

Green Intellectual Capital and Competitive Advantage: The Moderating Effect of Islamic Business Ethics

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ABSTRACT

This study fills the gap made by past studies regarding green intellectual capital on competitive advantage and develops them. This research examines the impact of green intellectual capital on competitive advantage with Islamic business ethics as the moderating variable. The construct of green intellectual capital is shown by three dimensions: green human capital, green structural capital, and green human capital. The population of this study is Muslim batik entrepreneurs. The data was collected through questionnaires distributed to 313 respondents, Muslim batik entrepreneurs, who were selected using purposive sampling method and processed using interaction regression analysis. This study finds that the three independent variables, i.e. green human capital, green structural capital, and green relational capital, have significant impacts on the competitive advantage of small and medium enterprises. Furthermore, Islamic business ethics only moderate the relationship between green human capital and competitive advantage. In addition, corporate investment in green intellectual capital not only is demanded by regulation, environmentalists, consumers, competition and the government but also improves the competitive advantage of small and medium enterprises.

Keywords: *green human capital, green structural capital, green relational capital, Islamic business ethics, competitive advantage*

1. INTRODUCTION

Environmental management for companies is currently still considered as a matter that incurs costs, which ultimately leads to another cost for company's products. However, there are many studies whose results indicate a positive relationship between company's environmental management with environmental performance and company performance [1, 2]. Different findings cause different interpretations by industry players regarding the adoption of regulations that must be followed up with real actions. The conflicting results of the studies indicate pessimistic expectations for the efforts of proactively managing the environment. Meanwhile, awareness in environmental management will be prioritized if there are pressures from consumers, government, and environmentalists [3]. To environmentally friendly product innovations to achieve competitive advantage for companies, of course, various factors must be developed. Hanim Mohamad Zailani et al. [4] found that the influence between organizational factors has a significant positive effect on company's financial performance. It has been recognized that the process of developing new products is very important in influencing the company's long-term success [5]. Intellectual capital also has a role in the innovation of environmentally friendly products. Intellectual capital is the total amount of intangible assets, knowledge, and capabilities of a company that can create value or competitive advantage [6].

Huang & Li, [7] found that green organization can improve environmental performance in small and medium industries, which is the positive impact of green intellectual capital on competitive advantage [8]. Another study shows that there is no impact of human resources management on competitive advantages [9]. This study fills the gap by focusing on the effect of green intellectual capital (green human capital, green structure capital and green relational capital) on competitive advantage. As its novelty, Islamic work ethics is incorporated as the moderating variables. Islamic work ethics is very relevant for consideration. Therefore, to what extent Islamic work ethics are understood and applied by small and medium enterprises will be identified. This study develops previous studies which were more conceptual, normative, and subjective [10]. How do you respond to the green intellectual capital challenge? Huang & Li [7] prove that there is a significant impact of green intellectual capital on competitive advantage. This result dismissed the opinion regarding the traditional view of negative correlation between environmental initiatives and competitiveness [11]. Subsequently, studies have shown the benefits of green intellectual capital factors in increasing competitive advantage with the moderation of Islamic business ethics.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 *The relationship between green intellectual capital and competitive advantage*

Intellectual capital is defined as a form of accumulation of tangible assets, knowledge, capabilities, and relationships at employee and organizational level in a company, and it is usually grouped into three dimensions: human capital, structural capital, and relational capital [12]. In this study intellectual capital will be developed into a new construct, namely green intellectual capital, along with the increasing variety of national and international regulations and increasing consumer awareness of the environment [8]. Referring to previous studies, the construct of green intellectual capital in this research is grouped into three: green human capital, green structural capital, and green relational capital [12]. Competitive advantage is realized when a company can deliver the same capabilities as its competitors, but with a lower cost (cost advantage), or when it is able to deliver profits that exceed the competitor's product (differentiation advantage). Differentiation can be developed through product quality, technology and innovation, reliability, brand image, company reputation, resilience, and service to consumers that are difficult to imitate by competitors [13]. Barney [14] stated that scarce and valuable resources at the same time can create competitive advantage. Moreover, these resources are difficult to replicate, replace and exchange. Sources of competitive advantage are related to, (1) technology and innovation, (2) human resources, and (3) organizational structure [14].

The empirical results of this study showed that the three types of green intellectual capital (green human capital, green structural capital, and green relational capital) had positive effects on competitive advantages of firms. Moreover, this study found that green relational capital was the most common among these three types of green intellectual capital, and the three types of green intellectual capital of Medium & Small Enterprises (SMEs) were all significantly less than those of large enterprises in the information and electronics industry in Taiwan [8]. In sum, companies investing many resources and efforts in green intellectual capital could not only meet the trends of strict international environmental regulations and popular environmental consciousness of consumers but also eventually obtain corporate competitive advantages.

DeConinck & Johnson [15] postulated that human capital of companies has a positive effect on their competitive advantages. Moreover, companies engaging in environmental management and green innovation actively cannot only minimize production waste and increase productivity but also charge relatively high prices for green products, improve corporate images, and thus make a positive impact on corporate competitive advantages under the trends of popular environmentalism consciousness of consumers and strict international regulations of

environmental protection [16, 17]. Though previous studies had paid great attention to explore structural capital, there was no study exploring structural capital about green innovation or environmental management. Some previous researches posited that companies' relational capital has a positive effect on their competitive advantages [15, 12]. Hence, this study formulated the following hypothesis:

- H₁ : Green human capital has a significant effect on competitive advantage
- H₂ : Green structure capital has a significant effect on competitive advantage
- H₃ : Green relational capital has a significant effect on competitive advantage

2.2 *Islamic Business Ethics as Moderating Variable*

Islam highly respects humans who work hard as ethical values that lead to itqan and falah. Happiness in Islam has the context of world happiness and the happiness of the hereafter. Hard work won a high appreciation in Islam, and a tangible evidence of success [18], while the values of ethical honesty and trust is the basis of hard work. The study showed that Islamic business ethics and values have a significant impact on women entrepreneurs in carrying out their business. Other results also show that Muslim entrepreneurs can achieve happiness (falah) in their lives and excellence (itqan) in carrying out their business. They adhered to Islamic work-related values of good and hard work, honesty and truthfulness, fairness and justice (haqq and adl), and benevolence/virtue (ihsaan), and they perceived them as instrumental to the survival and success of their enterprises. This study, therefore, contributes to the theory of development on the interrelationship between gender and business ethics within entrepreneurial contexts and in relation to Muslim values [19]. While the root of Islamic environmental ethics consists of the principles of unity, trusteeship, and accountability [20], the existence of nature and its contents are actually arranged by God, as stated in the Qur'an (54:49), which means: "We have created all things according to size". This is what is then called qadar or balance. Qadar means a specific measure of both quantity and quality. The three main principles of life in Islamic life are: tawhid, khilafah, and al-akhira. Therefore, this study formulate the following hypothesis.

- H₄ : Islamic Business Ethics moderates the relationship between green intellectual capital and competitive advantage

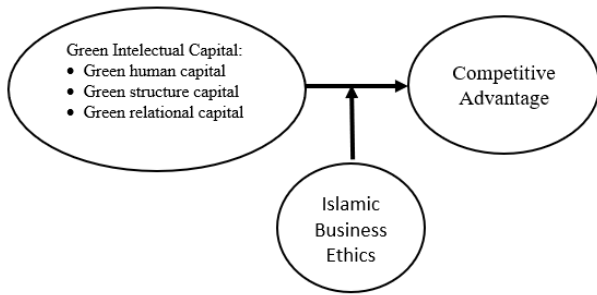


Figure 1 Research Model

3. RESEARCH METHOD

3.1 Population, Sampling, and Respondent

The population in the study is small and medium enterprises (SMEs) which are engaged in batik industry incorporated in cluster industry. Clusters are part of group-developed SMEs incorporated in a holistic and integrated section containing: raw materials and suppliers, production processes, service providers, other companies, and other supporting sector suppliers (accreditation, certification and calibration; organization quality control, research and development, and business association). The population of this research is small and medium enterprises (SMEs) clustered in Central Java; five clusters were taken as the samples containing 313 SMEs. The respondents in this study are Muslim Batik entrepreneurs.

3.2 Research Variables and Measurement

The independent variable of this study is green intellectual capital, which has three dimensions: green human capital, green structure capital and green relational capital [8]. The dependent variable is competitive advantage, and the moderating variable is Islamic business ethics. Green intellectual capital is the sum of all intangible assets, knowledge, capabilities, and relationships that are related to environmental protection or green innovation at the level of individuals and organizations in the company [8]. The first dimension, green human capital, will ask whether environmental protection from employees in the company is better than its main competitors in terms of productivity and contribution, employee competency, product and service quality, teamwork, and top manager support for environmental protection [12]. The second dimension,

green structure capital, is measured by asking respondents whether the environmental protection in a company is superior to competitors in the fields of management systems, innovation, spent profits, investment in research and development costs, facility investment, overall operational processes, and knowledge management systems [8]. The third dimension, green relational capital, uses four indicators: whether the design of products/services is according to the wishes of environmentalists and consumers, whether customer satisfaction about environmental protection is better than the competitors, whether the cooperation in environmental protection with continuous suppliers is good, and whether the cooperation in environmental protection with continuous strategic partners is good [21]. The dimensions of green relational capital are measured using a 5-point Likert scale, from strongly agree to strongly disagree. Meanwhile, the dependent variable, i.e. competitive advantage, is measured using questions whether the companies are better in terms of cost level, product and service quality, capability in R & D, managerial capability, profit, revenue growth, first move, company image, and whether the competitors can imitate their ideas easily [14]. This study also uses a moderating variable, i.e. Islamic business ethics. The moderation explains whether the existence of Islamic business ethics strengthens or weakens the relationship between independent variables and dependent variables. Islamic business ethics is measured using six indicators: falah, itqan, amal salih, sidiq and amanah, haqq and adl, and ihsan [19]. All indicators of Islamic business ethics were measured using five-point Likert scale, from strongly agree to strongly disagree.

4. RESULTS

4.1 Descriptive

Batik is a technique of wax-resist dyeing applied to whole cloth, or any cloth made using this technique. Originated from Central Java, batik is made either by drawing dots and lines of the resist with a spouted tool called a tjanting or by printing the resist with a copper stamp called a cap. This research uses batik industries as respondents and focuses in investigating green intellectual capital. The numbers of respondent is 313 Muslim batik entrepreneurs. The average age of the respondents is 47 years old, and the average employee numbers are 18 people.

Table 1. Mean, deviation standard, and reliability

Variables	Indicators	Mean	SD	Cronbach alpha
Green human capital	1. Productivity and cooperation	3.55	0.57	0.673
	2. Employee competency	3.76	0.49	

	3. Quality of products and services	3.88	0.66	
	4. Teamwork	3.88	0.62	
	5. Manager support for environmental protection	3.78	0.73	
Green structure capital	1. Management system	3.73	0.63	0.792
	2. Innovation	3.92	0.60	
	3. Spent earnings	3.76	0.61	
	4. Investment in R & D	3.72	0.77	
	5. Facility investment	3.69	0.79	
	6. Overall operational process	3.77	0.69	
	7. Knowledge management system	3.74	0.71	
Green relational capital	1. Design products / services according to the wishes of environmentalism and consumers	3.92	0.60	0.695
	2. Consumer satisfaction regarding environmental protection is better with competitors	3.83	0.56	
	3. Cooperation in environmental protection with continuous suppliers	3.77	0.86	
	4. Cooperation in environmental protection with continuous strategic partners.	3.85	0.86	
Islamic business ethics	Create world welfare and success (falah).	4.03	0.65	0.803
	Relation to environmental preservation (itqan).	4.02	0.64	
	Values of Islamic work and hard work (good deeds)	4.23	0.73	
	Values of honesty and trust in work (fingerprint and trust)	4.39	0.69	
	Honesty and fairness in managing the company (haqq and adl)	4.35	0.69	
	Values for the continuity and success of the company (ihsaan)	4.08	0.63	
Competitive advantage	1. Low cost	3.61	0.71	0.809
	2. Quality of products and services	3.93	0.56	
	3. R&D capability	3.79	0.62	
	4. Managerial capability	3.74	0.72	
	5. Profit	3.90	0.72	
	6. Revenue growth	3.99	0.68	
	7. First mover	3.89	0.74	
	8. Corporate Image	4.10	0.68	
	9. Competitor cannot copy	4.02	0.66	

4.2 Interaction Regression Results

This study uses regression analysis to verify the research framework and hypothesis. The independent variable of this study is green intellectual capital, which has three dimensions: green human capital, green structural capital, and green relational capital. The dependent variable is competitive advantage, and the moderating variables is Islamic business ethics. The results of the interaction regression calculation show that green human capital, green structural capital, and green relational capital have a positive and significant influence on competitive advantage.

The coefficient of determination shown by the adjusted R squared is 0.491, and the F value is 51.203 with a significance of 0,000. The results of the regression interaction test indicate that the interaction between green human capital and the Islamic business ethics (GHC-IBE) is significant is affecting company's competitive advantage (CA). Meanwhile the interaction between green structural capital and Islamic business ethics (GSC-IBE) and the interaction between green relational capital and Islamic business ethics (GRC-IBE) are not significant in affecting competitive advantage.

Table 2. The Result of Interaction Regression

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.636	1.962		9.479	.000
	GHC	1.090	0.403	1.057	3.303	0.001
	GSC	1.208	0.533	1.010	2.269	0.024
	GRC	0.541	0.098	0.298	5.515	0.000
	GHC-IBE	0.073	0.025	1.705	2.895	0.004
	GSC-IBE	-0.028	0.022	-0.925	-1.291	0.198
	GRC-IBE	-0.022	0.033	-0.466	-0.661	0.509
R Square		0.501				
Adjusted R Square		0.491				
F value		51.203	Sign. 0.000			

a. Dependent Variable: Competitive Advantage (CA)
b. Predictors: GHC, GSC, GRC, GHC-IBE, GSC-IBE, GRC-IBE

Note: GHC: Green human capital, GSC: Green structure capital, GRC: Green relational capital, IBE: Islamic business ethics, CA: Competitive advantage

5. DISCUSSION

This study examines the influence of green intellectual capital (green human capital, green structure capital and green relational capital) on competitive advantage with the moderation of Islamic business ethics in small and medium batik industries in Central Java. In this study, green intellectual capital consists of green human capital, green structure capital, and green relational capital. The results of this study indicate that green intellectual capital has a significant influence on competitive advantage. This result supports hypothesis 1, hypothesis 2, and hypothesis 3. Meanwhile, other results indicate that Islamic business ethics only moderates the relationship between green human capital and competitive advantage. Islamic business ethics does not moderate the relationship between green structural capital, green relational capital and competitive advantage. This means that the fourth hypothesis is partially supported.

The results of this study indicate that, to increase the competitive advantage of small and medium industries in Central Java, green intellectual capital, especially the variables of green human capital, green structure capital, and green relational capital, must be increased. However, the role of Islamic business ethics will only increase competitive advantage through the incorporation of green human capital. Increasing competitive advantage can be done by improving the quality of products and services. In addition, product and service innovations, efficient operational processes, innovations that pay attention to the needs of environmentalism and consumers, and strategic partners with stakeholders are also required. The next finding indicates that green human capital is an important part in increasing the competitive advantage of small and medium industries in Central Java. The confidence of small medium enterprise owners on the understanding that

happiness has a world dimension, environmental preservation, values of Islamic work ethics, honesty, trust and fairness, when combined with green human capital, will have a very important impact in increasing competitive advantage is increasing because Islamic business ethics is able to strengthen the existence of green human capital, as the findings of [18] that hard work gets high appreciation in Islam and is a tangible evidence of achieving success. Meanwhile, the values of ethical honesty and trust is the basis of hard work. The results of this study support the research of [19] that Islamic business ethics and values have a significant impact on women entrepreneurs in carrying out their business.

Managers thought investment in creating competitive advantage by investing on green intellectual activity. From green human perspective, organization can emphasize refinement on product and service quality. Also, the organization creates better teamwork among employees. Innovation is an important aspect for reach competitive advantage, with the support of best production process. Innovations in product and services must be followed by creating product or service that is supported by environmentalists and customers. Cooperation as a tool for environmental protection can be applied by continuous strategic partners. Furthermore, human intellectual capital can improve and increase competitive advantage if it is associated with Islamic business ethics. Islamic ethical values, such as honesty, fairness and trust, in work and company management can strengthen the relationship between green human capital and competitive advantage.

6. CONCLUSION

Although previous studies had paid much attention to explore intellectual capital, there was little study exploring green intellectual capital about green human capital, green

structural capital and green relational capital. Therefore, this study tries to fill the gap and proposes a construct to explore the positive relationship between green intellectual capital about green innovation or environmental management and competitive advantages. The novelty of this study is the use of Islamic business ethics as a moderating variable by referring to the classification of green intellectual capital proposed by [8], which classified green intellectual capital into green human capital, green structural capital and green relational capital, in order to explore whether the three types of green intellectual capital have positive effects on competitive advantage. The impact of Islamic business ethics as a moderating variable was also tested in the connection between green intellectual capital and competitive advantage.

The empirical results of this study show that the three types of green intellectual capital, i.e. green human capital, green structural capital, and green relational capital, have positive impacts on competitive advantages. Therefore, H1, H2, and H3 were supported. The results indicate that the increase of the three types of green intellectual capital can increase the competitive advantages of SMEs. Therefore, investment in green human capital, green structural capital, and green relational capital was helpful for the businesses. This study finds that green human capital is the most dominant among the three, and it is more dominant than green structural capital and green relational capital in SMEs in Central Java, indicating that, first, SMEs in Central Java emphasized on increasing productivity and cooperation, employee competency, quality of product and services, teamwork, and manager's support on environmental protection, different from the study of Y. S. Chen [8] that industry in Taiwan emphasized more on green relational capital than on the interaction with upstream suppliers, downstream clients, and strategic partners. The second implication is that it is imperative for SMEs in Central Java to implement Islamic business ethics because collaboration between green human capital and Islamic business ethics will result in greater competitive advantage. Islamic business ethics is very significant to be used as a concept to increase competitive advantage if it is combined with green human capital.

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