

Governance Capability and Supply Chain Resilience in Forestry Industries

ALAMUSI

Graduate University of Mongolia, Ulaanbaatar, 16052, Mongolia

Email: 956935088@qq.com

How to cite this paper: Alamusi. (2026). Governance Capability and Supply Chain Resilience in Forestry Industries. *Economics & Business Management*, 6(3), 27–35. ISSN Print: 3079-5214, ISSN Online: 3079-5222.

<https://doi.org/10.63313/EBM.9212>

Published: 2026-08-04

Copyright © 2026 by author(s) and Erytis Publishing Limited.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Abstract

Forestry industries operate under complex conditions characterized by long production cycles, resource dependence, institutional uncertainty, and increasing market volatility. These characteristics create significant challenges for maintaining supply chain stability and adaptive capacity. While previous studies have emphasized supply chain integration and collaborative governance outcomes, limited attention has been paid to how governance capability contributes to supply chain resilience in resource-based industries. This study develops a conceptual framework to explain the relationship between governance capability and supply chain resilience in forestry industries. Drawing on collaborative governance theory, supply chain management theory, and institutional adaptation perspectives, the study identifies four key dimensions of governance capability: information integration capability, collaborative coordination capability, institutional adaptation capability, and resource integration capability. The study argues that these capabilities enhance resilience by improving visibility, coordination efficiency, adaptive responses, and resource reconfiguration under uncertain conditions. The framework provides theoretical insights into resilience-building mechanisms in forestry supply chains and offers practical implications for enterprises and policymakers seeking sustainable and adaptive supply chain development.

Keywords

Governance Capability; Supply Chain Resilience; Forestry Industry; Collaborative Governance; Institutional Adaptation; Sustainable Supply Chain

1. Introduction

Forestry industries represent a unique category of resource-based supply chains that combine ecological processes, industrial production, and market circulation. Unlike manufacturing supply chains characterized by relatively short production cycles and flexible resource adjustment, forestry supply chains are constrained by biological growth periods, geographical dispersion of resources, environmental regulations, and long-term investment requirements. These characteristics make forestry industries particularly vulnerable to external disturbances, including policy

changes, climate risks, market fluctuations, and disruptions in resource supply. Therefore, strengthening supply chain resilience has become an important issue for achieving sustainable development and operational stability in forestry industries. Supply chain resilience refers to the capability of supply chain systems to anticipate, absorb, respond to, and recover from disruptive events while maintaining continuous operations. Existing research has mainly examined resilience from perspectives such as redundancy, flexibility, risk management, and supply chain integration. However, in resource-based industries, resilience is not determined only by physical resources or operational technologies but also depends on the ability of organizations to coordinate actions, share information, adapt institutional arrangements, and integrate resources across multiple actors. Therefore, governance capability has increasingly become a critical factor influencing supply chain resilience.

Governance capability refers to the ability of supply chain actors to establish coordination mechanisms, manage relationships, integrate resources, and adapt governance arrangements in response to changing environments. In forestry industries, supply chain governance involves multiple stakeholders, including forest owners, enterprises, processing companies, government agencies, and market participants. The fragmented structure of these actors often creates coordination difficulties, information asymmetry, and weak response capacity. Without effective governance capability, forestry supply chains may struggle to maintain stability when facing environmental uncertainty and institutional constraints.

Previous studies on forestry supply chains have primarily focused on resource utilization, industrial integration, and operational efficiency. Although collaborative governance research has highlighted the importance of institutional arrangements and inter-organizational cooperation, insufficient attention has been given to the role of governance capability as a strategic resource for enhancing resilience. In particular, how different governance capabilities contribute to resilience formation remains insufficiently understood.

To address this research gap, this study proposes a conceptual framework linking governance capability and supply chain resilience in forestry industries. Based on collaborative governance theory, supply chain management theory, and institutional adaptation perspectives, the study identifies four governance capability dimensions: information integration capability, collaborative coordination capability, institutional adaptation capability, and resource integration capability. The study argues that these capabilities provide the foundation for forestry supply chains to manage uncertainty, maintain continuity, and achieve sustainable development.

This study contributes to existing literature in three ways. First, it extends supply chain resilience research by introducing governance capability as an important antecedent of resilience development. Second, it enriches collaborative governance research by shifting attention from governance outcomes toward governance

capabilities that enable adaptive performance. Third, it provides a theoretical foundation for improving the resilience and sustainability of forestry supply chains in resource-dependent economies.

2. Literature Review

2.1. Governance Capability in Supply Chain Management

Supply chain governance has gradually evolved from a transaction-oriented coordination approach toward a capability-based governance perspective. Early supply chain studies primarily emphasized operational integration, including logistics coordination, inventory optimization, and information exchange among firms. However, increasing uncertainty and complexity in global supply chains have demonstrated that traditional coordination mechanisms are insufficient for maintaining long-term stability. As supply chains become more interconnected, governance capability has emerged as an important strategic capability that enables organizations to coordinate resources, manage relationships, and respond effectively to environmental changes.

Governance capability differs from traditional management capability because it focuses on the ability to organize interactions among multiple actors rather than controlling individual operational activities. According to collaborative governance theory, effective governance depends on the establishment of shared objectives, institutional arrangements, communication mechanisms, and collective action capacity among participating actors (Ansell & Gash, 2008; Emerson et al., 2012). In supply chain contexts, governance capability reflects the ability of enterprises and stakeholders to build coordination structures that support information sharing, joint decision-making, and adaptive responses.

The development of governance capability is particularly important in forestry industries because forestry supply chains involve dispersed resource ownership, multiple organizational actors, and strong dependence on institutional environments. Forest production, processing, and market distribution are often separated geographically and organizationally, resulting in coordination challenges. Therefore, governance capability provides a mechanism for connecting fragmented actors and improving system-level coordination.

From a supply chain management perspective, governance capability includes not only internal organizational coordination but also the ability to manage external relationships. Mentzer et al. (2001) argued that supply chain integration requires effective collaboration among independent organizations to achieve overall system optimization. Similarly, Cao and Zhang (2011) emphasized that collaborative capability enhances supply chain performance by improving joint planning, information sharing, and resource synchronization. These findings indicate that governance capability represents a foundation for achieving coordinated and resilient supply chain operations.

2.2. Supply Chain Resilience in Forestry Industries

Supply chain resilience has received increasing attention due to growing uncertainty in economic, environmental, and institutional environments. Christopher and Peck (2004) defined supply chain resilience as the ability of a supply chain to respond to unexpected disruptions and restore normal operations. Later studies expanded this concept by emphasizing anticipation, adaptation, learning, and transformation capabilities (Ponomarov & Holcomb, 2009; Wieland & Wallenburg, 2013).

Unlike conventional efficiency-oriented supply chain management, resilience emphasizes maintaining continuity under disruption. A resilient supply chain requires the ability to identify potential risks, adjust operational processes, and reorganize resources when facing external shocks. This perspective is especially relevant to forestry industries, where supply chain activities are influenced by ecological cycles, resource availability, environmental policies, and market uncertainty.

Forestry supply chains possess several characteristics that distinguish them from other industries. First, forest resources require long-term cultivation periods, limiting rapid production adjustment. Second, forestry production is geographically dispersed, increasing coordination costs among supply chain participants. Third, forestry industries are closely connected with environmental governance and public policies, making institutional adaptation an essential element of resilience.

Existing research has identified several factors affecting supply chain resilience, including flexibility, redundancy, visibility, collaboration, and risk management capability. However, most studies focus on manufacturing and logistics sectors, while resource-based industries such as forestry remain relatively underexplored. In forestry contexts, resilience depends not only on operational flexibility but also on governance mechanisms that enable collective responses among different actors. Therefore, governance capability can be considered a critical foundation for supply chain resilience. Through effective governance mechanisms, supply chain participants can improve information transparency, coordinate resource allocation, reduce uncertainty, and develop adaptive responses to disruptions.

2.3. Relationship Between Governance Capability and Supply Chain Resilience

The relationship between governance capability and supply chain resilience can be explained through the perspective of collaborative coordination and institutional adaptation. Governance capability provides the organizational foundation through which supply chain actors collectively respond to uncertainty. When governance capability is strong, actors are more likely to establish effective communication channels, coordinate decisions, and adjust strategies during disruptive events.

Information integration capability represents the first mechanism linking governance capability and resilience. Accurate and timely information enables

supply chain participants to identify risks, predict changes, and make coordinated decisions. In forestry supply chains, information integration can improve resource visibility, production planning, and market responsiveness.

Collaborative coordination capability represents the ability of supply chain actors to develop stable cooperative relationships. Because forestry supply chains involve multiple independent stakeholders, resilience cannot be achieved by individual firms alone. Collaborative coordination enables joint problem-solving and reduces fragmentation among supply chain participants.

Institutional adaptation capability reflects the ability to modify governance arrangements according to changing external conditions. Since forestry industries are strongly influenced by environmental regulations and resource policies, adaptive institutional arrangements are essential for maintaining supply chain continuity.

Resource integration capability enables supply chain actors to mobilize and reorganize resources efficiently. Through effective resource integration, forestry enterprises can improve production stability, optimize resource utilization, and enhance recovery capacity after disruptions.

Based on these theoretical arguments, this study proposes that governance capability functions as a key antecedent of supply chain resilience. Rather than viewing resilience as a purely operational outcome, this study emphasizes that resilience emerges from continuous governance processes involving coordination, adaptation, and resource integration.

3. Conceptual Framework and Research Proposition

3.1. Governance Capability and Supply Chain Resilience

Supply chain resilience has increasingly been recognized as a governance-related capability rather than merely an operational response mechanism. In complex and uncertain environments, resilience depends on how supply chain actors coordinate activities, exchange information, adapt institutional arrangements, and reorganize resources. Governance capability provides the organizational foundation that enables supply chains to maintain stability and recover from disruptions.

Forestry industries represent a typical resource-based supply chain characterized by long production cycles, geographically dispersed resources, multiple stakeholders, and strong institutional dependence. These characteristics make forestry supply chains vulnerable to market fluctuations, policy changes, and resource uncertainty. Therefore, resilience cannot be achieved solely through operational efficiency; it requires effective governance mechanisms that support continuous coordination and adaptation among supply chain actors.

Drawing on collaborative governance theory and supply chain management theory, this study conceptualizes governance capability as a multidimensional capability consisting of information integration capability, collaborative coordination

capability, institutional adaptation capability, and resource integration capability. Information integration improves supply chain visibility and decision accuracy; collaborative coordination facilitates collective action among stakeholders; institutional adaptation enables adjustment to external changes; and resource integration supports flexible resource allocation during disruptions.

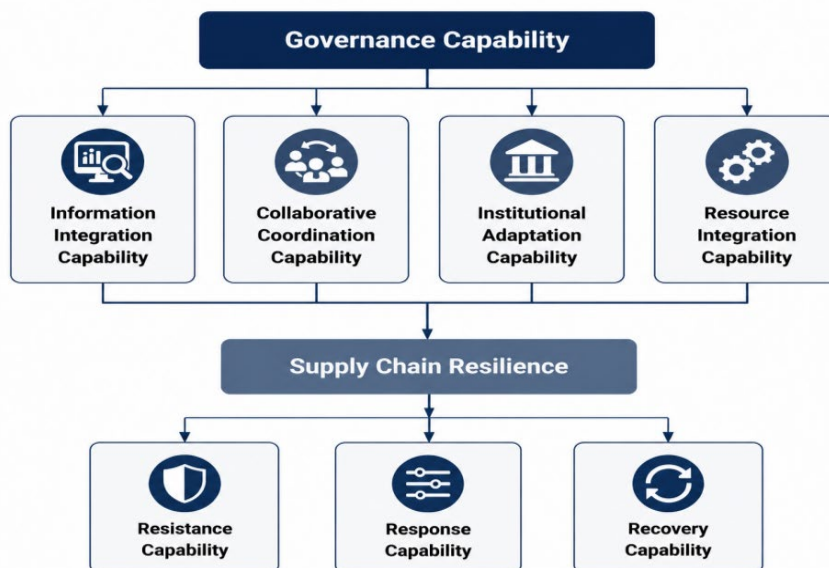
Together, these governance capabilities enhance the ability of forestry supply chains to anticipate risks, absorb disturbances, and recover from disruptions. Therefore, this study proposes:

Proposition 1: Governance capability positively influences supply chain resilience in forestry industries.

3.2. Conceptual Framework

Based on the above theoretical reasoning, this study develops a conceptual framework explaining how governance capability contributes to supply chain resilience in forestry industries.

Figure 1. Conceptual Framework of Governance Capability and Supply Chain Resilience in Forestry Industries



Note: The framework illustrates the influence of governance capability dimensions on supply chain resilience.

The framework suggests that governance capability functions as an internal strategic capability that strengthens resilience through improved coordination, adaptation, and resource utilization. Unlike traditional perspectives that consider resilience primarily as a response after disruption, this study emphasizes that resilience is developed through continuous governance processes before, during, and after uncertain events.

4. Managerial Implications

The proposed framework provides several practical implications for forestry enterprises, supply chain managers, and policymakers seeking to enhance supply chain resilience. Unlike traditional approaches that focus primarily on operational efficiency or individual firm-level risk management, this study highlights that resilience improvement requires the development of governance capability across the entire supply chain network.

First, forestry enterprises should strengthen information integration mechanisms to improve supply chain visibility and decision-making efficiency. Due to the geographical dispersion of forest resources and the long production cycles of forestry industries, information asymmetry often limits effective coordination among supply chain participants. Establishing integrated information platforms and improving data-sharing mechanisms can enable enterprises to better monitor resource availability, market changes, and operational risks. This can support more timely responses to unexpected disruptions.

Second, supply chain actors should develop stronger collaborative coordination mechanisms. Forestry supply chains involve multiple stakeholders, including forest owners, processing enterprises, logistics providers, and government agencies. Improving resilience requires moving beyond individual organizational interests toward collective coordination. Enterprises can enhance cooperation through long-term partnership arrangements, joint planning mechanisms, and shared risk-management strategies.

Third, policymakers should pay greater attention to institutional adaptation capability when designing forestry industry policies. Since forestry activities are closely associated with environmental regulations, resource management policies, and regional development strategies, rigid institutional arrangements may reduce supply chain flexibility. Adaptive policy frameworks that encourage cooperation, information exchange, and organizational adjustment can improve the resilience of forestry supply chains.

Finally, forestry enterprises should improve their resource integration capability by developing flexible resource allocation mechanisms. During periods of disruption, the ability to reorganize production capacity, logistics resources, and stakeholder relationships determines whether supply chains can maintain continuity. Therefore, resource integration should be considered a strategic capability rather than merely an operational activity.

The framework suggests that building resilient forestry supply chains requires a shift from reactive risk management toward proactive governance capability development. By strengthening coordination, adaptation, information integration, and resource utilization, forestry industries can improve their ability to withstand uncertainty and achieve long-term sustainable development.

5. Conclusion

Forestry industries face increasing uncertainty arising from institutional changes, environmental risks, resource constraints, and market fluctuations. In this context, improving supply chain resilience requires more than operational flexibility; it requires effective governance capabilities that enable coordination, adaptation, and resource reconfiguration among supply chain actors.

This study develops a conceptual framework to explain the relationship between governance capability and supply chain resilience in forestry industries. By integrating collaborative governance theory and supply chain management theory, the study identifies governance capability as a multidimensional capability composed of information integration, collaborative coordination, institutional adaptation, and resource integration capabilities. These capabilities provide the foundation for forestry supply chains to anticipate disruptions, maintain continuity, and recover from external shocks.

The study contributes to existing literature by shifting attention from resilience as a reactive response outcome toward resilience as a governance capability-driven process. It extends supply chain resilience research into resource-based industries and highlights the importance of collective governance mechanisms in improving adaptive capacity. For forestry practitioners and policymakers, the framework emphasizes the need to strengthen information-sharing systems, collaborative networks, adaptive institutional arrangements, and resource coordination mechanisms.

Future research may further validate the proposed framework through empirical studies across different forestry regions and resource-based industries. Quantitative approaches, comparative case studies, and longitudinal research could provide additional evidence regarding the specific mechanisms through which governance capability enhances supply chain resilience.

References

- [1] Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, 18(4), 543–571. <https://doi.org/10.1093/jopart/mum032>
- [2] Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. *Journal of Operations Management*, 29(3), 163–180. <https://doi.org/10.1016/j.jom.2010.12.008>
- [3] Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *The International Journal of Logistics Management*, 15(2), 1–14. <https://doi.org/10.1108/09574090410700275>
- [4] Dubey, R., Gunasekaran, A., Childe, S. J., Bryde, D. J., Giannakis, M., Foropon, C., Roubaud, D., & Hazen, B. T. (2021). Big data analytics and artificial intelligence pathway to operational performance under the effects of entrepreneurial orientation and environmental dynamism: A study of manufacturing organisations. *International Journal of Production Economics*, 226, 107599. <https://doi.org/10.1016/j.ijpe.2020.107599>
- [5] Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory*, 22(1), 1–29. <https://doi.org/10.1093/jopart/mur011>

- [6] Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 28(1), 58–71. <https://doi.org/10.1016/j.jom.2009.06.001>
- [7] Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78–104. <https://doi.org/10.1080/09692290500049805>
- [8] Ivanov, D. (2021). Supply chain viability and the COVID-19 pandemic: A conceptual and formal generalisation of four major adaptation strategies. *International Journal of Production Research*, 59(12), 3535–3552. <https://doi.org/10.1080/00207543.2021.1890852>
- [9] Ivanov, D. (2023). The Industry 5.0 framework: Viability-based integration of supply chain networks and ecosystems. *International Journal of Production Research*, 61(5), 1685–1700.
- [10] Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business Logistics*, 22(2), 1–25. <https://doi.org/10.1002/j.2158-1592.2001.tb00001.x>
- [11] Ponomarev, S. Y., & Holcomb, M. C. (2009). Understanding the concept of supply chain resilience. *The International Journal of Logistics Management*, 20(1), 124–143. <https://doi.org/10.1108/09574090910954873>
- [12] Scholten, K., & Schilder, S. (2015). The role of collaboration in supply chain resilience. *Supply Chain Management: An International Journal*, 20(4), 471–484. <https://doi.org/10.1108/SCM-11-2014-0386>
- [13] Sheffi, Y., & Rice, J. B. (2005). A supply chain view of the resilient enterprise. *MIT Sloan Management Review*, 47(1), 41–48.
- [14] Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- [15] Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- [16] Wieland, A., & Wallenburg, C. M. (2013). The influence of relational competencies on supply chain resilience: A relational view. *International Journal of Physical Distribution & Logistics Management*, 43(4), 300–320. <https://doi.org/10.1108/IJPDLM-08-2012-0243>
- [17] Wieland, A. (2021). Dancing the supply chain: Toward transformative supply chain management. *Journal of Supply Chain Management*, 57(1), 58–73. <https://doi.org/10.1111/jscm.12248>
- [18] Zsidisin, G. A., & Wagner, S. M. (2010). Do perceptions become reality? The moderating role of supply chain resiliency on disruption occurrence. *Journal of Business Logistics*, 31(2), 1–20.