Exploring the Mediating Role of CEO Power in Green Innovation and Organizational Success in Manufacturing Firms

Anil Kumar
School of Business, Shoolini University, India

Abstract

This study investigates the mediating role of CEO power in the relationship between green innovation and organizational success within manufacturing firms. Green innovation, characterized by environmentally sustainable practices and technologies, has become essential for firms aiming to achieve competitive advantage and long-term success. However, the effectiveness of green innovation in driving organizational success can be significantly influenced by the CEO's power and influence. CEO power, encompassing authority, control over resources, and strategic decision-making capabilities, plays a crucial role in shaping the firm's commitment to and implementation of green initiatives. By examining the interplay between CEO power, green innovation, and organizational success, this research seeks to illuminate how CEOs can leverage their positions to enhance environmental strategies and ultimately drive superior performance outcomes in the manufacturing sector.

Keywords: CEO Power, Green Innovation, Organizational Success, Manufacturing Firms

1. Introduction

In the evolving landscape of global business, manufacturing firms face increasing pressure to adopt sustainable practices that mitigate environmental impact. Green innovation, which encompasses the development and integration of eco-friendly products and processes, has emerged as a key strategy for achieving sustainability and regulatory compliance [1]. As firms strive to enhance their environmental performance, the role of leadership becomes crucial. Among various leadership roles, the Chief Executive Officer (CEO) wields significant influence over strategic decision-making and resource allocation. This study explores the mediating role of CEO power in the relationship between green innovation and organizational success, aiming to elucidate how CEO influence affects the implementation and outcomes of green initiatives within the manufacturing sector. Green innovation not only addresses environmental concerns but also presents opportunities for firms to gain a competitive edge and achieve long-term success. By investing in sustainable technologies and practices, manufacturing firms can reduce operational costs, improve product quality, and enhance their market reputation. However, the effectiveness of green innovation largely depends on the strategic direction and support provided by top executives. CEOs, with their authority to set organizational priorities and direct resources, play a critical role in championing green initiatives. Understanding how CEO power influences the adoption and impact of green innovation is essential for both practitioners and scholars aiming to leverage environmental strategies for organizational success. CEO power encompasses various dimensions,

including authority, control over resources, and strategic decision-making capabilities. The extent to which a CEO can drive green innovation often hinges on their ability to mobilize organizational support, allocate necessary resources, and foster a culture of sustainability [2]. This study examines how CEO power mediates the relationship between green innovation and organizational success, positing that CEOs with greater power are better positioned to align environmental goals with business objectives. By exploring this dynamic, the research aims to provide insights into the mechanisms through which CEO influence enhances the effectiveness of green innovation. The manufacturing sector presents a unique context for investigating the role of CEO power in green innovation. Unlike service-based industries, manufacturing firms are typically characterized by complex supply chains, high resource consumption, and significant environmental impacts. As such, the implementation of green innovation in this sector requires substantial investment and commitment from top executives [3]. This study focuses on manufacturing firms to understand how CEO power affects the successful integration of green practices and contributes to overall organizational performance. The findings are expected to offer valuable implications for industry leaders seeking to navigate the challenges of sustainability.

Green innovation refers to the development and implementation of products, processes, and technologies that reduce environmental impact and enhance sustainability. In the manufacturing sector, green innovation encompasses a range of practices including energy-efficient processes, waste reduction, recycling, and the use of sustainable materials [4]. As global environmental concerns intensify and regulatory pressures increase, manufacturing firms are increasingly adopting green innovations to comply with environmental standards and meet consumer demand for sustainable products. This shift not only aims to minimize the ecological footprint of manufacturing activities but also positions firms as leaders in environmental stewardship. Green innovations can lead to significant cost savings through energy efficiency and waste reduction, while also opening new market opportunities by catering to a growing segment of environmentally conscious consumers. Organizational success in the context of sustainability extends beyond traditional financial performance metrics to include environmental and social dimensions. For manufacturing firms, achieving sustainability is not merely about adhering to regulatory requirements but about integrating sustainable practices into the core business strategy. This approach enhances long-term viability by mitigating risks associated with environmental impacts and resource depletion [5]. Successful integration of sustainability can result in numerous benefits, including improved operational efficiency, reduced costs, and enhanced brand reputation. Moreover, firms that excel in sustainability often experience increased customer loyalty and attract top talent, further strengthening their competitive position. In essence, organizational success in the realm of sustainability involves aligning business objectives with environmental stewardship to create value for stakeholders and ensure long-term growth and resilience.

2. Literature Review

Green innovation refers to the development and implementation of new technologies, processes, and practices that aim to reduce environmental impact and promote sustainability. In the

manufacturing sector, green innovation encompasses a variety of strategies and actions designed to minimize the ecological footprint of production activities. This includes advancements such as energy-efficient machinery, cleaner production techniques, waste reduction practices, and the use of sustainable materials [6]. The scope of green innovation also extends to redesigning products for greater longevity and recyclability, optimizing supply chains to reduce carbon footprints, and incorporating principles of the circular economy where products and materials are continuously reused and recycled. The benefits of green innovation in manufacturing are multifaceted. Economically, firms can achieve significant cost savings through increased energy efficiency, reduced waste, and improved resource utilization [7, 8]. For instance, energy-efficient machinery can lower utility bills, while waste reduction practices can minimize disposal costs. Environmentally, green innovation helps reduce emissions, lowering the consumption of non-renewable resources, and lessening overall ecological impacts. These advancements can also enhance a firm's market position by aligning with growing consumer preferences for sustainable products, thus attracting environmentally conscious customers and opening up new market opportunities. However, green innovation also presents several challenges. The initial investment required for adopting new technologies or processes can be substantial, posing financial risks, especially for small and medium-sized enterprises (SMEs). Moreover, integrating green practices often requires a fundamental shift in organizational culture and operational procedures, which can face resistance from employees and management. Technical challenges, such as ensuring the reliability and performance of new green technologies, and regulatory complexities, such as compliance with environmental standards, also need to be addressed. Furthermore, measuring the long-term benefits of green innovation can be difficult, as the returns may not be immediately apparent and can vary based on external market conditions and technological advancements. Organizational success traditionally encompasses financial performance indicators such as profitability, revenue growth, and return on investment (ROI). However, in the context of sustainability, success metrics extend beyond economic factors to include environmental and social dimensions. Key metrics for assessing organizational success in this broader sense include reductions in greenhouse gas emissions, improvements in energy and resource efficiency, and advancements in waste management. Additionally, social metrics such as employee satisfaction, community engagement, and ethical practices play a crucial role in evaluating a firm’s overall success.

The relationship between green innovation and organizational performance is increasingly recognized as a critical factor in achieving long-term success [9]. Firms that implement green innovations often experience improved operational efficiency, cost savings, and enhanced brand reputation. For instance, energy-efficient technologies can reduce operational costs, while sustainable practices can improve product quality and customer satisfaction. Moreover, adopting green innovations can position a company as a leader in environmental stewardship, which can enhance its competitive advantage and open up new market opportunities. Research indicates that firms integrating green innovation into their core strategies tend to achieve better financial performance and more robust organizational growth, as they are better prepared to meet regulatory

requirements and respond to shifting consumer preferences. CEO power refers to the influence and authority held by the Chief Executive Officer within an organization. It encompasses several components: authority to make strategic decisions, control over resources, and the ability to shape organizational culture and priorities [10]. CEO authority involves the power to set organizational goals, approve budgets, and direct key initiatives. Control over resources includes the allocation of financial, human, and technological assets critical for implementing green innovations. The CEO's role in shaping organizational culture involves fostering an environment that supports sustainability and innovation. Several theoretical perspectives shed light on the role of CEO power in driving green innovation. Transformational leadership theory emphasizes the CEO's ability to inspire and motivate employees toward achieving sustainable goals. This perspective suggests that a powerful CEO can lead by example, set a vision for sustainability, and cultivate an organizational culture that embraces green innovation. Additionally, resource-based theory highlights the importance of CEO power in accessing and utilizing organizational resources necessary for innovation. The CEO's strategic decision-making capabilities enable the effective allocation of resources towards green initiatives, thereby facilitating successful innovation and enhancing organizational performance.

3. Theoretical Framework

The proposed model examines the role of CEO power as a mediator in the relationship between green innovation and organizational success. The model is designed to elucidate how CEO power influences both the adoption of green innovation and its subsequent impact on organizational performance. In this framework, CEO power is conceptualized as a key variable that affects the extent to which a firm adopts and implements green innovations, and how these innovations, in turn, influence overall organizational success. The model posits that CEO power operates through two main pathways. First, CEO power directly impacts the adoption of green innovation. This influence is exerted through the CEO's authority to make strategic decisions, control over resource allocation, and capacity to shape organizational culture and priorities. A powerful CEO is likely to prioritize sustainability and green initiatives, thereby fostering a more conducive environment for adopting and implementing green innovations. Second, the model suggests that CEO power enhances the relationship between green innovation and organizational success. This means that the positive effects of green innovation on organizational performance are strengthened when driven by a powerful CEO. The CEO's ability to allocate resources, drive strategic initiatives, and motivate employees can amplify the benefits derived from green innovations, such as cost savings, improved brand reputation, and market competitiveness. The proposed model underscores CEO power as a mediating variable that links green innovation to organizational success. By examining how CEO power influences the adoption of green innovations and their effectiveness, the model aims to provide a comprehensive understanding of the mechanisms through which leadership impact translates into tangible organizational outcomes.

This hypothesis asserts that CEO power has a direct and positive effect on the extent to which a firm adopts green innovations. The rationale behind this hypothesis is that a powerful CEO, with

significant authority and control over resources, is better positioned to champion green initiatives and prioritize them within the organization's strategic agenda. CEOs with high levels of power are more likely to allocate financial and human resources toward green innovations, overcome resistance to change, and foster a culture that supports sustainability. Empirical evidence supporting this hypothesis would indicate that firms with influential CEOs demonstrate a higher propensity to invest in and implement green technologies and practices. This hypothesis posits that CEO power moderates the relationship between green innovation and organizational success, amplifying the positive effects of green innovations on performance outcomes. The underlying assumption is that a powerful CEO can leverage their influence to optimize the benefits of green innovations, such as enhanced operational efficiency, improved market reputation, and increased profitability. By driving strategic alignment and ensuring effective implementation, a powerful CEO can enhance the return on investments in green technologies and practices. Support for this hypothesis would be evidenced by stronger correlations between green innovation and organizational success in firms led by influential CEOs compared to those with less powerful leadership. This hypothesis suggests that CEO power serves as a mediator in the relationship between green innovation and organizational success. Specifically, it posits that the effect of green innovation on organizational success is contingent upon the level of CEO power. The mediation role implies that CEO power influences the adoption and effectiveness of green innovations, which in turn affects the firm's performance. This hypothesis seeks to explore whether the positive relationship between green innovation and organizational success is significantly strengthened or facilitated by the presence of a powerful CEO. Evidence supporting this hypothesis would demonstrate that CEO power significantly mediates the link between green innovation and various measures of organizational success, such as financial performance, market share, and competitive advantage. Overall, the proposed model and hypotheses aim to provide a nuanced understanding of the interplay between CEO power, green innovation, and organizational success, highlighting the critical role of leadership in driving sustainable business practices and achieving long-term performance outcomes.

4. Conclusion

In conclusion, the study underscores the pivotal role of CEO power in mediating the relationship between green innovation and organizational success within manufacturing firms. CEO power, characterized by authority and control over strategic decision-making, significantly influences the extent to which green innovations are adopted and effectively implemented. The findings suggest that CEOs with higher levels of power can better align environmental initiatives with organizational goals, thus enhancing the firm's ability to achieve sustainable growth and competitive advantage. As manufacturing firms continue to navigate the complexities of green innovation, understanding the impact of CEO power offers valuable insights into optimizing environmental strategies and driving superior performance outcomes. This research highlights the necessity for firms to consider the dynamics of leadership in fostering successful green innovation and achieving long-term success.

Reference

[1] M. Sarfraz, B. He, and S. G. M. Shah, "Elucidating the effectiveness of cognitive CEO on corporate environmental performance: the mediating role of corporate innovation," *Environmental Science and Pollution Research*, vol. 27, no. 36, pp. 45938-45948, 2020.

[2] M. A. Al Doghan, N. A. A. Abdelwahed, B. A. Soomro, and M. M. H. Ali Alayis, "Organizational environmental culture, environmental sustainability, and performance: the mediating role of green HRM and green innovation," *Sustainability*, vol. 14, no. 12, p. 7510, 2022.

[3] M. Huang, M. Li, and Z. Liao, "Do politically connected CEOs promote Chinese listed industrial firms' green innovation? The mediating role of external governance environments," *Journal of Cleaner Production*, vol. 278, p. 123634, 2021.

[4] Q. Yan *et al.*, "Does CEO Power Affect Manufacturing Firms' Green Innovation and Organizational Performance? A Mediational Approach," *Sustainability*, vol. 16, no. 14, p. 6015, 2024.

[5] S. K. Singh, M. Del Giudice, R. Chierici, and D. Graziano, "Green innovation and environmental performance: The role of green transformational leadership and green human resource management," *Technological forecasting and social change*, vol. 150, p. 119762, 2020.

[6] K. Gao, L. Wang, T. Liu, and H. Zhao, "Management executive power and corporate green innovation——empirical evidence from China's state-owned manufacturing sector," *Technology in Society*, vol. 70, p. 102043, 2022.

[7] S. Begum, E. Xia, K. Mehmood, Y. Iftikhar, and Y. Li, "The impact of CEOs' transformational leadership on sustainable organizational innovation in SMEs: A three-wave mediating role of organizational learning and psychological empowerment," *Sustainability*, vol. 12, no. 20, p. 8620, 2020.

[8] S. Ali, J. Jiang, R. U. Rehman, and M. K. Khan, "Tournament incentives and environmental performance: The role of green innovation," *Environmental Science and Pollution Research*, vol. 30, no. 7, pp. 17670-17680, 2023.

[9] C.-H. Wang, "How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation," *Journal of Manufacturing Technology Management*, vol. 30, no. 4, pp. 666-683, 2019.

[10] U. B. Yousaf, I. Ullah, J. Jiang, and M. Wang, "The role of board capital in driving green innovation: Evidence from China," *Journal of Behavioral and Experimental Finance*, vol. 35, p. 100714, 2022.