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Networking Capability and Supply Chain Resilience in Dynamic Markets: A Multi-Group Analysis

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ABSTRACT

Drawing on the dynamic capabilities view, this research conceptualizes market dynamism as an environmental driver of a firm's ability to adapt and recover from disruptions, depending on the strength of its networking capabilities. Using data from 124 firms across South Korea, structural equation modeling was employed to test the proposed relationships, followed by multigroup analysis to compare two groups by government subsidies. The results reveal that market dynamism exerts a significant positive influence on supply chain resilience, and that networking capability partially mediates this relationship. Furthermore, the effect of market dynamism on resilience is improved among firms receiving higher levels of government subsidies, suggesting that subsidies can facilitate the conversion of environmental challenges into adaptive capabilities. This study contributes to SCM literature by integrating environmental dynamism, relational capabilities, and institutional support into a unified model of resilience. Managerial implications highlight the importance of leveraging external networks and targeted subsidy programs to sustain supply chain performance in volatile markets.

JEL Classifications: L14, L22, M11, H25

Keywords: Market dynamism, networking capability, supply chain resilience, government subsidies, dynamic capabilities, multigroup analysis

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I. INTRODUCTION

Supply chain disruptions and rapidly changing markets have made resilience a critical priority for firms in recent years. In highly dynamic environments, companies face continuous uncertainty and rapid changes in customer needs, technology, and competitive actions (Bayighomog Likoum et al., 2020). In such conditions, firms must adapt quickly by leveraging internal and external capabilities to sustain performance. Prior studies emphasize that building supply chain resilience (SCR) is essential for maintaining performance during disruptions. Recent studies also show that resilience-oriented capabilities help firms preserve continuity and maintain competitive performance under turbulence and disruption (Ambulkar et al., 2015; Altay et al., 2018; Yu et al., 2019). At the same time, forming strong inter-organizational networks is viewed as a vital strategy for firms to access resources and information in turbulent markets. This is particularly important in volatile environments, where relational ties enhance information flow, resource access, and collaborative responsiveness across organizational boundaries (Bai et al., 2016; Weaven et al., 2021). Accordingly, this research examines how networking capability and supply chain resilience contribute to firm performance amid market dynamism, and whether these relationships differ at different levels of external government support. Key research questions are examined in this study: (1) how does a dynamic market influence three key variables, networking capability, supply chain resilience, and firm performance, (2) how do these variables interact directly and indirectly with each other, and (3) what effect do government subsidies exert on these interrelationships.

Despite growing scholarly interest in supply chain resilience, significant gaps remain in understanding its antecedents and boundary conditions. First, while dynamic and uncertain market environments are thought to necessitate greater adaptive capabilities (Weaven et al., 2021), the mechanisms by which market dynamism influences resilience and performance remain unclear. Does a rapidly changing market directly spur firms to become more resilient, or is this effect channeled through the development of other capabilities? Second, firms' networking capability may be a key enabler of resilience and performance, but its role as a mediating or direct factor needs clarification. Third, external support, such as government subsidies, could alter the effectiveness of these capabilities. For instance, recent evidence suggests that government financial support can moderate the impact of collaboration on resilience (Jia and Li, 2024). Understanding whether capabilities such as networking and resilience are equally crucial for subsidized and non-subsidized firms holds both theoretical and practical significance. This issue is also relevant from a business-policy perspective because external support mechanisms can reshape how firms mobilize capabilities and participate in broader value chain relationships (Pavón-Cuéllar and Barreto-Pavón, 2024; Saragih et al., 2025).

To address these issues, we build on the dynamic capabilities view (DCV). The DCV extends the resource-based view by focusing on a firm's ability to integrate, reconfigure, and adapt resources in response to environmental change. In dynamic markets, firms with strong dynamic capabilities can better sense changes and swiftly adjust their resource base, thereby sustaining performance (Baía and Ferreira, 2024). We conceptualize networking capability and supply chain resilience as dynamic capabilities that enable firms to respond to market volatility. This perspective aligns with prior studies

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that identify inter-organizational collaboration and resilience as critical dynamic capabilities for achieving competitive advantage amid turbulence. Using DCV, we develop hypotheses about how market dynamism drives the development of networking capability, how networking bolsters resilience and performance, and how resilience, in turn, impacts performance. We also examine the mediating pathways among these constructs and conduct a multi-group analysis to test whether the structural relationships differ between firms with and without government subsidies.

The remainder of the paper is structured as follows. First, we review relevant literature and theoretical foundations, and propose hypotheses regarding market dynamism, networking capability, supply chain resilience, and firm performance. Next, we present the methodology, including data collection, measures, and analysis techniques. We then report the results of hypothesis tests and additional analyses. Finally, we discuss the implications of the findings from academic and managerial perspectives, and conclude with limitations and future research directions.

II. LITERATURE REVIEW

A. Theoretical Underpinnings

Given the focus on how firms cope with rapidly changing environments, this study is anchored in the DCV. Dynamic capabilities are defined as a firm's "ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece, 2018). In contrast to ordinary capabilities that enable routine operational efficiency, dynamic capabilities facilitate ongoing adaptation and innovation, thereby sustaining competitive advantage in turbulent contexts. The DCV posits that in environments characterized by high uncertainty and change, firms must continuously develop adaptive capabilities to survive and thrive (Bayighomog Likoum et al., 2020). Networking capability and supply chain resilience can be viewed as dynamic capabilities that help firms sense and respond to external disruptions.

Networking capability refers to a firm's ability to effectively initiate, develop, and utilize relationships with external partners (e.g., suppliers, customers, other organizations) (Bai et al., 2016). This concept retains roots in both the dynamic capabilities literature and social capital theory. From a DCV perspective, networking capability is an adaptive capacity that allows firms to reconfigure their resource base by accessing complementary resources, knowledge, and opportunities through inter-firm networks (Baía and Ferreira, 2024). Strong networking capability can help organizations reduce uncertainty and increase information flows in volatile markets, effectively extending the firm's boundary to tap into partners' capabilities. Prior research on small and internationalizing firms, for example, finds that networking helps overcome resource scarcity and can be crucial for learning and agility in dynamic environments (Weaven et al., 2021). In the Korean context, networking capability is expected to facilitate collaboration and trust with supply chain partners, thereby enhancing resilience to disruptions. This aligns with recent findings indicating that cooperation among supply chain stakeholders is perceived as essential to overcoming pandemic-related challenges. Thus, we consider networking capability a key dynamic capability that enables firms to sense changes, seize opportunities, or mitigate threats by leveraging network resources.

SCR can likewise be conceptualized as a dynamic capability. Specifically, the

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supply chain's adaptive capability to prepare for, respond to, and recover from unexpected disruptions. Resilience is a multidisciplinary concept, but in the supply chain context, it generally denotes the ability to absorb shocks and quickly restore operations to avoid severe performance losses. For example, a resilient supply chain may hold flexible sourcing strategies, buffer inventory, or contingency plans that allow it to maintain continuity when a disruption occurs. Building resilience often requires investment in capabilities such as visibility, flexibility, and collaboration (Ambulkar et al., 2015). Importantly, resilience is not just about bouncing back after an event, but also about proactive readiness before disruptions and adaptive learning during and after crises. From a dynamic capabilities standpoint, supply chain resilience enables a firm to reconfigure its operations and partnerships in the face of environmental shocks, thereby protecting or even enhancing performance under high volatility. Prior studies have identified SCR as a critical factor for performance in dynamic settings. For instance, Altay et al. (2018) argue and demonstrate that supply chain resilience and agility function as essential dynamic capabilities that improve firm performance. Similarly, Yu et al. (2019) show that firms operating in highly dynamic supply chain environments benefit from resilience in managing risks and sustaining financial performance (Baía and Ferreira, 2024).

Finally, this study extends the DCV perspective by examining how government subsidies might condition the effectiveness of firm capabilities. Government support can be seen as an external injection of resources that might complement or substitute for specific capabilities (Liu and Xu, 2024). Drawing on contingency theory, it is reasonable to assume that the value of networking and resilience varies with the level of external support (Pavón-Cuéllar and Barreto-Pavón, 2024).

B. Hypotheses Development

1. Market Dynamism

Market dynamism refers to the rate and unpredictability of change in a firm’s external environment. This includes shifts in customer preferences, competitor strategies, and technological developments (Baccarella et al., 2022). In highly dynamic markets, firms encounter continuous instability and must frequently adjust their strategies (Correia et al., 2021). Such conditions often exceed the capacity of any single firm, prompting organizations to seek external resources and knowledge. Consequently, this encourages an organization to develop networking capability. When customer needs and technologies evolve rapidly, firms are driven to interact more intensively with customers, suppliers, and other partners to stay informed and respond to changes. By building robust networks, firms can quickly sense market changes and access complementary capabilities they lack internally. Empirical support for this linkage is emerging: for example, studies have noted that small firms can mitigate market turbulence by effectively utilizing their network ties (Sookbumroong and Phornlaphatrachakorn, 2023). Moreover, from a dynamic capabilities perspective, market dynamism triggers resource reconfiguration, and networking is a prime means of reconfiguring and extending a firm’s resource base externally (Bai et al., 2016).

Given this reasoning, we expect that firms facing greater market dynamism will allocate more effort to developing and maintaining inter-organizational relationships

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(e.g., through partnerships, collaborations, industry networks). Formally, it is hypothesized that higher levels of market dynamism will be associated with stronger networking capability:

H1: Market dynamism exercises a positive effect on a firm's networking capability.

Dynamic market conditions might also directly influence a firm's supply chain resilience. On one hand, a volatile environment could motivate firms to build greater resilience, as they anticipate disruptions as a norm. Prior studies indicate that supply chain dynamism can prompt firms to adopt a disruption-oriented culture and invest in resilience practices. Yu et al. (2019) found that environmental dynamism had a significant positive effect on supply chain resilience, suggesting that firms in turbulent contexts tend to develop greater resilience. Alternatively, it is also plausible that market dynamism's impact on resilience is indirect, working through internal capabilities (such as networking). For instance, if firms primarily respond to dynamism by strengthening networks, those networks might then enhance resilience. The literature provides mixed insights. Some studies suggest a direct link, indicating that firms perceiving a dynamic and risky environment will proactively enhance their supply chain flexibility and recovery plans. Others suggest that it is the firm's strategic response that actually builds resilience, not the environmental condition per se (Correia et al., 2021).

Given the theoretical rationale from DCV and prior findings, the researchers posit an initial hypothesis that firms in more dynamic markets are more likely to develop higher supply chain resilience, and that:

H2: Market dynamism wields a positive effect on supply chain resilience.

The relationship between market dynamism and firm performance has been extensively discussed in contingency theory and strategy research. Market dynamism by itself is not a capability but a condition. Generally, high dynamism can create threats to performance (through greater uncertainty and disruption) but also opportunities for firms that can capitalize on change. Prior studies suggest that the impact of market dynamism on performance is often contingent on firm capabilities or strategic orientations. For example, Jaworski and Kohli (1993) argued that market turbulence moderates the effectiveness of a firm's market orientation on performance (Baccarella et al., 2022). In other words, dynamism can amplify the performance of adaptive firms or hurt the performance of those that cannot adapt. Recent empirical work indicates that by itself, market dynamism is typically negatively associated with performance due to increased unpredictability and risk (Bayighomog Likoum et al., 2020). However, when firms possess strong dynamic capabilities, they can turn dynamism into an advantage, for instance by innovating faster than competitors and meeting emerging customer needs (Teece, 2018). Regardless, in the current research context, with the inclusion of networking capability and resilience as adaptive responses, it is assumed that:

H3: Market dynamism has a significant effect on firm performance.

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2. Networking Capability

Strong networking capabilities are expected to confer multiple benefits on a firm's supply chain and performance. One key outcome of effective networking is enhanced resilience. By cultivating close, trust-based relationships with suppliers, customers, and even competitors, a firm can improve information sharing, access to resources, and coordinated responses during disruptions (Saragih et al., 2025). For example, a company with strong networking capabilities may promptly communicate with its suppliers about potential delays and jointly find solutions, or leverage alternative partners in its network when a primary supplier fails. Belhadi et al. (2021) observed that, amid COVID-19 disruptions, cooperation among supply chain stakeholders was crucial to overcoming challenges. This underscores that networking is a precursor to resilience. Conceptually, networking capability provides the social capital and relational mechanisms (e.g., mutual commitment, information exchange channels) that make a supply chain more robust and agile in turbulent times. Firms with greater networking capability will exhibit higher supply chain resilience to disruptions. Thus, the following hypothesis is:

H4: Networking capability positively affects supply chain resilience.

Networking capability may also directly influence firm performance. Through effective networks, firms can gain access to new markets, technologies, and knowledge, thereby intensifying innovation and operational efficiency. Especially for firms with limited internal resources, networks are a means of extending their capabilities and improving outcomes such as sales growth, market share, and profitability (Jia and Li, 2024). Empirical research on small enterprises and international business shows that networking significantly contributes to firm performance metrics, including export performance and overall growth (Bai et al., 2016). Networking can lead to performance benefits by facilitating referrals and collaborations, and by enabling flexibility in responding to opportunities or threats. However, it is worth noting that some studies have found mixed results, as not all types of network resources translate to performance gains. For example, Kenny and Fahy (2011) found that certain network resource dimensions were positively associated with performance, whereas others were not. The efficacy of networking may depend on how well firms leverage their relationships for concrete gains.

Overall, this study expects a positive direct relationship, as firms with strong networking capabilities are expected to achieve higher performance than those with weaker networks. Concluding the next hypothesis as:

H5: Networking capability positively affects firm performance.

3. Supply Chain Resilience

Supply chain resilience, as a dynamic capability, is posited to enhance firm performance by mitigating the negative impacts of disruptions and enabling faster recovery, or even a competitive advantage, in turbulent times. A resilient supply chain experiences fewer or shorter stockouts, faster service restoration, and less operational downtime during adverse events, all of which protect revenue and customer relationships. Additionally, resilient firms might be better positioned to exploit changes. Prior studies consistently

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highlight a positive link between resilience and performance outcomes. For example, a study by Ambulkar et al. (2015) revealed that proactive supply chain risk management is associated with increased performance under high uncertainty. Yu et al. (2019) offered evidence that the effect of a firm's disruption-oriented practices on financial performance is fully mediated by supply chain resilience. Managers are explicitly advised to invest in resilience to sustain high performance despite disruptions (Baía and Ferreira, 2024). More resilient supply chains (with better ability to withstand and recover from disruptions) will lead to superior firm performance. It is therefore hypothesized that:

H6: Supply chain resilience has a positive effect on firm performance.

4. Mediation Effect

The above hypotheses imply several potential mediation relationships in our conceptual framework. Specifically, it is anticipated that networking capability and supply chain resilience serve as intervening variables through which market dynamism influences outcomes, and through which networking influences performance. As such, the research formalizes three mediation hypotheses. First, it is expected that networking has an indirect, significant effect on dynamism, which may account for most of the influence of dynamism on resilience. Second, higher market dynamism might not directly elevate performance (it can even hurt performance unless the firm responds effectively). It is consequently proposed that a substantial part of dynamism's impact on performance occurs through the building of networks. Finally, while networking can directly improve performance, it is expected that one of the primary ways networking yields performance benefits is by bolstering resilience. This aligns with the idea that collaborative networks strengthen operational resilience, which in turn drives financial and market outcomes. These mediation hypotheses are grounded in dynamic capability logic, which posits that capabilities often act in concert (one capability enabling another) to influence performance ultimately. Accordingly, the following are suggested:

H7: Networking capability mediates the effect of market dynamism on supply chain resilience.
H8: Networking capability mediates the effect of market dynamism on firm performance.
H9: Supply chain resilience mediates the effect of networking capability on firm performance.

5. Multigroup Analysis

Beyond the direct and mediated relationships discussed, this study explores whether structural relationships differ by the level of government subsidies a firm receives. Government subsidies, particularly those supporting R&D or innovation, constitute an external resource that can alleviate financial constraints and encourage capability development. This research divides the sample into two groups: firms with no government R&D subsidies and firms that receive some percentage of R&D funding from the government.

There are competing expectations on how government support might moderate the

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relationships. It could be argued that firms receiving subsidies retain more slack resources and support, which might reduce their reliance on networking to improve performance. For instance, if the government funds a firm's innovation projects, the firm might not need to rely as heavily on partner networks for resources or knowledge (Liu and Xu, 2024). Conversely, non-subsidized firms (resource-constrained) might extract greater value from networking capability to amplify performance. This suggests the impact of networking on performance could be stronger for firms without subsidies.

On the other hand, government-supported firms might invest subsidy funds into building resilience. There is some evidence that external support can alter how capabilities translate to outcomes. A recent study found that government subsidies moderated the effect of digital collaboration on resilience, tempering the benefits of collaboration (Zhang and Zhang, 2022). Government subsidies might also affect the market dynamism. For example, a firm with no subsidies in a dynamic market might be forced to network more out of necessity. In contrast, a subsidized firm might rely on government support to navigate changes and possibly rely slightly less on external partners (Liu and Xu, 2024). Similarly, subsidies could either complement networking or substitute for it.

To further explain why the structural pathways may differ across subsidized and non-subsidized firms, this study also draws on social capital theory. Social capital theory emphasizes that firms derive value from relationships because network ties provide access to information, support, legitimacy, and resources that cannot be generated internally alone. However, the dominant form of social capital may differ by resource context. For non-subsidized firms, market-based ties with customers, suppliers, and external partners are likely to be especially critical because these firms must rely more heavily on relational exchanges to secure opportunities, knowledge, and operational support. In such contexts, networking capability is expected to exert a more direct influence on firm performance (Sookbumroong and Phornlaphatrachakorn, 2023). By contrast, subsidized firms operate with stronger institutionally linked support, in which government-backed resources can reduce immediate dependence on market-based relational payoffs. In these firms, networking may still matter, but its value is more likely to be transformed into operational robustness and adaptive capacity, making supply chain resilience a more important route to performance. Thus, social capital theory helps explain why networking capability may be more directly performance-enhancing for non-subsidized firms, whereas subsidized firms may realize greater performance gains through resilience-building processes. For this reason, the current research proposes the following:

(RQ) Do the relationships among market dynamism, networking capability, supply chain resilience, and firm performance differ significantly across firms with and without government subsidies?

Next, the research develops hypotheses for each linkage in the conceptual model (Figure 1) based on extant literature.

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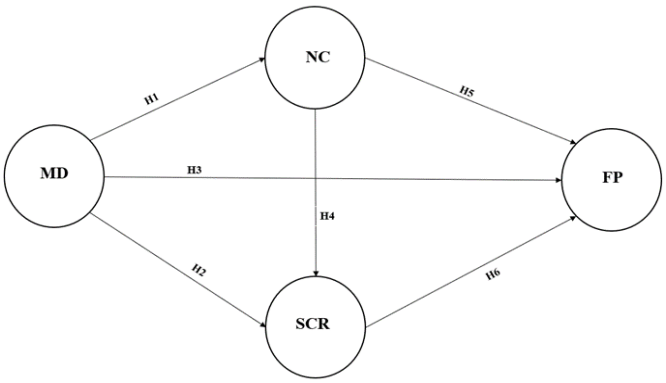
Figure 1
Conceptual Framework



III. METHODOLOGY

A. Sample and Data Collection

The hypotheses were tested using survey data gathered from Korean firms. Senior managers knowledgeable about their firm's supply chain and strategic relationships were targeted. The study's context encompassed both manufacturing and service organizations, reflecting a broad view of supply chain networks. A total of 124 firms supplied complete responses for our analysis. The sample comprised 52.4% manufacturing companies and 47.6% firms in service or other sectors (Table 1). Firm sizes ranged from small (53% had fewer than 150 employees) to large (about 40% had more than 250 employees), and the majority (75.8%) of firms were well established (over 11 years old). This diversity in firm demographics enhances the generalizability of our findings.

Table 1
Demographics of the Sample

Variables	Category	n (%)
Number of Employees	Less than 149	66 (53.2)
	150-249	9 (7.3)
	Over 250	49 (39.5)
Firm Age	Less than 5 years	13 (10.5)
	6-10 years	17 (13.7)
	Over 11 years	94 (75.8)
Internationalization (%)	0-25%	76 (61.3)
	26-50%	18 (14.5)
	Over 51%	30 (24.2)
Industry Type	Manufacturing	65 (52.4)
	Service/Others	59 (47.6)
Government subsidies (% of R&D expenditure)	0% subsidies	46 (37.1)
	1–30% subsidies	73 (58.9)
	Over 30% subsidies	5 (4.0)

Notes: Total sample size = 124 (100%) for all variables.

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An important characteristic of our sample is the variation in government support. Respondents were asked to indicate what percentage of the firm's R&D expenditure is financed by government subsidies. Based on the responses, 37.1% of firms reported 0% (no subsidies), while 62.9% reported receiving some subsidies (58.9% had low-to-moderate subsidies covering 1–30% of R&D, and a small group 4.0% had >30% of R&D funded). For the multi-group analysis, we dichotomized this into firms with "No Government Subsidy (n = 46)" and "Government-Subsidized firms (n = 78)". This split allowed the researchers to compare structural relationships between these two groups.

B. Measures and Instrument Development

All constructs in the model were measured with multi-item 5-point scale Likert scales adapted from prior validated studies (see Table 2 for a summary of measurement items and sources). The survey instrument was first prepared in English and then translated into Korean using back-translation to ensure accuracy.

Market dynamism was operationalized as the degree of rapid change in the firm's external market environment. Three items asked respondents how rapidly key aspects of their market change: (1) customers' product or service needs, (2) suppliers' skills and capabilities, and (3) competitors' product or service offerings. This scale captures the turbulence in demand and supply conditions. It was adapted from Jaworski and Kohli (1993) and recent work by Belhadi et al. (2021), who have used similar items in dynamic market contexts.

The research measured networking capability using three items that reflected the firm's ability to maintain long-term, cooperative relationships with supply chain partners. The scale was based on the work of Kenny and Fahy (2011) and related literature on network resources. Respondents rated these statements regarding their key supply chain partners. A higher composite score on this construct indicates a greater capability to build and leverage enduring network relationships.

Supply chain resilience was measured using a four-item scale, drawing on prior studies by Altay et al. (2018), Yu et al. (2019), and Belhadi et al. (2021). The items were designed to gauge the firm's ability to prepare for and respond to disruptions in collaboration with supply chain partners. By capturing aspects like flexibility, partner support, and rapid recovery, the scale reflects the definition of supply chain resilience as the adaptive capacity to handle unexpected events.

Firm performance was assessed using a subjective performance scale, as objective financial data were not available for all firms. Respondents were asked to compare their firm's performance to that of competitors on key dimensions. Three items, adapted from Koufteros et al. (2014) and Srinivasan and Swink (2018), covered customer satisfaction, sales growth, and profitability. Such perceptual performance measures are common in management research and have been shown to correlate with objective performance data. The use of multiple items capturing different facets of performance provides a reliable composite indicator of overall firm success.

Additionally, the researchers collected several control variables to account for alternative explanations: firm size (number of employees), firm age, and industry type (manufacturing vs. service), which were obtained from the demographics (Table 1). Also recorded was the firm's degree of internationalization as a contextual variable.

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Table 2
Operationalization of the Research Instrument

Variable	Operational definition	Measurement items	Prior research
Market Dynamism (MD)	The rate and unpredictability of change in market conditions, including customer preferences, competitor actions, and technological trends, can influence a firm's strategies and performance.	MD1. How rapidly do your customers' products or services need to change? MD2. How rapidly do suppliers' skills and capabilities change? MD3. How rapidly do competitors change their products or services?	Belhadi et al. (2021); Jaworski and Kohli (1993)
Networking Capability (NC)	A firm's ability to establish, maintain, and leverage relationships with external partners to access resources, information, and opportunities.	NC1. Our firm expects to work with our partners for the foreseeable future. NC2. Our firm feels indebted to our partners for what they have done for us. NC3. Our firm has close, personal interactions with partners at multiple organizational levels.	Kenny and Fahy (2011)
Supply Chain Resilience (SCR)	The capability of a supply chain to anticipate, prepare for, respond to, and recover from disruptions while maintaining or quickly returning to desired performance levels.	SCR1. Our firm's supply chain can quickly return to its original state after being disrupted. SCR2. Our firm's supply chain can maintain a desired level of connectedness among its members during a disruption. SCR3. Our firm's supply chain can maintain a desired level of control over its structure and function during a disruption. SCR4. Our firm's supply chain has the knowledge to recover from disruptions and unexpected events.	Yu et al. (2019); Altay et al. (2018); Belhadi et al. (2021)
Firm Performance (FP)	The extent to which a firm achieves its strategic and financial goals is often measured through indicators such as profitability, sales growth, market share, and operational efficiency.	FP1. Our customers are satisfied with our products/services. FP2. Compared to other firms, our sales are better. FP3. Compared to other firms, our profits are better.	Koufteros et al. (2014); Srinivasan and Swink (2018)

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IV. ANALYSIS

A. Outer Assessment

The study employed partial least squares structural equation modeling (PLS-SEM) to test the measurement and structural models. PLS-SEM was chosen for several reasons: (1) our sample size (124) is moderate and PLS is suitable for complex models with smaller samples, (2) the model includes formative-like higher-order considerations (though all our constructs were modeled as reflective first-order factors), and (3) the focus is on prediction and theory development, aligning with the strengths of PLS (Hair et al., 2019). A two-step approach, assessing the outer (measurement) model first and then the inner (structural) model, follows.

As part of the measurement model assessment, indicator loadings, internal consistency reliability, convergent validity, and discriminant validity for all constructs were evaluated. As shown in Table 3, the standardized factor loadings of all items on their intended constructs were high and significant, typically exceeding the 0.70 threshold. For example, for networking capability, item loadings ranged from 0.79 to 0.86 in the full sample, indicating good indicator reliability. Composite reliability (CR) values for each construct were well above 0.7 (and Cronbach's alpha above 0.6), confirming internal consistency. Average variance extracted (AVE) for each latent construct was above 0.50, indicating convergent validity. Discriminant validity was evaluated primarily with the Fornell-Larcker criterion. Table 4 shows that each construct's square root of AVE exceeded its correlations with any other construct in both the non-subsidized and subsidized groups. For instance, in the full sample, the square root of AVE for supply chain resilience was about 0.90, exceeding its correlations with networking capability, market dynamism, and performance. This suggests that each construct is empirically distinct.

Given that the research intended to compare two groups, measurement invariance was tested across the no-subsidy vs subsidy groups using a permutation approach (Henseler's MICOM procedure). The results (Table 9) indicated that configural invariance was established (both groups used the same algorithm and measurement setup) and compositional invariance (correlation of composites = 1) was supported for all constructs. Partial measurement invariance was achieved for the key constructs, allowing us to validly compare path coefficients across groups. In particular, networking capability and firm performance demonstrated full invariance, whereas supply chain resilience showed equal loadings but a difference in means between groups. Overall, these checks gave us confidence to proceed with multi-group structural comparisons.

Structural modeling was used to obtain robust standard errors and t-statistics for hypothesized paths. We report the path coefficients, t-values, and p-values for each hypothesized relationship (see Table 5). The standardized root mean square residual (SRMR) was also used to assess model fit. For the full sample model, SRMR was 0.073, which is below the recommended 0.08 cutoff for PLS models. This suggests an acceptable approximate fit of the model to the data. Additionally, the coefficient of determination (R^2) for each endogenous construct was assessed to evaluate the explained variance, and the Stone-Geisser Q^2 was used to assess predictive relevance.

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Table 3.
Outer Model Assessment

Factors	Standard load		AVE (AVE > 0.5)		Construct Reliability (C.R > 0.7)		Cronbach's Alpha (α > 0.6)	
	0% Government subsidies for firms	Government subsidies for firms	0% Government subsidies for firms	Government subsidies for firms	0% Government subsidies for firms	Government subsidies for firms	0% Government subsidies for firms	Government subsidies for firms
DM1	0.897	0.912						
DM2	0.870	0.756	0.676	0.691	0.843	0.864	0.760	0.784
DM3	0.684	0.818						
NC1	0.846	0.862						
NC2	0.791	0.868	0.691	0.777	0.779	0.862	0.776	0.856
NC3	0.856	0.914						
SCR1	0.818	0.909						
SCR2	0.836	0.931	0.739	0.842	0.907	0.938	0.884	0.937
SCR3	0.877	0.929						
SCR4	0.906	0.901						
FP1	0.893	0.865						
FP2	0.809	0.792	0.675	0.658	0.796	0.769	0.759	0.743
FP3	0.756	0.774						

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Table 4.
Fornell-larcker Criterion

	FP	MD	NC	SCR
FP	**Non GS: 0.821** **GS: 0.811**			
MD	Non GS: 0.222 GS: 0.243	**Non GS: 0.822** **GS: 0.831**		
NC	Non GS: 0.392 GS: 0.389	Non GS: 0.126 GS: 0.280	**Non GS: 0.831** **GS: 0.882**	
SCR	Non GS: 0.344 GS: 0.629	Non GS: 0.128 GS: 0.190	Non GS: 0.339 GS: 0.552	**Non GS: 0.860** **GS: 0.918**

Notes: Non GS = 0% Government subsidies Firms; GS = Government subsidies Firms

Table 5.
Structural Model Assessment

Endogenous variables	R^2		Q^2	
	0% Government subsidies for firms	Government subsidies for firms	0% Government subsidies for firms	Government subsidies for firms
Networking capability	0.160	0.078	0.041	0.047
Supply Chain Resilience	0.145	0.306	0.095	0.003
Firm Performance	0.260	0.413	0.007	0.019

Table 9.
Results of Invariance Measurement Testing Using Permutation

Construct	CI	Col (correlation=1)		PMI	EM			EV			FMI
		C = 1	Confidence invariance		diff	Con	Eq	diff	Con	Eq	
FP	Yes	0.999	0.973; 1.000	Yes	0.088	-0.376; 0.367	Yes	-0.013	-0.539; 0.641	Yes	Yes
MD	Yes	0.851	0.658; 1.000	Yes	0.365	-0.371; 0.375	Yes	-0.036	-0.486; 0.606	Yes	Yes
NC	Yes	1.000	0.991; 1.000	Yes	0.209	-0.356; 0.362	Yes	0.169	-0.554; 0.622	Yes	Yes
SCR	Yes	0.999	0.998; 1.000	Yes	0.423	-0.365; 0.355	No	0.364	-0.503; 0.564	Yes	No

Notes: CI = Configural invariance (same algorithms for both groups); Col = Compositional invariance; PMI = Partial measurement invariance established; EM = Equal mean assessment; EV = Equal variance assessment; FMI = Full measurement invariance established; diff = difference; Con = Confidence interval; Eq = Equal

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To test mediation hypotheses (H_7–H_9), the researchers used the bootstrapping approach to estimate the indirect effect and the Sobel test (z-value) to assess significance. Mediation was treated as significant if the indirect effect was significant and the 95% confidence interval did not include zero. For the multi-group analysis (H_1–H_6 across subsidy groups), the study ran multi-group PLS-SEM. It employed both Henseler's multi-group difference test and permutation test to identify significant differences in path coefficients. A difference was considered significant if either the non-parametric Henseler's MGA test showed $p < 0.05$ or the permutation test $p < 0.05$. Table 10 summarizes the group-wise path coefficients and the results of these difference tests.

Table 10.
Results

Hypothesis relationship	Path coefficients		Path coefficients difference	Confidence Interval (95%)	Henseler's MGA	Permutation P-value	Judgment
	Government subsidies Firms	0% Government subsidies Firms					
MD → FP	0.123	-0.259	0.382	-0.353; 0.361	0.116	0.033	No/No
MD → NC	0.280	0.187	0.093	-0.352; 0.442	0.394	0.592	No/No
MD → SCR	0.038	-0.068	0.107	-0.353; 0.386	0.315	0.586	No/No
NC → FP	0.029	0.365	-0.336	-0.428; 0.399	0.049	0.116	Yes/No
NC → SCR	0.542	0.354	0.188	-0.264; 0.269	0.089	0.175	No/No
SCR → FP	**0.590**	**0.226**	**0.364**	**-0.325; 0.359**	**0.024**	**0.035**	**Yes/Yes**

B. Inner Assessment

Next, the results for the full sample, testing H_1–H_6 and the mediation H_7–H_9, are discussed. The standardized path coefficients and hypothesis outcomes are summarized in Table 5 and Figure 2.

In the first hypothesis (H_1), the path between market dynamism and networking capability was positive and statistically significant in the full sample ($\beta = 0.239$, $t = 2.716$, $p < 0.003$). Thus, H_1 is supported, indicating that firms perceiving higher market dynamism tend to have greater networking capabilities. This suggests that dynamic market conditions indeed spur firms to cultivate stronger networks, consistent with our theory. Hypothesis 2 for market dynamism to supply chain resilience was rejected ($\beta = 0.020$, $t = 0.216$, $p < 0.414$). Market dynamism did not have a significant direct impact on resilience when networking and other factors were in the model. This implies that any effect of a dynamic environment on resilience is likely indirect. Hypothesis 3 was also not significant ($\beta = 0.027$, $t = 0.311$, $p < 0.378$). Thus, H_3 is not supported. This finding aligns with the idea that dynamism, by itself, can hinder or enhance performance depending on capabilities.

Regarding networking capability, hypothesis 4 was confirmed: it had a strong positive effect on resilience ($\beta = 0.485$, $t = 7.353$, $p < 0.001$). This confirms that firms

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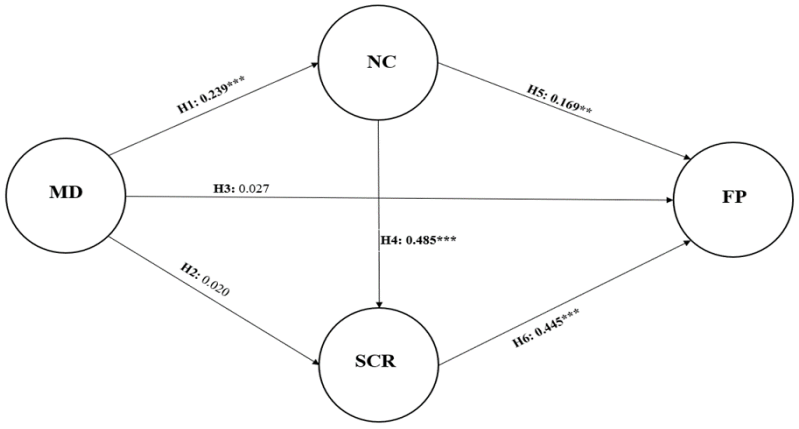
with higher networking capability exhibit significantly greater supply chain resilience. In practical terms, building and maintaining close relationships with supply chain partners appears to substantially enhance a firm's ability to withstand and recover from disruptions. Next, networking capability had a positive and significant effect on performance in the overall model ($\beta = 0.169$, $t = 1.708$, $p < 0.044$). Therefore, H_5 is supported at the 0.05 significance level. This suggests that leveraging networks yields performance benefits (e.g., through greater market access, information, and flexibility), albeit perhaps only partially through other mechanisms.

Finally, the relationship between supply chain resilience and firm performance is strongly supported ($\beta = 0.445$, $t = 5.401$, $p < 0.001$). This result underscores that improving supply chain resilience translates into significantly better firm performance. In fact, among direct predictors of performance in the full model, SCR had the highest coefficient, highlighting its critical role. A resilient supply chain appears to protect the firm from losses and possibly allow it to capitalize on disruptions, thereby boosting relative performance.

Table 6.
Goodness-of-Fit

Description	Value	Baseline value	Reference
Goodness of Fit (GoF)	$\sqrt{\text{cut-off of AVE x average of R-square}} = 0.434$	GoF *small* = 0.1 GoF *medium* = 0.25 GoF *large* = 0.36	Wetzels et al. (2009)
	Standardized Root Mean Square Residual (SRMR) = 0.073	Less than 0.08	Henseler et al. (2016) Hu and Bentler (1999)

Figure 2
Result



Note: **: p<0.05, ***: p<0.001

C. Structural Model

In terms of variance explained (R^2), the model showed acceptable explanatory power. For the full sample: networking capability had $R^2 = 0.16$ (indicating that about 16% of the variance in NC is explained by market dynamism – suggesting other factors also influence networking), supply chain resilience had $R^2 = 0.306$ (30.6% explained by MD and NC), and firm performance had $R^2 = 0.413$ (41.3% explained by MD, NC, SCR). These R^2 values can be considered moderate to substantial in the context of organizational research. The Stone-Geisser Q^2 values for endogenous constructs were all positive, confirming that the model has predictive relevance for the sample.

D. Goodness of Fit

To assess the overall model fit in PLS-SEM, we used the standardized root mean square residual (SRMR) as recommended by Henseler et al. (2014). The SRMR value was 0.073, below the 0.08 threshold, indicating a good model fit. Additionally, the squared Euclidean distance (d_ULS) and geodesic distance (d_G) were within acceptable limits when compared to the 95% bootstrap quantiles, further confirming that the proposed model adequately represents the observed data. These results suggest that the structural model is well-specified and that the hypothesized relationships offer a satisfactory explanation of the variance in the endogenous constructs.

E. Mediation

The indirect effects are tested in H_7, H_8, and H_9. The indirect effect of market dynamism on resilience via networking capability was significant. The Sobel test yielded $Z = 2.547$ ($p = 0.005$). This indicates a positive mediation: market dynamism increases networking (H1), which in turn increases resilience (H_4), making the indirect pathway significant. Thus, H_7 is supported. H_8 illustrates the indirect effect of market dynamism on performance through networking, which was marginally significant. $Z = 1.818$ with one-tailed $p = 0.034$. This suggests a weaker but present mediation: market dynamism's small positive effect on performance can be accounted for by its impact on networking capability. H_9 showed that resilience substantially mediated the effect of networking on performance. The indirect effect had $Z = 4.365$ ($p < 0.001$). This indicates that a substantial portion of the benefit of networking capability to performance comes through its enhancement of supply chain resilience. In fact, with both direct and indirect paths present, the results imply partial mediation: networking has a direct effect on performance (H_5) and an indirect effect of comparable or greater magnitude through resilience. Therefore, H_9 is supported. The pattern of non-significant direct effects alongside significant indirect effects suggests that market dynamism and networking capability do not always translate into outcomes through immediate linear effects. Instead, their influence appears to operate through capability-conversion mechanisms. In the context of market dynamism, environmental turbulence does not automatically improve resilience or performance; rather, it first pushes firms to strengthen their networking capabilities, thereby enabling better adaptive responses. Likewise, networking capability does not generate performance gains only through direct market access or relational advantage. A substantial part of its value is realized when relational

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resources are converted into supply chain resilience, thereby protecting operations and supporting performance. This finding is consistent with the dynamic capabilities view, which holds that capabilities often affect performance through intermediate organizational processes rather than through simple direct links. Practically, this underscores that one key reason networks improve performance is that they make the firm more resilient, thereby safeguarding performance.

Table 8.
Mediation Effects of The Sobel Test (Complete)

Mediating Pathways	Mediation Effect (Z-value)	P-value
H7: Market Dynamism → Networking Capability → Supply Chain Resilience	2.547	0.005
H8: Market Dynamism → Networking Capability → Firm Performance	1.818	0.034
H9: Networking Capability → Supply Chain Resilience → Firm Performance	4.365	0.000

F. Multigroup Analysis (MGA)

The path coefficients for each group and tests of differences are given in Tables 7 and 10. Below, the researchers focus on the hypotheses where notable differences emerged:

In the no-subsidy group, the effect of market dynamism on networking was positive but not significant ($\beta = 0.187$, $t = 0.816$, n.s.). In the subsidy group, the effect was positive and somewhat larger ($\beta = 0.280$, $t = 1.470$). Interestingly, only the subsidized group showed a statistically significant path, while the no-subsidy group did not. However, the difference between the two coefficients (0.280 vs 0.187) was not statistically significant by MGA ($p=0.394$) or permutation ($p=0.592$). Thus, it is not possible to claim a significant moderation by subsidies on H_1. Both groups exhibit a positive trend, with significance achieved in the larger (subsidized) group, but the difference is not confirmed.

Networking capability had a significant impact on resilience in both groups, but was slightly higher for subsidized firms. For non-subsidized: $\beta = 0.354$, $t = 3.084$, $p = 0.001$; for subsidized: $\beta = 0.542$, $t = 6.225$, $p < 0.001$. Both are strongly significant, supporting H4 in each subgroup. The difference (0.542 vs 0.354) was not statistically significant (MGA $p=0.089$, permutation $p=0.175$). It suggests a trend toward networks being even more leveraged for resilience when subsidies are present.

In the no-subsidy group, networking capability had a relatively large and significant effect on performance ($\beta = 0.365$, $t = 2.458$, $p = 0.007$). In contrast, in the subsidy group, the effect was near zero and non-significant ($\beta = 0.029$, $t = 0.230$, $p = 0.409$). The multi-group tests confirm a significant difference here: Henseler's MGA yielded $p = 0.049$ (meaning the no-subsidy path is significantly greater) and the permutation test $p = 0.116$ (not below 0.05, but the MGA is sufficient evidence for a difference at 95% confidence). This finding suggests that networking capability contributes to performance only for firms without government subsidies, whereas for subsidized firms, networking alone does not translate into performance gains. This supports the notion that external funding can substitute for some benefits of networking,

as subsidized firms might rely on the subsidy rather than on networks for performance improvements, or their networks might be oriented toward fulfilling subsidy project requirements rather than immediate performance. For non-subsidized firms, however, networks are crucial for performance.

The path between SCR and FP also differed strongly by group, essentially showing an opposite pattern to H_5. In the no-subsidy group, supply chain resilience had a positive but not statistically significant effect on performance ($\beta = 0.226$, $t = 1.291$, $p = 0.098$; not significant at the 0.05 level). For the subsidy group, resilience had a very large and significant impact on performance ($\beta = 0.590$, $t = 6.382$, $p < 0.001$). The difference (0.590 vs 0.226) was statistically significant by both MGA ($p = 0.024$) and permutation ($p = 0.035$). Therefore, H_6 holds strongly for subsidized firms but only weakly for non-subsidized firms, with a clear moderating effect: government-supported firms derive a much greater performance benefit from resilience than do firms without support. One interpretation is that subsidies might enable firms to invest effectively in resilience capabilities (e.g., advanced systems, redundant capacity). Thus, when disruptions hit, those with subsidies and resilience see big payoffs, whereas unsubsidized firms, even if resilient, may be more constrained and see less dramatic performance differences

Table 7.
Pathway Assessment

Hypotheses	Pathways		Coefficient	t-stat	p-value	Results
		Complete	0.239	2.716	0.003	**Accepted**
H1	MD → NC	Non GS	0.187	0.816	0.207	Rejected
		GS	0.280	1.470	0.006	**Accepted**
		Complete	0.020	0.216	0.414	Rejected
H2	MD → SCR	Non GS	-0.068	0.345	0.365	Rejected
		GS	0.038	0.357	0.361	Rejected
		Complete	0.027	0.311	0.378	Rejected
H3	MD → FP	Non GS	-0.259	0.949	0.171	Rejected
		GS	0.123	1.470	0.071	Rejected
		Complete	0.485	7.353	0.000	**Accepted**
H4	NC → SCR	Non GS	0.354	3.084	0.001	**Accepted**
		GS	0.542	6.225	0.000	**Accepted**
		Complete	0.169	1.708	0.044	**Accepted**
H5	NC → FP	Non GS	0.365	2.458	0.007	**Accepted**
		GS	0.029	0.230	0.409	Rejected
		Complete	0.445	5.401	0.000	**Accepted**
H6	SCR → FP	Non GS	0.226	1.291	0.098	Rejected
		GS	0.590	6.382	0.000	**Accepted**

Notes: MD = Market dynamism; NC = Networking capability; SCR = Supply chain resilience; FP = Firm performance; Non GS = 0% Government subsidies Firms; GS = Government subsidies Firms

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Table 9.
Results of Invariance Measurement Testing Using Permutation

Construct	CI	Col (correlation=1)		PMI	EM			EV			FMI
		C = 1	Confidence invariance		diff	Con	Eq	diff	Con	Eq	
FP	Yes	0.999	0.973; 1.000	Yes	0.088	-0.376; 0.367	Yes	-0.013	-0.539; 0.641	Yes	Yes
MD	Yes	0.851	0.658; 1.000	Yes	0.365	-0.371; 0.375	Yes	-0.036	-0.486; 0.606	Yes	Yes
NC	Yes	1.000	0.991; 1.000	Yes	0.209	-0.356; 0.362	Yes	0.169	-0.554; 0.622	Yes	Yes
SCR	Yes	0.999	0.998; 1.000	Yes	0.423	-0.365; 0.355	No	0.364	-0.503; 0.564	Yes	No

V. DISCUSSION

This study set out to investigate how market dynamism, networking capability, and supply chain resilience interact to affect firm performance, and to examine the moderating role of government subsidies in these relationships. The findings contribute to the literature on dynamic capabilities and supply chain management in several meaningful ways.

First, the research delivers evidence that networking capability is a pivotal antecedent of supply chain resilience. In the full sample, networking capability had one of the strongest effects in the model ($\beta = 0.49$ on resilience), underscoring that firms that cultivate extensive, trust-based partnerships are markedly more resilient to disruptions. This aligns with prior qualitative observations that collaboration and information sharing strengthen resilience (Belhadi et al., 2021). The study quantifies this relationship and extends it by showing it holds across contexts. The practical implication is clear: managers aiming to boost resilience should invest in their networking capability. Building strong relationships with suppliers, logistics providers, customers, and even competitors can create a network buffer against shocks. In academic terms, this finding integrates social capital theory with resilience research, suggesting that relational capital is fundamental to supply chains' adaptive capacity.

Second, it was found that market dynamism by itself does not guarantee resilience or performance, but it does stimulate the development of dynamic capabilities. The insignificant direct effects of market dynamism on resilience and performance (H_2, H_3) imply that simply operating in a fast-changing market does not automatically make a firm more resilient or high-performing. This is consistent with the dynamic capabilities view: the external environment creates the need for adaptation, but firms must actively cultivate capabilities to realize benefits. Interestingly, in our data, market dynamism significantly increased networking capability (H_1) in the overall analysis, supporting the idea that firms recognize the need to reach outward when facing turbulence. However, any effect of dynamism on resilience was fully mediated by networking (H_7). In contrast to Yu et al. (2019), who discovered a direct positive link between dynamism and resilience in Chinese supply chains, our results suggest that in our sample (possibly a different country

or industry), firms primarily achieve resilience through networking responses to dynamism rather than as an automatic consequence of dynamism (Bai et al., 2016). One possible explanation is that if a firm does not proactively build networks or flexibility, a dynamic market can actually overwhelm it (leading to lower performance). Only those who respond by connecting with partners and learning become resilient.

Third, the study highlights the dual role of networking capability on performance – both direct and indirect via resilience. It is confirmed that networking capability can elevate performance (H_5), consistent with many studies on networks and firm success. More novel is the finding that networking's impact is largely channeled through supply chain resilience (significant mediation H_9). In the complete sample, the indirect effect was strong, indicating that one reason networks lead to better performance is that they help firms keep operating effectively during disruptions. This also helps explain why some direct paths were not supported in the structural model: market dynamism by itself does not create performance or resilience unless firms transform environmental pressure into relational and operational capabilities. This result integrates two streams of literature: network theory (which emphasizes access to information/resources) and operations (which emphasizes resilience as ensuring continuity). It suggests that scholars and managers should view network-building as an upstream investment that pays off in downstream performance by making the firm shock-resistant. The direct effects of networking on performance might be more evident during stable periods. However, in uncertain times, its value comes through resilience, which ensures the firm can continue to deliver value when others cannot.

Fourth, the multi-group analysis provides insight into how external support (government subsidies) alters capability-performance dynamics. To the researcher's knowledge, this is one of the first studies to empirically examine supply chain capability linkages under different levels of public financial support. The divergent patterns found are theoretically intriguing. From a social capital perspective, these differences suggest that non-subsidized firms depend more heavily on market-based relational capital for immediate performance, whereas subsidized firms are better positioned to translate relational and institutional support into resilience-oriented capability development. For firms without subsidies, networking capability had a substantial direct impact on performance, whereas resilience did not significantly boost performance. This suggests that when firms lack external backing, their ability to leverage relationships for immediate business opportunities is crucial. Perhaps these organizations rely on networks for market information, customer referrals, and resource sharing, all of which directly affect revenue and profit (Saragih et al., 2025). These firms might not have the luxury of investing heavily in resilience; thus, while beneficial, resilience might not reach a threshold to influence performance, or any resilience they have is expected to survive rather than excel. In contrast, subsidized firms showed the opposite: their performance was highly driven by resilience, and networking per se had little direct effect. The current research interprets this as subsidized firms having more slack or encouragement to develop robust operations and risk management (resilience), which then yields performance payoffs, especially in volatile conditions. Their networking activities might be more focused on long-term innovation partnerships or fulfilling government project collaborations, which may not immediately amplify short-term performance metrics. Moreover, government support might reduce the urgency to seek sales via networks, as these firms keep a cushion and possibly more stable funding (Zhang and Zhang, 2022).

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Instead, they channel networking efforts toward building resilient systems (e.g., connecting with second-source suppliers and technology providers to support digital resilience), which ultimately drives performance during disruptions.

From a theoretical standpoint, government subsidies provide resources that can substitute for some of the benefits of networking (access to capital, knowledge via public programs) in driving performance, thus dampening the link between networking capability and performance. However, subsidies can also complement networking in building resilience, but once resilience is in place, it becomes the key performance driver for them. This implies a contingency: the ROI of networking capability might depend on the firm's broader resource context. In unsupported environments, networking is a lifeline for performance; in supported environments, networking's value manifests through advanced resilience and perhaps innovation, rather than directly through sales.

The multi-group findings also retain policy implications. They suggest that government R&D support programs may want to consider how to also foster inter-firm networking and knowledge exchange. If not, there is a risk that firms become internally resilient but perhaps insular. In contrast, networking could further amplify the benefits of public support by spreading best practices and creating industry-wide resilience. For managers in subsidized firms, the takeaway is that having a subsidy does not automatically increase performance. In non-subsidized firms, managers should note that networks are critical for compensating for the lack of public support; building alliances, joining industry associations, and leveraging informal partnerships can yield resources they do not receive from the government.

Fifth, the results reinforce the vital importance of supply chain resilience for performance, while also showing that not all firms reap its benefits equally. The strong overall effect of SCR on performance is consistent with multiple studies in the supply chain literature that link resilience to metrics like financial performance, market share, and service levels. This might indicate that resilience capabilities need a certain level of resource investment to truly pay off, as cash-strapped firms may find resilience efforts only go so far in impacting bottom lines. It also raises a question for future research: are there threshold effects or diminishing returns to resilience? Perhaps a minimum level of resilience is necessary to protect performance, beyond which additional resilience gives diminishing performance returns for firms without support. Meanwhile, supported firms can enhance resilience, creating a competitive advantage. Future studies could explore this by measuring resilience maturity and examining its correlation with performance across different resource conditions.

VI. CONCLUSION

This study examined how firms can reinforce supply chain resilience in dynamic markets through networking capability and how government subsidies influence these relationships. Using data from 124 firms and PLS-SEM multi-group analysis, this research revealed that networking capability is pivotal for resilience and directly elevates performance, underscoring the strategic value of inter-firm networks. Resilience strongly enhances performance, especially when firms hold resources or support to develop it. Market dynamism alone does not advance performance; its benefits emerge only when paired with dynamic capabilities such as networking and resilience. Importantly, government subsidies moderate these relationships. Non-subsidized firms rely more on

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networking, while subsidized firms gain more from resilience. This suggests that public support shapes strategic effectiveness, highlighting that capability development strategies should differ across resource contexts. From a managerial perspective, firms in volatile industries should invest in building networks, formalized partnerships, and trust-based relationships to support resilience. Honest resilience assessments and targeted improvements such as dual sourcing, safety stock, and scenario planning remain essential. Subsidized firms should channel support into capability building rather than dependency, while non-subsidized firms may offset resource gaps through creative alliances.

This study acknowledges several limitations. Cross-sectional data constrain causal inference; government support was measured narrowly, the sample size was modest and country-specific, and the study focused only on two capabilities. Future research should employ longitudinal designs, explore varied subsidy types, and test other dynamic capabilities (e.g., agility, digital collaboration) across different economic contexts. Despite these limits, the findings contribute to understanding how firms navigate turbulence. It is shown that networks enable resilience, resilience safeguards performance, and external support can alter these effects. In an era of persistent disruptions, integrating collaboration, preparedness, and public policy is critical to building supply chains that thrive amid uncertainty.

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