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The Inefficiency of Political Connections Becomes a Boomerang in the Challenge of Sustainable Growth

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Abstract. This study investigates how political connections, board educational background, and carbon emission disclosure affect the Sustainable Growth Rate (SGR) of infrastructure firms listed on the Indonesia Stock Exchange from 2019 to 2023. SGR reflects a firm's capacity for long-term growth consistent with its financial stability and strategic balance. Using panel data regression with the Random Effects Model (REM), selected based on the Hausman test, this research operationalizes political connections through the presence of politically affiliated commissioners and carbon emissions through disclosure indices. The results indicate that political connections significantly hinder sustainable growth, suggesting that politically connected boards may intensify agency conflicts and weaken governance effectiveness. Meanwhile, board education and carbon emission disclosure show emerging yet statistically weak positive effects, implying that intellectual capacity and environmental accountability are not yet fully embedded in corporate sustainability strategies. Despite the limited sample size, robustness checks confirmed the consistency of the results. Overall, these findings highlight that sustainable growth in Indonesia's infrastructure sector depends more on governance integrity and managerial competence rather than political privilege. This study contributes to the literature by providing empirical evidence of how agency conflicts arising from political affiliations can undermine long-term corporate sustainability.

Keywords: Political Connections, Board Educational Background, Carbon Emission, Sustainable Growth Rate

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Introduction

As the largest archipelagic country in the world, Indonesia faces major challenges in infrastructure development, particularly in improving connectivity and economic equity, which have been the main priorities since the administration of Joko Widodo began in 2014. According to the National Medium-Term Development Plan (RPJMN, 2020), Indonesia's infrastructure investment needs for the 2020–2024 period are estimated to reach Rp 6,445 trillion. This is realized through strategic projects such as the South Coast Java route, border areas in Kalimantan and Papua, support for the Capital City of Nusantara (IKN), Trans Papua–West Papua, as well as road and bridge infrastructure in frontier, outermost, and disadvantaged areas (Antara, 2022). Nevertheless, the quality and efficiency level of national infrastructure still lags behind several ASEAN countries such as Singapore, Malaysia, and Thailand. The World Bank (2023) report shows a decline in Indonesia's ranking in the Logistics Performance Index (2023) from position 45 in 2018 to position 61 out of 139 countries.

The decline in Indonesia's LPI indicates that infrastructure problems directly affect the Sustainable Growth Rate (SGR). According to Harsono et al (2023), the quality of logistics infrastructure, such as toll roads and ports, plays an important role in supporting smooth distribution and logistics efficiency, which are essential for economic sustainability. Poor infrastructure increases logistics and transportation costs, reduces profit margins and asset efficiency, which are crucial for SGR. Infrastructure companies are highly dependent on operational efficiency and stable profit margins to achieve sustainable growth. When logistics and operational costs increase due to poor infrastructure, companies' ability to maintain a positive SGR becomes hindered. In line with the research of Oktaputri & Setyorini (2022), high operational costs due to poor infrastructure face profitability and sustainable growth constraints, which hinder their sustainable growth and negatively affect companies' financial health.

This condition indicates that although the quantity of infrastructure investment has increased, there remain major challenges in ensuring the effectiveness and sustainability of such investments. In this context, the Sustainable Growth Rate (SGR) introduced by Higgins (1977) becomes an important indicator in assessing the financial health and growth potential of infrastructure companies. Arora et al (2018) argue that forward-looking sustainable growth rates play a key role for managers in optimizing the balance between operational and financial strategies. For example, SGR can be used by infrastructure companies in Indonesia to ensure balanced growth without sacrificing their financial stability. In this condition, the company experiences growth, but assets, equity structure, liabilities, and retained earnings remain constant (Nugroho, 2020).

In the context of national infrastructure development, political connections between companies and the government often become a source of privilege such as access to strategic projects, ease of financing, and regulatory relaxation. At the international level, Faccio (2006) found that political connections can provide advantages in the form of easier access to resources, especially in regions with less effective governments. However, she also noted that companies with political affiliations tend to have weaker financial performance compared to companies operating independently. In line with this, Fisman (2001), in a case study of Indonesia during the New Order era, showed that the market value of politically connected companies was highly dependent on the stability of political power. When power was disrupted, company values also dropped significantly, indicating that political connections are unstable and risky. In Indonesia, the findings of Supatmi et al (2021) and Ligita & Muazaroh (2020) reinforce that political connections tend to reduce efficiency, encourage short-term orientation, and negatively affect company value and growth. Thus, in both international and national contexts, political connections tend to provide short-term benefits but negatively impact long-term performance and growth. The analysis in this research is further built upon theoretical perspectives.

Agency theory describes that the interaction between company owners (principals) and managers (agents) often triggers conflicts of interest, especially when agents do not fully act in accordance with the owners' interests (Jensen & Meckling, 1976). In the context of political connections, this conflict becomes more complex because agents' closeness with political actors can push them to pursue personal or political interests rather than the company's optimal interests. Political connections, which include relationships with officials such as parliament members, ministers, or heads of state (Hashmi et al, 2018), are often used by companies to obtain government projects and regulatory protection. In line with the findings of Faccio (2006) and Leuz & Oberholzer-Gee (2006), political connections are positively correlated with

increased access to financing and firm value, particularly in countries with weak institutions. Supported by the findings of Fisman (2001), who conducted an empirical study with Indonesian company data, firms with political ties had higher market valuations due to easier access to resources and protection. However, Supatmi et al (2021) and Ligita & Muazaroh (2020) showed different results, namely that political connections negatively affect efficiency and firm value, finding that companies with political connections had a lower average return on equity (ROE) (8.62%) compared to companies without political connections (12.57%). These findings suggest that political connections in Indonesia can exacerbate agency conflicts and hinder sustainable corporate growth.

The impact of political connections on company performance is reflected in the decline of Indonesia's Logistics Performance Index (LPI), which affects the Sustainable Growth Rate (SGR) of companies. According to detikFinance (2023), logistics costs in Indonesia reach 23.5% of GDP, significantly higher compared to other countries such as Malaysia (13%), Taiwan (9%), Japan (8%), and Thailand (15%). These high logistics costs directly affect SGR components. According to research by Meafrida et al (2021), operational costs that are uncontrolled and inefficient utilization can reduce profit margins, which is related to the impact of political connections in company decision-making. This factor as a whole hinders the achievement of optimal SGR.

The educational background of the board of directors becomes an important mechanism in reducing agency conflicts between principals and agents. This is supported by the upper echelons perspective (Hambrick & Mason, 1984), which explains that the characteristics, experiences, and educational backgrounds of top executives influence how they act as agents in making strategic corporate decisions. Lu et al (2022) found that boards of directors with higher education levels are positively correlated with companies' ability to manage risks and adopt innovations. However, according to Attia et al (2021), directors with business backgrounds tend to prioritize short-term profits. Diversity in background and higher education helps understand complex decisions but does not guarantee a focus on innovation. This finding is in line with Pereira & Filipe (2022), who also highlighted that board members with higher education backgrounds can contribute negatively to company performance due to conflicts of interest and the use of expertise for personal gain.

Nevertheless, good education still enhances the board of directors' capacity to identify growth opportunities and implement effective strategies to achieve Sustainable Growth Rate (SGR). According to Ghardallou (2022), CEO education, particularly in engineering and MBA programs, improves their ability to manage and implement sustainability strategies that positively impact company performance. A study by King et al (2016) showed that educational background, especially high-quality management education, helps executives face complex challenges and make innovative and risky strategic decisions. This ability becomes increasingly critical in facing challenges indicated by the decline in the Logistics Performance Index (LPI), where deep understanding of operational complexities and strategies becomes the key to achieving sustainability and enhancing company performance.

Carbon emission management is a critical aspect in the infrastructure industry, which contributes significantly to global emissions. Companies strive to reduce greenhouse gas emissions and improve energy efficiency. The IPCC (2022) reported that the infrastructure sector contributes around 45% of total global emissions. In Indonesia, regulations such as PP No. 46/2017, Perpres No. 98/2021, and POJK No. 51/POJK.03/2017 encourage companies to be more proactive in managing carbon emissions. However, Ramadhan et al (2023) found that carbon emission disclosure has no significant impact on companies' financial performance in Indonesia, possibly due to the low level of regulatory obligations. Conversely, the Carbon Disclosure Project (2021) reported that companies with science-based emission reduction targets experienced an average growth rate 6% higher. Sun et al (2023) also showed that cities with efficient infrastructure investment can significantly reduce carbon emissions. Carbon emission management improves operational efficiency and reduces environmental risks, contributing to sustainable growth.

This research refers to the study conducted by Suhardjo et al (2023), which examined how the educational background of commissioners in accounting, market capitalization, and leverage affects Sustainable Growth Rate (SGR) in the Financial Technology and conventional banking sectors. However, Suhardjo et al (2023) has several limitations. The research only focused on the Financial Technology and conventional banking sectors, so the results cannot be generalized to other sectors, including infrastructure. The study did not consider the influence of political connections, which

may play a significant role in accessing government projects and resources that can improve companies' SGR. The research also did not examine the effect of carbon emission management, particularly in the infrastructure sector, which has a major impact on the environment.

Literature Review

Based on the theoretical foundation and previous research findings that have been described, a conceptual framework is designed to illustrate the relationships among variables in this study:

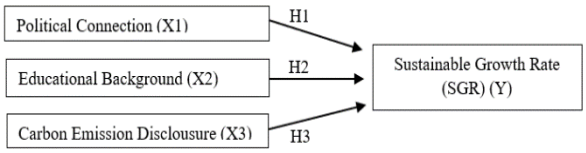

Fig. 1. Conceptual Framework

This research is primarily grounded in Agency Theory (Jensen & Meckling, 1976), which explains that conflicts of interest between principals and agents arise when managers pursue personal or political objectives rather than maximizing shareholder value. Political connections and carbon emission management are analyzed within this framework because both can either intensify or mitigate agency conflicts, depending on governance effectiveness. Additionally, this study adopts Upper Echelons Theory (Hambrick & Mason, 1984) to explain how directors' educational backgrounds influence strategic decision-making. Educational diversity and intellectual capacity are expected to enhance analytical ability and support long-term sustainability orientation. Together, these theories provide a foundation to examine how governance integrity, managerial competence, and environmental responsibility collectively shape a firm's Sustainable Growth Rate (SGR).

Within the agency framework, political connections are viewed as a source of conflict of interest and information asymmetry between owners and management (Jensen & Meckling, 1976). Although such connections may grant easier access to government projects, their effectiveness is temporary and vulnerable to political shifts. Empirical studies by Faccio (2006) and Hashmi et al. (2018) indicate that politically connected firms often experience lower earnings quality and weaker efficiency levels. In Indonesia, Ligita & Muazaroh (2020) found that firms with political connections had lower return on equity (ROE) compared to non-connected firms, suggesting structural inefficiency. Supatmi et al. (2021) also confirmed that political affiliations can reduce firm value. In the Indonesian infrastructure sector, political proximity may lead to short-term advantages but also creates systemic moral hazard, weak governance, and unsustainable dependency on political patronage. Thus, political connections are expected to hinder sustainable corporate growth.

H_1: Political connections have a negative effect on the sustainable growth rate.

According to Upper Echelons Theory (Hambrick & Mason, 1984), the cognitive and educational characteristics of top executives significantly influence how they interpret strategic challenges and opportunities. Formal education strengthens directors' analytical and problem-solving abilities, enabling them to design policies aligned with long-term corporate sustainability. Research by Lu et al. (2022) and Ghardallou (2022) found that CEOs with engineering or MBA backgrounds tend to pursue sustainability-oriented strategies and enhance firm performance. Similarly, King et al. (2016) reported that managerial education improves risk management capacity and resource allocation efficiency. Conversely, Attia et al. (2021) found that directors with business backgrounds sometimes prioritize short-term profits, implying that education's effect depends on institutional context. Overall, higher and more diverse educational backgrounds are expected to improve strategic judgment and strengthen firms' commitment to sustainable growth.

H_2: The educational background of the board of directors has a positive effect on the sustainable growth rate.

Within the agency framework, carbon emission management reflects a firm's accountability and transparency in aligning managerial behavior with broader environmental and stakeholder interests. Effective emission control reduces information asymmetry, operational risks, and reputational costs. According to the Intergovernmental Panel on Climate Change (IPCC, 2022), the infrastructure sector contributes approximately 45% of total global emissions, making this issue critical for sustainability. The Carbon Disclosure Project (2021) found that companies implementing science-based emission reduction targets achieve higher growth and competitiveness. Similarly, An et al. (2021) and

Harsono et al. (2023) emphasized that integrating green logistics and efficient infrastructure investment enhances long-term performance. Therefore, proactive carbon emission management is considered not only an ethical responsibility but also a strategic instrument for sustainable growth.

H_3: Carbon emission management has a positive effect on the sustainable growth rate.

Research Method

This study adopts a quantitative approach to analyze the influence of independent variables on the dependent variable. The quantitative approach was chosen because it allows for objective hypothesis testing and generates conclusions that can be generalized. The data used in this research were obtained from financial statements and annual reports accessed through the official website of the Indonesia Stock Exchange (IDX, 2025). In addition, supplementary data regarding the performance of infrastructure companies were collected from the Osiris Database.

Based on the theoretical framework and empirical findings, this study integrates governance, managerial, and environmental dimensions to explain firm-level sustainability. Political connections represent external relational power that may create agency conflicts; board education reflects internal managerial competence that drives informed decision-making; and carbon emission management indicates environmental accountability that supports operational efficiency. Through the perspectives of Agency Theory and Upper Echelons Theory, these three factors jointly influence the Sustainable Growth Rate (SGR) of infrastructure firms in Indonesia, forming a comprehensive model of corporate sustainability performance.

Table 1
Sampling Procedure

No	Criteria	Total
Population: Infrastructure companies listed on IDX		69
Sampling based on criteria (purposive sampling)		
1	Infrastructure companies listed on IDX that do not belong to the contruction, transportation, and energy subsectors during 2019-2023	-18
2	Companies that did not publish annual reports, sustainability reports, or financial statements during 2019-2023	-19
4	Companies lacking complete data related to the variables used in this research	-13
5	Outlier Data	-8
Final sample meeting the criteria		11
Research period		5
Total research observations (11 x 5)		55

The sampling procedure is presented in Table 1. In this study, the purposive sampling technique was employed, enabling the selection of samples based on specific relevant characteristics. Out of a total of 69 companies in the population, several were eliminated for not belonging to the subsectors under study, not publishing annual/sustainability reports, or lacking complete data, resulting in a final sample of 11 companies. With an observation period of 5 years, the total panel observations used in this research amounted to 55 observations.

The independent variables in this study consist of Political Connections, Board of Directors Educational Background, and Carbon Emission Management, while the dependent variable is the Sustainable Growth Rate (SGR). The relationship

among these variables is analyzed to examine their effect on corporate sustainable growth. The indicators used and their measurement methods are presented in Table 2.

Table 2
Research Variables and Operational Definitions

Variabel	Defenition	Measurement
Political Connection (X1)	Political connection is defined as a condition in which a company has close ties with political power or the government through direct ownership, company management (board of commissioners/directors), or other special relationships.	Indicators of political connection are measured using the scoring system provided by the Indonesian Financial Transaction Reports and Analysis Center (PPATK, 2015). The political connection scale is determined as follows: 5 = High-ranking state officials 4 = Head of echelon I institutions 3 = Directors of SOEs/ROEs, state university rectors, echelon I military/civil officials 2 = Officials as stipulated by ministerial regulations 1 = Political party members
Board Educational Background (X2)	The educational background of the board of directors includes undergraduate, master's, or doctoral degrees in fields such as economics, management, engineering, or law. A strong educational foundation helps the board make more informed decisions, reduce information asymmetry, and improve operational efficiency.	Based on Jayanti et al. (2023), the educational background of board members is measured on the following scale: 1 = Undergraduate diploma (D3) 2 = Bachelor's degree (S1) 3 = Master's degree (S2) 4 = Doctoral degree (Ph.D.)
Carbon Emission Disclosure (CED) (X3)	Carbon Emission Disclosure refers to the voluntary disclosure of information related to a company's carbon emissions. This disclosure includes aspects such as the amount of carbon emissions produced, emission reduction strategies, and climate change initiatives.	Referring to Budiman et al. (2024), Carbon Emission Disclosure is measured using 7 disclosure items.
Sustainable Growth Rate (SGR) (Y)	SGR is a metric used to assess the extent to which a company can grow sustainably without increasing financial leverage or issuing new equity.	Referring to Arora et al. (2018), SGR is calculated using the following formula: SGR = ROE × (1 – Dividend Payout Ratio)

The analytical technique employed in this research is panel data regression analysis using the Generalized Least Squares (GLS) approach to obtain efficient parameter estimates. The data processing was carried out using the EViews 12 application, which comprehensively supports panel data analysis. The general form of the panel data regression model used in this study is as follows:

$SGRit = \alpha + \beta1(\text{Political Connections}) + \beta2 (\text{Educational Background}) + \beta3 (\text{Carbon Emissions})$

Result and Dicussion

The selection of the appropriate panel regression model is a crucial initial step in ensuring the accuracy of estimation results. In this study, three types of tests were conducted to determine the most suitable model, namely the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test (Savitri et al., 2021). Based on the results of these three tests, it can be concluded that the most appropriate model used in this research is the REM, which was further analyzed using the Generalized Least Squares (GLS) method. The test results are presented in Table 3 below.

Table 3
Determination Results of Panel Data Regression Estimation Model

Test	Result	Decision
Chow test (0.0002 < 0.05)	CEM vs FEM	Fixed effect model
Hausman test (0.7442 > 0.05)	FEM vs REM	Random effect model
LM test (0.0000 < 0.05)	CEM vs REM	Random effect model

This research presents a descriptive analysis of the data used. All the information is presented in detail in Table 4 below.

Table 4
Descriptive Statistics

	SGR	PC	EB	CE
Mean	5.0215	3.8625	2.5684	0.4802
Median	2.3700	3.7500	2.6300	0.5700
Maximum	22.320	5.0000	3.0000	1.0000
Minimum	-6.9900	3.0000	2.0000	0.0000
Std. Dev.	6.7013	0.7021	0.2948	0.2363
Observations	55	55	55	55

Based on Table 4, the average Sustainable Growth Rate (SGR) of infrastructure companies is 5.02 percent, with a minimum value of -6.99 percent and a maximum value of 22.32 percent, indicating significant variation in sustainable growth capacity across companies. The average political connections score of 3.86 suggests that most companies maintain relatively strong political ties through their boards of commissioners. The educational background of directors shows an average of 2.57, indicating that most directors possess educational qualifications ranging from undergraduate to postgraduate levels. Meanwhile, carbon emissions are recorded with an average of 0.48, reflecting that some companies have started to disclose carbon emission information, although not yet comprehensively. To ensure the feasibility of the regression model used, classical assumption tests were conducted, beginning with the normality test to assess whether the residual distribution meets the normality assumption, which is a prerequisite in panel data regression analysis. The results of the normality test are presented in Table 5 below.

Table 5
Normality Test

Test	Result
Jarque-Bera	2.155768
Probability	0.340315
Observations	55

Based on Table 5, the results of the normality test using the Jarque-Bera test show a probability value of 0.3403, which is greater than 0.05. Therefore, it can be concluded that the residuals in the model are normally distributed (Ghozali & Ratmono, 2017). Thus, the model has fulfilled the normality assumption.

Table 6
Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	51.96368	87.62780	NA
PC	1.356763	35.23848	1.107681
EB	8.007510	90.20815	1.152451
CE	11.23139	5.418402	1.045219

Based on Table 6, the results of the multicollinearity test by examining the Variance Inflation Factor (VIF) values show that the VIF for variable X1 is 1.107681, for variable X2 is 1.152451, and for variable X3 is 1.045219. Since all three VIF values are below 10, it can be concluded that there is no multicollinearity in this regression model (Napitupulu et al., 2021).

Table 6
Result of Hypothesis Testing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.81595	9.908236	1.394391	0.1692
PC	-5.294524	1.649371	-3.210027	0.0023
EB	4.285077	3.656362	1.171951	0.2467
CE	1.354091	3.370125	0.401792	0.6895

Can be formulated as follows:
SGRit = 13. 81595 - 5. 294524 (Political Connections) it + 4. 285077 (Educational Background) it + 1. 354091 (Carbon Emissions) it

Based on Table 7, the results of the hypothesis testing with a significance level of 0.05 (Ghozali & Ratmono, 2017) indicate that the political connections variable has a negative and significant effect on SGR, with a regression coefficient of -5.294 and a probability value of 0.0023, which is smaller than the 0.05 significance level. This finding suggests that the involvement of commissioners or directors with political backgrounds, such as former public officials, legislators, or ministerial special staff, does not make a tangible contribution to driving sustainable company growth. Their positions tend to be symbolic, aimed more at strengthening access to government projects and power networks rather than performing oversight or making strategic decisions (Hasan & Rani, 2024).

Within the framework of agency theory, as explained by Jensen and Meckling (1976), political connections can exacerbate agency conflicts through the emergence of moral hazard. Political affiliations create a perception of protection from market pressures, thereby reducing the incentives for agents to act efficiently and accountably. Strategic decisions that should be based on rational considerations and long-term interests are often driven by political motives, resulting in structural inefficiencies in corporate management. This practice is further

worsened by the increase in information asymmetry between management and company owners, which obscures transparency in the decision-making process (Jensen & Meckling, 1976). Findings from Indonesia Corruption Watch (ICW, 2020) also emphasize that the appointment of commissioners from political circles in Indonesia is prone to conflicts of interest and does not significantly contribute to corporate governance effectiveness.

Faccio (2006) shows that firms with political connections in developing countries generally have lower earnings quality, worse efficiency, and unstable performance, especially during shifts in political power configurations. This is reinforced by the findings of Fisman (2001), who, in a case study of Indonesia during the New Order era, found that the market value of politically connected firms was highly dependent on the continuity of political power. When political instability occurred, the value of these firms declined drastically. Ligita & Muazaroh (2020) also identified that politically connected firms in Indonesia had a lower return on equity (ROE), averaging only 8.62% compared to 12.57% in politically independent firms. Supatmi et al. (2021) further added that political connections could reduce corporate efficiency, encourage short-term orientation, and negatively affect firm value.

In the Indonesian infrastructure context, political connections indeed offer short-term benefits such as access to strategic projects and licensing advantages. However, these benefits are temporary and do not guarantee long-term sustainable growth. Firms' dependence on political affiliations can lead to a loss of strategic independence, weak internal control, and suboptimal investment decision-making (Hasan & Rani, 2024). According to Azmi & Aprayuda (2021), even compensation strategies designed to align the interests of management and owners may not be effective in mitigating agency conflicts. Regime or policy changes can quickly overturn the strategic position of previously advantaged firms. In other words, political connections create a fragile dependence on a power ecosystem that cannot be predicted in the long term.

The financial health of Waskita Karya declined from the "healthy" category in 2018 to "less healthy" in 2019 (Barmawi, 2021). This occurred despite the company securing national strategic projects. Thus, the findings of this study align with those of Ligita & Muazaroh (2020) and Supatmi et al. (2021), who stated that political connections negatively affect efficiency and firm value in Indonesia. These results also contradict Faccio's (2006) study, which found that political connections had a positive effect in countries with strong governance. This indicates that in Indonesia's context, where institutions remain weak, political connections more often serve as a source of inefficiency and growth obstacles. According to Sukrasta & Wirakusuma (2024), institutional ownership does not necessarily serve as an effective control mechanism in preventing internal manipulation. In this context, political connections and weak board backgrounds may further undermine governance effectiveness and influence firms' ability to achieve sustainable growth.

The research findings show that educational background yielded a positive coefficient of 4.285 but was not significant, with a probability value of 0.2467 greater than 0.05. This means that even though directors possess higher education levels (such as undergraduate or postgraduate degrees), this does not significantly contribute to sustainable corporate growth. Indirectly, education should reflect cognitive capacity in formulating strategies and making long-term decisions. This indicates that while directors of infrastructure firms in Indonesia may hold higher education degrees, their contribution to sustainable growth is not yet directly visible. Within the framework of Upper Echelons Theory (Hambrick & Mason, 1984), the cognitive and demographic characteristics of top managers such as education, experience, and value orientation are believed to shape their interpretation of the strategic environment and ultimately influence organizational decision-making. Higher education, especially in management, economics, or engineering, should enhance directors' capacity to manage risks, design strategies, and guide firms toward long-term efficiency and sustainability.

The insignificance of these findings can be explained through several structural and contextual factors. This result is consistent with Attia et al. (2021), who showed that higher education levels do not necessarily impact performance if not accompanied by board independence, institutional support, and a collaborative corporate culture. In the Indonesian context, the role of directors often tends to be more administrative than strategic, so the cognitive advantages derived from education have not been optimally utilized (Wardhani & Supratiwi, 2023). In governance environments where corporate-level decisions are largely dominated by top leadership, directors often merely execute the policies of owners or majority shareholders, leaving little room for meaningful intellectual contribution. In contrast, Ghardallou (2022) found that higher education especially in sustainability and strategic management

contributes significantly to innovation and efficiency. However, the findings in the Indonesian context suggest that education should be viewed as potential rather than a guarantee. Therefore, for directors' education to have a tangible impact on SGR, there must be institutional strengthening, transparency in strategic decision-making, and the empowerment of directors in corporate policy formulation.

Carbon emission management showed a positive coefficient of 1.354, but it was not significant, with a probability value of 0.6895 greater than 0.05. This indicates that although there is a positive tendency, carbon disclosure or management has not been strong enough to influence sustainable corporate growth. Theoretically, carbon management practices hold great potential to improve operational efficiency, reputation, and firm competitiveness. Porter & Linde (1995) argue that smart environmental regulation can encourage firms to innovate and enhance productivity performance, thereby generating economic gains and growth.

The insignificant results reflect the reality that many companies in Indonesia still implement carbon management strategies in a formalistic and symbolic manner. Most carbon disclosures in sustainability reports are made to fulfill administrative obligations rather than being integrated into long-term business strategies. This finding is reinforced by Ramadhan et al. (2023), who stated that corporate carbon disclosures in Indonesia are still unstandardized and inconsistent, making it difficult to attract investors or build market trust. Furthermore, Kurnia et al. (2021) noted that in Indonesia, carbon emission disclosure remains voluntary, and the low level of disclosure reflects weak regulatory pressure.

Global studies demonstrate that structured carbon management can be a source of competitive advantage. Sun et al. (2023) found that companies actively managing carbon and committing to long-term emission targets tend to have higher Return on Assets (ROA) and revenue growth. Moreover, the CDP report (2021) shows that companies adopting science-based carbon disclosure targets are more adaptive in transitioning to a low-carbon economy and more attractive to investors. These findings imply that the weak influence of carbon management on SGR in Indonesia is not due to the irrelevance of the variable but rather to the lack of integration of carbon strategies into the core of the business model.

Conclusion

This study examined the influence of political connections, board educational background, and carbon emission management on the Sustainable Growth Rate (SGR) of infrastructure companies in Indonesia. The findings reveal that political connections have a negative and significant effect on SGR, confirming the Agency Theory proposition that political affiliations intensify agency conflicts and weaken corporate governance effectiveness. Politically connected firms often prioritize political agendas over efficiency and long-term value creation, resulting in unsustainable growth trajectories.

Meanwhile, the educational background of the board of directors exhibits a positive but insignificant relationship with SGR. This partial support for Upper Echelons Theory indicates that while education enhances cognitive ability and strategic awareness, its potential impact on sustainability remains unrealized due to limited board independence and institutional constraints. Similarly, carbon emission management shows a positive yet insignificant effect, implying that environmental disclosure and accountability have not yet become a core strategic priority in Indonesia's infrastructure sector.

Overall, these results highlight that sustainable growth in emerging economies is more strongly determined by governance integrity and institutional accountability than by political privilege or individual managerial characteristics. Theoretically, this research contributes to extending Agency Theory and Upper Echelons Theory in the context of developing markets, emphasizing that sustainable corporate performance depends on the alignment between governance mechanisms, managerial competence, and environmental responsibility.

From a managerial perspective, the findings suggest that policymakers and corporate leaders should reduce political intervention in board appointments, enhance the strategic empowerment of directors, and integrate emission management into key performance systems to promote genuine sustainability. Strengthening institutional oversight and enforcing transparent governance practices are essential to ensure that firms pursue long-term growth rather than short-term political benefits.

However, this study is not without limitations. The relatively small sample size (55 firm-year observations) and focus on the infrastructure sector may limit the generalizability of the results. Moreover, some variables were operationalized using secondary

data proxies, which, although commonly used in prior studies, may not fully capture the complexity of each construct. Future research could expand the sample across sectors, utilize broader longitudinal data, and include moderating factors such as board independence or institutional quality to provide a more comprehensive understanding of sustainable growth determinants.

In conclusion, this study underscores that sustainable growth is achieved not through political access but through governance integrity, strategic competence, and authentic environmental commitment a lesson highly relevant for infrastructure development in emerging economies.

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