

The Impact of Green Factors and digitalization to Firm Value and Firm Performance: Evidence from Micro, Small and Medium-Sized Enterprises (MSMEs) in Medan City

Pasca Dwi Putra¹, Andri Zainal², Khairunnisa Harahap³, Ivo Selvia Agusti⁴, Hendra Saputra⁵, Fenny Afrida⁶

{sgacenter@gmail.com¹, andrizainal@unimed.ac.id¹, nisaharahap@yahoo.com⁴, hensap@unimed.ac.id⁵, fennyafrika@gmail.com⁶ }

Department of Business Education, Faculty of Economics, Universitas Negeri Medan, Indonesia 20221¹, Department of Accounting Education, Faculty of Economics, Universitas Negeri Medan, Indonesia 20221², Department of Accounting, Faculty of Economics, Universitas Negeri Medan, Indonesia 20221³, Department of Business Education, Faculty of Economics, Universitas Negeri Medan, Indonesia 20221⁴, Department of Accounting Education, Faculty of Economics, Universitas Negeri Medan, Indonesia 20221⁵, Department of Accounting, Sekolah tinggi ilmu ekonomi eka prasetya, Indonesia 20212⁶

Abstract. The rapid growth of small and medium-sized enterprises (MSMEs) is resulting in intense competition in the market. Various strategies have been developed to gain a competitive edge over other entities. Additionally, the environmental damage caused by excessive resource use and resulting pollution is becoming more severe. Therefore, the aim of this study is to identify the factors that influence the performance of MSMEs through environmental stewardship. The variables used in this research include green accounting, environmental innovation, sustainable entrepreneurship, digitalization, and firm value in relation to the performance of MSMEs in Medan City. This study involved 57 MSMEs in Medan City and hypotheses were tested using SEM. The results of the research indicate that integrating green accounting and environmental innovation practices can enhance company performance, while implementing sustainable business practices can increase the value of MSMEs. The study's conclusions imply that incorporating new environmental technologies and assuming corporate responsibility for the environment are associated with improved organizational performance.

Keywords: green accounting, green innovation, green entrepreneurship, digitalization, firm value, MSME performance

1. Introduction

In light of the 4.71 per cent economic growth observed in 2022, the opportunity exists to pursue initiatives aimed at enhancing the wellbeing of citizens. Furthermore, the contribution of Micro,

Small and Medium Enterprises (MSMEs) to the growth of the city of Medan following the Covid-19 pandemic reached 38,343, which represents a significant step towards improving the welfare of the local population. Moreover, the contribution of MSMEs to community welfare enhancement has been elucidated. A number of studies have indicated that MSMEs play a significant role in economic development, social progress, and increased innovation [1]–[3]. The enhancement of MSMEs is also facilitated by an expansion of both human and natural resources, which become instrumental in attaining success and sustainability. Moreover, the implementation of these policies is anticipated to diminish reliance on large companies and optimise the utilisation of a country's resources, which will have an impact on reducing poverty, inequality, increasing peace, and justice [4].

The long-term sustainability of MSMEs necessitates the availability of natural resources of consistently high quality. The current issue is that the proliferation of micro, small, medium and large industries has a detrimental effect on the environment, including pollution of the air, soil, water and noise. Consequently, it is of paramount importance to innovate and utilise resources in a manner that ensures the continued sustainability of business operations while reducing their impact on the environment. According to data from BPS, energy consumption has continued to rise, with the production of CO₂e reaching 595,665 thousand tonnes in 2018 and 638,808 thousand tonnes in 2019 [5]. Furthermore, the generation of waste also contributes to the emission of greenhouse gases, with an increase of 5.25% from 2018. Furthermore, the increase in plastic waste represents a significant challenge to environmental sustainability [6]. Therefore, it is important to increase the economic by awareness to environmental conditions.

The company's objective is to enhance performance by increasing profits. Similarly, with MSMEs, various strategies are employed to ensure survival and boost profits. These include increasing production and sales, with the aim of achieving the desired profit. However, this approach has a negative influence to the environment. The use of excessive resources in the production process has an adverse effect on the environment. One such example is the production process, whereby MSMEs dispose of waste that has an impact on environmental damage. Finally, the communities that live in the vicinity of the business are the ones who experience the direct impact. Disturbed communities will demand that companies care about the environmental damage that occurs, which in turn affects to firm value. Furthermore, the use of natural resources without control also has an impact on environmental damage and the preservation of biodiversity around it.

In particular, MSMEs that depend on the surrounding resources will attempt to fulfil their raw material requirements by overexploiting, which will have an impact on the scarcity of resources in the future. This research focuses on the factors that affect the value of MSMEs, which in turn affect the improvement of company performance as measured by the increase in profits obtained each period. The issue of environmental damage has the potential to impact the company's image and profitability. The company's operations produce waste that affects the environment and society. This can lead to a negative image. On the other side, the MSME sector that has not prioritised environmental sustainability presents a chance to enhance performance and achieve competitive advantages. The growing number of MSMEs signals intensifying competition.

The significance of innovation and management in MSMEs will provide encouragement and competitive advantages that have an impact on the profitability obtained. There are several studies that affect performance as seen from concern for the environment. One of them is green accounting, which involves the charging of environmental costs in the production process. The

concept of green accounting is that companies charge environmental costs in every production process that is carried out [7], [8].

In light of the above considerations, companies must now be held responsible for the improvement of the environment that has been impacted by their operations. Previously, there was a dearth of awareness regarding the concept of environmental responsibility. Consequently, the costs of environmental damage were incurred against company profits. This has resulted in many companies being reluctant to bear these costs, on the grounds that they do not consider these activities to contribute to the company's bottom line. The application of green accounting enables the company to avoid the necessity for the preparation of funds with a view to improving the environment. This is because the costs of environmental damage are already borne by each product.

Consequently, it is anticipated that the company will experience enhanced developmental and expansion prospects, as well as enhanced image and profits. This is supported by the findings of [9]–[13]. A growing number of parties, as identified by [2], are encouraging businesses to embrace innovation. This is largely attributed to heightened competition and the growing demand from consumers. This innovation provides a description of changes in the processes and products produced by the company with respect to environmental conditions [14]. These include the use of water, energy, and waste treatment in the production of environmentally friendly products [15]. The implementation of green innovation is anticipated to enable companies to develop products with competitive advantages and renewability. Such products will enable them to compete effectively in their markets. Green innovation initiatives are not solely the preserve of large corporations; they are also being implemented by medium-sized and smaller enterprises. These companies are adopting green innovation strategies in the form of more responsible management of raw materials, energy and waste.

The application of green entrepreneurship has attracted increasing interest from the general public, as it is designed to protect the environment [14], [16], [17]. This encompasses the products produced, the manufacturing process and marketing strategies that are environmentally conscious. However, the application of green entrepreneurship is yet to be embraced by a significant number of businesses due to the perceived need for considerable funding in the short term in order to achieve company profits [18]–[20]. However, in the long term, the application of this concept enables companies to compete by creating new products that can generate profits and competitive advantages over other companies [21], [22].

A further factor influencing company performance is digitalization. The swift advancement of technology compels every enterprise to implement digital technologies in every area. The ease and speed with which information is generated empower companies to compete effectively with rivals and make informed choices. Ultimately, the deployment of digital technologies is anticipated to facilitate the development of an effective strategic plan and broader marketing initiatives, thereby enhancing company value and performance. Technological advances have a positive impact on entrepreneurship [23]. The digitalization of umkm enables the development of business and expansion of networks, thereby improving the image of the enterprise [24]. This is corroborated by research [25] which posits that the significance of sustainable entrepreneurship can be achieved through the implementation of dynamic strategies that result in innovation and enhanced marketing [26].

2. Method

This research is based on the Natural Resource-Based View. This theory was first introduced by [27]. The theory argues that companies that prioritise environmental and social issues will be able to compete. This is evidenced by the findings of [27], [28]. The theory focuses on how companies prevent environmental damage in the form of pollution prevention, environmentally friendly products, and improving environmental sustainability. Achieving this goal necessitates the deployment of appropriate technology in the conduct of processes and the production of environmentally friendly products. Technology can be leveraged to enhance the efficiency of product production by reducing the time required for completion and optimizing the utilization of raw materials. Moreover, the application of technology can result in the creation of environmentally friendly products. This is due to the enhanced efficiency, cost-effectiveness and reduced risk of environmental and product damage that can be attained by utilizing technology to manage the supply of raw materials. As posited by [29], the application of technology necessitates the implementation of continuous strategies and invoicing methods to encourage efficiency. This theory asserts that competitive advantage arises from the utilisation of resources in the form of physical goods, advanced technology, expertise, knowledge, and innovation [30]. Through the effective and efficient utilisation of resources, organisational performance is expected to improve. As outlined by [31], companies committed to improving the environment must link with ecological practices, commitment and technology portfolios. Similarly, research conducted by [32] which analysed Australian companies demonstrated that concern for company performance is a key factor in driving ecological commitment. Conversely, indifference to ecology will have an effect on the firm's management performance.

Firm Performance

The fundamental objective of establishing a business is to generate profits. In order to achieve this, businesses must navigate the competitive landscape, which necessitates the development of an effective strategy. One of the key performance indicators is the increase in profit over time. An increase in profits is indicative of enhanced business performance. However, it is essential to consider a comparison indicator, given that expenses are likely to remain or decrease. It is anticipated that the increase in profit will enable the business to compete effectively and to develop its operations, thereby enhancing the prosperity of its owners. One type of business that is particularly susceptible to fluctuations in the market and to external factors is MSMEs. These companies are particularly vulnerable to the economics, social and political conditions.

Nevertheless, numerous developing and developed countries advocate the promotion of MSMEs as a business model, as they have a significant effect on community welfare and contribute significantly to the country's economy, thereby reducing unemployment [33]. This application also provides encouragement so that residents do not depend on companies and can strive to become independent. A number of factors affect the performance of MSMEs. One such factor is the impact of brand image on firm value, as demonstrated by research conducted by [34]–[36]. Furthermore, research conducted by [37] indicates that the implication of green entrepreneurship will improve the performance of industrial companies. Similarly, the implications of green accounting, whereby companies report to the public regarding their responsibilities to the environment, result in an increase in firm value and impact company performance [11], [12], [38], [39]. Furthermore, the utilisation of energy, materials and waste management in the context of green innovation has been demonstrated to influence firm value and performance [2]. Finally, the advent of digitalization in the provision of information and marketing has been shown to impact upon firm value and performance [40].

Firm Value

The value of a company is the primary factor that influences its performance, reflecting how consumers perceive the company's image and its products. Many companies are currently striving to boost their value by implementing effective strategies to introduce their products. One such strategy includes the company's commitment to environmental concerns, especially when its operations could have a negative effect on the environment. By the implementing corporate social responsibility (CSR) initiatives, companies can demonstrate their responsibility and contribution to environmental preservation. Additionally, using environmentally friendly raw materials can help reduce environmental and health risks, ensuring that the surrounding community is not adversely affected. This approach is expected to increase the company's value, as consumers will prefer environmentally friendly products. Moreover, the brand image also plays a significant role in increasing the company's value. A positive brand image instills public confidence in the company's products, leading to increased sales and a positive impact on its performance. The quality of a company's products and services, as reflected in its brand image, contributes to an increase in the company's value, ultimately leading to higher sales and positive effects on performance [34]. Research by [36] has shown that brand image has a positive impact on increasing sales, which [35] has demonstrated that brand image and reputation affect company sustainability. Based on the aforementioned findings, The next hypothesis can be developed.:

H1: Firm Value has a Significant Effect on MSME Performance

Green Accounting

The high growth of companies is found to be directly proportional to environmental damage [41]. The activities of companies, when carried out, result in pollution and environmental damage that also has a negative impact on the surrounding community, including health [42]–[44]. Consequently, the community and governments require attention and care to address these issues. In order to address these issues, governments in each country implement regulations limiting production activities that have a negative impact on environmental damage. One such regulation requires companies to set aside profits earned towards the repair of damaged environments.

Accountants, in preparing financial statements, introduce green accounting. The term "green accounting" is defined as a company's strategy for reporting its responsibility to the environment through the charging of environmental costs incurred during the production process. The company will not be harmed by the charge, but rather, its value will increase with a positive image of the environment. This, in turn, will lead to an increase in sales, which will have an effect on the firm's performance. Research conducted by [45] on companies in South Africa indicates that environmental accounting is positively correlated with company performance. The implementation of ecological accounting facilitates the achievement of organisational goals related to the improvement and reporting of ecological impacts in relation to environmental costs. One indicator of green accounting is the utilisation of environmental management accounting, which encompasses the assessment of all costs and benefits associated with operational process changes and their subsequent impact on the environment [46]. Businesses can utilize green accounting to effectively and efficiently manage and analyze the expenses associated with environmental preservation to achieve anticipated benefits and carry out environmental conservation activities. The presence of environmental concern within a community can be seen as a reflection of the values held by that community, which in turn has

an effect on the perceived value of a business. This, in turn, can have a positive impact on sales. Research conducted by [47] indicates that a business's management's concern for the environment is positively associated with an improvement in the business's overall performance. These findings are consistent with those of previous studies [7], [48]–[51], which have demonstrated a direct correlation between green accounting and company performance. Based on the preceding discussion, the following hypothesis can be formulated:

Hypothesis 2: Green accounting has a significant effect on firm value.

Hypothesis 3: Green accounting has a significant effect on MSME performance.

Green Innovation

The current environmental damage forces companies to develop an appropriate strategy so that the company can be sustainable [52]. In order to solve these problems, companies make green innovations which produce products and processes based on environmental preservation. Green innovation is defined as a company strategy in promoting the sustainability of its business through sustainable development practices and environmental protection [53]. Green innovation is defined as the utilisation of environmentally friendly raw materials, appropriate technology and production processes that do not result in environmental damage, and environmentally friendly marketing [15]. The protection of quality natural and human resources will provide improved performance, which will have a positive impact on the sustainability of the company [2]. A study conducted by [54] on hotel businesses in Malaysia revealed that the implementation of environmentally friendly innovations could enhance the quality of hotel products and services, thereby benefiting the health of the surrounding community.

This study was conducted on MSMEs, where the challenges of environmental degradation and global warming have an effect on the performance of MSMEs [55]. Consequently, the implementation of green innovations is anticipated to offer opportunities and competitive advantages in comparison to other businesses, through the utilisation of energy, waste treatment and environmentally friendly raw materials. The challenge for MSMEs is that they have not yet adopted environmentally friendly strategies such as the efficient use of energy and raw materials. Furthermore, the waste produced is a significant issue for MSMEs, which has an impact on environmental damage and ultimately gives a negative image to MSMEs. The implementation of green innovation is expected to result in a reduction in the use of energy that can damage the environment, waste generated, and environmentally friendly production processes [56]. MSMEs will produce environmentally friendly products and provide a positive image, which will encourage consumers to purchase products, thereby increasing company value and performance. Based on the aforementioned description, the following hypothesis can be constructed:

Hypothesis 4: Green innovation has a significant effect on firm value.

Hypothesis 5: Green innovation has a significant effect on MSME performance.

Green Entrepreneurship

Environmental issues are a significant concern for most companies, which is why they are competing to develop the optimal strategy for addressing these problems. One of the groups that stands to benefit from this competition is micro, small, and medium enterprises (MSMEs), which often lack sufficient knowledge about the negative impact of their business on the environment and how to solve the problem. One strategy that can be employed by implementing

green entrepreneurship, which is based on the preservation of natural resources [57]. This application has a positive impact on MSMEs because it provides a competitive advantage over other MSMEs and attracts consumers to purchase their products by producing process innovations and environmentally friendly products [58]. Green entrepreneurship is a condition where business owners diversify ideas and apply new concepts while maintaining the environment and society [33].

Conversely, micro, small and medium-sized enterprises (MSMEs) that aspire to implement this concept lack a clear understanding of environmentally friendly raw materials and production processes that do not damage the environment [59]. Consequently, such failures result in losses to the business, which in turn may lead to the bankruptcy of the company. Consequently, it is crucial to comprehend the concept of green entrepreneurship in MSMEs if one is to reap the benefits of enhanced processes and production, augmented value, and increased sales. The indicators of green entrepreneurship encompass not only environmental concepts but also social and economic factors. Research conducted by [60] indicates that the application of social entrepreneurship has a positive impact on social welfare and the achievement of company goals. Furthermore, the existence of green entrepreneurship is associated with a positive consumer perception and attitude towards the business [61], [62]. This viewpoint is also supported by [63], who posit that the application of green entrepreneurship will attract consumers to purchase ecological products, recycled and environmentally friendly, which will not be more expensive than other products [64], [65]. Ultimately, this will have a positive effect on the value of the company and its performance. Based on the preceding analysis, the following hypotheses can be formulated:

H6: Green Entrepreneurship has a significant effect on firm value.

H7: Green Entrepreneurship has a significant effect on MSME performance.

Digitalization

The accelerated pace of technological innovation has rendered it feasible for all individuals and entities to engage in commercial activities and pursue entrepreneurial endeavors. The capacity to undertake activities automatically at any time and in any location facilitates the creation of highly profitable business opportunities. Consequently, companies are able to be more efficient and economical in their promotion of their business on social media [66], [67]. One such entity is the micro, small and medium enterprise (MSME), which may be established either individually or in groups. It is evident that MSMEs have the capacity to exert a beneficial influence on societal well-being and contribute to the state [3]. The issue is that a significant proportion of MSMEs have been unable to implement this concept due to a lack of knowledge and the use of technology. As stated by [25], MSMEs must be able to adopt various strategies to foster an entrepreneurial mindset and integrate them into sustainable practices. One such impact is the application of digitalization, which affects the company's capacity to develop innovative products and services [26], [68]. Furthermore, digitalization also affects the innovation activities of SMEs [24]. The application of digitalization will shape the market and achieve company goals through the production of quality products and processes, thereby enabling the company to gain a competitive advantage over other MSMEs. Furthermore, digitalization will mitigate the impact of environmental damage, thereby conferring a positive business value and reducing the cost of environmental damage [69]. In light of the aforementioned description, the following hypothesis can be posited:

Hypothesis 8: Digitalization has a significant effect on firm value.

Hypothesis 9: Digitalization has a significant effect on MSME performance.

3. Research Method

This research is a quantitative study employing questionnaires obtained from micro, small and medium enterprises (MSMEs). The measurement of each variable is conducted using formulas derived from previous researchers who examined green accounting, green innovation, green entrepreneurship, digitalization, company value, and MSME performance.

Research Location

The location of this research is MSMEs in Medan City. The results of this study provide insights into the factors that influence the performance of MSMEs through an environmental approach.

Population and Sample

The population in this study comprised micro, small and medium enterprises (MSMEs) in Medan City. Sampling was conducted using a simple random sample, with the selected MSMEs representing businesses engaged in industry.

Research Variables

Independent Variable

- a. Green accounting is the firm's responsibility to the environment, whereby information on social responsibility financing is submitted in the financial statements or environmental responsibilities are carried out in the form of social activities. The number of questions on the green accounting questionnaire is nine [70], [71]. These are measured on a Likert scale of five measurements.
- b. Green innovation is defined as products or processes that do not damage the environment by paying attention to material use, energy, and waste treatment. In this study, green innovation is measured by two indicators: the products produced and the processes carried out in the use of energy, the production process of reducing water usage, and the production process that reduces the waste produced [72]. The number of questions on the green innovation questionnaire consists of eight questions [73]. Measured on a Likert scale of five measurements.
- c. Green entrepreneurship is the utilisation of opportunities through MSME awareness in the implementation of activities and the prevention of environmental damage. With regard to the questions employed in the measurement of green entrepreneurship, as many as 12 questions have been identified [74]–[76]. The measurement of digitalization is conducted using a Likert scale comprising five items.

Dependent Variable

The dependent variables in this study are firm value and MSME performance.

- a. Firm value is defined as the size of the company, which is determined by the amount of capital invested in MSMEs. The company value is measured by the natural logarithm of total equity/capital [77].
- b. Firm performance is defined as the satisfaction obtained by the owner through profit, turnover and business development. The number of questions used to measure MSME performance is nine [78]. The measurement is conducted using a Likert scale with five measurements.

Analysis Techniques

The research primarily utilized questionnaires distributed to MSME owners or leaders in Medan City to gather the necessary data. Before hypothesis testing, a traditional assumption test was carried out. The data analysis utilized a Structural Equation Model (SEM) to explore the

connection between exogenous and endogenous variables. This model accounts for influences in line with temporary theory and enables the concurrent assessment of variables, including latent variables. Furthermore, SEM provides a statistical model fit.

4. Results and Discussions

Results

This study aims to determine how green accounting, green innovation, green entrepreneurship, and digitalization impact both the value of a firm and the performance of MSMEs, both directly and indirectly. The study was carried out in Medan City, involving 57 participants. Hypothesis testing utilized structural equation model (SEM) analysis. The outcomes of the hypothesis testing are presented in the subsequent table.

Table 1 Hypothesis Testing of Direct Effect

	Original Sample (O)	T Statistics ((O/STDEV))	P Values
Digitalization -> Firm Performance	0.216	1.643	0.101
Digitalization -> Firm Value	-0.093	0.787	0.432
Firm Value -> Firm Performance	0.162	1.615	0.107
Green Accounting -> Firm Performance	0.291	2.463	0.014
Green Accounting -> Firm Value	0.016	0.082	0.935
Green Entrepreneurship -> Firm Performance	-0.007	0.029	0.977
Green Entrepreneurship -> Firm Value	0.419	2.777	0.006
Green Innovation -> Firm Performance	0.344	2.045	0.041
Green Innovation -> Firm Value	-0.188	0.927	0.354

Source: Data Processed In 2024

Table 1 indicates that green entrepreneurship exerts a significant influence on the value of the company, whereas digitalization, green accounting and green innovation have no positive impact. Conversely, the improvement of MSME performance is influenced by green accounting and green innovation variables.

Table 2 presents the results of an indirect test of the variables of digitalization, green accounting, green innovation, and green entrepreneurship on MSME performance through firm value. The following presents the results of hypothesis testing.

Table 2. Hypothesis Testing of Indirect Effect

	Original Sample (O)	T Statistics	P Values
Digitalization -> Firm Performance	-0.015	0.618	0.537
Green Accounting -> Firm Performance	0.003	0.067	0.947

Green Entrepreneurship -> Firm Performance	0.068	1.400	0.162
Green Innovation -> Firm Performance	-0.031	0.608	0.543

Source: Data Processed In 2024

Table 2 illustrates the impact of digitalization, green accounting, green entrepreneurship, and green innovation on the performance of micro, small, and medium-sized enterprises (MSMEs) through firm value. The results of the test indicate that all variables have no significant effect on increasing firm performance through firm value. Consequently, the hypothesis is rejected.



Figure 1 Path Analysis

Discussion

The data from Table 1 shows that incorporating digitalization in MSMEs does not have a noticeable impact on increasing firm value or enhancing MSME performance. This is because the use of technology in MSMEs has not led to an increase in sales. The expected rise in company value through the use of technology, such as social media and online sales, has not been observed to significantly impact company sales. The study's results suggest that the hypothesis should be rejected, consistent with the findings of [40], which revealed that entrepreneurs are not keen on digitalization and are primarily focused on the company's sustainability.

The purpose of green accounting is to attribute environmental costs to the company's production and sales. The results of hypothesis testing reveal that implementing green accounting will shield the company from incurring environmental costs in its income. So far, the financial implications of environmental responsibility have posed a significant burden for many companies, with some being hesitant to allocate resources for environmental sustainability. By adopting green accounting, MSMEs can improve their operational performance. However, green accounting has not yet shown a positive impact on company value, possibly because the general public is not fully aware of companies committed to environmental sustainability. The study's results indicate that there is no significant correlation between implementing green accounting and increasing company value, which is in line with the findings of [79], suggesting a reciprocal relationship between green entrepreneurship and company performance.

The subsequent variable is the application of green entrepreneurship, which demonstrates how MSMEs may establish their businesses while remaining grounded in environmental principles. The outcomes of hypothesis testing indicate that the application of green entrepreneurship exerts a considerable influence on the enhancement of MSMEs. This is due to the fact that MSMEs that engage in operations aligned with environmental protection offer greater value in preserving the environment and reducing their impact on pollution. Conversely, the application of this concept is considered to have no impact on improving company performance. MSMEs that apply this concept are considered unable to generate significant sales or profits. These results contradict research [33], [57], [80], [81] which states that the application of green entrepreneurship will encourage sustainable development and increase environmentally friendly growth. In relation to firm value, the results of this study are consistent with previous research [82], [83] which indicates that the application of green entrepreneurship will increase the value of a region or company.

Green innovation refers to the use of processes, products, and organizations that prioritize environmental sustainability. Studies testing hypotheses have shown that adopting green innovation can positively influence company performance by generating significant revenue without increasing the company's environmental impact. However, small and medium-sized enterprises (MSMEs) have not seen significant benefits from implementing this concept. There is no proof that consumers are willing to pay more for products, processes, or organizations created by MSMEs that practice green innovation. These findings are consistent with previous research conducted by [14], [30], [55], [84], suggesting that green innovation implementation can improve business performance, particularly in terms of social and environmental outcomes. In terms of firm value, the results suggest that the adoption of green innovation has not notably increased firm value. This conflicts with the findings of [85]–[87], which show a positive impact of green innovation on firm value. However, research by [88] suggests that applying green entrepreneurship can lead to a competitive advantage for the company.

With regard to the final variable, namely company value, the study found that MSMEs that apply environmental concepts in their business have not provided a significant increase in performance. The increase in firm value based on the environment demonstrates the responsibility of MSMEs towards environmental sustainability and reducing pollution. However, this concept has not had a significant impact on improving the performance of MSMEs.

5. Conclusion

The results suggest that incorporating green accounting and green innovation in MSMEs will positively influence their performance. Moreover, the value of these enterprises will benefit from green entrepreneurship. However, digitalization and green entrepreneurship do not seem to notably affect the performance of MSMEs. In addition, digitalization, green accounting, and green innovation also do not significantly impact the value of these companies. The study is limited by the relatively small number of respondents. It is hoped that future research will address this limitation by increasing the number of respondents, leading to more reliable results.

References

- [1] M. A. Carree and A. R. Thurik, *The Impact of Entrepreneurship on Economic Growth*, no. 2004. 2010.
- [2] W. C. Mamani *et al.*, "The Role of Entrepreneurship and Green Innovation Intention on Sustainable Development: Moderating Impact of Inclusive Leadership," *AgBioForum*, vol. 24,

- no. 1, pp. 134–143, 2022.
- [3] A. Salamzadeh, M. R. Markovic, and Y. Salamzadeh, “The economic resilience- entrepreneurship nexus,” *J. Entrep. Bus. Resil.*, vol. 5, no. 1, pp. 7–12, 2022.
- [4] T. E. T. Dantas, E. D. de-Souza, I. R. Destro, G. Hammes, C. M. T. Rodriguez, and S. R. Soares, “How the combination of Circular Economy and Industry 4.0 can contribute towards achieving the Sustainable Development Goals,” *Sustain. Prod. Consum.*, vol. 26, pp. 213–227, 2021, doi: 10.1016/j.spc.2020.10.005.
- [5] BPS, *Medan Municipality in Figures 2024*, vol. 37. BPS Kota Medan, 2024.
- [6] G. Genoveva and J. Tanardi, “Green Entrepreneurship: A New Paradigm for Millennials in Indonesia,” *Int. J. Sustain. Dev. Plan.*, vol. 17, no. 4, pp. 1133–1140, 2022, doi: 10.18280/ijstdp.170410.
- [7] M. Lusiana, M. H. C. Haat, J. Saputra, M. Y. Yusliza, Z. Muhammad, and A. T. Bon, “A Review of Green Accounting, Corporate Social Responsibility Disclosure, Financial Performance and Firm Value Literature,” in *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 2021, pp. 5622–5640.
- [8] A. Singh, A. Singh, and B. G. Pillai, “Interpretive Structural Modelling (ISM) of Enablers Affecting Green Accounting in Indian Manufacturing Sector: A Conceptual Model,” *Nat. Environ. Pollut. Technol.*, vol. 21, no. 2, pp. 763–767, 2022, doi: 10.46488/NEPT.2022.v21i02.039.
- [9] O. S. Agyemang, “Corporate social responsibility and firm performance of Ghanaian SMEs: Mediating role of access to capital and firm reputation,” *J. Glob. Responsib.*, vol. 8, no. 1, pp. 47–62, 2017, doi: 10.1108/JGR-03-2016-0007.
- [10] H. Chtourou and M. Triki, “Commitment in corporate social responsibility and financial performance: A study in the Tunisian context,” *Soc. Responsib. J.*, vol. 13, no. 2, pp. 370–389, 2017, doi: 10.1108/SRJ-05-2016-0079.
- [11] C. E. Ezeagba, J.-A. C. Rachael, and U. Chiamaka, “Environmental Accounting Disclosures and Financial Performance: A Study of selected Food and Beverage Companies in Nigeria (2006-2015),” *Int. J. Acad. Res. Bus. Soc. Sci.*, vol. 7, no. 9, pp. 162–174, 2017, doi: 10.6007/ijarbss/v7-i9/3315.
- [12] Y. H. Ling, “Influence of corporate social responsibility on organizational performance: Knowledge management as moderator,” *VINE J. Inf. Knowl. Manag. Syst.*, vol. 49, no. 3, pp. 327–352, 2019, doi: 10.1108/VJIKMS-11-2018-0096.
- [13] Q. Ji, H. Y. Zhang, and D. Zhang, “The impact of OPEC on East Asian oil import security: A multidimensional analysis,” *Energy Policy*, vol. 126, no. September 2018, pp. 99–107, 2019, doi: 10.1016/j.enpol.2018.11.019.
- [14] P. Ebrahimi and S. M. Mirbargkar, “Green entrepreneurship and green innovation for SME development in market turbulence,” *Eurasian Bus. Rev.*, vol. 7, no. 2, pp. 203–228, 2017, doi: 10.1007/s40821-017-0073-9.
- [15] J. Abbas and M. Sağsan, “Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis,” *J. Clean. Prod.*, vol. 229, pp. 611–620, 2019, doi: 10.1016/j.jclepro.2019.05.024.
- [16] K. Hockerts and R. Wüstenhagen, “Greening Goliaths versus emerging Davids - Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship,” *J. Bus. Ventur.*, vol. 25, no. 5, pp. 481–492, 2010, doi: 10.1016/j.jbusvent.2009.07.005.
- [17] D. J. Lober, “Pollution prevention as corporate entrepreneurship,” *J. Organ. Chang. Manag.*, vol. 11, no. 1, pp. 26–37, 1998, doi: 10.1108/09534819810369554.
- [18] P. H. Driessen, B. Hillebrand, R. A. W. Kok, and T. M. M. Verhallen, “Green new product development: The pivotal role of product greenness,” *IEEE Trans. Eng. Manag.*, vol. 60, no. 2, pp. 315–326, 2013, doi: 10.1109/TEM.2013.2246792.
- [19] K. Palmer, W. E. Oates, and P. R. Portney, “Tightening environmental standards: The Benefit-Cost or the No-Cost paradigm?,” *J. Econ. Perspect.*, vol. 9, no. 4, pp. 119–132, 1995, doi: 10.1257/jep.9.4.119.
- [20] T. Stucki, “Which firms benefit from investments in green energy technologies? – The effect of

- energy costs,” *Res. Policy*, vol. 48, no. 3, pp. 546–555, 2019, doi: 10.1016/j.respol.2018.09.010.
- [21] R. M. Dangelico and D. Pujari, “Mainstreaming green product strategies why and how furniture companies integrate environmental sustainability?,” *J. Bus. Ethics*, vol. 95, no. 3, pp. 471–486, 2010, doi: 10.1108/EMJB-12-2013-0058.
- [22] M. E. Porter and C. Van Der Linde, “Toward a new conception of the environment-competitiveness relationship,” *J. Econ. Perspect.*, vol. 9, no. 4, pp. 97–118, 1995, doi: 10.1257/jep.9.4.97.
- [23] A. Greve and J. W. Salaff, “Social Networks and Entrepreneurship,” *Entrep. Theory Pract.*, vol. 28, no. 1, pp. 1–22, 2003.
- [24] D. Radicic and S. Petković, “Impact of digitalization on technological innovations in small and medium-sized enterprises (SMEs),” *Technol. Forecast. Soc. Change*, vol. 191, no. December 2022, 2023, doi: 10.1016/j.techfore.2023.122474.
- [25] A. Criado-Gomis, M. Iniesta-Bonillo, and A. Cervera-Taulet, “Sustainable entrepreneurial orientation within an intrapreneurial context: effects on business performance,” *Int. Entrep. Manag. J.*, vol. 14, no. 2, pp. 295–308, 2018, doi: 10.1007/s11365-018-0503-x.
- [26] S. Kraus, K. Vonmetz, L. Bullini Orlandi, A. Zardini, and C. Rossignoli, “Digital entrepreneurship: The role of entrepreneurial orientation and digitalization for disruptive innovation,” *Technol. Forecast. Soc. Change*, vol. 193, no. July 2022, p. 122638, 2023, doi: 10.1016/j.techfore.2023.122638.
- [27] S. L. Hart, “A Natural-Resource-Based View of the Firm,” *Acad. Manag. Rev.*, vol. 20, no. 4, pp. 986–1014, 1995.
- [28] S. L. Golicic and C. D. Smith, “A meta-analysis of environmentally sustainable supply chain management practices and firm performance,” *J. Supply Chain Manag.*, vol. 49, no. 2, pp. 78–95, 2013, doi: 10.1111/jscm.12006.
- [29] H. Latan, C. J. Chiappetta Jabbour, A. B. Lopes de Sousa Jabbour, S. F. Wamba, and M. Shahbaz, “Effects of environmental strategy, environmental uncertainty and top management’s commitment on corporate environmental performance: The role of environmental management accounting,” *J. Clean. Prod.*, vol. 180, pp. 297–306, Apr. 2018, doi: 10.1016/J.JCLEPRO.2018.01.106.
- [30] S. Somjai, R. Fongtanakit, and K. Laosillapacharoen, “Impact of environmental commitment, environmental management accounting and green innovation on firm performance: An empirical investigation,” *Int. J. Energy Econ. Policy*, vol. 10, no. 3, pp. 204–210, 2020, doi: 10.32479/ijeeep.9174.
- [31] P. Nath and R. Ramanathan, “Environmental management practices, environmental technology portfolio, and environmental commitment: A content analytic approach for UK manufacturing firms,” *Int. J. Prod. Econ.*, vol. 171, pp. 427–437, 2016, doi: 10.1016/j.ijpe.2015.09.040.
- [32] F. Carrillo-Higuera, D. Prajogo, and L. Smith, “Environmental commitment and its drivers in the Australian wine industry: a behavioural approach,” *Australas. J. Environ. Manag.*, vol. 25, no. 4, pp. 439–458, 2018, doi: 10.1080/14486563.2018.1460630.
- [33] M. M. Achaku, E. K. Agbeaze, G. O. Ekoja, and S. Asortse, “Green entrepreneurship and performance of small and medium enterprises in North-Central Nigeria,” *Environ. Econ.*, vol. 13, no. 1, pp. 126–140, 2022, doi: 10.21511/ee.13(1).2022.11.
- [34] A. E. Cretu and R. J. Brodie, “The influence of brand image and company reputation where manufacturers market to small firms: A customer value perspective,” *Ind. Mark. Manag.*, vol. 36, no. 2, pp. 230–240, 2007, doi: 10.1016/j.indmarman.2005.08.013.
- [35] D. J. Negara, B. Mantikel, usup R. Christa, and L. Sintani, “Psychological Effect of Brand Image and Brand Reputation on Sustainable Firm Performance in Indonesian Logistics,” *Contemp. Econ.*, vol. 14, no. 4, pp. 441–449, 2020, doi: 10.5709/ce.1897-9254.416.
- [36] D. Sudarman and N. Lailla, “The Influence of Marketing Strategy and Marketing Mix on Marketing Performance of Ready to Drink Beverages Through Brand Image,” *Int. J. Prof. Bus. Rev.*, vol. 8, no. 9, p. e03539, 2023, doi: 10.26668/businessreview/2023.v8i9.3539.
- [37] R. F. Karimi and S. A. N. Chashmi, “Designing Green Entrepreneurship Model in Sustainable Development Consistent with the Performance of Tehran Industrial Towns,” *J. Business-to-bus.*

- Mark.*, vol. 26, no. 1, pp. 95–102, 2019, doi: 10.1080/1051712X.2019.1565143.
- [38] O. S. Agyemang and A. Ansong, “Corporate social responsibility and firm performance of Ghanaian SMEs: Mediating role of access to capital and firm reputation,” *J. Glob. Responsib.*, vol. 8, no. 1, pp. 47–62, 2017, doi: 10.1108/JGR-03-2016-0007.
- [39] H. Chtourou and M. Triki, “Commitment in corporate social responsibility and financial performance: A study in the Tunisian context,” *Soc. Responsib. J.*, vol. 13, no. 2, pp. 370–389, 2017, doi: 10.1108/SRJ-05-2016-0079.
- [40] S. Avelar, T. Borges-Tiago, A. Almeida, and F. Tiago, “Confluence of sustainable entrepreneurship, innovation, and digitalization in SMEs,” *J. Bus. Res.*, vol. 170, no. February 2023, 2024, doi: 10.1016/j.jbusres.2023.114346.
- [41] I. D. M. Endiana, N. L. G. M. Dicriyani, M. S. P. Adiyadnya, and I. P. M. J. S. Putra, “The Effect of Green Accounting on Corporate Sustainability and Financial Performance,” *J. Asian Financ. Econ. Bus.*, vol. 7, no. 12, pp. 731–738, 2020, doi: 10.13106/jafeb.2020.vol7.no12.731.
- [42] S. P. Hendratno, “Corporate Point of View in Green Accounting,” *Binus Bus. Rev.*, vol. 7, no. 3, p. 247, 2016, doi: 10.21512/bbr.v7i3.1499.
- [43] R. Marota, “Green Concepts and Material Flow Cost Accounting Application for Company Sustainability,” *Indones. J. Bus. Entrep.*, vol. 3, no. 1, pp. 43–51, 2017, doi: 10.17358/ijbe.3.1.43.
- [44] S. Schaltegger, E. G. Hansen, and F. Lüdeke-Freund, “Business Models for Sustainability: Origins, Present Research, and Future Avenues,” *Organ. Environ.*, vol. 29, no. 1, pp. 3–10, 2016, doi: 10.1177/1086026615599806.
- [45] P. de Beer and F. Friend, “Environmental accounting: A management tool for enhancing corporate environmental and economic performance,” *Ecol. Econ.*, vol. 58, no. 3, pp. 548–560, Jun. 2006, doi: 10.1016/J.ECOLECON.2005.07.026.
- [46] J. Boyd, “The Benefits of Improved Environmental Accounting: An Economic Framework to Identify Priorities,” 1998.
- [47] S. A. Melnyk, R. P. Sroufe, and R. Calantone, “Assessing the impact of environmental management systems on corporate and environmental performance,” *J. Oper. Manag.*, vol. 21, pp. 329–351, 2003.
- [48] I. P. Astawa, C. Ardina, I. M. S. Yasa, and I. K. Parnata, “A new model in achieving Green Accounting at hotels in Bali,” *IOP Conf. Ser. J. Phys. Conf. Ser.* 953, vol. 953, no. 012056, 2018, doi: 10.1088/1742-6596/953/1/012056.
- [49] C. C. Chu, Y. Ji, H. Y. Lee, and Y. T. Lin, “Top Management Attributes, Psychological Capital, and Green Accounting Effectiveness in Public-Private Partnership Context Chien-Chi,” *Front. Psychol.*, vol. 10, no. MAY, 2019, doi: 10.3389/fpsyg.2019.01312.
- [50] C. C. Gonzalez and K. H. Mendoza, “Green accounting in Colombia: a case study of the mining sector,” *Environ. Dev. Sustain.*, vol. 23, no. 4, pp. 6453–6465, 2020, doi: 10.1007/s10668-020-00880-1.
- [51] I. G. K. A. Ulupui, Y. Murdayanti, A. C. Marini, U. Purwohedi, Mardi, and H. Yanto, “Green accounting, material flow cost accounting and environmental performance,” *Accounting*, vol. 6, no. 5, pp. 743–752, 2020, doi: 10.52677/j.ac.2020.6.009.
- [52] F. Zhang and L. Zhu, “Enhancing corporate sustainable development: Stakeholder pressures, organizational learning, and green innovation,” *Bus. Strateg. Environ.*, vol. 28, no. 6, pp. 1012–1026, Sep. 2019, doi: 10.1002/BSE.2298.
- [53] M. Shahzad, Y. Qu, A. U. Zafar, S. U. Rehman, and T. Islam, “Exploring the influence of knowledge management process on corporate sustainable performance through green innovation,” *J. Knowl. Manag.*, vol. 24, no. 9, pp. 2079–2106, 2020, doi: 10.1108/JKM-11-2019-0624.
- [54] S. Asadi *et al.*, “Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry,” *J. Clean. Prod.*, vol. 258, p. 120860, 2020, doi: 10.1016/j.jclepro.2020.120860.
- [55] S. Sisca and A. Wijaya, “The Role of Green Innovation to Achieve Sustainable Business Performance of MSMEs in the Covid-19 Pandemic,” *Int. J. Sci. Technol. Manag.*, vol. 4, no. 1, pp. 228–232, 2023, doi: 10.46729/ijstm.v4i1.750.

- [56] R. M. Dangelico and P. Pontrandolfo, "From green product definitions and classifications to the Green Option Matrix," *J. Clean. Prod.*, vol. 18, no. 16–17, pp. 1608–1628, 2010, doi: 10.1016/j.jclepro.2010.07.007.
- [57] C. Yin, M. P. Salmador, D. Li, and M. B. Lloria, "Green entrepreneurship and SME performance: the moderating effect of firm age," *Int. Entrep. Manag. J.*, vol. 18, no. 1, pp. 255–275, 2022, doi: 10.1007/s11365-021-00757-3.
- [58] N. Soewarno, B. Tjahjadi, and F. Fithrianti, "Green innovation strategy and green innovation: The roles of green organizational identity and environmental organizational legitimacy," *Manag. Decis.*, vol. 57, no. 11, pp. 3061–3078, 2019, doi: 10.1108/MD-05-2018-0563.
- [59] G. Zimon, "Influence of Group Purchasing Organizations On Financial Situation Of SMEs Institute of Economic Research Working Papers Influence of Group Purchasing Organizations On Financial Situation Of SMEs Grzegorz Zimon," 2017.
- [60] M. Á. Galindo-Martín, M. S. Castaño-Martínez, and M. T. Méndez-Picazo, "Effects of the pandemic crisis on entrepreneurship and sustainable development," *J. Bus. Res.*, vol. 137, no. May, pp. 345–353, 2021, doi: 10.1016/j.jbusres.2021.08.053.
- [61] G. Arabatzis, S. Galatsidas, C. Intze, M. Chalikias, S. Tsiantikoudis, and S. Mamalis, "Green entrepreneurship and Green products: Consumers' views and attitudes in regional unit of evros," *CEUR Workshop Proc.*, vol. 1498, pp. 291–297, 2015.
- [62] R. P. Bagozzi and U. Dholakia, "Goal Setting and Goal Striving in Consumer Behavior," *J. Mark.*, vol. 63, no. 4_suppl1, pp. 19–32, 1999, doi: 10.1177/00222429990634s104.
- [63] L. K. Mathur and I. Mathur, "An Analysis of the Wealth Effects of Green Marketing Strategies," *J. Bus. Res.*, vol. 50, no. 2, pp. 193–200, 2000, doi: 10.1016/S0148-2963(99)00032-6.
- [64] A. Ntanos, M. Skordoulis, and S. Ntanos, "Millennial consumers' perceptions on the organic products," *Int. Sci. Conf. 9th eRA*, no. September, pp. 26–35, 2014, doi: 10.13140/2.1.4473.2160.
- [65] M. Skordoulis, S. Ntanos, G. L. Kyriakopoulos, G. Arabatzis, S. Galatsidas, and M. Chalikias, "Environmental innovation, open innovation dynamics and competitive advantage of medium and large-sized firms," *J. Open Innov. Technol. Mark. Complex.*, vol. 6, no. 4, pp. 1–30, 2020, doi: 10.3390/joitmc6040195.
- [66] T. Hess, A. Benlian, C. Matt, and F. Wiesböck, "How German Media Companies Defined Their Digital Transformation Strategies," *MIS Q. Exec.*, vol. 15, no. 2, pp. 103–119, 2016.
- [67] P. Ritala, A. Baiyere, M. Hughes, and S. Kraus, "Digital strategy implementation: The role of individual entrepreneurial orientation and relational capital," *Technol. Forecast. Soc. Change*, vol. 171, no. May, p. 120961, 2021, doi: 10.1016/j.techfore.2021.120961.
- [68] M. A. M. Gobble, "Digital Strategy and Digital Transformation," *Res. Technol. Manag.*, vol. 61, no. 5, pp. 66–71, 2018, doi: 10.1080/08956308.2018.1495969.
- [69] S. Schaltegger and M. Wagner, "Sustainable entrepreneurship and sustainability innovation: Categories and interactions," *Bus. Strateg. Environ.*, vol. 20, no. 4, pp. 222–237, 2011, doi: 10.1002/bse.682.
- [70] K. L. Christ and R. L. Burritt, "Environmental management accounting: The significance of contingent variables for adoption," *J. Clean. Prod.*, vol. 41, pp. 163–173, 2013, doi: 10.1016/j.jclepro.2012.10.007.
- [71] A. Ferreira, C. Moulang, and B. Hendro, "Environmental management accounting and innovation: An exploratory analysis," *Accounting, Audit. Account. J.*, vol. 23, no. 7, pp. 920–948, 2010, doi: 10.1108/09513571011080180.
- [72] P. F. Vera and H. Khusnah, "Pengaruh Green Innovation Dan Kinerja Keuangan Pada Competitive Advantage Dan Nilai Perusahaan Tahun 2015-2020," *Media Mahard.*, vol. 20, no. 2, pp. 295–303, 2022, doi: 10.29062/mahardika.v20i2.346.
- [73] Y.-S. Chen, S. B. Lai, and C. T. Wen, "The influence of green innovation performance on corporate advantage in Taiwan," *J. Bus. Ethics*, vol. 67, no. 4, pp. 331–339, 2006, doi: 10.1007/s10551-006-9025-5.
- [74] H. N. Nasution, F. T. Mavondo, M. J. Matanda, and N. O. Ndubisi, "Entrepreneurship: Its relationship with market orientation and learning orientation and as antecedents to innovation and customer value," *Ind. Mark. Manag.*, vol. 40, no. 3, pp. 336–345, 2011, doi:

- 10.1016/j.indmarman.2010.08.002.
- [75] H. N. Nasution and F. T. Mavondo, "Organisational capabilities: Antecedents and implications for customer value," *Eur. J. Mark.*, vol. 42, no. 3–4, pp. 477–501, 2008, doi: 10.1108/03090560810853020.
- [76] N. O. Ndubisi and K. Iftikhar, "Relationship between entrepreneurship, innovation and performance: Comparing small and medium-size enterprises," *J. Res. Mark. Entrep.*, vol. 14, no. 2, pp. 214–236, 2012, doi: 10.1108/14715201211271429.
- [77] T. V. K. Vo, "Factors Affecting Firm Performance of Small and Medium Enterprises: Empirical Evidence from Hanoi, Vietnam," *J. Asian Financ. Econ. Bus.*, vol. 9, no. 6, pp. 325–329, 2022, doi: 10.13106/jafeb.2022.vol9.no6.0325.
- [78] S. T. Cavusgil and S. Zou, "Marketing Strategy-Performance Relationship: An Investigation of the Empirical Link in Export Market Ventures," *J. Mark.*, vol. 58, no. 1, p. 1, 1994, doi: 10.2307/1252247.
- [79] X. Yang and X. Liu, "The Influence of Green Entrepreneurship Orientation on Enterprise Performance Based on the TPB Model," *Appl. Math. Nonlinear Sci.*, vol. 8, no. 2, pp. 2403–2412, 2023, doi: 10.2478/amns.2023.1.00421.
- [80] W. Alwakid, S. Aparicio, and D. Urbano, "The influence of green entrepreneurship on sustainable development in Saudi Arabia: The role of formal institutions," *Int. J. Environ. Res. Public Health*, vol. 18, no. 10, 2021, doi: 10.3390/ijerph18105433.
- [81] A. N. Sarkar, "Promotion of eco-innovation to leverage sustainable development of eco-industry and green growth," *Eur. J. Sustain. Dev.*, vol. 2, no. 1, pp. 171–224, 2013, doi: 10.14207/ejsd.2013.v2n1p171.
- [82] S. Haldar, "Green entrepreneurship in theory and practice: Insights from India," *Int. J. Green Econ.*, vol. 13, no. 2, pp. 99–119, 2019, doi: 10.1504/IJGE.2019.103232.
- [83] N. H. Tien, P. M. Hiep, N. Q. Dai, N. M. Duc, and T. T. K. Hong, "Green entrepreneurship understanding in Vietnam," *Int. J. Entrep.*, vol. 24, no. 2, pp. 1–14, 2020.
- [84] S. Somjai, R. Fongtanakit, and K. Laosillapacharoen, "Impact of environmental commitment, environmental management accounting and green innovation on firm performance: An empirical investigation," *Int. J. Energy Econ. Policy*, vol. 10, no. 3, pp. 204–210, 2020, doi: 10.32479/IJEEP.9174.
- [85] I. M. Ar, "The Impact of Green Product Innovation on Firm Performance and Competitive Capability: The Moderating Role of Managerial Environmental Concern," *Procedia - Soc. Behav. Sci.*, vol. 62, pp. 854–864, 2012, doi: 10.1016/j.sbspro.2012.09.144.
- [86] A. Ö. Çalişkan, "How accounting and accountants may contribute in sustainability?," *Soc. Responsib. J.*, vol. 10, no. 2, pp. 246–267, 2014, doi: 10.1108/SRJ-04-2012-0049.
- [87] N. Rosenbusch, J. Brinckmann, and A. Bausch, "Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs," *J. Bus. Ventur.*, vol. 26, no. 4, pp. 441–457, 2011, doi: 10.1016/j.jbusvent.2009.12.002.
- [88] M. Skordoulis *et al.*, "The Mediating Role of Firm Strategy in the Relationship between Green Entrepreneurship, Green Innovation, and Competitive Advantage: The Case of Medium and Large-Sized Firms in Greece," *Sustain.*, vol. 14, no. 6, 2022, doi: 10.3390/su14063286.