

The Effect of Company Size, Green Capability and Profitability on Green Product Innovation

Hasabi Sailendra^a, Wiwiek Dianawati^{b*}, ^{a,b}Department of Accountancy, Faculty of Economics and Business, Universitas Airlangga, Email: ^{b*}wiwiek.dianawati@feb.unair.ac.id

This study aims to examine the effect of company size, green capability and profitability on green product innovation. The sample used in this study was 637 manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the year 2012–16. Multiple regression techniques are used to find empirical evidence about company size, green capability, profitability and green product innovation. The results show that company size has a positive effect on green product innovation while green capability and profitability have a positive effect on green product innovation.

Keywords: *Company size, Green capability, Green product innovation, Profitability.*

Introduction

Innovation is the implementation of a product (in the form of goods or services), processes, marketing methods or new organisational methods that have been significantly improvised (Oslo, 2005). Innovation has an important role to play in the growth of organisational performance in global markets (Tjahjadi et al., 2019). It provides a strategic picture for businesses in relation to maintaining product sustainability (Nurhilalia et al., 2019). Several previous studies have shown that innovation has a positive effect on business performance (Pulungan et al., 2018; Wang et al., 2011). The main purpose of innovation is to meet market demand so innovative products can be used to provide a competitive advantage for companies (Agustia & Swardjuwono, 2019). Innovations that are carried out without due consideration can, however, result in environmental damage – especially if they are not accompanied by sufficient attention to caring for the surrounding environment (Syarifuddin & Damayanti, 2019).

Green product innovation, also known as green innovation, is an industry initiative that can be undertaken in all areas, and developed sustainably (Hidayati & Hasibuan, 2019; Horbach et al., 2009). Dangelico and Pujari (2010) emphasize that green product innovation is a factor

in achieving growth, ensuring sustainable environmental preservation and producing quality products. Green product innovation is defined as something new or improved to reduce the product's impact on the environment throughout the production cycle (Dangelico & Pujari 2010; Kammerer 2009; Lin et al., 2014); Soewarno et al., 2017).

Previous research on factors affecting green innovation has focused only on the necessary regulations and market demand (Foster & Green, 2000; Kammerer 2009; Lin et al., 2014; Rehfeld et al., 2007). Green product innovation is also often associated with innovation and sustainability (Dangelico & Pujari, 2010; Huang Ding & Kao 2009; Lin, Tan & Gang 2013). However, few researchers have examined the relationship between company size, green capability and company profitability in terms of green innovation. The development of this research is needed to clarify the topic of green innovation for researchers, companies and investors.

Several studies have found that company size influences responsibility for environmental strategies. Larger companies are able to carry out more activities so they have a greater influence on society and have more shareholders who are concerned about the social programs of the company. Further, their annual reports are efficient tools for communicating that information. Large companies will disclose more information than smaller companies (Nasih et al., 2019). Several studies have shown that company size has a positive influence on the surrounding environment (King & Lenox 2001; Melynk, Sroufe & Calantone 2003) and green product innovation (Cleff & Rennings 1999; Rehfeld et al., 2007). Meanwhile, several studies have demonstrated that company size has no positive effect on green product innovation (Van den Eijnden et al., 2008; Seijas-Nogareda, 2007; Wagner, 2007).

In addition to company size, Russo and Fouts (1997) claim that organisational capabilities, such as assembly, integration and management of a company's capabilities and resources, play an important role. ISO14001 is an international specification for environmental management systems that help companies to assess environmental risks. The purpose of ISO14001 is to reduce costs, regulate legal compliance, become the preferred supplier and add competitive benefits. Companies are therefore required to innovate by taking into account the environment around the company, which means they must begin to pay attention to green capability. Green capability is defined as something that can shape the company's attitude towards knowledge about issues related to the environment (Bernauer et al., 2006). Kammerer (2009) states that a company's green capabilities have an important role in the innovation of products that are environmentally friendly. Hart (1995) links competitive advantage with the relationship between companies and the green environment. This strategy is intended to prevent pollution and maintain the quality of the product. Pollution prevention can provide win-win opportunities through green product innovation.

Profitability also plays an important part because profitability is an important source of the company's future product development, and is also an important indicator for managers, because a high level of profitability is the key for managers to exercise effective control (Li & Tang, 2010). To continue its operations, a company must be profitable (Abbas & Arizah, 2019). Without profits, it is very difficult for companies to attract capital from outside (Novrianto, 2012). Dangelico and Pujari (2010) suggest that investment in green technology is quite risky because the natural resources consumed by the company show uncertainty about profitability. However, companies with high levels of profitability are able to produce expensive investments and make these investments a competitive advantage when competing companies are short of money (Cainelli et al., 2015).

This research focuses on how companies undertake product innovation, especially product innovation that is environmentally friendly, as a strategy to survive in the midst of increasingly fierce competition. Environmental issues can threaten not only health, but even jeopardise the survival of humans and their offspring. The real evidence is the depletion of the ozone layer which can cause global warming and the greenhouse effect, along with the increasing quantity and dangers of waste generated by these companies. Many companies in the world have begun to pay attention to the environment around their companies.

This research was conducted at manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the period 2012–16. The manufacturing sector was chosen because it was considered to have a large environmental impact due to high operational activities, so it became necessary for manufacturing companies to implement green product innovation. This study uses multiple linear regression to examine company size, green capability, profitability, and green product innovation. The results show that company size has a positive effect on green product innovation while green capability and profitability have a positive effect on green product innovation.

Based on the background described above, the problems that will be examined in this study can be formulated as follows: (1) Does the size of the company affect green product innovation? (2) Does green capability affect green product innovation? (3) Does profitability affect green product innovation?

Literature Review

Stakeholder Theory

Freeman (1984) defines stakeholders as a group or an individual who can impact or be affected by the results of the company's goals. Stakeholders include stockholders, creditors, employees, customers, suppliers, public interest groups and government bodies (Roberts,

1992). According to stakeholder theory, companies as entities operate not only for their own interests, but to provide benefits for stakeholders (Putri & Christiawan, 2014).

Legitimacy Theory

Legitimacy theory is based on the idea that the company will continue to run successfully if it acts according to the rules or norms set by the surrounding community (O'Donovan, 2002). The company will acquire and maintain legitimacy if the achievements or results are the same as those expected by the community (Deegan, 2006). Legitimacy theory interprets how companies care about the community and the surrounding environmental conditions (Nasi et al., 1997). Thus, the company's goal is to legitimise its behaviour by managing stakeholder perceptions.

By implementing green product innovation, companies will easily gain legitimacy from the community because if the company is considered to pay attention to the environment, it will have a good impact on the survival of the company.

Company Size

The size of a company can be measured by total assets, as well as by total sales. The greater the assets owned by a company, the greater the capital owned by the company. In Law Number 20 of 2008 article 6, four categories of company size are mentioned: (1) small businesses, if the company has a net worth of between Rp 50 million and Rp 500 million; (2) medium-sized businesses, if the company has a net worth of between Rp. 500 million and Rp. 10 billion; and (3) large companies, if the company has a net asset of more than Rp 10 billion.

Baylis, Connell and Flynn (1998) state that the larger the size of the company, the greater the company's ability to properly process the company's financial and corporate resources to reduce the impact on the environment. Companies with larger sizes carry out more production activities or activities so that they have a large influence on the community, and have many shareholders who have an interest in the social activities of the company. The size of the company is measured using the total assets contained in the company's annual financial statements.

Green Capability

At this time, all industries are required to create innovative programs (Aaker, 2012). Companies that are able to make further innovations are able to withstand the pressure from competitors and the challenges of consumers (Chang & Chen, 2014). Innovation capability is

the ability of a company to manage the resources owned by the company, including human resources, to increase profits (Chang & Chen, 2014). Green capability is defined as a company's ability to assemble, manage and integrate its resources by minimising waste and the use of materials that can cause damage to the environment (Bernauer et al., 2006).

ISO14001 is an international specification in the field of environmental management that helps companies to identify, prioritise and manage environmental risks as part of the normal business practices of the company. ISO14001 states that companies must include activities related to environmental preservation and corporate social responsibility (CSR) in their annual reports.

Profitability

Weston and Copeland (1999) suggest that profitability is the net result of a series of policies and decisions. If the company can increase profitability, it can manage financial and human resources effectively and efficiently. According to Sartono (2010: 122), profitability is an important measure for a company because it shows the company's ability to generate profits during certain periods at the level of sales, assets and stock capital, and is crucial in creating company value because profitability is one important point of consideration for investors in their investment decision.

Profitability is an important measure for company sustainability, as the company must be in a favourable position financially. Without profit, it will be difficult for the company to attract capital from outside (Handriyani, 2013). According to Bridgham (2001) types of profitability consist of profit margin sales, return on total assets (ROA), basic earning power (BEP) ratio, and return on equity (ROE). The present research was measured using return on assets (ROA).

ROA is a profitability ratio that is used to measure the ability of funds in assets used by companies in their ability to generate profits. A high level of profitability can attract investors to invest their capital in order to expand the business. Conversely, a low level of profitability makes investors hesitate to commit capital and loans to companies.

Green Product Innovation

Green product innovation is an environmentally friendly product innovation. Its purpose is related to the production, sale and utilization of the remaining waste treatment for recycling, as well as to reduce pollution and save energy (Chen, Lai & Wen, 2006). Green product innovation is undertaken by companies to benefit the surrounding environment, and to produce products that are superior to conventional products. The goods produced can be

recycled, use few raw materials and do not produce pollution. They therefore have a less harmful impact on the surrounding ecosystem (Widowati, 2015).

Hypotheses Development

Company Size and Green Product Innovation

The large size of the company can indicate that it is undergoing development, so investors will respond positively and the value of the company will increase (Sujoko & Soebiaturo, 2007). Stakeholder theory says that decisions taken by company management are influenced by and influence stakeholder decisions, so companies with complex relationships will have greater demands placed on them.

Sciascia et al. (2015) emphasize that company size plays a crucial role in understanding management innovation. Several studies show that company size has a positive influence on corporate environmental activities (King & Lenox, 2001) and on green product innovation (Clegg & Rennings, 1999). This leads to the following hypothesis:

H1: Company size influences green product innovation.

Green Capability and Green Product Innovation

Green capability is an effort to gain legitimacy from the community and to increase the competitive advantage of competitors (Daft, 1983). By implementing green capability, the company will strive to minimise waste and use of production materials that can pollute the environment.

Previous research states that EMS certifications, such as ISO14001, can demonstrate company competence, as they facilitate green products directly by introducing them through environmental goals and management structures as a program that they must achieve (Magali, 2008). Rahfeld et al. (2007) argue that EMS certification allows companies to review their procedures with the aim of identifying which areas need improvement in the context of environmental product innovation. This leads to the following hypothesis:

H2: Green capability affects green product innovation.

Profitability and Green Product Innovation

Profitability is an important source for the company's future development and a major indicator of managers' autonomy, because a higher level of profitability can provide conclusions for managers to be able to control business operations effectively (Li & Tang,

2010). Companies with higher profitability will have more funds to realise green innovation. For example, capital resources give companies the ability to install sophisticated equipment to prevent pollution, and to meet environmental requirements that are environmentally friendly (Bae, 2017).

Internal factors such as profitability are important determinants of green innovation (Maletič, 2013). Green innovation requires abundant resources, including finance, human resources, materials and technology (Lin, et al., 2014). Companies with higher levels of profitability and assets that are sufficiently capable of producing expensive investments can use them as a differentiation strategy to provide a competitive advantage when competing companies lack capital (Jakobsen & Clausen, 2016). In addition, companies with higher profitability can accumulate more assets to support green innovation and commercialisation directly, while low profitability limits the decision-making power of managers; this may cause disruption to investment sustainability towards green innovation. This leads to the following hypothesis:

H3: Profitability affects green product innovation.

Methodology

Sample and Data Sources

The research sample used in this study is manufacturing companies listed on the Indonesia Stock Exchange in the period 2012–16. Manufacturing companies were chosen because they make a major contribution to green product innovation. A total of 723 manufacturing companies were listed on the Indonesia Stock Exchange (IDX) in 2012–16 according to www.sahamok.com.

Table 1: Sample selection criteria

No.	Criteria	Total				
		2012	2013	2014	2015	2016
1.	Manufacturing companies listed on the Indonesia Stock Exchange (2012–16)	144	144	144	145	146
2.	Excluded: Companies that do not have the required data	(12)	(8)	(4)	(4)	(4)
	Number of samples selected	132	136	140	141	142
Total samples used			637			

Definition of Variable Operations

Green Product Innovation

Green product innovation is defined as a company initiation to develop and implement new products, which can reduce the negative impact on the environment around the company. Ten indicators are used to measure the adoption of green innovation products in companies (Dangelico & Pujari, 2010; Fussler & James, 1996; Hart, 1995; Lin et al., 2013), namely:

- substitution materials that can cause environmental pollution
- substitution of hazardous materials
- product design focused on reducing the consumption of resources at the production stage
- product design focused on reducing the occurrence of waste at the production stage
- product design focused on product improvement and testing
- product design focused on increasing product usage
- product design focused on developing recyclability
- product life-cycle analysis to improve product design
- expansion of market scope for green products
- improving manufacturing technology to improve and create new green products.

Company Size

Demanpour (1992) argues that companies with large levels of resources have the opportunity to tolerate losses resulting from the failure of corporate innovation. The greater the size of the company, the greater the resources available to invest in developing green product innovations. Based on the research of Berrone et al. (2010), in this study company size was measured using the following formula:

$$\text{Company size} = \text{Ln}(\text{Total assets})$$

Green Capability

Green capability is a capability and knowledge of a company that is related to how a company responds to problems related to problems in the environment around the company (Bernauer et al., 2006; Kammerer 2009). This study focuses on whether the company is able to utilise the (financial) resources available. Based on research conducted by Block (2012), Brown and Svenson (1998), Hagedoorn and Cloudt (2003) and Kammerer (2009), this study measures green capability using the formula:

$$\text{Green capability} = \frac{\text{R\&D spending}}{\text{Total sales}}$$

Profitability

Profitability is the ability of a company to generate profits from sales activities, total assets and the company's capital (Agus Sartono, 2012: 122; Bansal et al., 2018). Profitability is positively correlated with company value, so the higher the profitability of the company, the more likely the company is to undertake green innovation with the help of its resources (Li & Tang 2010; Sadalia et al., 2017). In this study, the authors use ROA.

$$ROA = \frac{\text{Net income}}{\text{Total assets}}$$

Data Analysis Techniques

The analysis technique used in this study is multiple linear regression analysis, which aims to determine the relationship between more than one independent variable and one dependent variable. The regression model in this study was formulated as follows:

$$GPI = a + \beta_1ROA + \beta_2SIZE + \beta_3CAPABILITY + \varepsilon$$

GPI represents green product innovation as measured by content analysis, then the results from the content analysis table are divided by 10. ROA represents the profitability of a company that is measured using Net Income to the total assets of the company. SIZE represents company size which is then calculated using natural logarithm. CAPABILITY represents green capability which is calculated by R&D expenditures on total sales in a certain period.

Results

Descriptive Statistics

Table 2: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. dev.
GPI	637	.100000	1.000000	.53092622	.210572570
ROA	637	-1.073900	.525700	.04663187	.108884394
SIZE	637	24.318183	33.198812	28.23765700	1.821225048
Capability	637	.000339	.799126	.102741617	.210572570

GPI proxy is used to explain the innovation of green products the company has a minimum value of 0.100000, a maximum of 1,000000. and an average of 0.53333333 with a standard deviation of 0.210572570. ROA proxy which explains the profitability of the company has a minimum value of -1.073900, a maximum of 0. 525700, and an average of 0.04663187 with a standard deviation of 0.108884394. SIZE proxy explains the size of the company has a

minimum value of 24.318183, a maximum of 33.198812, and an average of 28.23765700 with a standard deviation of 1.821225048. The CAPABILITY proxy explains that green capability has a minimum value of 0,000339, a maximum of 0.799126, and an average of 0.102741617 with a standard deviation of 0.210572570.

Classic Assumption Tests

Normality Test

A normality test is conducted to see whether, in the regression model, independent and bound variables have a normal distribution. A good regression is a regression with normal or near-normal data distribution. The normality test is undertaken through a non-parametric statistical approach, namely through the normal probability plot test method. The model is considered normal if the points always follow and approach the diagonal line. In this study, the results of the normality test show that the points follow the flow of the diagonal line, so it can be concluded that the residual value is normally distributed so that the residual value normality requirements for regression analysis are met.

Multicollinearity Test

Multicollinearity occurs when the tolerance value ≤ 0.10 or VIF ≥ 10 . The multicollinearity test results show that there is no multicollinearity among the independent variables in this study because the tolerance value ≤ 0.10 and the VIF value ≥ 10 .

Heteroscedasticity Test

This study uses the Glejser test to prove the absence of heterokedasticity. If the calculated significance value for each variable in the Glejser test is greater than 0.05, the regression model does not experience heteroscedasticity problems. Heteroscedasticity test results showed that there was no heteroscedasticity problem because the significance value was calculated for each variable > 0.05 .

Hypothesis Testing

T-test

Table 3: Statistical results of T-test

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.613	.143		-4.291	.000
Roa	.186	.073	.097	2.558	.011
Size	.040	.005	.300	7.938	.000
Capability	.009	.077	.004	.115	.908

The hypothesis will be accepted if the t-test significance level is <0.05 , it means that the independent variable influences the dependent variable in this study. Based on Table 3, it can be seen that the company size variable (SIZE) has a significance level of 0.000 to green product innovation (GPI) with a regression coefficient of 0.082 and a t value of 6.666. This value indicates that the company size variable has a significant influence on the green product innovation variable. Green capability (CAPABILITY) has a significance level of 0.232 for green product innovation (GPI) with a regression coefficient of 0.099 and a t value of 1.201. This value indicates that the size of the company does not affect the green product innovation variable. Profitability (ROA) has a significance level of 0.279 against green product innovation (GPI) with a regression coefficient of -0.395 and a t value of -1.089 . This value indicates that the profitability variable does not affect the green product innovation variable.

Determination Coefficient Test

The influence of independent variables on the green product innovation variable can be shown from the coefficient of determination test results. The coefficient of determination test is seen on the basis of the adjusted R^2 value generated in the built regression model. Based on research, the coefficient of determination for the model built was 10.6%. This shows that 10.6% of green product innovation can be explained by company size, green capability, and profitability, while the remaining 89.4% can be explained by other variables not used in this study.

Regression Results

The Effect of Company Size on Green Product Innovation

Based on the results of multiple linear statistical analysis, a significance value of $0.000 < 0.05$ means that the size of the company has a significant influence on green product innovation. The coefficient value of 0.040 indicates that company size has a positive influence on green product innovation. The results of this study indicate that the first hypothesis of this study is accepted, namely that the size of the company has a significant positive effect on green product innovation. This shows that the bigger the company, the greater the tendency for management to undertake green product innovation.

According to stakeholder theory, the greater the size of the company, the greater the company's responsibility towards stakeholders that can influence company policy. Therefore, the company seeks to increase product innovation to maintain corporate profits and the company's sustainable development, so that the relationship between the company and stakeholders can be established properly.

According to legitimacy theory, the greater the assets of the company, the greater the company's operations, so the impact on the environment will also be greater. Therefore, companies with large assets will strive to innovate the products produced. Green product innovation is one of the efforts made by the company to maintain the values and norms that apply in society.

Demampour (1992) argues that company size and company innovation are directly proportional. The bigger a company, the greater the responsibility the company has for the environment. So companies are expected to be able to increase green product innovation.

Discussion

The Effect of Green Capability on Green Product Innovation

Based on the results of multiple linear statistical analysis, a significance value of $0.908 > 0.05$ means that green capability does not affect green product innovation.

According to stakeholder theory, the relationship between a company and its stakeholders must be effective. If the relationship between the company and stakeholders is strong, it will be easier for the company to implement the chosen policies. If the company is able to use its resources to develop green product innovation, the company will be able to maintain profits in the long run.

Based on legitimacy theory, the company seeks to apply the values and norms that apply in society by seeking green product innovation. Green product innovation is the company's effort to create environmentally friendly products. Efforts to preserve and implement the prevailing norms require companies to implement green product innovation.

Teeter (2016) argues that green product innovation requires investment in research and development on environmentally friendly products, so companies should think about green product innovation. Companies must also have sufficient capability and knowledge about environmental problems that occur and how to solve problems that environment. According to the calculation results of descriptive statistical analysis in this study, the proportion of companies in Indonesia that invest in developing product innovations is only 0.1027, or 10.27%, so it can be concluded that many companies in Indonesia are still afraid to invest in developing product innovation.

The Effect of Profitability on Green Product Innovation

Based on the results of multiple linear statistical analysis, a significance value of $0.011 < 0.05$ means that green profitability has a positive effect on green product innovation.

According to stakeholder theory, a company's longevity requires support from stakeholders, so the company's activities must also consider stakeholder approval. The stronger the relationship between stakeholders and the company, the greater the company's ability to implement policies that can encourage the company's activities to generate profits.

Based on legitimacy theory, companies must adhere to the values and norms that exist in the company environment. Companies with a high level of profitability or company value also have a high responsibility towards the surrounding environment. This makes the company inclined towards innovative product development.

The results showed that companies that have a high level of profitability do not necessarily undertake innovation on green products. According to Jakobsen and Clausen (2016), companies with higher levels of profitability and assets that are sufficiently capable of producing expensive investments will use them as a differentiation strategy for competitive advantage when competing companies lack capital, so the higher the profitability of the company, the higher the company's ability to invest in green product innovation.

Conclusion

Based on hypothesis testing, the following research results were obtained:

Company size has a positive effect on green product innovation. The results of this study support the findings of Demanpour (1992) and Hart (1995), who show that company size has a positive effect on green product innovation. The greater the number of assets, the greater the company's ability to conduct green product innovation and create new products by reducing the negative impact on the surrounding environment to preserve the environment.

The test results show that green capability has no effect on green product innovation. Teeter (2016) states that companies that conduct green product innovation dedicate their large investments to research and development of product innovations. The greater the investment in the company's product innovation, the greater the green product innovation by the company. This study does not support research conducted by Teeter (2016). According to the results of the descriptive statistical analysis in this study, manufacturing companies in Indonesia that invest in green products are still sparse, so only a few companies have the ability to implement innovative products that are environmentally friendly.

The test results show that profitability has no effect on green product innovation. Dangelico and Pujari (2010) state that investments made in the development of green products are too risky, because they indicate the uncertainty of the return of profitability of the company. The results of this study do not support the research conducted by Dangelico and Pujari (2010),



because many companies in Indonesia still consider investing in the development of green product innovations.

Research Limitations

Based on the results of the determination coefficient test, the independent variable in this study is only able to explain the dependent variable by 30.9%, while the remaining 69.1% was explained by other variables not examined in this study.

This research only covers manufacturing sector companies so this research cannot be generalised to all public companies listed on the IDX.

Acknowledgement

This article is derived from Hasabi Sailendra's undergraduate thesis in the Faculty of Economics and Business, Universitas Airlangga, Surabaya, Indonesia. We are also grateful for the comments and insights of Yuanita Intan Paramitasari and Diarany Sucahyati.

REFERENCES

- Abbas, A., & Arizah, A. (2019). Marketability, profitability, and profit-loss sharing: evidence from sharia banking in Indonesia. *Asian Journal of Accounting Research*.
- Aaker, D. A., McLoughin, & Damien. (2012). *Strategic Market. Management Global Perspective*.
- Agustia, D., Sawarjuwono, T., & Dianawati, W. (2019). The Mediating Effect of Environmental Management Accounting on Green Innovation-Firm Value Relationship. *International Journal of Energy Economics and Policy*, 9(2), 299.
- Sartono, A. (2012). *Financial Management Theory and Application Fourth Edition*, BPFE Yogyakarta. (in Bahasa)
- Bae, H. S. (2017). The Effect of Environmental Capabilities on Environmental Strategy and Environmental Performance of Korean Exporters for Green Supply Chain Management. *Asian Journal of Shipping and Logistics*, 33(3), 167–176. <https://doi.org/10.1016/j.ajsl.2017.09.006>
- Bansal, R., Singh, A., Kumar, S., & Gupta, R. (2018). Evaluating factors of profitability for Indian banking sector: a panel regression. *Asian Journal of Accounting Research*.
- Baylis, R., Connell, L., & Flynn, A. (1998). Ecological Modernization : Towards an Analysis At the Level of the Firm Business Strategy and the Environment. *Business Strategy and the Environment*, 7(5), 150–161.
- Bernauer, T., Engels, S., Kammerer, D., & Seijas, J. (2006). Explaining green innovation. Ten Years after Porter's, (17). <https://doi.org/10.2139/ssrn.918733>
- Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M. (2010). Socioemotional wealth and corporate responses to institutional pressures: Do family-controlled firms pollute less?. *Administrative science quarterly*, 55(1), 82-113.
- Brigham, Eugene, & Houston, J. F. (2001). *Financial Management II*. Jakarta: Salemba Empat. (in Bahasa)
- Block, J. H. (2012). R&D investments in family and founder firms: An agency perspective. *Journal of Business Venturing*, 27(2), 248-265.
- Brown, M. G., & Svenson, R. a. (1998). Measuring R & D Productivity. *Research-Technology Management*, 41(6), 30–35. <https://doi.org/10.5437/08956308X5801008>
- Cainelli, G., D'Amato, A., & Mazzanti, M. (2015). Adoption of waste-reducing technology in manufacturing. *Resource and Energy Economics*, 39, 53–67.



- <https://doi.org/10.1016/j.reseneeco.2014.11.004> T4 - Regional factors and policy issues
M4 - Citavi
- Chang, C. H., & Chen, Y. S. (2014). Managing green brand equity: The perspective of perceived risk theory. *Quality and Quantity*, 48(3), 1753–1768. <https://doi.org/10.1007/s11135-013-9872-y>
- Chen, Y. S., Lai, S. B., & Wen, C. T. (2006). The influence of green innovation performance on corporate advantage in Taiwan. *Journal of Business Ethics*, 67(4), 331–339. <https://doi.org/10.1007/s10551-006-9025-5>
- Cleff, T., & Rennings, K. (1999). Determinants of environmental product and process innovation. *European Environment*, 9(5), 191–201. [https://doi.org/10.1002/\(sici\)1099-0976\(199909/10\)9:5<191::aid-eet201>3.0.co;2-m](https://doi.org/10.1002/(sici)1099-0976(199909/10)9:5<191::aid-eet201>3.0.co;2-m)
- Daft. (1992). Determinants of corporate social responsibility disclosure: an application of stakeholder theory. *Accounting, Organizations and Society*, 17(6), 595–612. [https://doi.org/10.1016/0361-3682\(92\)90015-K](https://doi.org/10.1016/0361-3682(92)90015-K)
- Dangelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *Journal of Business Ethics*, 95(3), 471–486. <https://doi.org/10.1007/s10551-010-0434-0>
- Deegan, C. (2006). *Financing Accounting Theory*. McGraw-Hill Book Company.
- Damanpour, F. (1992). Organizational Size and Innovation. *Organization Studies*, 13(3), 375–402. <https://doi.org/10.1177/017084069201300304>
- Freeman, R. E. (1984). *Strategic Management: A Strategic Approach*. Pitman. Boston.
- Foster, C., & Green, K. (2000). Greening the innovation process. *Business Strategy and the Environment*, 9(5), 287–303. [https://doi.org/10.1002/1099-0836\(200009/10\)9:5<287::AID-BSE256>3.0.CO;2-7](https://doi.org/10.1002/1099-0836(200009/10)9:5<287::AID-BSE256>3.0.CO;2-7)
- Fussler, & James. (1996). *Book Reviews*, 6(88), 1997.
- Teeter, P., & Sandberg, J. (2017). Constraining or enabling green capability development? How policy uncertainty affects organizational responses to flexible environmental regulations. *British Journal of Management*, 28(4), 649–665.
- Hagedoorn, J., & Cloudt, M. (2003). Measuring innovative performance: Is there an advantage in using multiple indicators? *Research Policy*, 32(8), 1365–1379. [https://doi.org/10.1016/S0048-7333\(02\)00137-3](https://doi.org/10.1016/S0048-7333(02)00137-3)
- Hart, S. L. (1995). A Natural-Resource-Based View of the Firm. *Review*, 20(4), 986–1014. Retrieved from <http://links.jstor.org/sici?sici=0363-7425%28199510%2920%3A4%3C986%3AANVOTF%3E2.0.CO%3B2-I>



- Handriyani, A. N. (2013). The Influence of Corporate Social Responsibility Against Company Value With Profitability as a Moderating Variable. *Jurnal Ilmu & Riset Akuntansi*, 2(5), 1–15. (in Bahasa)
- Hidayati, J., & Hasibuan, S. Performance Improvement of Shrimp Feed Raw Materials in Green Supply Chain. *Proceedings of the International Conference on Industrial Engineering and Operations Management*. 2542-2548
- Huang, Y. C., Ding, H. Bin, & Kao, M. R. (2009). Salient stakeholder voices: Family business and green innovation adoption. *Journal of Management and Organization*, 15(3), 309–326. <https://doi.org/10.5172/jmo.2009.15.3.309>
- Horbach, J., Rennings, K., Horbach, J., & Rennings, K. (2009). Environmental Innovation and Employment Dynamics in Different Technology Fields – An Analysis Based on the German Community Innovation Survey 2009 Environmental Innovation and Employment Dynamics in Different Technology Fields – An Analysis Based on the G, (12).
- Jakobsen, S., & Clausen, T. H. (2016). Innovating for a greener future: the direct and indirect effects of firms' environmental objectives on the innovation process. *Journal of Cleaner Production*, 128, 131–141. <https://doi.org/10.1016/j.jclepro.2015.06.023>
- Kammerer, D., & Eth, D. U. (2008). Determinants of Environmental Product Innovation A Comparative: Study on Manufacturers of Electrical and Electronic Appliances in Germany and California, (18057).
- Kammerer, D. (2009). The effects of customer benefit and regulation on environmental product innovation.: Empirical evidence from appliance manufacturers in Germany. *Ecological Economics*, 68(8-9), 2285-2295.
- King, A. A., & Lenox, M. J. (2001). Does It Really Pay to Be Green? An Empirical Study of Firm Environmental and Financial Performance: An Empirical Study of Firm Environmental and Financial Performance. *Journal of Industrial Ecology*, 5(1), 105–116. <https://doi.org/10.1162/108819801753358526>
- Li, J. T., & Tang, Y. (2010). CEO Hubris and Firm Risk Taking in China: the Moderating Role of Managerial Discretion. *Academy of Management Journal*, 53(1), 45–68. <https://doi.org/10.5465/AMJ.2010.48036912>
- Lin, R. J., Tan, K. H., & Geng, Y. (2013). Market demand, green product innovation, and firm performance: evidence from Vietnam motorcycle industry. *Journal of Cleaner Production*, 40, 101-107.



- Lin, H., Zeng, S. X., Ma, H. Y., Qi, G. Y., & Tam, V. W. Y. (2014). Can political capital drive corporate green innovation? Lessons from China. *Journal of Cleaner Production*, 64, 63–72. <https://doi.org/10.1016/j.jclepro.2013.07.046>
- Magali A, D. (2008). Services, industry evolution, and the copetitive strategies of product firms. *Academy of Management Journal*, 51(2), 315–334. <https://doi.org/10.1002/smj>
- Maletič, M. (2013). Influence of Sustainable Quality Management on Organisational Performance, (September), 259.
- Melnyk, S. A., Sroufe, R. P., & Calantone, R. (2003). Assessing the impact of environmental management systems on corporate and environmental performance. *Journal of Operations Management*, 21(3), 329–351. [https://doi.org/10.1016/S0272-6963\(02\)00109-2](https://doi.org/10.1016/S0272-6963(02)00109-2)
- Nasi, J., Nasi, S., Phillips, N., & Zyglidopoulos, S. (1997). The evolution of corporate social responsiveness: An exploratory study of Finnish and Canadian forestry companies. *Business & Society*, 36(3), 296-321.
- Nasih, M., Harymawan, I., Paramitasari, Y. I., & Handayani, A. (2019). Carbon Emissions, Firm Size, and Corporate Governance Structure: Evidence from the Mining and Agricultural Industries in Indonesia. *Sustainability*, 11(9), 2483.
- Novrianto. (2012). Effect Of Leverage, Profitability, and Company Size on the Disclosure of Social Information on Manufacturing Companies in IDX, 1(1), 43–47. (in Bahasa)
- Nurhilalia, Rahman Kadir, A., Mahlia, M., Jusni, Aditya, H.P.K.P. (2019). Determinant of market orientation on SME performance: RBV and SCP perspective. *Journal of Distribution Science*, 17 (9), 35-45.
- Oslo. (2005). Oslo manual. <https://doi.org/10.1787/9789264013100-en>
- O'Donovan, G. (2002). Environmental disclosures in the annual report. *Accounting, Auditing & Accountability Journal*, 15(3), 344–371. <https://doi.org/10.1108/09513570210435870>
- Pulungan, D., Fauzi, A., & Rini, E. S. The Effect of Product Innovation, Consumer Attitude And Advertising at the Purchase Decision of Yamaha Motorcycle in CV Sejati Mitra Motor Medan Marelan.
- Putri, R. A., & Christiawan, Y. J. (2014). The Effect of Profitability, Liquidity, and Leverage on Corporate Social Responsibility Disclosures. *Business Accounting Review*, 2(1), 2014. (in Bahasa)
- Rehfeld, K. M., Rennings, K., & Ziegler, A. (2007). Integrated product policy and environmental product innovations: An empirical analysis. *Ecological Economics*, 61(1), 91–100. <https://doi.org/10.1016/j.ecolecon.2006.02.003>

- Roberts, R. W. (1992). Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, organizations and society*, 17(6), 595-612.
- Russo, M. V., & Fouts, P. A. (1997). A Resource-Based Perspective on Corporate Environmental Performance and Profitability. *The Academy of Management Journal*, 40(3), 534–559. <https://doi.org/10.2307/257052>
- Sadalia, I., Simanjuntak, S., & Butar-Butar, N. A. An Analysis of the Determinants of Capital Structure and their Influence on Firm Value (A Case Study on Manufacturing Companies Investors in Southeast Asia).
- Sartono, A. (2012). *Financial Management Theory and Applications Fourth Edition*. Yogyakarta: BPFE. (in Bahasa)
- Seijas Nogareda, J. (2007). Determinants of environmental innovation in the German and Swiss chemical industry: With special consideration of environmental regulation (Doctoral dissertation, ETH Zurich).
- Sciascia, S., Nordqvist, M., Mazzola, P., & De Massis, A. (2015). Family ownership and R&D intensity in small-and medium-sized firms. *Journal of Product Innovation Management*, 32(3), 349-360.
- Soewarno, N., Tjahjadi, B., & Fithrianti, F. (2019). Green innovation strategy and green innovation. *Management Decision*.
- Sujoko, & Soebiataro, U. (2007). Shareholding Structure influence Leverage Factor Internal And External Factors Against Value Company (empirical study on the manufacturing and non-manufacturing companies in Jakarta Stock Exchange). *Journal of Management and Entrepreneurship*, 9(1976), pp.41-48. <https://doi.org/10.9744/jmk.9.1.pp.41-48>
- Syarifuddin, S., & Damayanti, R. A. (2019). Biodiversity accounting: uncover environmental destruction in Indonesia. *Social Responsibility Journal*.
- Tjahjadi, B., Shanty, H. M., & Soewarno, N. (2019). Innovation, Process Capital And Financial Performance: Mediating Role Of Marketing Performance (Evidence From Manufacturing Industry In Indonesia).
- Van den Eijnden, R. J., Meerkerk, G. J., Vermulst, A. A., Spijkerman, R., & Engels, R. C. (2008). Online communication, compulsive Internet use, and psychosocial well-being among adolescents: A longitudinal study. *Developmental psychology*, 44(3), 655.
- Wagner, J. (2007). Exports and productivity: A survey of the evidence from firm-level data. *World Economy*, 30(1), 60–82. <https://doi.org/10.1111/j.1467-9701.2007.00872.x>



- Wang, L., Yeung, J. H. Y., & Zhang, M. (2011). The impact of trust and contract on innovation performance: The moderating role of environmental uncertainty. *International journal of production Economics*, 134(1), 114-122.
- Weston, F., & Copeland, T. (1999). *Financial Management (Volume 1)*. Jakarta: Erlangga. (in Bahasa)
- Widowati, D. (2015). Delimas Hasan Qamarullah Dorina Widowati, (2009), 45–60.