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Environmental Dynamism and Strategic Performance in Small and Medium Enterprises

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Abstract

This study provides an in-depth examination of the moderating role that environmental dynamism plays between dynamic capabilities and the performance of firms, specifically focusing on Small and Medium Enterprises in Pakistan. In the context of rapidly evolving markets, understanding how firms can leverage their dynamic capabilities to enhance performance in volatile environments has gained critical importance. This research extensively reviews the development of the dynamic capability theory, emphasizing its significance for firm performance. Furthermore, it explores environmental dynamism as a key contextual factor influencing performance, one frequently highlighted in the literature. To investigate these relationships, a quantitative research approach is adopted. Data will be collected through cross-sectional surveys from a wide array of industries within Pakistan's Small and Medium Enterprise sectors. The goal is to examine the connections between dynamic capabilities, environmental dynamism, and firm performance within this sector. Findings indicate that environmental dynamism significantly moderates the relationship between dynamic capabilities and firm performance. In highly dynamic environments, the performance of small and medium firms appears more closely linked to their dynamic capabilities, suggesting that these capabilities gain strategic value as environmental volatility increases. This dependency implies that the effectiveness of a firm's capabilities is influenced by the level of environmental change, highlighting the importance of adaptability in uncertain market conditions. This insight aligns with the resource-based view theory, which posits that the strategic value of resources and capabilities is contingent upon their fit with external conditions. Consequently, the value of dynamic capabilities becomes more pronounced in unpredictable environments, where they can enable firms to respond rapidly and effectively to change. This study adds to the understanding of how Small and Medium Enterprises can navigate complex market dynamics and emphasizes the necessity of aligning firm capabilities with environmental conditions to sustain competitive advantage. In conclusion, this research underscores the adaptive role of dynamic capabilities in enhancing firm resilience and performance amid environmental shifts, offering valuable insights for strategic management within volatile contexts.

Keywords: Dynamic capabilities, Environmental dynamism, SME performance

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1. INTRODUCTION

The concept of dynamic capabilities has become increasingly significant within strategic management, providing valuable insights into how firms navigate and adapt to shifting competitive landscapes. This research paper delves into the intricate relationship between dynamic capabilities and firm performance, with a particular focus on the moderating influence of environmental dynamism. This exploration builds upon the foundational work of Teece et al., (1997), who posited that dynamic capabilities enable organizations to realign and restructure their resources to meet evolving market demands, ultimately positioning the firm for a competitive advantage. Despite the relevance of this theory, there remains a considerable gap in empirical research examining the role of environmental dynamism in moderating the relationship between dynamic capabilities and firm performance, particularly within the Small and Medium Enterprise sector in Pakistan. In rapidly changing environments, dynamic capabilities are especially valuable, as they allow firms to adapt quickly to market volatility and uncertainty (Kumar & Gupta, 2023). This study addresses this gap by exploring how environmental dynamism influences the effectiveness of dynamic capabilities in driving firm performance, emphasizing the unique challenges and opportunities faced by Pakistani SMEs. The theoretical framework of this study is grounded in the notion that dynamic capabilities—such as sensing, seizing, and transforming resources—are crucial for firms operating in volatile markets. However, the degree to which these capabilities enhance performance may depend significantly on the level of environmental change. In stable environments, firms may benefit more from efficiency and consistency, while in dynamic settings, adaptability and resource reconfiguration become crucial for success (Dumitru & William, 2023). Environmental dynamism, in this context, is

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characterized by frequent and unpredictable changes in customer preferences, technological advancements, and competitive pressures (Anwar & Akhtar, 2019; Helfat & Peteraf, 2003; Vartiak, 2021).

By focusing on the SME sector, this research highlights how smaller firms, which often have limited resources, may rely heavily on dynamic capabilities to maintain a competitive edge. These firms typically operate in resource-constrained environments where the ability to swiftly respond to external changes is crucial for survival and growth (Fan & Iqbal, 2022). This study aims to provide empirical evidence that supports the argument that the value of dynamic capabilities is amplified in highly dynamic environments. It also examines how environmental factors such as market volatility, economic shifts, and technological developments impact the relationship between dynamic capabilities and firm performance. This study's findings are expected to offer new insights into the strategic management of SMEs in Pakistan, illustrating that the effectiveness of dynamic capabilities is not uniform but rather context-dependent. Specifically, it is anticipated that in more volatile markets, SMEs with robust dynamic capabilities will experience better performance outcomes, as these capabilities allow them to anticipate and respond effectively to change. This aligns with the resource-based view of strategy, which suggests that the strategic value of resources and capabilities is contingent upon their compatibility with external environmental conditions. Small and Medium Enterprises play a fundamental role in the economy, valued for their adaptability and innovative potential. However, the impact of dynamic capabilities on firm performance, especially under fluctuating environmental conditions, remains an underexplored area. This gap is particularly pronounced in emerging markets like Pakistan, where SMEs are pivotal to national economic development yet face a distinctive set of challenges and opportunities shaped by local business dynamics (Rehman & Malik, 2020; Raja & Iqbal, 2019; Acs & Audretsch, 2003). Addressing this issue is vital, as it sheds light on how these enterprises can leverage their strengths to navigate an environment marked by market unpredictability and rapid technological advances. Understanding how firms harness dynamic capabilities to improve their performance amid such volatility is crucial in today's fast-paced market landscape. By focusing on the intersection of dynamic capabilities, firm performance, and environmental dynamism, this study extends the theoretical framework of strategic management. This research seeks to uncover how these variables interact, particularly in the SME sector, where flexibility and rapid adaptation can be decisive factors for success. This study not only contributes theoretically but also offers practical value for managers and policymakers striving to enhance SME competitiveness in turbulent markets. By illustrating how dynamic capabilities can be effectively applied to maintain resilience and drive growth, it provides actionable insights into strengthening the SME sector's role in the broader economy. The research highlights strategies for cultivating dynamic capabilities that allow firms to respond proactively to change, thereby positioning SMEs as resilient, competitive players within the ever-evolving market landscape. These insights are essential for fostering a robust, adaptive SME sector that can thrive despite environmental uncertainties, benefiting both the enterprises and the wider economy.

2. LITERATURE REVIEW

The concept of dynamic capabilities, as introduced by Teece et al., (1997), has been influential in understanding how organizations adapt their processes and strategies to respond to rapidly changing environments. Over time, research has expanded on these foundational ideas, uncovering key mechanisms like learning, behavioral shifts, and adaptability that are crucial for organizational resilience. Acevedo-Gelves and Albornoz-Arias (2020) emphasize that adaptability and a commitment to continuous learning are essential traits within organizations. These traits enable firms to excel in competitive markets, fostering distinctiveness and making it challenging for competitors to replicate their strategies. Cristofaro and Lovallo (2022) present a comprehensive evolutionary framework that equips organizations to tackle entrepreneurial challenges related to evolutionary fitness. Their model addresses the micro-foundations of dynamic capabilities, examining how individual and collective strategic behaviors shape an organization's adaptability. This framework brings a nuanced understanding of how organizations can align their resources and processes with changing environmental conditions to improve resilience and agility. By emphasizing both individual and collective levels, Cristofaro and Lovallo's approach highlights the importance of cross-functional strategies, where employee competencies, leadership behaviors, and collaborative efforts collectively contribute to a firm's adaptability and competitive advantage.

Kurtmollaiev (2020) builds on this by focusing on the dynamic capabilities concept with a specific lens on how organizations establish, grow, and transform their resource bases. His framework examines the role of dynamic capabilities in addressing issues of agency (the capacity to act independently and make choices) and nature (the organization's inherent characteristics and resources). Kurtmollaiev's perspective suggests that organizations continuously develop and reconfigure their resources to stay relevant in dynamic environments. This approach implies that dynamic capabilities are not static; rather, they evolve as organizations respond to both internal and external changes. His work underscores the importance of proactive resource management, where organizations do not merely react to change but actively shape their resource base to anticipate and exploit new opportunities. Additionally, the sense-seize-transform model applied by Torres et al., (2018) provides valuable insights into the role of business intelligence and analytics (BI&A) as a component of dynamic capabilities. By examining BI&A through this model, their research finds that these tools enhance firm performance by mediating business process change capabilities. In the "sense" phase, organizations use BI&A to gather and interpret data from various market and operational sources, identifying shifts and trends that could impact their competitive position. In the "seize" phase, insights derived from BI&A help firms recognize and capitalize on emerging opportunities or mitigate risks. Finally, the "transform" phase involves using BI&A insights to adjust processes, innovate offerings, and enhance customer engagement, thus reinforcing the

organization's dynamic capabilities. Their findings reveal that BI&A not only supports data-driven decision-making but also drives structural changes that contribute to organizational agility and long-term performance improvements. In their 2019 study, Baía and Ferreira propose an indirect approach to assessing the impact of dynamic capabilities on firm performance, suggesting that instead of directly boosting performance, dynamic capabilities primarily drive change and produce intermediary outcomes that pave the way for performance improvements. They argue that these capabilities are critical in fostering adaptability and responsiveness within firms, which in turn leads to results that indirectly support long-term success and competitiveness. Zhou et al., (2019) further examine the nuanced role of dynamic capabilities, focusing specifically on how different facets of these capabilities contribute to innovation, which ultimately enhances firm performance. Their research, conducted with a sample of 204 Chinese firms, highlights that the link between dynamic capabilities and firm performance is significantly mediated by innovation. Through their findings, they illustrate that while dynamic capabilities do not necessarily produce immediate performance outcomes, they play a fundamental role in fostering innovation processes that are essential for sustaining a competitive edge. This research supports the perspective that the impact of dynamic capabilities on performance is often indirect, acting through innovation and other change processes that gradually lead to enhanced performance outcomes.

The link between dynamic capabilities and firm performance is heavily influenced by the level of environmental dynamism. In rapidly changing environments characterized by swift shifts in technology, evolving customer preferences, and unpredictable competitive actions, a firm's dynamic capabilities become particularly relevant. Taghizadeh et al. (2020) explored this relationship within Malaysian SMEs, highlighting that dynamic capabilities influence critical factors like open innovation and technological capabilities, both of which significantly impact operational performance. Their findings suggest that while dynamic capabilities are essential for leveraging open innovation and technology, environmental dynamism acts as a negative moderator in this relationship. Specifically, the intense volatility and uncertainty of the environment diminish the positive impact of open innovation on operational performance, implying that high levels of environmental dynamism may challenge the effectiveness of certain innovation strategies. This underscores the need for firms to carefully calibrate their innovation approaches in response to fluctuating external conditions, balancing flexibility with strategic focus to maintain performance amidst environmental turbulence. Park and Xiao (2020) observe that while incorporating dynamic capabilities within firms in emerging markets generally yields positive performance outcomes, this effect is moderated by environmental dynamism. High environmental dynamism tends to weaken the positive impact of dynamic capabilities, whereas a strong entrepreneurial orientation helps to enhance it. This suggests that firms operating in unpredictable environments may need an entrepreneurial approach to fully leverage their dynamic capabilities for improved performance.

In a related study, Wamba et al. (2020) argue that dynamic capabilities, especially those enabled by big data analytics, significantly enhance supply chain agility and adaptability, leading to better organizational performance. This highlights how advanced data capabilities can equip firms to respond more flexibly and effectively to changes, particularly in the supply chain context, thereby improving overall operational success. Further examining the strategy-performance relationship, Agyapong et al., (2019) focus on micro and small enterprises in Ghana, shedding light on how strategic alignment impacts firm outcomes in smaller-scale businesses. Their work contributes to understanding the unique challenges faced by small firms in aligning strategic capabilities with performance goals, particularly in the context of a developing market where resources and market predictability may be limited. Agyapong et al., (2019) observe that in highly dynamic environments, a cost-leadership strategy may improve firm performance, whereas a differentiation strategy might produce the opposite effect. This suggests that in uncertain markets, a focus on minimizing costs can provide stability and resilience, while differentiation may increase vulnerability due to shifting consumer preferences and competitive pressures. The literature underscores the critical role dynamic capabilities play in shaping firm performance, particularly in volatile settings (Dima, 2022; Akram et al., 2022; Petrakis, 2021).

Although research in this area has made significant strides, there remains substantial potential to deepen our understanding of how dynamic capabilities are built, deployed, and optimized for sustained competitive advantage across various organizational types and environmental conditions. Conducting thorough empirical studies to address these gaps could not only provide actionable strategies but also enrich the theoretical landscape, offering valuable insights for leaders aiming to navigate the complexities of modern business environments effectively. This continued exploration is essential for both practitioners and academics, as it will help clarify how dynamic capabilities can be leveraged to meet the demands of ever-evolving corporate ecosystems.

3. METHODOLOGY

Consistent with the research aims of the study, a quantitative research design is adopted, based on the positivist paradigm, This study promotes the empirical quantification and analysis essential for understanding the relationships between dynamic capabilities, firm performance, and environmental dynamism. To capture data that reflects the current dynamics, a cross-sectional survey approach is employed. This method uses structured questionnaires to gather data from small and medium-sized enterprises at a specific point in time, allowing for a comprehensive examination of the phenomena under investigation. The research focuses on SMEs, which play a crucial role in Pakistan's vibrant and emerging economic landscape. By selecting a diverse range of industries, the sample ensures a rich heterogeneity reflective of the country's business environment. A stratified random sampling technique is used, segmenting firms based on industry and size, to enhance the representativeness

and generalizability of the findings. The target sample size is determined through power analysis, ensuring a statistically robust participant base. The research design serves as a structured framework for data collection and analysis. This process includes several steps: operationalizing variables, developing instruments, gathering data, testing hypotheses, and interpreting results (Zikmund, 2003). The survey, conducted via self-administered questionnaires, is selected as the most efficient means of obtaining specific responses from the target sample (Cooper & Emory, 2001). Given the reliance on established constructs, validating the research instrument is essential. The instrument development process is twofold: first, establishing content validity, followed by a pilot test to refine the instrument. This ensures that any potential limitations are addressed, thereby enhancing both the relevance of the content and the reliability of the tool (Davis, 1989; Moore & Benbasat, 1991). In sum, this empirical approach enables a thorough investigation of how dynamic capabilities, firm performance, and environmental dynamism interact, particularly in the context of Pakistan's SME sector. The methodological rigor applied in the study—from stratified sampling to validation of survey instruments—ensures a comprehensive and accurate analysis, contributing valuable insights for both researchers and practitioners in the field. In social and behavioral sciences, defining the unit of analysis is fundamental, as it identifies the primary focus of the research. Units of analysis can vary widely, encompassing individuals, groups, organizations, or even broader cultural contexts. This study specifically focuses on strategic-level individuals—managers and assistant managers—within organizations who are actively involved in the decision-making process. This choice aligns with the research objective of examining the impact of dynamic capabilities at a decision-making level within businesses, where strategic actions are shaped.

The research targets SMEs in Pakistan, specifically those located in the economic hubs of Gujrat, Sialkot, Gujranwala, Wazirabad, and Jalalpur Jattan. Pakistan's SME sector is considered the backbone of the country's economy, encompassing a diverse array of industries producing items from ceramics to cutlery, showcasing the depth of the nation's manufacturing capabilities. The selection criteria for the sample were carefully established to include manufacturing organizations registered with the Small and Medium Enterprises Development Authority (SMEDA), operating within the specified geographical areas, and spanning multiple industries. This diverse sampling approach aligns to enhance variable variation and strengthen the generalizability of findings across sectors (Simsek & Heavey, 2011). According to SMEDA's records, there are approximately 2,358 enterprises registered, forming the basis for the study's sample. In selecting respondents, the literature offers different approaches. Some scholars suggest that gathering data from a single respondent within an organization is adequate (Hussain et al. 2009; Llusar et al., 2009; Kaynak, 2003). However, others advocate for multiple perspectives (Douglas & Judge, 2001; Rungtusanatham et al., 1998), arguing that capturing views from different individuals within the same organization enriches the data by incorporating varied insights. This study adopts the latter approach, collecting information from a range of respondents within each enterprise to capture a diversity of perspectives. Managers and assistant managers who participate in the decision-making network across different departments—such as finance, human resources, sales, marketing, and operations—serve as the primary respondents. This inclusion of diverse roles across departments ensures that the study benefits from a comprehensive array of insights, reflecting the multifaceted nature of dynamic capabilities in SME settings.

4. RESULTS AND DISCUSSION

The investigation into the moderating effect of environmental dynamism on the relationship between dynamic capabilities and firm performance yields significant insights. The results from Table 1 provide an in-depth look at the moderating effect of environmental dynamism on the relationship between dynamic capabilities and firm performance. This analysis offers valuable insights into how these variables interact and influence performance, particularly in volatile environments. Firstly, the constant term in the model has a coefficient of 6.09 with a standard error of 0.56. The t-test value of 10.95 and p-value of 0.00 indicate that the constant term is highly significant, establishing a strong baseline level of firm performance. This significant constant suggests that even without accounting for dynamic capabilities and environmental dynamism, there is an inherent performance level among firms, likely attributable to foundational aspects such as established market position, core competencies, and operational efficiency. The model's R^2 value of 0.2775 reveals that 27.75% of the variance in firm performance is explained by the model, suggesting a moderate level of explanatory power. Furthermore, the model's overall significance is confirmed by the F-test value of 65.5656, with a p-value of 0.00, indicating that the combination of variables used in the model has a statistically significant impact on firm performance.

Examining the impact of dynamic capabilities, the coefficient is -0.20, with a standard error of 0.14, a t-test value of -1.43, and a p-value of 0.15. This negative coefficient suggests that, in isolation, dynamic capabilities may not have a positive impact on firm performance within the current model. However, the lack of statistical significance (p-value > 0.05) implies that dynamic capabilities alone do not directly influence performance outcomes in a meaningful way. This could indicate that while dynamic capabilities are essential for firms' adaptability, their isolated presence may not translate into immediate performance gains without the interplay of other contextual factors. Firms with strong dynamic capabilities may still face challenges in effectively leveraging them in environments that do not demand rapid adaptability or in cases where these capabilities are not optimally aligned with the firm's strategic focus. The coefficient for environmental dynamism is -0.83, with a standard error of 0.16, a t-test value of -5.30, and a highly significant p-value of 0.00. This finding shows that environmental dynamism hurts firm performance, indicating that high levels of environmental volatility are associated with reduced performance outcomes. A possible interpretation of this negative relationship is that firms in highly dynamic environments face constant challenges in maintaining stability, which can strain resources, increase operational complexities,

and make it difficult to sustain consistent performance. This underscores the disruptive impact of environmental dynamism on firms, as they may struggle to adapt swiftly to changes in technology, customer preferences, and competitive actions. The significant negative effect of environmental dynamism on firm performance suggests that, without adequate support or adaptation mechanisms, firms may see their performance decline in response to heightened volatility. The interaction term (Int_1) in the model, representing the combined influence of dynamic capabilities and environmental dynamism, has a coefficient of 0.13 with a standard error of 0.04. The t-test value of 3.21 and p-value of 0.00 indicate that this interaction term is both positive and statistically significant. This positive and significant interaction suggests that dynamic capabilities, when coupled with environmental dynamism, positively influence firm performance. In other words, while environmental dynamism alone hurts performance, the presence of dynamic capabilities allows firms to leverage these challenging conditions to their advantage. This finding aligns with theories suggesting that dynamic capabilities become especially valuable in unstable environments, where they enable firms to respond proactively, adapt operations, and capitalize on emerging opportunities. The positive interaction effect emphasizes that dynamic capabilities are not only about responding to change but also about converting potential disruptions into strategic advantages. The findings reveal that dynamic capabilities alone do not significantly impact firm performance but become beneficial in the context of environmental dynamism. Environmental volatility, by itself, negatively impacts firm performance, likely due to the strain and unpredictability it introduces. However, dynamic capabilities allow firms to harness environmental dynamism, making it possible to adapt to rapid changes effectively and turn them into performance-enhancing opportunities. This outcome underscores the importance of developing and nurturing dynamic capabilities within firms, especially in sectors where environmental shifts are frequent and intense. For managers and policymakers, these findings highlight the need to prioritize adaptive strategies that enhance dynamic capabilities, ensuring firms can remain resilient and competitive amidst market volatility.

Table 1: Moderating Effecting Test

Model No.	DV	IV	Coefficient Estimates						Model Summary		
			Coefficient	SE	t-test	P-value	LLCI	ULCI	R^2	F-test	P-value
1	FP	constant	6.09	0.56	10.95	0.00	5.00	7.18	0.2775	65.5656	0.00
		DC	-0.20	0.14	-1.43	0.15	-0.48	0.08			
		ED	-0.83	0.16	-5.30	0.00	-1.14	-0.52			
		Int_1	0.13	0.04	3.21	0.00	0.05	0.21			

The results offer a comprehensive understanding of how dynamic capabilities influence firm performance, aligning with the resource-based view theory, which asserts that the strategic value of resources and capabilities is determined by how well these resources and capabilities are suited and adapted to the firm's external environment (Barney, 1991). According to RBV, a firm's resources must not only be valuable and unique but must also be effectively deployed to meet the demands of the external environment, allowing the firm to gain a competitive advantage. This theory suggests that dynamic capabilities—essentially the firm's ability to integrate, build, and reconfigure internal and external resources—are crucial in helping the firm adapt to changing conditions in a way that enhances performance. The results also reveal a negative impact of environmental dynamism on firm performance, highlighting the difficulties that small and medium-sized enterprises face in volatile and unpredictable markets. This finding underscores the fact that in highly dynamic environments, where rapid shifts in technology, customer preferences, and competitive actions are common, maintaining stable performance becomes increasingly challenging. These results align with previous research indicating that environmental turbulence often adversely affects organizational outcomes, as firms may struggle to keep up with continuous and rapid external changes (Li & Liu, 2014). Environmental dynamism can strain a firm's resources and its ability to adapt quickly, leading to potential declines in performance.

The constant changes in the environment affect organizations' adaptive capabilities, especially under stress, which can lead to a decline in performance. However, the moderating role of environmental dynamism between dynamic capabilities and firm performance offers a promising perspective. In highly dynamic environments, the strategic importance of dynamic capabilities becomes more pronounced as they enable firms to manage a variety of external threats. This finding supports the dynamic capabilities view, which emphasizes the critical role these capabilities play in allowing firms to adapt to and leverage new conditions in the market (Teece et al. 1997). This study, which examines the interplay of dynamic capabilities, firm performance, and environmental dynamism—particularly within the small and medium-sized enterprise sector in Pakistan—provides valuable insights that enhance both theoretical and practical knowledge. The evidence collected highlights the complex role of dynamic capabilities in boosting firm performance, especially when environmental dynamism is high. In stable conditions, dynamic capabilities alone may not directly predict firm performance. However, in turbulent markets, the strategic value of these capabilities is significantly amplified. This finding underscores the contingent nature of strategic assets and capabilities, suggesting that their effectiveness is closely linked to the context in which they are deployed. This evidence

aligns with established theories in strategic management, such as the dynamic capabilities view and the resource-based view (RBV). Both theories suggest that dynamic capabilities gain greater strategic significance in turbulent environments, where the ability to reconfigure resources and adapt quickly becomes essential (Teece et al. 1997; Barney, 1991). In such settings, organizations can turn environmental challenges into opportunities, allowing dynamic capabilities to enhance firm resilience and adaptability in ways that would be less impactful in more stable contexts. In dynamic environments, where unpredictability is the norm, firms with well-developed dynamic capabilities are better positioned to respond to rapid changes, enabling them to remain competitive and even capitalize on the uncertainty. The results of this study illustrate that dynamic capabilities do not necessarily produce immediate performance gains in isolation; rather, their impact becomes significant when aligned with external factors like environmental dynamism. This finding reinforces the idea that strategic resources and capabilities are most beneficial when they fit the specific conditions of the external environment.

In the Pakistani food manufacturing sector, research by Naz et al. (2022) revealed that entrepreneurial orientation, big data analytics capabilities, and artificial intelligence capabilities positively influence firm performance. Interestingly, environmental dynamism did not significantly moderate the relationship between technological capabilities and firm performance, as initially expected. This finding suggests that while dynamic capabilities play a central role in enhancing firm outcomes, the effect of environmental dynamism may differ across sectors and specific capabilities. In sectors like food manufacturing, where stability in production processes and supply chains may buffer against external volatility, the expected moderating impact of environmental dynamism may be less pronounced. Similarly, Yu et al. (2022) demonstrated that green dynamic capabilities significantly enhance green innovation adoption among small and medium-sized enterprises in Pakistan and Malaysia, underscoring the importance of dynamic capabilities in supporting environmental sustainability initiatives. This finding highlights that SMEs equipped with green dynamic capabilities are more likely to adopt sustainable practices, contributing to environmentally responsible innovation. However, the study also found that environmental dynamism did not have the anticipated significant moderating effect in this context. This lack of a significant moderating role suggests that green capabilities may be effective in driving sustainable innovation regardless of the level of external environmental turbulence, possibly because such practices align with long-term strategic goals that are less sensitive to short-term environmental shifts. These findings collectively indicate that while dynamic capabilities are crucial for firm performance, the moderating influence of environmental dynamism may vary according to the nature of the capabilities and the specific industry context. In technology-driven fields or those focused on environmental sustainability, dynamic capabilities may function effectively regardless of environmental instability, indicating that certain capabilities have a more stable and direct relationship with performance outcomes. These insights contribute to a nuanced understanding of how sectoral differences and capability types influence the role of environmental dynamism, offering valuable implications for managers aiming to strengthen firm resilience in diverse contexts.

5. CONCLUSIONS

In conclusion, this study highlights the intricate role of dynamic capabilities in enhancing firm performance, particularly within volatile environments. The findings confirm that while dynamic capabilities may not always directly predict performance, their strategic importance is amplified in high-dynamism contexts, where adaptability and responsiveness become essential. The moderating effect of environmental dynamism underscores the contingent nature of these capabilities, revealing that their value is highly dependent on the external environment. Additionally, the sector-specific insights from studies in Pakistani SMEs and the food manufacturing industry illustrate that the impact of environmental volatility can vary depending on industry characteristics and capability types. For example, green dynamic capabilities are shown to drive sustainability practices effectively, even without significant moderation from environmental dynamism. This study reaffirms the relevance of both the resource-based view and dynamic capabilities view in explaining how firms can achieve resilience and competitive advantage in unpredictable markets. For practitioners, the findings suggest that fostering adaptable capabilities is crucial, especially in sectors facing rapid technological and environmental shifts. Policymakers and business leaders can further support this adaptability by encouraging investments in technology and sustainable practices that reinforce firm resilience. By aligning dynamic capabilities with the specific demands of their environment, firms can enhance their strategic flexibility and position themselves for sustainable growth amidst evolving market conditions.

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