what is lacking in model that explains the interaction of these factors particularly whether there is a meditating effect of dynamic capabilities of the interaction of MSCA and resilience with performance and how the environmental uncertainty softens this interaction. The unpredictability of market and technological changes, termed as environmental uncertainty, may activate dynamic responses and hinder them at the same time (Zhang & Park, 2023). The interaction between high uncertainty and stronger dynamic capabilities required by firms to realize advantages of alignment and resilience is an underdeveloped area of research. Moreover, there are hardly any studies contextualized in emerging economies, like Pakistan, and the practical implications of such studies remain untested in regimes where instabilities in the infrastructures tend to be prevalent along with the unpredictability of regulation. This study fills these gaps by seeking to test a moderated mediation model: both dynamic capabilities and environmental uncertainty can mediate the impacts of MSCA and resilience on the performance of firms, and the former (environmental uncertainty) can moderate the latter mediation paths. This kind of inquiry removes theoretical gap and guides managers who work in intricate environments.

Understanding this integrated framework is critical, as fragmented strategies may yield suboptimal outcomes. Companies which make independent investments in marketing integration, capability building or resilience cannot realize synergies unless their internal business processes are managed in a cohesive way. Seeing increasing global shocks, including interruptions in the supply chain and changing consumer preferences, companies with a lack of dynamic integration face the danger of slow response, mismanagement of resources and market share (Ivanov & Dolgui, 2023; Khan & Ahmed, 2022). In new markets, the stakes are high because resource limits will amplify acts of poor coordination: poor coordination can easily turn into a financial crisis. This research makes a more accurate and much-needed contribution to our knowledge of the role of dynamic capabilities as a nexus between strategic alignment and resilience, mediated by uncertainty regarding sustainable competitive advantage. Managers armed with such knowledge will be able to coordinate more efficiently with marketing and supply chains investments, customize development of capabilities and predict the optimal frontier of environmental conditions wherein such integration is most useful.

This study adds value by offering the first empirically tested, integrated model that unites MSCA, supply chain resilience, and dynamic capabilities under the lens of environmental uncertainty in an emerging-market context. By doing so, it advances understanding of how firms can architect coherent strategic systems rather than disjointed functions, while quantifying the conditions under which these interactions are most productive. The findings are poised to inform theory and practice. Theoretically, the study extends the dynamic capabilities framework by highlighting its mediation and moderation processes. Practically, it equips managers with diagnostic tools to assess alignment maturity and resilience readiness under varying uncertainty. By grounding the model in Resource-Based Theory, this research contributes to unified theoretical discourse on how resource orchestration fosters sustainable performance.

Theoretical Foundation

A fitting theoretical foundation that comprehensively explains the proposed model, linking MSCM, DC, SCR, EU, and FP, is the Dynamic Capabilities View (DCV), an extension of the Resource-Based View (RBV) of the firm. The DCV focuses on the integration, the construction, and the reconfiguration capability of internal and external competencies in reaction to fast-driven changes in the environment (Teece, 2022). MSCA is a strategic coordination tool that integrates market intelligence with its operational execution to constitute a resource pool of value (Salam & Bajaba, 2023). But, this static-alignment is not adequate during the turbulent environments; hence, the DCV provides how companies use the

dynamic capabilities to change this alignment in opportunities of transformed advantage. The following capabilities, sensing opportunities and exploiting them using timely decisions and reconfiguration of resources are the mediating mechanism through which alignment and resilience influences performance. A supply chain resilience observed through the DCV prism turns into not just a risk-damping characteristic but a redesign able ability to recover, adapts, and sustains (Ivanov & Dolgui, 2023). This theory indicates that companies vary in capacity to change routines and structures and it is this dynamic alteration that facilitates the success in the environment of certain uncertainty. The greater the uncertainty, the stronger the effect of dynamic capabilities, as this factor enables companies to react to vague data, exploit temporary market opportunities, and make sharp maneuvers (Wamba et al., 2023). Environmental uncertainty does not act as a threat in itself but is a situational condition, which intensifies the effectiveness of dynamic orchestration. In this context, MSCA is the input, resilience is the capacity to buffer, and transformation engine is the dynamic capabilities, which eventually lead to the firm performance (Rehman & Jajja, 2023). DCV is also a rather good rationale of moderated forms of mediation models: capabilities do not stay in a vacuum, and they are shaped by the external reality, especially, when the environmental turbulence acts on the costs and benefits of placing resources into new configurations (Zhang & Park, 2023). The research not only describes the process of orchestration of the resources in the firms, but also why the orchestration process should be situational, illustrating the bounded nature of dynamic responses. This theoretical situating is especially applicable to companies in emerging economies, such as Pakistan, where institutions are weak and resource reutilizing agile adaptation is required to deal with external shocks (Rehman & Jajja, 2023). Through the incorporation of MSCA and resilience to the DCV model, the model signifies a more progressive outlook on the capability layering: alignment contributes to the increase of sensing and seizing capabilities, whereas resilience enables the reconfiguration at stress. This theory brings the mechanisms of interaction into the limelight, offers a whole-of-firm perspective on the issue of firm adaptability and supports the need in a resurgent literature to bring networked models that link strategic alignment, operational agility, and environmental responsiveness (Teece, 2022; Wamba et al., 2023). DC view provides the strongest and most integrative account of the proposed structural relationships in this investigation that links the firm internal configurations with external contingencies in the quest to attain sustained firm performance.

Hypothesis Development

In today's competitive and volatile business environment, firms are under increasing pressure to integrate strategic functions to enhance performance. An example of such integration is the marketing and supply chain management (MSCA) integration which entails a concept of strategic and operational synchronization between market facing functions and the logistic and operation backbone of the firm. Such a partnership secures that the information about the customers obtained during the marketing efforts could be successfully translated to the supply chain management like planning, scheduling, and logistics of inventory, production, and distribution (Lopez et al., 2022). Successful MSCA helps in demand prediction, customization and responsiveness hence increased customer satisfaction and efficiency which are two significant measures of the performance of a firm. Recent examination has conveyed the synergistic advantages of harmonizing these two ways. In such a way, we can look at sure and available value that may not only be welcome to the consumers but also upholdable in view of operations by Banerjee and Gupta (2023). This integration will prevent the mismatch between promises created in the market and the reality in terms of supply, a mismatch that usually results into lost sale, inventory overload, or slipped services. Aligned companies become more responsive and being able to react on the market changes, their penetration to market increases, and the brand can take its position more efficiently (Zhang & Park, 2023).

Companies that have high MSCA record increased customer retention, decreased operational expenses, and a quicker time to market all of which have a beneficial effect on the performance of the company (Chen et al., 2022). Cross-functional coordination is also part of MSCA through which internal processes

are improved by sharing information and elimination of redundant activities, which will eventually lead to improved financial and non-financial performance measures. This alignment is especially useful in manufacturing or retail businesses where customer demands and the supply chain limitation often change. It prompts that the responsiveness of the supply chains is capable of being driven by actual time customer information leading to increased levels of service and competitive differentiation (Singh & Roy, 2023). Being a powerful strategic lever that can overcome institutional gaps in emerging markets where the level of uncertainty and limits of infrastructural opportunities is high, MSCA can be used to achieve the compensation that will lead toward the successful introduction of the process of cell manufacturing (Altay et al., 2018). By aligning marketing strategies with operational capacities, firms can better anticipate constraints and proactively manage customer expectations, thereby ensuring sustained performance even in volatile conditions (Khan & Ahmed, 2022).

H1: Marketing–Supply Chain Management Alignment has a positive impact on Firm Performance.

Firms can successfully convert cross-functional strategic alignment into sustained performance advantages has intensified, especially in volatile and resource-constrained environments. Although the alignment of marketing and supply chain management (MSCA) has been identified as a good strategy in the endeavor to establish market responsiveness and smooth operations (Lopez et al., 2022), scholars have since been arguing that alignment on its own might not provide excellent performance results unless companies have internal resources to match, change, and integrate resources efficiently (Irfan et al., 2022). This has given a focus on the organization mechanisms that makes such a transformation possible and the most important among them is dynamic capabilities. The capabilities are not mere operating routines, rather they are characterized by the capability of a firm to sense changes in the market, make opportunities and rearrange assets (Teece, 2022). This lies in the adaptive capacity, where the actual strategic value of MSCA is revealed. Banerjee and Gupta (2023) indicate that plentiful information flow and interdepartmental synergy that could be enabled by MSCA can be converted into practice only at the firms with strong dynamic capabilities (Bahrami & Shokouhyar, 2022). Without this radical change, the gains of MSCA might not be realized and instead might end up having a fixed set up which is not responsive (Tao et al., 2025). Empirical research shows that the firm that builds dynamic capabilities is more capable of responding to customer-driven insights produced by the collaboration of marketing-supply chain, making product innovation, inventory management, and service delivery timely and agile (Zhang & Park, 2023). Such capability to convert alignment into competitive action supports the assumption that performance advantages do not emerge due to alignment, but due to the capacity of the firm to harness the alignment in adaptive ways to its volatile business context. This flexibility is particularly important in very dynamic markets where both clients demands and logistical attributes are changing very fast. Chen et al. (2022) state that failing to implement such capabilities, the organizations might find themselves in a situation of strategic disconnect, where even the useful alignment endeavors are useless due to the inefficiency of decision-making processes and a strict organizational structure (Bahrami & Shokouhyar, 2022). Companies that possess strong dynamic capabilities establish feedbacks between the supply chain execution and customer intelligence, facilitating ongoing process of learning, readjustment, performance improvements. In this way, the bridge between MSCA and firm performance depends on more than structural fit it is constrained by the ability of the firm to harmonize fluid resources in reaction to issues of internal coordination and external pressures (Tao et al., 2025). In this way, dynamic capabilities represent the strategic mechanism through which alignment is operationalized into competitive performance, particularly in contexts marked by uncertainty and rapid change.

H2: Dynamic Capabilities mediates between Marketing–Supply Chain Management Alignment and Firm Performance

Firms are increasingly operating within volatile, ambiguous, and rapidly evolving environments, the

challenge of sustaining superior performance hinges not solely on the possession of dynamic capabilities but also on how effectively these capabilities are leveraged in response to contextual pressures (Jum'a et al., 2025). While dynamic capabilities, defined as a firm's capacity to integrate, build, and reconfigure internal and external resources, have been widely acknowledged as crucial for achieving strategic agility (Teece, 2022), their performance implications are not universally consistent across all settings. Instead, the strategic value derived from these capabilities is often contingent upon the degree of environmental turbulence that firms encounter (Eslami et al., 2024). In relatively stable environments, the need for constant resource reconfiguration may be minimal, and firms can perform adequately through incremental adjustments (Eslami et al., 2024). However, in uncertain or disruptive conditions, marked by frequent market shifts, technological disruptions, and regulatory ambiguity, the same dynamic capabilities become a vital engine for competitive repositioning (Banerjee & Gupta, 2023). Recent evidence suggests that organizations operating in such uncertain environments are more likely to exploit their dynamic capabilities to innovate, reorient product offerings, and swiftly realign operational models, all of which are instrumental in safeguarding and enhancing performance (Zhang & Park, 2023). This is particularly salient in emerging markets, where environmental fluctuations are amplified by infrastructural volatility and policy unpredictability (Jum'a et al., 2025). In such contexts, the ability to continuously sense and respond to emerging threats and opportunities becomes an indispensable asset. Yet, not all firms benefit equally; those that lack the organizational readiness or leadership foresight to interpret uncertainty as a strategic driver may struggle to extract value from their dynamic capabilities (Singh & Roy, 2023). Firms that recognize environmental ambiguity as a stimulus for change are better positioned to channel their dynamic capabilities toward rapid adaptation and value creation (Eslami et al., 2024). The performance outcomes associated with dynamic capabilities are not merely a function of internal competency, but also a reflection of how these capabilities interact with external environmental forces. The surrounding uncertainty acts as a strategic lens, magnifying the relevance of dynamic capability deployment, and simultaneously determining the efficiency and impact of such deployment (Jum'a et al., 2025). In effect, while dynamic capabilities represent the firm's potential for agility, it is the turbulence of the environment that often dictates whether this potential is realized or constrained. Hence, the strategic context not only shapes the usage of dynamic capabilities but also informs the intensity and urgency with which they must be applied for performance enhancement.

H3: Environmental Uncertainty Moderates between Dynamic Capabilities and Firm Performance

The effectiveness of dynamic capabilities in generating superior firm performance is not merely a product of internal resource orchestration, but is also deeply influenced by how firms are structurally prepared to absorb, adapt to, and recover from disruptions. Although dynamic capabilities enable companies to detect market changes, capture emerging opportunities, and reorganize themselves to take advantage of them (Teece, 2022), the ability to implement the resulting strategic actions in practice, so as to turn them into real performance results, tends to rely to a large extent on the availability of the operational structures that would sustain such agility in times of pressure. These frameworks include the supply chain resilience as a capacity of firms to plan, absorb, and recover shocks related to supply side, which has proved to be one of the most important enablers. Researchers note that developed dynamic capabilities could still be insufficient when the firms are not equipped with the resilience infrastructure to cushion the unpredictability and trigger the attainment of rapid modifications (Singh & Roy, 2023). This is especially the case in the industries that are more vulnerable to disturbances, including manufacturing, logistics, and retail, where it is both the aspects of strategic foresight and sustainable performance that define the success or failure of the company. The resilience against dynamic reconfigurations is emulated by such mechanisms as redundant capacity, diversified bases of suppliers, and flexible logistics systems that establish the frameworks within which dynamic reconfigurations can be enacted without jeopardizing the service delivery and cost efficiency (Ivanov & Dolgui, 2023). Resilient supply chains might not be in place at the firms, and

the dynamism that they tend to exhibit in terms of shifting to new destinations or reengineering processes might prove incapable of producing performance due to the instability in the flow of materials and their operating support. Some observations of emerging economies indicate that resilience not just shields businesses against the systemic shocks but also increases the strength and honesty of vibrant strategic measures (Khan & Ahmed, 2022). When a firm detects an opportunity of changing to e-commerce during a disaster, there must be the resilient logistics and sourcing structures that will enable it to make the change actual. In this respect, supply chain resilience is a situational agent determining the dependence of outcomes in the relationship of internal agility performance and a firm. It strengthens the premise of the argument that the path between strategic adaptability and competitive advantage is hardly linear it is a matter of the embedded ability of the firm to withstand shocks as it embarks on change implementation. Therefore, organizational preparedness through resilient supply chains becomes a critical lens through which the efficacy of dynamic capabilities is filtered, enhancing or constraining their contribution to firm performance.

H4: Supply Chain Resilience moderates between Dynamic Capabilities and Firm Performance.

Methodology

This study adopts a quantitative, cross-sectional research design, which is appropriate for empirically testing hypothesized relationships between MSCM, DC, SCR, EU, and FP. A quantitative approach enables the systematic measurement of latent constructs and the application of robust statistical techniques to assess direct, indirect, and conditional relationships, which aligns well with the complexity of the proposed moderated mediation model (Hair et al., 2021). The cross-sectional nature allows the collection of data at a single point in time, which is suitable for capturing current perceptions, strategies, and performance outcomes within organizations operating under environmental uncertainty. The target population for this research consists of firms operating in the Fast-Moving Consumer Goods (FMCG) sector. This sector is particularly well-suited due to its highly dynamic, customer-centric, and supply chain-intensive nature. FMCG firms face rapid product life cycles, fluctuating consumer preferences, and frequent supply disruptions conditions that make the alignment of marketing and supply chain functions critically important (Chen et al., 2022). The sector's sensitivity to market responsiveness and operational efficiency makes it an ideal context for examining the role of dynamic capabilities and resilience in enhancing performance (Banerjee & Gupta, 2023).

The sampling strategy involves purposive sampling of managerial-level respondents who are directly involved in marketing, supply chain, or operations functions, as they are most qualified to assess the constructs under investigation. The sample size will be determined using Item Response Theory (IRT), which offers a statistically grounded method to assess the adequacy of items measuring latent constructs and to calculate sample size thresholds for structural equation modeling (De Ayala, 2022). This approach ensures that the sample is not only statistically adequate but also psychometrically valid in capturing the complexity of constructs like dynamic capabilities and resilience. For data analysis, both SPSS and SmartPLS will be employed. SPSS will be used for preliminary analyses such as descriptive statistics, reliability testing (Cronbach's alpha), and multicollinearity diagnostics. SmartPLS, a variance-based structural equation modeling (PLS-SEM) tool, is appropriate for testing the proposed model because it can handle complex models with mediation and moderation, works well with smaller sample sizes, and does not require multivariate normality (Hair et al., 2021).

Measurements:

All items were measured using a five-point Likert scale ranging from 1 = "strongly disagree" to 7= "strongly agree." Minor contextual modifications were made to fit the FMCG sector in Pakistan. Eight items measuring MSCA were adopted from Lopez et al. (2022) and Chen et al. (2022). These items captured the extent of strategic and operational alignment between marketing and supply chain functions, including cross-functional collaboration, information sharing, and joint decision-making. Example item: "Marketing and supply chain functions in our firm work closely to serve customer needs." Seven items

were adopted from Teece (2022) and Irfan et al. (2022) to measure a firm's ability to sense opportunities, seize them, and reconfigure resources accordingly. The items focused on adaptability, innovation responsiveness, and agility. Example item: "Our firm quickly adapts its resources to match changes in the market." Eight items measuring supply chain resilience were adopted from Singh and Roy (2023) and Ivanov and Dolgui (2023). These items assessed the firm's capability to respond to, absorb, and recover from supply disruptions. Example item: "Our supply chain can quickly respond to unexpected disruptions." Six items were adapted from Zhang and Park (2023) and Jum'a et al. (2025), assessing perceived unpredictability in customer preferences, regulatory shifts, and technological trends. Example item: "The business environment in our industry is highly unpredictable." Firm performance was measured using six items adopted from Banerjee and Gupta (2023) and Bahrami and Shokouhyar (2022), focusing on both financial (e.g., profitability) and non-financial (e.g., customer satisfaction, delivery speed) indicators. Example item: "Our firm has achieved superior performance relative to competitors in the past year."

Data analysis

Variables		DC	EU	FP	MSCM	SCR
Dynamic Capabilities	DC2	0.752				
	DC3	0.758				
	DC4	0.790				
	DC5	0.841				
	DC6	0.758				
	DC7	0.809				
Environmental Uncertainties	EU1		0.805			
	EU2		0.823			
	EU3		0.815			
	EU4		0.862			
	EU5		0.859			
	EU6		0.781			
Firm Performance	FP1			0.856		
	FP2			0.900		
	FP3			0.864		
	FP4			0.903		
	FP5			0.837		
	FP6			0.866		
Supply Chain Management Alignment	MSCM1				0.895	
	MSCM2				0.872	
	MSCM3				0.853	
	MSCM4				0.838	
	MSCM5				0.873	
	MSCM6				0.899	
	MSCM7				0.832	
	MSCM8				0.919	
Supply Chain Resilience	SCR1					0.892

	SCR2					0.906
	SCR3					0.893
	SCR4					0.897
	SCR5					0.888
	SCR6					0.918
	SCR7					0.857
	SCR8					0.917

The regression weights provided represent the outer loadings of individual items on their respective latent constructs, a key component in reflective measurement models within Partial Least Squares Structural Equation Modeling (PLS-SEM). These loadings are used to discover the intensity with which each measure (indicator) that is observed represents the particular latent variable that they are supposed to measure. The loadings greater than 0.70time are said to be good and show that there is a good correlation between variable and construct (Hair et al., 2021). All indicators in all constructs, which are DC, EU, FP, MSCM, and SCR in this dataset recorded more than 0.75 and this indicates high values of indicator reliability and convergent validity.

The scale of the indicators DC (DC4 = 0.790, DC5 = 0.841, DC7 = 0.809) indicates that items are strongly supportive of the concept of the DC of the firm in the sensitivity, ability to capture and reconfigure the resources in the face of market dynamics, which as the theoretical basis provided by Teece (2022). The items that tap EU show a strong level of respondents (EU4 = 0.862, EU5 = 0.859), giving reasons to the viewpoint that the level of respondents' response on the uncertainty of the market and technological environment, substantiates its significant contextual impact (Zhang & Park, 2023). Indicators of FP indicate very high loadings (FP4 = 0.903, FP2 = 0.900) that can be viewed as evidence of the strength of this construct in reflecting both financial and operational aspects of performance. The alignment of MSCM also indicates high loadings with the highest value indicating 0.919 in MSCM8 hence indicating that coordinated efforts between marketing and supply chain operations are well operationalized (Lopez et al., 2022). SCR measures, such as SCR6 (0.918) and SCR8 (0.917), have shown that companies are sufficiently prepared to respond to emerging challenges and recover to gain flexibility (Ivanov & Dolgui, 2023).

Reliability analysis

	Cronbach's alpha	(rho_a)	(rho_c)	AVE
Dynamic Capabilities	0.876	0.878	0.906	0.616
Environmental Uncertainties	0.906	0.907	0.927	0.680
Firm Performance	0.936	0.938	0.950	0.759
Supply Chain Management Alignment	0.955	0.958	0.962	0.762
Supply Chain Resilience	0.965	0.992	0.970	0.803

The values of reliability and validity that have been provided confirm good measurement in each construct of the model. Cronbach alpha values of all constructs are above 0.70, with the minimum of 0.876 DC to the maximum of 0.965 SCR, therefore, indicating good internal consistency (Hair et al., 2021). The values of composite reliability (rho 2 and rho _c) as well exceed 0.70, which is the recommended level (Henseler et al., 2016). Firm Performance displays rho_c = 0.950 which demonstrates that the construct is measured consistently. All values of the Average Variance Extracted (AVE) exceed 0.50, indicating the support of the convergent validity; since the items contribute

a major part of the variance in their constructs (Fornell & Larcker, 1981). It is interesting to note that the AVE of SCR is 0.803, which means its construct validity will be considered excellent. These findings establish reliability and validity of the latent variables used in the model, which offers a good base in interpreting the structural model in the study.

Discriminant Validity

Variables	DC	EU	FP	MSCM	SCR
Dynamic Capabilities					
Environmental Uncertainties	0.452				
Firm Performance	0.453	0.615			
Supply Chain Management Alignment	0.426	0.623	0.574		
Supply Chain Resilience	0.163	0.046	0.085	0.132	

The values of the Heterotrait-Monotrait (HTMT) ratios presented displayed an assessment of discriminant validity which is the level to which constructs are empirically unique. HTMT values are all comfortably lower than 0.85, which proves that discriminant validity is satisfactory (Henseler et al., 2015). The highest possible result follows the relationship of EU and MSCM (0.623), which is still acceptable, indicating the fact that these constructs are quite related, but not conceptually equal. The smallest ratio of HTMT is the relationship of Supply Chain Resilience and Environmental Uncertainty with a ratio of 0.046, which means the lower overlap.

Model Fitness Indicators

	Saturated model	Estimated model
SRMR	0.058	0.077
d_ULS	2.001	3.500
d_G	1.019	1.060
Chi-square	2124.248	2144.464
NFI	0.829	0.828

Both the saturated and estimated models fit acceptably as the model fit indices point out. The values of Standardized Root Mean Square Residual (SRMR) are less than the recommended 0.08 (Henseler et al., 2016), the saturated model has 0.058 value, and the estimated model stands at 0.077, which indicates a good fit. There are small differences between the models reflected in the values of d_ULS and d_G, but it is completely understandable and permissible. The chi-square values are comparatively high but they are not given much importance in PLS-SEM. The Normed Fit Index (NFI) values are approx. equal to 0.83 which, although not very close to the ideal of 0.90 still, demonstrate a decent model fit.

Structural Equation Modelling (SEM)

	Original sample (O)	(M)	STDEV	T statistics	P values
MSCM -> FP	0.272	0.270	0.051	5.362	0.000
MSCM -> DC -> FP	0.073	0.073	0.019	3.776	0.000
SCR x DC -> FP	-0.045	-0.048	0.037	1.211	0.226
EU x DC -> FP	-0.136	-0.134	0.030	4.470	0.000

Supply Chain Management Alignment, Firm Performance, Dynamic Capabilities, Supply Chain Resilience, Environmental Uncertainties

The hypothesis testing results reveal several significant relationships within the proposed model. It is first of all revealed that the direct effect of the MSCM on the FP is positive, and statistically significantly (beta = 0.272, t = 5.362, p < 0.001) which indicates that the stronger the relationship between the marketing, as well as, supply chain, the better the outcomes in terms of firm's performance. The strength of the indirect relationship between MSCM and FP by way of DC is found to be of high value (beta = 0.073, t = 3.776, p < 0.001) in support of the fact that dynamic capability is a strategic process capable of making an impact on firms leading to improved performance in alignment. Speaking of the moderating effects, EU and DC exhibit the interaction on FP, which is negative but statistically significant (beta= -0.136, t = 4.470, p < 0.001). The concept has shown that a higher level of environmental uncertainty will weaken the ability of dynamic capabilities in promoting performance, potentially caused by the increment of unpredictability and risk (Zhang & Park, 2023). SCR and Dynamic Capabilities do not show a strong relationship (β = -0.045, t = 1.211, p = 0.226), and this implies that resilience does not have any notable effect on the extent of relationship between dynamic capabilities and performance as far as this interaction is concerned.

Discussion

The significant positive relationship between MSCA and firm performance confirms the foundational assumption that strategic integration between marketing and supply chain functions contributes to improved organizational outcomes. The findings are consistent with those reported by prior empirical research, which revealed that MSCA contributes to the increase of operational effectiveness and efficiency, customer responsiveness, as well as market agility (Chen et al., 2022; Lopez et al., 2022). MSCA leads to a scenario in which firms not only meet customer expectations concerning the supplies but also reduce internal wastages and inefficiencies through facilitating a more efficient relation between demand outlook, inventory management, and harmonized implementation (Banerjee & Gupta, 2023). Such good performance results leave no doubt that MSCA is not only a coordination mechanism but also a strategic asset to enhance performance especially in those markets where responsiveness and cost efficiency are critical drivers (Singh & Roy, 2023). This observation is particularly important in the developing countries like Pakistan, where the foreseeability of the market and the constraints of the infrastructures require being closely melted at the interdepartmental level to make sure that the risks that work in the system are minimized (Khan & Ahmed, 2022).

These findings support the theory of dynamic capabilities playing a mediating role towards MSCA-firm performance relationship and proving true the theoretical postulates that alignment is not enough to achieve sustained performance unless it is combined with adaptive capacity (Teece, 2022; Irfan et al., 2022). Such mediation suggests the following: that MSCA encourages or induces the evolution or mobilization of dynamic capabilities, e.g., sensing, seizing, and reconfiguring, which subsequently transform alignment into strategic action that leads to improved performance (Bahrami & Shokouhyar, 2022; Zhang & Park, 2023). Companies that boast high dynamic capabilities have the potential to reap the reward of alignment and utilize it to manage the environmental volatility, advance the level of innovation, and reduce reaction times to the shifts in the market (Tao et al., 2025). This result contributes to the body of knowledge by confirming the resource orchestration pathway defined in the Dynamic Capabilities View (DCV), which requires alignment as a catalyst, but it has to be proactively changed using the internal capabilities to deliver performance payoff (Salam & Bajaba, 2023).

The strong level of negative moderation effect of environmental uncertainty on the dynamic capabilities-firm performance relationship shows the presence of a complicated dynamic in which increasing environmental uncertainty diminishes the effectiveness of the dynamic capabilities. The advantage of this finding is that it is contrary to the presuppositions in the DCV literature that greater uncertainty has positive impact on the value of such capabilities. Although the purpose of dynamic capabilities is to achieve responsiveness, the specific reason why responsiveness is ineffective, as it fails to

cope with excessive turbulence caused by sudden changes in regulations or market jolt, among other disruptions (Eslami et al., 2024; Zhang & Park, 2023). The translation of sensed opportunities into the performance at hand may be crippled in unstable environments by decision-making delays, risk aversion or resource allocations that are not effectively aligned. This can be considered consistent with the argument by Jum a et al. (2025) that dynamic capabilities become most effective when the turbulence within the environment is within manageable levels. The situational understanding specifically refers to companies operating in an emerging economy as uncertainty might limit the strategic bandwidth required to drive capability-based changes (Rehman & Jajja, 2023).

The moderating role of supply chain resilience on the relation between dynamic capabilities and the firm performance was not statistically significant, contrary to the theoretical expectations. This finding implies that supply chain resilience is unlikely to have a significant influence on the dynamics of how dynamic capabilities may influence performance in the context of study. A possible reason could be the maturity or standardization of resilience practices within the sampled firms, particularly, at FMCG companies, where resilience could be a baselining factor of competence, instead of a differentiator (Ivanov & Dolgui, 2023). Alternatively, it could be that, whereas resilience elicits stability in case of disturbances, it cannot necessarily reinforce the level of transformational processes that dynamic capabilities instigate. The finding is contrary to the previous literature (Singh & Roy, 2023) that noted resilience as a performance-enabling infrastructure. The insignificant moderation effect can also be suggesting that the advantage of resilience had already been incorporated to the capability routines of the firm hence limiting the incremental effect of resilience as a moderator (Kong & Feng, 2025). More investigations are required to establish the nature of the interactions that the resilience initiatives can affect the dynamic capabilities differently, whether through type, scale, or maturity of the resilience initiatives on the outcome.

Limitations and Future Directions

Though this research can introduce a significant theoretical and practical contribution, it has a number of limitations that should be noted. First, the cross-sectional nature of the research design fails to allow the determination of cause-effect relationships between Marketing-Supply Chain Management Alignment (MSCA) and dynamic capabilities as well as firm performance. Although the structural relations are statistically significant, longitudinal analyses are necessary to look at how such dynamics change over time, especially when subjected to different levels of environmental uncertainty (Eslami et al., 2024). Second, the study only analyses the firms in a single industry Fast-Moving Consumer Goods (FMCG) in Pakistan, which, being specific to context may limit the generalizability of results to other firms in various industries and or geographic areas. Further research may apply this study to other new economies or sectors like the technology or healthcare industry where the relation between supply chain and marketing is a key strategic factor in a diverse way (Ivanov & Dolgui, 2023).

The lack of significance of the moderating effect of supply chain resilience begs the question of whether granularity and situational interpretations of the measures are important. Perhaps, resilience was approached as a homogenous phenomenon, but splitting resilience in proactive and reactive mechanisms might be more informative (Singh & Roy, 2023). The future research possibilities would be the discussion of digital transformation (e.g., predictive analytics or real-time data systems) as the facilitator of resilience and dynamic capability (Bahrami & Shokouhyar, 2022). Also, whereas the present study was based on managerial self-reports, the multi-informant/archival data should be used to decrease the possible biases and increase construct validity. Last, other potential moderators (e.g. organizational culture, leadership agility) and mediators (e.g. innovation capabilities, interdepartmental trust) should be explored in future studies that may shed more light on the channels through which MSCA and dynamic capabilities can influence the performance of firms in turbulent environments (Teece, 2022; Jum'a et al., 2025). By surmounting these drawbacks, future work can be enhanced in many ways by having better theoretical aspects and application quality.

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