



RESEARCH ARTICLE

The Role of Tax Policy in Moderating Factors Influencing Green Investment Strategies in Indonesia

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ARTICLE INFO	ABSTRACT
Received: May 19, 2024 Accepted: Aug 23, 2024	This study investigates the determinants of green investment among LQ45 companies, a leading stock index in Indonesia. Grounded in the resource-based view and stakeholder theory, we hypothesize that firm-specific resources and the pressure from stakeholders will influence green investment. Employing panel data from 2018 to 2023, we utilize a random effects model to analyze the impact of firm size, profitability, leverage, and asset turnover on green investment, while examining the moderating role of tax policy. Our findings support the hypotheses, indicating that larger, more profitable firms with higher asset turnover are more likely to engage in green investments. Furthermore, tax incentives significantly enhance the positive relationship between firm characteristics and green investment. These results highlight the importance of both internal firm capabilities and external pressures in driving sustainable practices. Policymakers should consider implementing targeted tax incentives, providing access to green finance, and fostering a supportive regulatory environment to encourage greater green investment among Indonesian firms.
Keywords Green investment strategy Leverage and profitability Moderating tax policy Sustainability in companies Tax incentives impact	
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INTRODUCTION

Climate change has become one of the greatest challenges of this century, drawing attention from various sectors including governments, communities, and businesses (Riyadh et al., 2020). In this context, companies worldwide, including in Indonesia, face pressure to adopt green investment strategies as part of their social responsibility and efforts to mitigate environmental impacts (J. Yang et al., 2023). This research focuses on analyzing the influence of company size, profitability, leverage, and return on assets on green investment strategies, with tax policy as a moderating variable, in companies listed in the LQ 45 index on the Indonesia Stock Exchange (IDX LQ-45) for the period 2018-2023.

Background on Climate Change and the Urgency of Green Investment

Climate change has resulted in global temperature increases, changes in extreme weather patterns, and rising sea levels, impacting environmental sustainability and human life (Phan, 2024). In Indonesia, the effects of climate change are evident through natural disasters such as floods, landslides, and forest (Manurung et al., 2022). These phenomena demand that companies not only focus on financial profits but also consider the environmental impacts of their business activities (Y. Zhang, 2023). Therefore, green investment becomes crucial as a mitigation and adaptation effort to climate change, and a strategic step to ensure long-term sustainability (Khan et al., 2024).

Table 1. Sector Contributions to Greenhouse Gas Emission Reductions in 2020

Sector	Emissions (mTCO ₂ e) (BAU)	GHG Emission Reduction	GHG Emission Reduction against BAU (%)
Forestry and Peatlands	1,344	672	50%
Energy and Transportation	1,000	38	3.8%
Agriculture	221	40	18%
Industry	134	2	1.8%
Waste	250	15	5.9%
Total	2,950	767	26%
Sector	Emissions (mTCO ₂ e) (BAU)	GHG Emission Reduction	GHG Emission Reduction against BAU (%)
Forestry and Peatlands	1,344	672	50%

Source: Authors' elaboration.

Table 1 explains the contributions of various sectors in achieving the target reduction of greenhouse gas (GHG) emissions in Indonesia in 2020. The data is presented in million tonnes of carbon dioxide equivalent (mTCO₂e), where 1,000,000 tonnes of methane (CH₄) contribute to global warming equivalent to 25,000 tonnes of CO₂ (Sadiq et al., 2024). The forestry and peatlands sector provided the largest contribution with an emission reduction of 672 mTCO₂e, or 50% of the total Business as Usual (BAU) emissions (Yuliani and Prijanto, 2022). The energy and transportation sector contributed a reduction of 38 mTCO₂e, or 3.8%, while the agriculture sector contributed 40 mTCO₂e, or 18%. The industry sector showed the smallest emission reduction with only 2 mTCO₂e, or 1.8%, and the waste sector contributed 15 mTCO₂e, or 5.9%. Overall, the total contribution from all sectors achieved an emission reduction of 767 mTCO₂e from a total BAU emission of 2,950 mTCO₂e, reflecting a total emission reduction of 26%. This data demonstrates significant collective efforts from various sectors in reducing GHG emissions as part of climate change mitigation strategies in Indonesia (Anser et al., 2023).

Social Pressure and Government Regulation

With the rising public awareness of the importance of environmental protection, companies face social pressure to implement environmentally friendly business practices. Society and consumers now prefer products and services from companies that demonstrate a commitment to sustainability (Pantow et al., 2023; Abbas et al., 2024). Furthermore, the Indonesian government has implemented a range of policies and tax incentives aimed at promoting corporate investments in green technology and renewable energy (Cahyaningsih and Lestari, 2021; Tambunan et al., 2022). These tax policies serve as moderating variables, influencing the strength and direction of the relationship between internal company factors and their green investment strategies (K. Wang et al., 2023).

Market Dynamics and Business Competition

In a competitive business environment, companies must continuously innovate to remain relevant and superior (Tarba et al., 2021). Green investments boost a company's reputation while also contributing to operational efficiency and long-term cost savings (Maizer, 2022). Company size often correlates with the ability to implement green projects. Larger companies with adequate resources can allocate more towards green investments (Xu, 2023). On the other hand, a company's profitability and leverage also influence its ability to invest in green initiatives. Companies with high profitability and low leverage are more flexible in making strategic decisions regarding green investments (Rahadian and Nurfitriani, 2022).

This research uses data from LQ 45 companies on the Indonesia Stock Exchange (IDX) during the period 2018-2023. The IDX is Indonesia's primary stock exchange where public companies list and trade their shares. The LQ 45 is a stock index comprising 45 companies with high liquidity and large market capitalization, selected based on specific criteria by the IDX (Yunita et al., 2018). This index aims to provide deeper insights into the factors influencing green investment strategies. By understanding these dynamics, the research findings are expected to assist company managers in making more informed decisions and support policymakers in formulating effective policies to encourage green investments in Indonesia (Harymawan et al., 2022).

Climate change is not only an environmental issue but also a crucial economic issue. Its impact is felt across various sectors, particularly the business sector, which significantly affects greenhouse gas emissions (Roziq et al., 2020). In recent decades, awareness of corporate environmental responsibility has significantly increased. Companies are now evaluated not only on their financial performance but also on how they contribute to environmental sustainability (Atichasari et al., 2023).

In the Indonesian capital market context, IDX LQ-45 have a greater responsibility to lead the transformation towards more sustainable business practices. With large market capitalization and significant influence on the national economy, the green investment strategies adopted by these companies can be major drivers in Indonesia's climate change mitigation efforts (Najicha et al., 2023).

This study is not only important in terms of academic contribution but also has broad practical implications. Tax policy as a moderating variable in this research offers new insights into how fiscal incentives can influence green investment decisions (Barreto, 2020; Hidayat and Zuhroh, 2023). Well-designed taxes can be an effective tool to encourage companies to adopt more environmentally friendly business practices (Firmansyah et al., 2022). Therefore, this research can provide valuable recommendations for policymakers in designing tax policies that support sustainability.

The world is increasingly active in combating climate change and promoting sustainable investments. One instrument that can be utilized to invest in companies committed to environmental stewardship is the LQ45 Low Carbon Leaders Index (Sosilawaty et al., 2023). This index tracks the performance of stocks of IDX LQ-45 that are committed to reducing carbon emissions. Let's look at the performance of this index over the last two years, from December 2021 to December 2023, through the following graph.

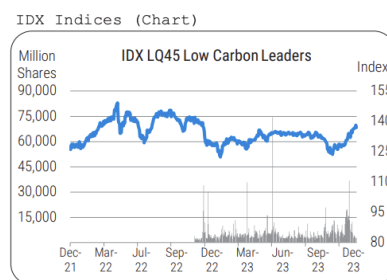


Figure 1. Trend of the LQ45 Low Carbon Leaders Index during the 2021-2023 Period
Source: Indonesia Stock Exchange Data Services Division, 2023.

Figure 1 illustrates the positive performance of the LQ45 Low Carbon Leaders Index over the past two years. From December 2021 to December 2023, the index value rose from 125 to 150. This increase indicates that investments in companies committed to low carbon emissions can provide returns for investors. Although showing a positive trend, the movement of the LQ45 Low Carbon Leaders Index was not always smooth. The index experienced its highest increase from December 2021 to June 2022, with a rise of 25 points. However, periods of decline also occurred, especially from September 2022 to March 2023, with a decrease of 15 points.

Overall, the positive trend of the LQ45 Low Carbon Leaders Index indicates that investing in companies committed to low carbon emissions has potential benefits (Islami and Rio, 2019). However, investors need to conduct more in-depth analysis before making investment decisions. Factors such as index value fluctuations and other factors that can affect investment performance need to be considered (Yunita et al., 2018).

As previously explained, the LQ45 Low Carbon Leaders Index shows potential benefits for investors interested in companies committed to low carbon emissions (Aziz, 2022). However, in selecting these companies, investors need to conduct an analysis that considers ESG scores (Harymawan et al., 2021).

In the context of the Indonesian capital market, IDX LQ-45 have a greater responsibility to lead the transformation towards more sustainable business practices (Surayya et al., 2023; Setiarini et al., 2023). With large market capitalization and significant influence on the national economy, the green investment strategies adopted by these companies can be major drivers in Indonesia's climate change mitigation efforts (Khalimova, 2023).

This study is important not only in terms of academic contribution but also for its broad practical implications. Tax policy as a moderating variable in this research offers new insights into how fiscal incentives can influence green investment decisions (Diamond and Saez, 2011). Well-designed tax policies can be effective tools to encourage companies to adopt more environmentally friendly business practices. Therefore, this research can provide valuable recommendations for policymakers in designing tax policies that support sustainability (Ngwaba and Azizi, 2020).

Based on the explanation above, this study has nine main objectives:

Analyze the influence of company size on green investment strategies.

Identify the impact of profitability on green investment strategies.

Evaluate the relationship between leverage and green investment strategies.

Examine the influence of asset profitability on green investment strategies.

Assess the role of tax policy as a moderating variable in the relationship between company size and green investment strategies.

Evaluate the moderation of tax policy in the relationship between profitability and green investment strategies.

Investigate the moderation of tax policy in the relationship between leverage and green investment strategies.

Explore the moderation of tax policy in the relationship between asset profitability and green investment strategies.

Provide practical recommendations for companies and policymakers in developing effective and sustainable green investment strategies in Indonesia.

Thus, this research aims not only to expand academic knowledge but also to provide practical guidance that can be applied by companies and policymakers in addressing the challenges of climate change through sustainable green investment strategies. Green investment refers to investments directed to support activities or projects that have a positive impact on the environment, such as renewable energy, energy efficiency, and waste management. The implications of green investment research in the context of tax regulations can vary widely, depending on the tax policies in force in a country or region. The results of research on green investment can help identify tax policies that support green investment as part of a broader strategy to achieve carbon emission reduction targets or other sustainability goals. In addition, it can identify how tax policies affect the competitiveness of