Research Paper

EPRA International Journal of Economic and Business Review-Peer Reviewed Journal
Volume - 12, Issue - 3, March 2024 | e-ISSN: 2347 - 9671| p- ISSN: 2349 – 0187

SJIF Impact Factor (2024): 8.808 || ISI Value: 1.433 || Journal DOI URL: https://doi.org/10.36713/epra2012

RELATIONSHIP BETWEEN ECO-EFFICIENCY AND FIRM VALUE: A LITERATURE REVIEW

[1]Sandeep Kumar Patra, [2]Prof. Prabodha Kumar Hota
[1]Research Scholar, P.G. Department of Commerce, Utkal University
[2]Head of the Department, P.G. Department of Commerce, Utkal University

ABSTRACT

DOI No: 10.36713/epra16076 Article DOI: https://doi.org/10.36713/epra16076

This paper investigates the intricate relationship between eco-efficiency and firm value, exploring how eco-efficient practices contribute to firm value. Drawing from a comprehensive review of literature, the study delves into theoretical frameworks such as the natural-resource-based view and stakeholder theory, elucidating their relevance in understanding this relationship. Findings reveal a nuanced interplay between eco-efficiency and firm value, with moderating factors like profitability and leverage shaping the outcome. Additionally, eco-innovation emerges as a key mediator, influencing the relationship between firm resources, competitive advantages, and environmental impacts. While some studies report a positive association between eco-efficiency and firm value, others highlight complexities and variations across industries and contexts. Overall, this research underscores the importance of considering contextual factors and industry dynamics in comprehensively understanding the eco-efficiency-firm value nexus.

KEY WORDS: ***Eco-Efficiency, Firm Value, Eco-Innovation***

I. INTRODUCTION

The concept of eco-efficiency was first described by Schaltegger and Sturm (1989) and widely publicized in 1992 in Changing Course (Schmidheiny 1992), a publication of the World Business Council for Sustainable Development (WBCSD) (Ehrenfeld, 2005). Eco-efficiency is a fundamental concept in modern business practices, with the goal of optimizing operational efficiency while minimizing environmental impact. It involves utilizing fewer resources to drive economic activity and mitigating adverse effects on the environment (Al-Najjar & Anfimiadou, 2011). By concentrating on waste reduction and sustainable development, eco-efficiency provides a quantitative framework for businesses to increase value creation while reducing resource consumption (Caiado et al., 2017). This approach is in line with the objective of decoupling economic growth from resource use and pollution (Benoit et al., 2018). Eco-efficiency extends beyond enhancing operational performance to integrating sustainability across the supply chain. Additionally, eco-efficiency serves as a tool for analyzing sustainability, illustrating the empirical relationship between environmental cost/value and impact on economic activities (Huppes & Ishikawa, 2005). Within the realm of corporate sustainability, eco-efficiency significantly contributes to enhancing social and financial performance. It is acknowledged as a strategy to enhance the social responsibility of businesses and public sectors, underscoring the significance of environmental management (Suh et al., 2014). Furthermore, eco-efficiency acts as a link between economic activities and environmental considerations, promoting resource efficiency and reducing environmental strain (Zahedi, 2012).

II. OBJECTIVE OF THE STUDY

This paper aims to achieve the following objectives, 1) To review existing literature on eco-efficiency and its relationship with firm value. 2) To identify and analyse the key theoretical frameworks explaining the relationship between eco-efficiency initiatives and firm value. 3) To explore moderating and mediating factors that may influence the observed relationship between eco-efficiency and firm value.

III. RELATED THEORIES

A natural-resource-based view of the firm focuses on a firm's relationship to the natural environment, contributing to sustained competitive advantage through pollution prevention, product stewardship, and sustainable development (Hart, 1995). RBV can be applied to analyse how eco-efficient practices, such as environmental management systems and green technologies, contribute to firms' resource portfolios and ultimately influence their value.Stakeholder theory suggests that ownership dispersion, industry sensitivity, and management's concern for the environment significantly influence the decision to incorporate superior environmental activities in corporate strategic plans (Elijido-Ten, 2007). Eco-efficiency initiatives can be seen to manage relationships with stakeholders by addressing environmental concerns and creating shared value. Institutional theory examines how organizations conform to institutional norms and pressures in their environments. Eco-efficiency practices may be driven by institutional pressures such as government regulations, industry standards, and societal expectations regarding environmental sustainability (Lui etal., 2021). Legitimacy theory suggests that organizations seek to maintain legitimacy by conforming to societal norms and expectations. Firms may adopt eco-efficient practices to gain or maintain legitimacy in the eyes of stakeholders, thereby enhancing their long-term viability and value (Mousa et al., 2015).

IV. LITERATURE REVIEW

Eco-efficiency stands as a cornerstone in modern business paradigms, embodying the philosophy of accomplishing more while exerting lesser environmental strain (Hart, 1995). Its essence lies in the strategic amalgamation of environmental concerns into business operations to curtail resource consumption, minimize waste generation, and alleviate pollution, all while optimizing productivity and profitability (Porter & van der Linde, 1995). This strategic shift towards eco-efficiency has garnered increasing attention for its potential to augment firm value through multifaceted pathways (King & Lenox, 2001). Foremost among these pathways is the enhancement of financial performance, a direct consequence of eco-efficient practices (Hart, 1995). Moreover, eco-efficient firms tend to magnetize environmentally conscious consumers and investors, thereby gaining a competitive edge in the marketplace (Berrone & Gomez-Mejia, 2009). Furthermore, initiatives geared towards eco-efficiency can bolster firm reputation and brand image, thereby fostering consumer loyalty and influencing purchasing behavior positively (Delmas & Pekovic, 2013). In addition to bolstering financial performance and brand reputation, eco-efficiency can serve as a shield against regulatory risks and liabilities, thus amplifying firm value (Bansal & Roth, 2000). By proactively addressing environmental concerns and adhering to regulations, firms can sidestep hefty penalties, legal entanglements, and reputational harm associated with non-compliance (Aragón-Correa et al., 2008). Overall, the extant literature underscores a symbiotic relationship between eco-efficiency and firm value, substantiated by observed improvements in financial performance, enhanced brand reputation, diminished regulatory risks, and heightened innovation (Klassen & McLaughlin, 1996).

Moreover, eco-efficiency not only catalyses economic value while curbing ecological harm but also garners support from partnerships, tax incentives, and regulatory frameworks (DeSimone & Popoff, 2000). Firms embracing eco-efficient strategies often witness an uptick in market value, thanks to the concurrent reduction in costs and augmentation of profits (Sinkin et al., 2008). Notably, eco-efficient enterprises tend to command higher market valuations compared to their environmentally indifferent counterparts, as evidenced in the UK context (Al-Najjar & Anfimiadou, 2012). The nexus between eco-efficiency, operational performance, and market value has only strengthened over time, corroborating the notion of its enduring impact (N. Guenster et al., 2011). However, challenges persist, with the effective utilization of environmental resources posing a complementary, rather than an instrumental, facet to capital efficiency, thereby complicating the simplistic link between corporate eco-efficiency and value creation (F. Figge et al., 2013). Furthermore, empirical evidence supports the assertion that eco-efficiency, quantified through ISO 14001 ownership, correlates positively and significantly with a firm's financial performance (ROA), subsequently enhancing firm value (V. Safitri et al., 2021). Malaysian firms embracing eco-efficiency are seen to outperform their counterparts in terms of firm value (A. Che-Ahmad et al., 2016). Similarly, a favorable relationship is observed between efficiency and market value among manufacturing sector firms, underscoring the premium placed on superior management practices that optimize resource utilization (Kevin Amess et al., 2009). In the Indonesian context, eco-efficiency is found to exert a positive impact on financial performance, with reduced greenhouse gas emissions translating into enhanced financial outcomes for listed companies (Rochmawati Daud et al., 2023).

In the realm of sustainable business practices, the relationship between eco-efficiency and firm value is a topic of considerable interest and debate. While eco-product and process innovation may initially appear to have a negative impact on firm value, recent research suggests that their effects are more nuanced. Studies by Qiong Yao et al. (2019) indicate that interactions with factors such as regulation intensity, environmental agency pressure, and public sentiment can lead to positive outcomes for firm value. Moreover, the role of investment in research and development (R&D) in shaping eco-efficiency and firm value dynamics cannot be overlooked. Research by V. Safitri et al. (2019) suggests a positive correlation between R&D investment and both eco-efficiency and firm value, highlighting the strategic importance of innovation in driving sustainable business practices. However, environmental investment alone may not necessarily correlate with improvements in eco-efficiency and firm value, as indicated by the same study. Interestingly, the story becomes more complex when considering the impact of eco-efficiency implementation on firm value. While it may seem intuitive to assume a positive relationship, findings by Rika Septianingrum et al. (2022) challenge this notion, revealing a significant negative effect on firm value. However, the funding structure appears to play a pivotal role, with a significant positive effect on eco-efficiency's impact on firm value, suggesting that the financial mechanisms underpinning eco-efficiency initiatives are crucial determinants of their success. Amidst these complexities, moderating and mediating factors emerge as key players in shaping the eco-efficiency-firm value relationship. Studies by Danang Satrio et al. (2020) and N. Osazuwa et al. (2016) highlight the moderating influence of profitability and leverage, with profitability positively moderating the relationship between eco-efficiency and firm value. Additionally, eco-innovation is identified as a key mediator, influencing the relationship between firm-level resources, capabilities, and environmental impacts (Yajun Wang et al., 2016).

V. FINDINGS

The findings of this research paper provide valuable insights into the relationship between eco-efficiency and firm value, drawing from a comprehensive review of existing literature. Authors such as Hart (1995), Berrone & Gomez-Mejia (2009), and Bansal & Roth (2000) present evidence supporting a positive association between eco-efficiency and firm value. They highlight how eco-efficient practices contribute to improved financial performance, enhanced brand reputation, and reduced regulatory risks, thereby enhancing overall firm value. Conversely, studies by Yao et al. (2019), Safitri et al. (2019), and Septianingrum et al. (2022) report either a negative or insignificant relationship between eco-efficiency and firm value, emphasizing the nuanced nature of this association. Moreover, the research identifies moderating factors such as profitability and leverage, which influence the strength of the relationship between eco-efficiency and firm value. Additionally, eco-innovation emerges as a key mediating factor, mediating the relationship between firm-level resources, competitive advantages, and environmental impacts. These findings underscore the complexity of the eco-efficiency-firm value relationship and highlight the importance of considering contextual factors and industry-specific dynamics in understanding this relationship comprehensively.

VI. CONCLUSION

The literature review highlights the significant role of eco-efficiency in contemporary business practices and its implications for firm value. Eco-efficiency, characterized by optimizing operational efficiency while minimizing environmental impact, offers a promising avenue for firms to enhance value creation while reducing resource consumption. Through a comprehensive review of theoretical frameworks and empirical evidence, this paper has elucidated the multifaceted relationship between eco-efficiency initiatives and firm value. Despite the predominantly positive findings linking eco-efficiency to improved financial performance, brand reputation, regulatory compliance, and innovation, the literature also acknowledges potential challenges and contextual factors that may moderate or mediate this relationship.

VII. SCOPE FOR FUTURE RESEARCH

Despite these limitations, there are several avenues for future research that warrant exploration. Longitudinal studies tracking the dynamic relationship between eco-efficiency initiatives and firm value over time can provide insights into the long-term sustainability implications of such practices.Comparative analyses across different industries and sectors can shed light on sector-specific drivers, challenges, and outcomes of eco-efficiency strategies.Cross-country comparisons of eco-efficiency practices and their impacts on firm value can uncover cultural, institutional, and regulatory influences on sustainability performance.Further investigation into the mediating mechanisms linking eco-efficiency to firm value, such as environmental performance metrics and stakeholder engagement, can deepen our understanding of the underlying processes at work.

REFERENECES

1) *Al-Najjar, B., & Anfimiadou, A. (2012). Environmental Policies and Firm Value. Business Strategy and the Environment, 21, 49-59. https://doi.org/10.1002/BSE.713.*
2) *Amess, K., & Girma, S. (2009). Do Stock Markets Value Efficiency?. Wiley-Blackwell: Scottish Journal of Political Economy. https://doi.org/10.1111/j.14679485.2009.00486.x*
3) *Aragón-Correa, J. A., Hurtado-Torres, N., & Sharma, S. (2008). Proactive corporate environmental strategies: Myths and misunderstandings. Long Range Planning, 41(4), 405-419. https://www.sciencedirect.com/science/article/pii/S0024630107000106.*
4) *Atiningsih, S., & Setiyono, T. (2023). ECO-EFFICIENCY TERHADAP NILAI PERUSAHAAN DENGAN DIMEDIASI*

PROFITABILITAS DAN DIMODERASI FIRM SIZE. Balance : Jurnal Akuntansi dan Bisnis. https://doi.org/10.32502/jab.v8i1.5991.

5) *Bansal, P., & Roth, K. (2000). Why companies go green: A model of ecological responsiveness. Academy of Management Journal, 43(4), 717-736.*
6) *Benoit, S., Margni, M., Bouchard, C., & Pouliot, Y. (2018). Eco-efficiency applied to dairy processing: from concept to assessment. Environmental Management and Sustainable Development, 8(1), 1. https://doi.org/10.5296/emsd.v8i1.13607*
7) *Berrone, P., & Gomez-Mejia, L. R. (2009). Environmental performance and executive compensation: An integrated agency-institutional perspective. Academy of Management Journal, 52(1), 103-126.*
8) *Burnett, R.D., Skousen, C.J., & Wright, C.J. (2011). Eco-Effective Management: An Empirical Link between Firm Value and Corporate Sustainability. Accounting and The Public Interest, 11, 1-15.*
9) *Caiado, R., Dias, R., Mattos, L., Quelhas, O., & Filho, W. (2017). Towards sustainable development through the perspective of eco-efficiency - a systematic literature review. Journal of Cleaner Production, 165, 890-904. https://doi.org/10.1016/j.jclepro.2017.07.166*
10) *Che-Ahmad, A., & Osazuwa, N. (2016). Eco-efficiency and firm value of Malaysian firms. International Journal of Managerial and Financial Accounting. https://doi.org/10.1504/ijmfa.2015.074902.*
11) *Daud, R., Meutia, I., & Yuniarti, E. (2023). Eco-Efficiency And Financial Performance: An Evidence From Indonesian Listed Company (Using The Emissions Intensity Approach). Jurnal Reviu Akuntansi dan Keuangan. https://doi.org/10.22219/jrak.v13i1.23337.*
12) *Delmas, M. A., & Pekovic, S. (2013). Environmental standards and labor productivity: Understanding the mechanisms that sustain sustainability. Journal of Organizational Behavior, 34(2), 230-252.*
13) *DeSimone, L., & Popoff, F. (2000). Eco-Efficiency: The Business Link to Sustainable Development. International Journal of Sustainability in Higher Education, 1, 305-308. https://doi.org/10.1108/IJSHE.2000.1.3.305.5.*
14) *Ehrenfeld, J. (2005). Eco-efficiency: Philosophy, Theory, and Tools. Journal of Industrial Ecology, 9. https://doi.org/10.1162/108819805775248070.*
15) *Figge, F., & Hahn, T. (2013). Value Drivers of Corporate Eco-Efficiency: Management Accounting Information for the Efficient Use of Environmental Resources. Strategy & Social Policies eJournal. https://doi.org/10.1016/J.MAR.2013.06.009.*
16) *Guenster, N., Bauer, R., Derwall, J., & Koedijk, K. (2011). The Economic Value of Corporate Eco-Efficiency. ERN: Firm Behavior (IO: Empirical) (Topic).https://doi.org/10.1111/j.1468-036X.2009.00532.x.*
17) *Hart, S. (1995). A natural-resource-based view of the firm. Academy of Management Review, 20(4), 986-1014.*
18) *Henriques, I., &Sadorsky, P. (1999). The relationship between environmental commitment and managerial perceptions of stakeholder importance. Academy of Management Journal, 42(1), 87-99.*
19) *Huppes, G., & Ishikawa, M. (2005). A Framework for Quantified Eco-efficiency Analysis. Journal of Industrial Ecology, 9. https://doi.org/10.1162/108819805775247882Mousa, G.A., & Hassan, N.T. (2015). Legitimacy Theory and Environmental Practices: Short Notes. International journal of business, 02, 41-53.*
20) *Jo, H., Kim, H., & Park, K. (2016). Environmental Costs and Firm Value. Asia-Pacific Journal of Financial Studies, 45, 813-838.*
21) *Jové-Llopis, E., & Segarra-Blasco, A. (2018). Eco-Efficiency Actions and Firm Growth in European SMEs. Sustainability, 10, 281. https://doi.org/10.3390/SU10010281.*
22) *King, A., & Lenox, M. (2001). Does it really pay to be green? An empirical study of firm environmental and financial performance. Journal of Industrial Ecology, 5(1), 105-116.*
23) *Liu, A.K., Lo, C.K., Ngai, E.W., & Yeung, A.C. (2021). Forced to be green? The performance impact of energy-efficient systems under institutional pressures. International Journal of Production Economics, 239, 108213.*
24) *Porter, M., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. Journal of Economic Perspectives, 9(4), 97-118.*
25) *Rahmianingsih, A., & Malau, M. (2022). RESEARCH CARBON EMISSION DISCLOSURE AND FIRM VALUE: DOES ECO-EFFICIENCY MODERATE THIS RELATIONSHIP?*
26) *Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. Academy of Management Journal, 40(3), 534-559.*
27) *Safitri, V., & Nani, D. (2021). DOES GOOD CORPORATE GOVERNANCE AND ECO–EFFICIENCY REALLY CONTRIBUTE TO FIRM VALUE? AN EMPIRICAL STUDY IN INDONESIANSTATE-OWNED ENTERPRISES (SOES). , 15, 73-88. https://doi.org/10.29259/JA.V15I1.12526.*
28) *Safitri, V., Sari, L., & Gamayuni, R. (2019). Research and Development, Environmental Investments, to Eco-Efficiency, and Firm Value. The Indonesian Journal of Accounting Research. https://doi.org/10.33312/ijar.446.*
29) *Satrio, D., & Kunto, S. (2020). Relationship Between Eco-Efficiency on Firm Value Moderated with Profitability and Leverage. EkBis: Jurnal Ekonomi dan Bisnis.*

30) *Septianingrum, R. (2022). The influence of eco-efficiency on firm value with funding structure as a moderating variable. JAE (JURNAL AKUNTANSI DAN EKONOMI). https://doi.org/10.29407/jae.v7i1.16165.*
31) *Shadbegian, R., & Gray, W. B. (2005). Pollution abatement expenditures and plant-level productivity: A production function approach. The Review of Economics and Statistics, 87(4), 471-481.*
32) *Sinkin, C., Wright, C., & Burnett, R. (2008). Eco-efficiency and firm value. Journal of Accounting and Public Policy, 27, 167-176. https://doi.org/10.1016/J.JACCPUBPOL.2008.01.003.*
33) *Suh, Y., Seol, H., Bae, H., & Park, Y. (2014). Eco-efficiency based on social performance and its relationship with financial performance. Journal of Industrial Ecology, 18. https://doi.org/10.1111/jiec.12167.*
34) *Wang, Y., Font, X., & Liu, J. (2020). Antecedents, mediation effects and outcomes of hotel eco-innovation practice. International Journal of Hospitality Management, 85, 102345. https://doi.org/10.1016/J.IJHM.2019.102345.*
35) *Yao, Q., Liu, J., Sheng, S., & Fang, H. (2019). Does eco-innovation lift firm value? The contingent role of institutions in emerging markets. Journal of Business & Industrial Marketing. https://doi.org/10.1108/JBIM-06-2018-0201.*
36) *Zahedi, S. (2012). Green transportation a more eco-efficient option. Journal of Social and Development Sciences, 3(7), 223-228. https://doi.org/10.22610/jsds.v3i7.706.*