

## The Effect of Green Innovation and Green Intellectual Capital Disclosure on Financial Performance in the Fast Fashion Industry

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**Abstract.** This research is expected to empirically explain the influence of green innovation and GICD (Green Intellectual Capital Disclosure) on financial performance in fast fashion companies that are publicly listed. This study employs quantitative descriptive research using secondary data collected from fast fashion companies listed on public exchanges over a five-year period, from 2019 to 2023, obtained from Osiris Big Data. Data analysis was conducted using Stata Version 6. The novelty of this research lies in its focus on the fast fashion industry, particularly regarding green innovation and green intellectual capital disclosure, which has not been explored before. This study also tests the resilience of the Resource-Based View theory in explaining the influence of the variable's green innovation and GICD. The results indicate that green innovation and green intellectual capital disclosure both have a significant effect on financial performance. Furthermore, the findings confirm that the Resource-Based View theory remains valid in addressing the impact of the variables tested in this study.

**Keywords:** green innovation; fast fashion; green intellectual capital; disclosure

### INTRODUCTION

Fast fashion is a business concept in the fashion industry that produces clothes that follow trends quickly. In fact, this business has consumers from various circles, both generation X to generation Z (Papadopoulou et al., 2022). However, behind this business, consciously feel a very large impact on the environment (Endrayana & Retnasari, 2021), this is due to the large amount of clothing waste produced by this business becoming a phenomenon in global issues, namely the issue of carbon emissions. Based on the data obtained, the fast fashion industry is also responsible for 10% of the contribution of carbon emissions generated from the waste of clothes produced (Nidia & Suhartini, 2020). Consumers also do not realize that the fast fashion industry has damaged the water, air and soil environment on earth. This business also cannot be blamed for this, because the demand from consumers to continue to produce according to trends and change clothes without caring about the waste generated from each consumer.

The level of environmental concern by the fast fashion company is very important in improving financial performance. Environmental concern has become one of the main focuses of the company in addition to earning profits (Chang & Chen, 2012). Environmental concern is also part of the competition challenges that companies must pay attention to firm performance (Yusoff et al., 2019). Many consumers are also aware of the importance of the products they use to affect environmental sustainability. One form of corporate environmental concern is better known as CSR (Corporate Social Responsibility). Increased environmental awareness can help companies create a positive relationship between CSR and the three dimensions of green intellectual capital, namely green human capital, green structural capital and green relational capital (Jirakraisiri et al., 2021). Companies are required to innovate not only internally but also for the environment (Yusoff et al., 2019; Chen, 2008; Huang & Li, 2017). Green innovation is a strategy in the form of techniques, systems and actions that reduce the impact of environmental damage on products and services produced by the company (Abrudan et al., 2022).

The form of green innovation and green intellectual capital (GIC) provides opportunities for companies to focus on sustainable product development along with green manufacturing practices so that in this way companies are able to improve business performance with the help of environmental conservation (Yusliza et al., 2020). Business sustainability is an important thing in measuring company performance. Based on this, there are several performance measurements that can be used to assess the

influence of GIC on business sustainability, namely economic performance, environmental performance, and social performance (Yong et al., 2022; Sheikh, 2021; Chandra & Augustine, 2019; AL-Khatib & Shuhaiber, 2022; Zalfa & Novita, 2021). Green innovation not only reduces negative impacts on the environment but also increases business competition and research results show that green innovation has a positive effect on business performance (Abrudan et al., 2022; Chen, 2014; Omar et al., 2019).

The development of the fast fashion industry that produces the most clothing waste so that with the company's accountability, it can realize green innovation and GIC disclosure in the financial reporting of fast fashion industry companies. The fast fashion industry listed on the stock exchange includes Zara, H&M, Forever 21, Shein, Uniqlo, Mango. The brand's consumers are very many, mainly from generation Z. The concept of green innovation has become a concern for the fast fashion brand to innovate to create environmentally friendly products. Green innovation and GIC have not been discussed much in the fashion industry, especially the fast fashion industry. Based on previous research, it is stated that companies that implement green intellectual capital businesses have a positive effect on competitive advantage (Huang & Li, 2017).

Research on green innovation and GICD in the fast fashion industry has never been done before, research also shows that GIC has a significant effect on competitive advantage, but Islamic business ethics as able to moderate between GIC and competitive advantage (Cahyono & Hakim, 2020). However, it is different from research that shows that GIC has no effect on green innovation (Abrudan et al., 2022) and research that shows that green innovation has no effect on the company's financial performance (Huang & Li, 2017; Marco-Lajara et al., 2022). This study conducts a gap in previous research by looking for the influence of green innovation and GIC (human, structural and relational) that are disclosed on the performance of fast fashion companies. This is the novelty of this research, because no one has ever researched it, especially in the fast fashion industry. This research is also in line with the research roadmap of the Department of Accounting, especially in the research group that discusses the field of integrating CSR with business strategy and in line with the science owned by the researcher.

The purpose of this study is to examine the effect of green innovation and Green Intellectual Capital Disclosure (GICD)—comprising human, structural, and relational capital—on the performance of fast fashion companies, while also testing the moderating role of Islamic business ethics in strengthening the relationship between GIC and competitive advantage. This research is significant because it addresses a gap in previous studies that reported inconsistent findings regarding the relationship between GIC, green innovation, and company performance, and because no prior research has specifically focused on the fast fashion industry. The benefits of this study are both theoretical and practical: theoretically, it contributes to the literature on sustainable business practices by integrating green innovation, GICD, and ethical considerations into corporate strategy; practically, it provides insights for managers and policymakers in the fast fashion industry to implement green innovation and intellectual capital strategies that not only improve competitiveness but also align with ethical and sustainable business principles.

## **MATERIALS AND METHOD**

This study used quantitative descriptive research with secondary data by taking data on fast fashion companies listed in companies that go public for 5 years starting from 2019-2023 obtained from Osiris Big Data. This study considers taking research samples from fast fashion industry companies including those that produce brands Zara, H&M, Pull&Bear, Mango, Uniqlo. The reason for the selection of the sample is because the brand is a company that has a high level of sensitivity to the environment (Roberts, 1992) so it is considered necessary to test green innovation and green intellectual capital. The annual report was taken during the period from 2019 to 2023. Data analysis was carried

out by Content Analysis and Regression on green innovation and GIC Disclosure on the company's Financial Performance. The type of data used in this study is quantitative with a data source in the form of secondary data. The source of data in this study is documentary data, namely the company's annual report.

This study uses secondary data obtained from Osiris Data. The companies that are the object of this research are industrial sector companies engaged in the fast fashion industry, including OSOS, H&M, Fast Retailing and Inditex for the period of 2019-2023 with a total of 20 observations.

- a. H&M (Hennes & Mauritz) is a multinational clothing retailer originating from Sweden. The company was founded in 1947 by Erling Persson in the city of Västerås, Sweden. H&M is known for its fast fashion business model, which provides trendy clothing and accessories at affordable prices. Today, H&M has grown to become one of the largest retail companies in the world, with thousands of stores in various countries.
- b. Fast retailing is a multinational retail company originating from Japan. The company was founded in 1963 and is based in Yamaguchi, Japan. Fast Retailing is the parent company of several well-known clothing brands, including Uniqlo, which is its flagship brand and one of the biggest players in the global apparel industry. In addition to Uniqlo, Fast Retailing also owns several other brands such as GU, Theory, Helmut Lang, and J Brand.
- c. ASOS is an online clothing and fashion retail company originating from the United Kingdom. ASOS was founded in 2000 and is based in London. The company focuses on selling clothing, accessories, and beauty products through its online platform, with the main target of young adult consumers. ASOS is renowned for its extensive fashion collection, including well-known brands as well as its own product lines.
- d. Inditex, which stands for "Industria de Diseño Textil," is a multinational clothing retail company that originated in Spain. Inditex was founded in 1985 by Amancio Ortega and Rosalía Mera, and is headquartered in Arteixo, Galicia, Spain. The company is one of the largest retail groups in the world and owns a variety of well-known brands, including Zara, Massimo Dutti, Pull & Bear, Bershka, Stradivarius, Oysho, and Uterqüe. Inditex is known for its highly efficient fast fashion business model, allowing them to quickly update their collections as per market trends.

This research was carried out qualitatively and quantitatively. The form of qualitative data is by conducting content analysis on the company's financial statements on green intellectual capital disclosure and green innovation indicators. Then the source of quantitative data for the dependent variable, the control variable of the study, the dependent variable of this study is the financial performance of the total ROE (Return-on-equity). The data was analyzed using Stata version 6. There are two control variables in this study, namely: Leverage and company age.

## RESULTS AND DISCUSSION

The results of the hypothesis testing of this study use regression analysis that quantitatively examines the multivariate relationship between the conceptual framework of this study, namely green intellectual capital disclosure and financial performance and family ownership as moderation variables and includes leverage and age firm as control variables. Table 1 shows the results of descriptive statistics.

**Table 1. Descriptive Statistical Results Of The Variables Used In This Study**

Variable	Obs.	Mean	Std. Dev.	Min	Max
Green Innovation	20	20.203	19.094	0	1
GICD	20	16.424	15.080	0	1
Financial Performance	20	2.340	12.322	0	72.80
Leverage (DER)	20	4.190	45.541	0.001	24.849
AGE	20	36.130	20.510	4	120

Source: Stata output (2024)

Green innovation has a mean of 20,203 from a minimum value of 0 and a maximum of 1. This shows variable data and shows a standard deviation value of 19,094 or below the mean value, meaning that green innovation has a low level of variation and tends to be homogeneous. GICD has a mean of 16,424 from a minimum value of 0 and a maximum of 1. This shows variable data and shows a standard deviation value of 15.08 so that the data tends to be homogeneous. Financial performance has a mean of 2.34 from a minimum value of 0 and a maximum of 72.80 and shows data that tends to be homogeneous because it has a standard deviation of 12,322. In the following table the relationship between variables is shown using pairwise correlations.

**Table 2. Relationship Between Variables**

Variables	(1) GICD	(2) Green Innovation	(3) Fin. Performance	(4) Leverage (DER)	(5) AGE
(1) GICD	1.000				
(2) Green Innovation	0.138	1.000			
(3) Fin. Performance	0.116 (0.876)	0.101 (0.055)	1.000		
(4) Leverage (DER)	0.102 (0.090)	(0.767)	(0.821)	1.000	
(5) AGE	(0.175)	(0.881)	(0.904)	(0.943)	1.000

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source : Data processed (2024)

The correlation between the green intellectual capital disclosure variable and financial performance is 0.093, meaning that there is a relationship between the two variables. As for the correlation between green innovation and financial performance of 0.055, it shows that there is a relationship between the two variables. The correlation of the leverage variable as a control variable to green intellectual capital disclosure of -0.090 is not related to the age firm as a control variable whose correlation is -0.943 and -0.841 which means that there is no relationship between the age firm variable to the variable green innovation and green intellectual capital disclosure to financial performance.

To test hypothesis 1 and hypothesis 2, the researcher conducted a regression with the results presented in the following table 3:

**Table 3. Hypothesis Testing**

Financial Performance	Coef.	Std. Err.	t-value	p-value	[95% Conf. Interval]	Sig
Green Innovation	0.657	13.877	-0.05	0.000	-27.855 – 26.541	*
GICD	0.184	0.110	1.67	0.000	-0.032 – 0.399	*
Leverage (DER)	0.028	0.046	-0.61	0.539	-0.118 – 0.062	
AGE	0.008	0.101	0.08	0.936	-0.191 – 0.207	
Constant	1.233	8.500	-0.15	0.885	-17.892 – 15.426	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Data in process (2024)

Based on the regression results, it shows that when green innovation increases by one unit, financial performance will increase by 0.657 with a constant value of 1,233. When the variable of green intellectual capital disclosure increases by one unit, financial performance will increase by 0.184 with a constant value of 1.233. As for the leverage control variable, showing an increase of one unit, it will decrease financial performance by 0.028 with a constant value of 1.233. The age firm control variable increases by one unit, it will increase financial performance by 0.008 with a constant value of 1.233.

The discussion of the research findings on the hypothesis of this study shows the probability results of t-Statistics which tests the level of significance of each independent variable, showing that, at the significance level of 5 percent, the independent variables of green innovation and green intellectual capital disclosure have a significant effect on the dependent variables of financial performance. The probability result of Prob>F has a value of 0.000 which indicates that together the regression coefficients have insignificant values, meaning that the independent variables together have no influence on the dependent variables. The R<sup>2</sup> value has a value of 0.157 which indicates that the level of determination of the independent variable to the bound variable is 20 percent. In general, the conclusion is that green innovation and green intellectual capital disclosure have a simultaneous effect on financial performance. Statistically, green intellectual capital disclosure has a p-value of 0.000<0.05 which means that there is an influence on financial performance.

### **Green innovation on financial performance**

The fast fashion industry has a long history of great environmental impacts, including excessive resource consumption, textile waste, and high carbon emissions, green innovation has an impact on the financial performance of this business. In particular, lower production costs are one way green innovation can affect the financial performance of fast fashion companies. Fast fashion manufacturers often use production techniques that require a lot of resources and cheap raw materials. New and fresh raw materials can be used less frequently when green innovations such as recycled raw materials or more productive production techniques are applied. A decrease in long-term operating costs may increase profit margins even though the initial investment in green technology may be large. The environmental impact of the goods they buy is becoming increasingly obvious to consumers. Due to its impact on the environment, the fashion industry is increasingly under regulatory pressure. Fast fashion companies can avoid fines and penalties that can have a negative impact. Their financial side by implementing eco-friendly innovations to help them comply with current and future environmental regulations.

Companies can also reduce harm to their reputation from negative publicity or public campaigns against unsustainable activities by minimizing their environmental impact. Eco-friendly innovation can be a strong differentiator in a highly competitive field such as fast fashion. Companies can attract more segments of environmentally conscious consumers who may be willing to pay higher costs by offering eco-friendly items as a unique added value compared to conventional products.

Because of this, businesses have a competitive advantage that can result in higher market share and profits. Environmentally friendly products are becoming increasingly popular around the world, and some markets or consumer groups will only buy items from companies that demonstrate a strong commitment to sustainability. Fast fashion brands can enter this new market and profit from the growing consumer trend towards sustainability with the help of eco-friendly innovations, which can ultimately lead to increased revenue. Due to its reliance on complex international supply chains, the fast fashion sector often suffers from disruptions from things like changes in raw material prices or political unrest in the countries where it originates.

Green innovation with a focus on sustainability can reduce long-term operational and financial risks by reducing reliance on unreliable or unsustainable raw materials. More and more investors are giving top priority to sustainability in their investments. By embracing green innovation, fast fashion companies can gain greater access to finance and increase their corporate value by attracting investments from funds that prioritize environmental, social, and governance (ESG) factors. All things considered, green innovation in the fast fashion sector can be used as a tool to reduce its negative impact on the environment, but it can also be a strategic approach to increase brand recognition, improve operational effectiveness, and create new growth prospects. The company's financial performance has improved as a result of all these variables, both directly and indirectly.

### **Green intellectual capital disclosure on financial performance**

Business practices that disclose information about intellectual capital—such as expertise, inventiveness, and capacity for environmentally sound operations—related to environmental sustainability are known as "green intellectual capital disclosure." This disclosure has the potential to have a positive impact on the reputation and brand image of fast fashion companies, which in turn could have an impact on their financial performance. Fast fashion brands can improve their reputation among stakeholders, investors, and customers by being transparent about their efforts in innovation and eco-friendly sustainability. Customers who care more about the environment will be more likely to support companies that are open about their business methods and sustainable goals. A positive reputation can increase sales by fostering greater client loyalty.

A clearer picture of how fast fashion companies manage and use environmentally connected assets to generate value is provided to investors through increased transparency and Green Intellectual Capital Disclosure. Because dedication to sustainability is considered to lower long-term risks and demonstrate proactive management, investors tend to be more trustworthy and interested in investing in such companies. Fast fashion companies will be able to meet or even exceed environmental regulatory requirements with the help of government incentives and regulatory support, as well as effective disclosure of green intellectual capital. In addition to avoiding penalties or fines, it can also make businesses eligible for government incentives such as tax deductions, subsidies, or access to sustainability support initiatives. All of this can lower operating costs while increasing revenue.

Fast fashion brands can differentiate themselves from less sustainable or non-transparent competitors by aggressively expressing their efforts and embracing green innovation, which gives them a competitive advantage and market privilege. By standing out from competitors, businesses can attract customers who care about the environment and increase their market share by charging higher fees for products that are considered more morally and sustainably made. Ultimately, this increases revenue and profit margins.

The environmental impact of fast fashion is often questioned. Companies can control and mitigate reputational risks associated with criticism of unsustainable activities by implementing good green intellectual capital disclosure. Companies can ease public fears and reduce the likelihood of boycotts or unprofitable campaigns that could lower sales and stock value by demonstrating their dedication to green innovation.

Companies must manage, assess, and improve their intellectual assets internally related to sustainability as part of the Green Intellectual Capital Disclosure process. This can incentivize businesses to concentrate more on environmentally friendly innovations, which can improve operational effectiveness and create new business prospects in addition to benefiting the environment. The result of successful innovation may be products and processes that are more cost-effective and generate more sustainable profit margins. The company's relationships with various stakeholders, such as clients, staff, and the public, are strengthened by transparent disclosure of green intellectual capital. This stakeholder trust can foster long-term support, strengthen existing ties, and reduce operational uncertainty. Green Intellectual Capital Disclosure benefits fast fashion companies' overall financial performance because it helps them improve their reputation, increase investor confidence, lower regulatory and reputational risks, and drive internal efficiency and innovation. Each of these things increases revenue, lowers costs, and ultimately increases business profitability. This study also tests the resilience of the Resource Based View theory between the influence of variable green innovation and GICD. The results of this study show that the results of green innovation and green intellectual capital disclosure have an effect on financial performance. The results of this study also prove that the Resource Based View theory is still able to answer the influence of the variables tested in this study.

## CONCLUSION

This research demonstrates that green innovation and Green Intellectual Capital Disclosure (GICD) significantly enhance the financial performance of fast fashion companies, supporting the Resource-Based View theory. Green innovation contributes by reducing production costs, improving operational efficiency, and attracting environmentally conscious consumers, thereby boosting market share and profitability. Meanwhile, effective GICD strengthens corporate reputation and stakeholder trust, reduces reputational risks, and facilitates access to government incentives and investor interest. This study highlights the strategic value of integrating sustainable practices in the fast fashion industry, offering companies competitive advantages and improved financial outcomes. By providing empirical evidence in a previously underexplored sector, this research fills a critical gap in the literature. Future research could explore the long-term effects of green innovation and GICD on financial performance across different regions or compare these impacts in other industries to broaden understanding of sustainability's role in business success.

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