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Does Being Green Pay Off? Green Intellectual Capital, Accounting, and Firm Value

Ida Ayu Lestari ¹, Sari Rahmadhani ^{2*},

Sekolah Tinggi Ilmu Ekonomi Totalwin, Semarang, Indonesia

*Correspondence: E-mail: sari@stietotalwin.ac.id

ABSTRACT	ARTICLE INFO
This study examines the influence of Green Intellectual Capital (GIC) and Green Accounting (GA) on Firm Value (FV), with Green Competitive Advantage (GCA) as a mediator. Using purposive sampling, 147 observations were collected from basic materials companies listed on the Indonesia Stock Exchange (IDX) for the 2020–2024 period. Data were analyzed using PLS-SEM. Findings reveal that both GIC and GA significantly enhance FV, indicating that green intellectual capital and environmental transparency serve as vital signals for investors. While GIC significantly strengthens GCA, GA has no significant effect on competitive advantage. Furthermore, GCA effectively mediates the relationship between GIC and FV, whereas its mediating role for GA was not supported. These findings align with Resource-Based View (RBV) theory, suggesting that green resources enhance market value when managed as unique strategic capabilities. Companies should optimize green intellectual assets and environmental reporting quality to strengthen competitiveness and achieve sustainable corporate value.	Article History: <i>Submitted/Received 25 February 2026</i> <i>First Revised 03 March 2026</i> <i>Accepted 07 March 2026</i> <i>First Available online 16 April 2026</i> <i>Publication Date 29 April 2026</i> Keyword: <i>Basic Materials; Firm Value; Green Accounting; Green Competitive Advantage; Green Intellectual Capital.</i>
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1. INTRODUCTION

Global competition and investor expectations require companies to adopt adaptive strategies to increase Firm Value (FV) through the integration of economic and environmental aspects (Ana et al., 2021). This shift requires companies to respond to environmental dynamics and sustainability demands as key factors of modern business (Dewi & Ananda, 2024). This issue is crucial for the basic materials subsector which has a substantial impact on the environment due to CO₂ emissions and B3 waste, thus placing industries such as cement and metals under strict supervision by regulators (Lestari, 2023).

Theoretically, the company's dependence on societal norms is explained by Legitimacy Theory. Companies in this sector carry out environmental practices not only to comply with the law, but also to gain social legitimacy; If this legitimacy disturbed, the market will respond negatively through a decline in confidence. Figure 1. Presents Tobin's Q data for the basic materials sector from 2020–2024 period, showing a pattern of decline and fluctuation that indicates weak investor perception regarding environmental and governance issues.

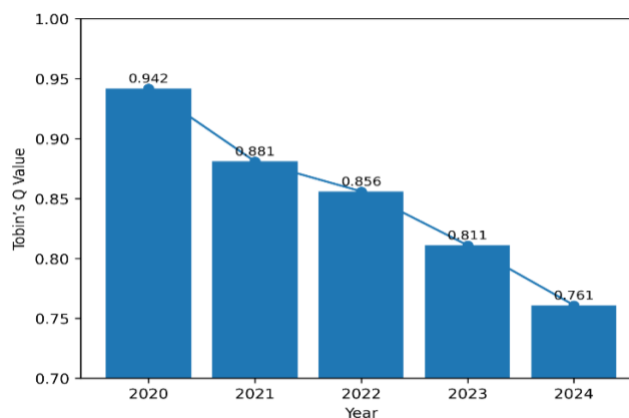


Figure 1. Average Firm Value sectors basic materials

This phenomenon is reinforced by the Blast Furnace corruption scandal at PT Krakatau Steel (Persero) Tbk (Rifa'i, 2023), the seizure of the illegal smelter of PT Timah Tbk (Hidayat, 2025), and the deforestation lawsuit against PT Semen Indonesia (SIG), which lowered investor confidence (Itsaini, 2024). These events prove that failure to manage sustainability aspects has direct implications for market volatility. Therefore, integrated reporting in accordance with PSAK 1 is crucial for transparency (Suryati & Murwaningsari, 2022). Conceptually, increasing firm value depends on resource optimization and sustainable strategies (Santika et al., 2025; Sumarna, 2025), where environmental performance is closely related to company value Anggraeni (2024); Hasibuan et al. (2023) dan Santika et al. (2025).

The main strategic determinant is Green Intellectual Capital (GIC) as an intangible asset to build competitive advantage (Suwandana et al., 2025). From the perspective of the Resource-Based View (RBV), GIC is regarded as a key strategic capability that strengthens a company's competitive position (Astuti & Ahmar (2025); Tonay & Murwaningsari (2022). In this study, GIC was measured using the VAIC approach, which includes VAHU, STVA, and VACA (Anggraeni, 2024). In addition to GIC, the implementation of Green Accounting (GA) is a crucial factor that provides a positive signal of sustainability commitment to investors (Santika et al., 2025). GA

implementation boosts investor confidence Astuti & Ahmar (2025); Kusuma et al. (2023) through comprehensive financial reporting (Kustiyanı & Zulaecha, 2025; Prihastuti et al., 2025).

In Indonesia, GA is represented through PROPER, which functions as an instrument of legitimacy and reputation (Sari & Machdar, 2023). The connection between sustainability practices and FV is stronger if companies build GCA as a strategic differentiator (Suryati & Murwaningsari, 2022). The disclosure of GCA indicators has a positively influences FV (Imam et al., 2024). However, the literature shows inconsistent empirical findings regarding the influence of GIC and GA on FV Astuti & Ahmar (2025); Dewi & Ananda (2024); Hasibuan et al. (2023); Melvani & Arsjah (2025); Santika et al. (2025), and some studies have even found an insignificant relationship Dahlia et al. (2024); Enjelika & Budiasih (2025); Melvani & Arsjah (2025). The novelty of this research lies in the integration of GCA as a crucial mediating mechanism that addresses these inconsistencies. Unlike previous studies that often treat green resources as having a direct linear impact on market value, this study explores the "black box" of how internal intangible assets (GIC) and transparency practices (GA) are first transformed into a strategic competitive position before they can be recognized as economic value by the market.

Based on the identified research gaps, this study introduces GCA as a mediating variable as its main point of novelty to explain the mechanism of converting green intellectual capabilities and environmental accounting practices into market value in an integrated manner. As shown in Figure 2, this research model framework integrates elements of intellectual capital and environmental accounting into a more comprehensive framework to address inconsistencies in previous findings. The model not only tests linear relationships but also explores how environment-based competitive advantage becomes a crucial bridge in transforming internal resources into market-recognized economic value. Practically, this study is expected to provide for managers in the basic materials sector in formulating effective sustainability strategies, enabling to enhance competitiveness while creating stable firm value amid high environmental risks and strict regulatory supervision.

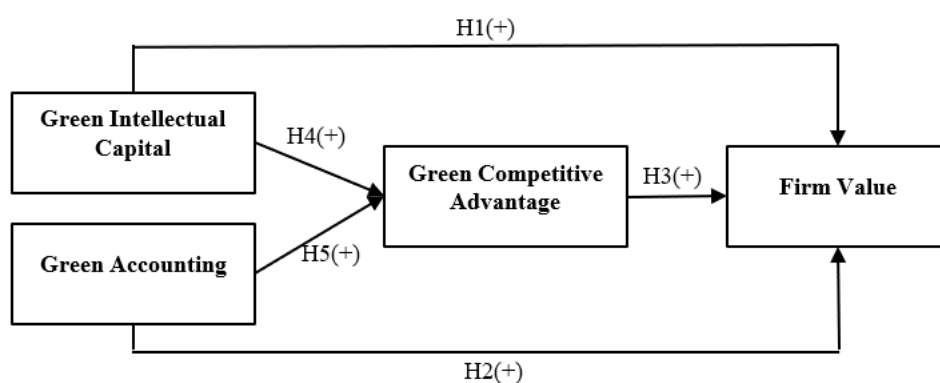


Figure 2. Theoretical Framework of Research Model

2. METHODOLOGY

This study uses a quantitative approach with an explanatory design to test the causal relationship between variables. The research data are derived from secondary sources, specifically the annual report and sustainability report of companies in the basic materials sector listed on the Indonesia Stock Exchange (IDX). The observation period covers 2021–2024, providing a comprehensive overview of the sector's response to recent environmental regulatory dynamics. The research employs data gathered from the raw material sector companies listed on the Indonesia Stock Exchange (IDX) and the official websites of the respective companies. The sampling strategy used in this study was purposive sampling, which involves selecting unique characteristics relevant to the research, as follows: (1) companies registered consecutively during the 2021–2024 period; (2) publication of complete annual report and sustainability report; and (3) consistent presentation of data related to research variables. Using the specified criteria, 147 observations were collected and deemed eligible for analysis using SmartPLS version 3.0 and PLS-SEM (Hair & Alamer, 2022).

FV in the present study is assessed using Tobin's Q, which reflects how the market evaluates management's ability to manage the company's assets. Tobin's Q is calculated as the ratio between the market value of a company and its book value or replacement cost of its assets (Aydoğmuş et al., 2022). Based on the research done by Pangestu & Nawirah (2025) and is computed using the following formula:

$$\text{Tobin's Q} = \frac{\text{MVE} + \text{Debt}}{\text{TA}}$$

GIC is measured through the VAIC (Value Added Intellectual Coefficient) approach, which describes a company's efficiency in creating added value from tangible and intangible assets (Gantino et al., 2023). VAIC consists of three main components; Value-Added Human Capital (VAHU), Capital Employed Value Added (VACA), and Structural Capital Value Added (STVA). Based on the study by Joecelyn & Hiong (2025), the calculation of GIC is carried out in 5 stages, namely:

$$\text{VA} = \text{total sales and other revenues} - \text{expenses}$$

$$\text{VAHU} = \frac{\text{Value Added}}{\text{Human Capital}}$$

$$\text{VACU} = \frac{\text{Value Added}}{\text{Human Capital}}$$

$$\text{STVA} = \frac{\text{Structural Capital}}{\text{Value Added}}$$

$$\text{VAIC} = \text{VACA} + \text{VAHU} + \text{STVA}$$

GA is evaluated using the PROPER rating system developed and managed by the Ministry of Environment and Forestry (MoEF). PROPER serves as an indicator of the company's level of compliance and performance in environmental management. The following PROPER assessment ratings have been adapted from the study by Kustiyani & Zulaecha (2025) using a scale of 1-5;

black PROPER with a value of 1, indicates very poor environmental conditions, Red PROPER with a value of 2, indicates poor conditions, Blue PROPER with a value of 3, indicates adequate conditions, Green PROPER with a value of 4, indicates good conditions, and Gold PROPER, with a value of 5, indicates excellent environmental conditions.

GCA is measured using a dummy approach, in which companies are assigned a score of 1 for statements that match indicators and a score of 0 for those that do not. GCA is measured based on eight indicators used as dummy- coded content: (1) the company possesses a cost advantage in environmental management and green innovation, (2) the company offers environmentally friendly products or services with quality that exceeds that of its competitors, (3) the company possesses stronger capabilities in environmental research and development as well as green innovation compared to its competitors, (4) the company demonstrates stronger environmental management capabilities compared to its competitors, (5) the company generates higher profitability from its eco friendly products or services, (6) the company's growth related to green products and services exceeds the of competitors, (7) the company's environmentally friendly products or services hard for major competitors to replicate, and (8) the company's unique role the company plays in environmental management or green innovation is not easily substituted by competitors (Bintara et al., 2023). The GCA score is calculated using the formula proposed by Hidayat et al. (2024), as follows:

$$\text{GCA} = \frac{\text{The total number of items expressed in each element}}{\text{The total number of items in each element}}$$

3. RESULT AND DISCUSSION

Descriptive Statistical

Based on the results of the data analysis, the following section presents a descriptive statistical analysis of the research variables, using samples from raw material companies for the 2020-2024 period.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Firm Value	147	0.13	2.59	0.8209	0.50776
VACA	147	0.82	1.65	0.2041	0.25622
VAHU	147	-13.15	22.70	1.8524	3.14868
STVA	147	-8.31	6.68	0.4704	1.13018
VAIC	147	-11.10	24.08	2.5268	3.35192
Green Accounting	147	2.00	5.00	3.5374	0.76991
Green Competitive Adv	147	125.00	1000.00	878.4014	203.21979

Source: SmartPLS 3.0 Output Data, 2026

The descriptive statistics from 147 observations show an average FV of 0.8209 with a standard deviation of 0.50776. This indicates that, in general, the market value of a firm is slightly below the book value of its assets, with moderate variation. For the GIC variable, negative minimum values were found in all VAIC components (VACA -0.82; STEAM -13.15; STVA -8.31), which theoretically indicate that some companies have not succeeded in creating added value from their intellectual assets due to high losses or operating expenses. In line

with this, GA shows an average value of 3.5374, reflecting the implementation of GA practices at a medium-to-high level according to PROPER standards. Meanwhile, the GCA variable averages 878.4014, with a relatively large standard deviation of 203.2197, indicating a significant gap in the level of environment-based competitive advantage among companies in the basic materials sector.

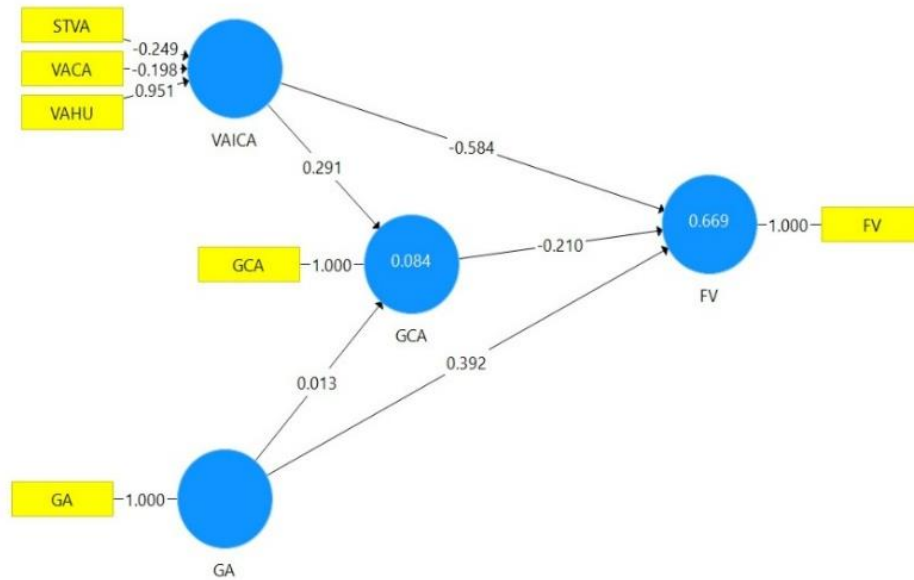


Figure 3. Outer Model Testing Scheme
Source: SmartPLS 3.0 Output Data, 2026

Table 2. Cross Loading

Variable	FV	GA	GCA	VAICA
FV	1.000	0.468	0.389	0.691
GA	0.468	1.000	0.023	0.120
GCA	0.389	0.023	1.000	0.292
STVA	0.193	0.107	0.026	0.254
VACA	0.159	0.096	0.035	0.158
VAHU	0.644	0.079	0.305	0.952

Source: SmartPLS 3.0 Output Data, 2026

Table 2 shows the cross-loading test results indicate that each variable loads highest on its measured construct, with a value of 1,000 exceeding the ≥ 0.7 threshold. Therefore, all constructs meet the discriminant validity requirement.

Table 3. R-square

Variable	R-square	R-square adjusted
Firm Value	0.668	0.661
Green Competitive Advantage	0.085	0.072

Source: SmartPLS 3.0 Output Data, 2026

Table 3 shows the R- square value for FV is 0.661 or 66.1%, which means it falls into the moderate category. Meanwhile, the R- square value for GCA is 0.072 or 7.2%, which is

categorized as weak. This indicates that GIC and GA variables explain 66.1% of the variation in FV, while the remaining 33.9% is influenced by factors outside the scope of this study. In contrast, GIC and GA variables explain only 7.2% of the variation in GCA, whereas the remaining 92.8 percent is affected by other factors beyond the scope of this research.

Table 4. Hypothesis Test Results

Hypothesis Path Analysis	Coefficient	T Statistics	P value	Conclusion
VAIC → FV	0.583	4.740	0.000***	Confirmed
GA → FV	0.393	7.659	0.000***	Confirmed
GCA → FV	0.210	3.287	0.001**	Confirmed
VAICA → GCA	0.293	3.046	0.002**	Confirmed
GA → GCA	0.012	0.178	0.859	Rejected

The Role of GCA Mediation				
VAICA → GCA → FV	0.061	2.089	0.037**	Confirmed
GA → GCA → FV	-0.003	0.170	0.865	Rejected

*p value < 0.1; **p value < 0.05; ***p value < 0.01

Source: SmartPLS 3.0 Output Data, 2026

Table 4 presents the results of hypothesis testing, which confirm that GIC and GA are key determinants of FV within the basic materials industry. Specifically, GIC as proxied by VAIC, was shown to exert a significant positive effect FV (H1), with a coefficient of 0.583 and a p-value of 0.000. Similar results are observed for GA, which also demonstrates a statistically significant positive effect on FV (H2), with a coefficient of 0.393 and a p-value of 0.000. This confirms that transparency in environmental management sends a positive signal that strengthens investor confidence. In addition, tests of GCA also show a significant positive influence on FV (H3), with a coefficient of 0.210 and a p-value of 0.001; as a result, the third hypothesis is accepted. These findings indicate that achieving an environment-based competitive advantage is now perceived by the market as a strategic asset that can sustainably enhance FV.

In building internal capabilities, Green Intellectual Capital (VAICA) has been shown to significantly contribute to the green competitive advantage (H4), as shown by a coefficient of 0.293 and a p-value of 0.002. On the other hand, GA is not found to directly affect the development of GCA (H5), which is reflected its non-significant p-value of 0.859. Regarding the role of mediation, GCA demonstrates a significant mediating effect on the relationship between GIC and FV (H6), with a mediation coefficient of 0.061 and a p-value of 0.037. However, GCA does not mediate the relationship between GA and FV (H7), as reflected in the non-significant p-value of 0.865.

The Influence of GIC on FV (H1)

The first hypothesis test shows that GIC significantly affects FV. From the perspective of the RBV theory, GIC is recognized as a valuable intangible resource that can drive competitive advantage when properly managed and effectively integrated into business strategy. However, referring to descriptive data showing a negative minimum VAIC value, this indicates that some companies in the basic materials sector have not optimized their GIC; therefore, the potential for value creation has not been fully realized and may be viewed by investors as

a cost burden. This low level of optimization is likely influenced by the high investment costs and the time required to integrate GIC into internal processes, such as human resource training, green technology adoption, and environmentally-based system restructuring, the impacts of which will only be felt in the long term (Putri, 2025).

This condition is reinforced by the finding that immature GIC disclosure leads investors to view green investments as additional expenditures that do not generate immediate economic returns. These findings are supported by Adelisa & Mayangsari (2025), which states that without mature strategic integration, GIC can create financial pressures, prompting a negative market response. In addition, these findings are supported by Rismawanti (2025) and Sumarna (2025), who indicate that the market has not fully recognized environment-based intellectual capital as the main factor influencing FV, particularly when the efficiency of intellectual capital use (VAIC) remains volatile. Therefore, companies are required not only to possess GIC but also to ensure its efficient utilization to provide a positive signal that strengthens FV.

The Contribution of GA in Increasing FV (H2)

As shown in Table 4, the test results confirm the hypothesis that GA significantly affects FV. These findings suggest that implementing GA through structured environmental information management and disclosure can strengthen the company's image as an entity committed to social and environmental responsibility. This strengthens investor confidence regarding the company's future performance, ultimately leading to higher market value (Anggraeni, 2024). Through GA, companies can measure and manage the environmental effects of their business activities more precisely while increasing transparency for stakeholders regarding the environmental costs and benefits generated (Safitri & Widiyati, 2025).

Theoretically, based on the RBV theory, the implementation of GA is viewed as a unique internal capability in managing environmental information to support innovation and operational efficiency. This strategy enables companies to integrate ecological aspects with strategic economic decisions to build a positive reputation among society and investors while demonstrating ethical responsibility in the responsible management of resources (Nurfaidah et al., 2024). The findings of this research align with those of Kusmawati & Anisah (2025); Putra et al. (2024); and Imam et al. (2024), highlighting that the effectiveness of GA implementation is an important determinant of investment decisions that strengthen firm value. Thus, environmental accounting disclosure functions not only as a regulatory requirement but also as a strategic means of increasing the market attractiveness of companies in the basic materials sector.

The Role of GCA in Strengthening FV (H3)

The test results in Table 4 confirm the hypothesis that GCA significantly impacts FV. These results suggest that firms in the basic materials sector that develop an environment-based competitive advantage, efficient use of resources, and green product uniqueness can send a positive signal to the market. Investors now view GCA as not a financial burden but as a strategic resource that strengthens the company's market standing and ensures the sustainability of the firm value amid increasingly stringent environmental regulatory (Akib et al., 2025).

This phenomenon reflects the evolving characteristics in the Indonesian capital market, where investors are beginning to integrate sustainability factors alongside conventional

financial indicators in assessing the company's prospects. The recognition of green strategies as strategic investment shows that sustainability practices are considered capable of enhancing firm value in the long term. These findings are in line with the research of Suryati & Murwaningsari (2022) and Wijaya & Handoko (2025), which emphasize the importance of prioritizing environmentally friendly production, sustainability-driven creativity, and a brand image as effective differentiation strategies to gain a competitive advantage. Increasing transparency and improving the quality of environmental performance disclosure are crucial to ensure that the strategic benefits of green competitive advantages are accurately understood and valued by market participants, thereby strengthening FV.

The Influence of GIC on the Achievement of GCA (H4)

The findings of the hypothesis test in Table 4 reveal that GIC contributes positively and significantly to GCA. These findings demonstrate that the implementation of environment-based intellectual capital can strengthen a company's strategic competitiveness in the basic materials sector. In line with RBV theory, companies can achieve green competitive advantages through the utilization of valuable internal resources, as these advantages stem from the accumulation of knowledge, human resource capabilities, and green technologies that create unique characteristics that are difficult for competitors to replicate. The effective implementation of GIC enables companies to develop sustainability-oriented internal capabilities, allowing them to compete and survive in intense market competition through more efficient and cost-effective resource management (Jao et al., 2023).

This emphasizes that the optimization of GIC management is directly correlated with the strengthening of the company's GCA. GIC is understood as a set of knowledge-based resources, including intellectual property rights, organizational experience, team competence, and brand strength, which collectively contribute to creating added value (Alhazami, 2023). These characteristics make GIC a strategic asset that not only encourages innovation in environmentally based processes and products but also supports the creation of sustainable competitive advantages. The findings of Alhazami (2023), García-Meca et al. (2023); Islamiah & Hermawan (2022); Jao et al. (2023); Martínez-Falcó et al. (2025), state that the mastery of GIC is a key determinant in strengthening companies' competitive position amid increasing demands for environmentally friendly industrial practices.

The Effectiveness of GA on the Establishment of GCA (H5)

Based on the fifth hypothesis testing in Table 4, GA has no statistically significant effect on GCA. The findings indicate that GA practices in companies within the basic materials sector remain largely administrative and not yet found strategically incorporated into operational activities and value-creation processes. As a result, the implementation of GA has not supported the establishment of a tangible GCA. This condition confirms that the role of regulators and stakeholders is crucial in promoting more comprehensive, standardized, and strategic environmental reporting so that GA can provide optimal competitive benefits for companies (Talapessy et al., 2025).

The effect of GA on a firm's competitiveness depends largely on the depth of its implementation; this practice will only improve operational efficiency and create differentiation if it's fully integrated with the adoption of environmentally friendly technologies and sustainable product development (Prasetya et al., 2025). Based on the RBV perspective, a resource can create a competitive advantage if it possesses valuable, rare, and inimitable characteristics. The findings of this research are in line with Nadhiroh et al. (2023), show that the implementation of GA in the research sample has not met the RBV criteria. This is due to the limitations of GA, which still focuses primarily on reporting and legal compliance functions; therefore, it has not provided a unique strategic capability to significantly differentiate the company from its competitors in the market (Melvani & Arsjah, 2025).

The Contribution of GCA Mediation on the Influence of GIC on FV

Based on the hypothesis testing in Table 4 show that GCA serves as a mediator between GIC and FV. These findings confirm that the sixth hypothesis is accepted, in which GCA acts as a strategic bridge that transforms environment-based intellectual capital into increased firm value. In accordance with the RBV framework, optimally managed GIC is able to create unique, rare, and hard-to-replicate competitive advantages, ultimately signaling to investors positive prospects for the company's sustainability. This confirms that, in addition to physical assets, organizational capabilities contribute to a company's value in integrating green knowledge and innovation to compete in an increasingly intense market environment (Romadhon et al., 2025).

The success of this mediation indicates that investors are beginning to recognize green competitive advantage as a key determinant of FV in the basic materials sector. While the use of GIC to establish a competitive edge is a relatively new area of research, it is gaining recognition (Bombiak, 2023), the results of this study demonstrate that adaptive strategies through product development aligned with environmental regulations can strengthen the company's market position. These findings also provide a new perspective on the study of Nurulhaliza (2024) and Sumarna (2025) by showing that investor perception of intellectual assets improve when these assets are successfully transformed into tangible competitive advantages. Through greater transparency in GIC disclosure, obstacles to investor evaluation of non-financial performance can be minimized, thereby enabling sustainability strategies to contribute more optimally to stock prices and firm value (Suripto & Islami, 2024).

The Influence of GCA mediates the Relationship between GA and FV

Based on the results in table 5, GCA is not capable of mediating the impact GA on FV. The inability of GCA to mediate the relationship between GA and FV is attributed to suboptimal management of GA as a strategic resource, as well as the low level of market recognition of GCA, and the failure to meet the RBV criteria of being valuable, rare, and difficult to replicate. The direct implementation of GA has not been able to create a competitive advantage that enhances FV. One reason is that investor perception oriented towards short-term financial performance. The direct implementation of GA has not created a competitive advantage that enhances FV. One reason is that investor perception is oriented towards short-term financial performance. Short-term implementation of GA is often seen as less attractive to investors because it requires high costs. This condition makes GA practices less appealing to investors, but in the long term, the implementation of GA has the potential to improve efficiency and support the achievement of corporate sustainability (Indrastuti, 2024).

The low level of market appreciation for environmental practices has led to the formation of a weak GCA, which is not strong enough to influence FV. In addition, the recording and disclosure of environmental costs have not been fully perceived by investors as indicators of a company's financial performance and future sustainability commitments; therefore, don't significantly affect sales or profit levels. In practice, environmental activities are still ported within the Corporate Social Responsibility (CSR) budget report and are not explicitly integrated into GA-based financial statements. As a result, the disclosure of environmental cost in the income statement, whether reported or not, has not provided a strong economic signal for investors and therefore has no effect FV (Sapulette & Limba, 2021).

These findings support the results reported by Pangestu & Nawirah (2025) and Sumarna (2025), which states that GA ability to enhance FV largely depends on the degree of integration into business strategies and the reliability of the environmental information presented. This research makes an empirical contribution by demonstrating that the implementation of GA and the establishment of GCA don't automatically increase firm value in the short term, especially when sustainability strategies have not been internalized as a strategic resource that provides a tangible competitive advantage. Therefore, companies in the basic materials sector need to reposition their GA practices so that they are not merely administrative requirements but also strategic instruments to strengthen their competitive position and FV.

4. CONCLUSSION

This research analyzes the influence of GIC and GA on FV and examines the role of GCA serving as a mediating variable. The analysis was carried out using data collected from raw materials sector companies listed from 2020 to 2024. This conclusion asserts specific positive impacts of GIC, GA, and GCA on FV. These findings indicate that environmentally based intellectual capital, environmental accounting transparency, and GCA are recognized by the market as strategic assets that enhance FV. Furthermore, GIC has been found to significantly influence the development of GCA, while GA has not demonstrated significant influence on strengthening competitive advantage. In the mediation mechanism, GCA effectively mediates the link between GIC and FV, but doesn't mediate the relationship between GA and FV.

Theoretically, the findings strengthen the development of RBV theory by indicating that green resources can create firm value when managed as unique and valuable strategic capabilities. This research provides a theoretical contribution by emphasizing the importance of converting intellectual capital into tangible competitive advantage so that it can be positively perceived by the market as a signal of sustainability. From a practical perspective, findings indicate that managers in the basic materials sector need to strategically integrate GIC and GA into company operations. Since the transparent implementation of GA is highly valued by investors, firms are encouraged to enhance the standard of environmental information they disclose to minimize information asymmetry and strengthen market legitimacy.

The limitation of this study lies in data availability, as several companies did not consistently publish complete sustainability reports in the early stage of the research period. Further research can broaden the scope to additional sectors and utilize wider proxies for GIC and GCA, capturing the dynamics of the Indonesian capital market more comprehensively. In addition, future researchers may consider incorporating moderation variables, such as environmental regulatory policies, to deepen the analysis of competitive advantage formation.

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