

The effects of corporate social responsibility on manufacturing industry performance: the mediating role of social collaboration and green innovation

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THE EFFECTS OF CORPORATE SOCIAL RESPONSIBILITY ON MANUFACTURING INDUSTRY PERFORMANCE: THE MEDIATING ROLE OF SOCIAL COLLABORATION AND GREEN INNOVATION

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Abstract. Manufacturing industry contributes to environmental pollution and social cost. Hence, corporate social responsibility (CSR) functions as a way to reduce the effects of corporate activities, to increase long-term performance and stakeholder trust. To increase its effectiveness, this study analyses the mediating role of green-oriented innovation and community participation in implementing the CSR. The study uses simple random sampling to collect 173 respondents from large scale manufacturing firms in Central Java, Indonesia. By using structural equation modeling, the findings showed the significant influence of CSR to the firm performance. The originality of this study concerns the need to involve social and environmental dimensions in applying the ethical program of CSR.

Keywords: corporate social responsibility, social collaboration initiative, green innovation, and firm performance, manufacture industry, Indonesia.

JEL Classification: L60, M14, Q01.

Introduction

Corporate Social Responsibility (CSR) strategy has become a global issue today and been adopted to help firms face pressure from stakeholders and increase their competitive advantage and superior performance (Jenkins 2009, Torugsa et al. 2012). Previous studies have shown different findings in analyzing the relationship between CSR and firm performance. Mishra and Suar (2010), Mugisa (2011), Teimouri et al. (2011), Babalola (2012), and Cheng et al. (2014) revealed a positive relationship between CSR and firm performance. Here, CSR activities involve external perception on the firm. Surroca et al. (2010) and Madueño et al. (2015) also indicated that maximizing the firms' intangible resources as a mediating factor will improve CSR influence on the firm performance. Olowokudejo et al.

(2011), Olusanya et al. (2012), and Okwemba et al. (2014), in the other hand, emphasized that there is no relationship between CSR and firms performance. In addition, Berrone et al. (2009) confirmed that a firm which does not run CSR maximally will not get any positive advantage of CSR on the firm performance.

Madueño et al. (2015) stated that CSR indicates a very close reciprocal relationship between firm and stakeholders. Therefore, the relationship of CSR can be mediated by relational capacity to improve the firm performance. The relational capacity can be done through active involvement of a community in CSR programs focusing on environmental issues in order to reduce negative effects of the firms' activities and, hence, are beneficial to the community. The CSR practices of manufacturing industries focusing on

environmental issues need the involvement of an environmental management (Post et al. 2011). For a manufacturing company whose activities require the involvement of wider community, whether as provider of raw materials, labor, and target markets, CSR is needed as an ethical and moral obligation of the company.

Activities of the manufacturing company are seen to have been actively contributing to the pollution of air and water, as well as environmental damage and disruption. At this point, green innovation can enhance the value of products made by a firm, reduce the environmental costs, and eventually lead to a better firm performance. Alhadid and As'ad (2014), Chen et al. (2006), and Weng et al. (2015) explained that green innovation can improve the performance of firms that are pursuing CSR strategy. In this case, CSR needs to be directed to ethical issues of the environment as to reduce the negative impacts of company's activities, improve profitability, financial gain, and competitiveness, and, at the same time, benefit the society (King and Lenox 2002, Klassen and Whybark 1999, Orlitzky et al. 2011). This study proposes social collaboration initiative and green innovation as a way for the company to integrate environmental and social concerns with the firm's strategy and maintain relationship with the stakeholders.

1. Literature Review and Hypotheses

Corporate Social Responsibility and Firm Performance Relationships

Corporate social responsibility is emphasized on stakeholders due to several important factors, such as the values of a firm. It is influenced by social value of the firm. Firms are supposed to solve their social problems, which become the negative externalities of their business activities. Lee et al. (2011) maintained that CSR indicates a good behavior of a firm for the community, and it impacts on the firm's reputation and social legitimacy. CSR fosters the spirit of the firm to play an active role in solving social problems by not leaving the firm's main goals to be achieved. Matiolańska (2010) added that one of non-material factors that could contribute in improving the economic value of a firm is social responsibility. Findings from various studies also concluded that the alignment of CSR practices with firm's business operations increases the overall firm performance (Mugisa 2011, Kanwal et al. 2013, Lin et al. 2015). Therefore, the following hypothesis is proposed:

H1: Corporate social responsibility has a positive and significant influence on firm performance

The Effect of Corporate Social Responsibility toward Social Collaboration Initiative

Social collaboration is important to do to resolve conflicts that arise between a firm and its stakeholders because

of negative externalities of the firm's business activities. Othman and Abdellatif (2011) stated that CSR encourages a firm to perform social collaboration as it will be easier for the firm to implement the CSR programs which are in line with the vision and mission of the firm. Seitanidi and Crane (2009) said that the implementation of CSR lately is carried out by the firm with cross-sector social collaboration. The firm will partner with government, non-profit organizations, or organizations to make a social value creation. Cross-sector social collaboration helps firms, which do not focus on social actions, carry out their social responsibilities. Therefore, we proposed this hypothesis:

H2: Corporate social responsibility has a positive and significant influence on social collaboration initiative

The Effect of Social Collaboration Initiative toward Firm Performance

Firms are faced with dynamics of the business world which is always volatile so as to enable the emergence of a variety of problems that can obstruct the achievement of the firms' superior performance. Problem solving cannot all be made alone by the firms because of their limited capabilities. Therefore, firms require collaboration and contribution of co-workers.

Lee, J. and Lee, D.-R. (2008) found that inter-organizational working relation will enhance harmonious relationship between all parties involved; thereby reduce the social costs to be paid by the firm and can create conducive working atmosphere. External firm collaboration brings mutual benefit so as to impact on the firm's operational efficiency (Cheng and Carrillo 2012, Erakovich and Anderson 2013). Collaboration improves performance of a firm because it can improve the firm's efficiency in its business transaction activities, time and energy saving, and economic activities (Eltantawy et al. 2009, Pelozo and Falkenberg 2009, Hsueh 2012). In accordance with this idea, the following hypothesis is proposed:

H3: Social collaboration initiative has a positive and significant influence on firm performance

The Relation of Social Collaboration Initiative and Green Innovation

The social collaboration built by the firm and stakeholders can bring innovative ideas that make a difference to the firm (Hart and Sharma 2004). Chang and Lin (2014) argued that a firm can solve social and environmental problems when building social collaboration with various stakeholders. Social collaboration is a driver of green innovation through products creation which is environmentally friendly. Lee and Kim (2012) in a research mentioned that the success of green innovation in technology and management requires a collaboration that brings mutual benefits for the firm and its suppliers. A study from Feng and Wang (2013) and

Tsai et al. (2012) also concluded that social collaboration between the firm and suppliers will create product designs and develop new products of high quality. Therefore, the following hypothesis is proposed:

H4: Social collaboration initiative has a positive and significant influence on green innovation

The Relation of Green Innovation and Firm Performance

Innovation related to technological advancements which are environmentally friendly is socially acceptable towards environmental sustainability and can improve firm performance. Green innovation can improve product quality to be better. The products made are more efficient in the energy use and cost, or need relatively shorter time for the products development (Boonkanit and Kengpol 2010). Paraschiv et al. (2012) stated that a strong relationship between a firm and its stakeholders needs to be built and maintained by the firm on an ongoing basis. This can be done through the firm's efforts to continue updating the products continuously or innovating the products sustainably. Visionary firm in adopting and implementing the green innovation will get positive response from stakeholders and eventually bring implications on the firm performance. The results of previous studies suggested that green innovations have increased the cost savings and affected on the environmental performance and business performance (Lin et al. 2013, Alhadid and As'ad 2014, Weng et al. 2015). Based on the description above, the proposed hypothesis is:

H5: Green innovation has a positive and significant influence on firm performances

2. Conceptual Framework

In the conceptual model, CSR is a predictor and directly influences social collaboration initiative and firm performance. Further, social collaboration initiative and green innovation will influence on the firm performance (see. Fig. 1).

3. Methodology

The sampling method used was purposive sampling to 439 manufacturing firms in Central Java that meet the criteria

as follow: (1) the number of workers is more than 100 people. (2) The firm has annual sales of more than IDR 2.5 billion. (3) The firm has made profits in the last 3 years. (4) The firm is active in CSR activities at least 3 years. Survey questionnaire is used in the research in which top managers of the firms are the unit of analysis and receive questionnaires sent by mail. The responses of the top managers are the perception of the research variables, and they are the data to be processed in this research.

The response rate of respondents was 47%. By eliminating outliers and unfit questionnaires, this study finally involves 173 respondents. Most of the manufacturing firms are engaged in textile and garment that account for 63 firms. The average age of the firms is 18 years old. 160 respondents who participate are males (82.5%), with an average age of 44 years old of all respondents. The average CSR activities performed by the manufacturing firms are in the period of 9 years.

CSR items measurement are adopted from Zheng et al. (2014) and Mishra and Suar (2010). Social collaboration initiative is measured by three items of question of Austin (2000), Crisan (2013), and Grudinschi et al. (2013). Green innovation is measured using four items of question of Chen et al. (2006) and Chang (2011). Business performance is measured by 5 items of questions of Mishra and Suar (2010). All question items use ten-point Likert scale from strongly disagree (1) to strongly agree (10).

4. Result Finding

Data Analysis

Confirmatory factor analysis tests the validity and reliability of all constructs, that is conceived as a one-dimensional, precise, and consistent indicator in measuring its latent variables (Jöreskog, Sörbom 1993). The cut of value for the construct reliability is recommended to be > 0.7, while the cut of the value of average variance extracted is recommended to be > 0.5, and the recommended loading factor is 0.6 or more (Hair et al. 2010). Table 1 shows the construct reliability value more than 0.7, greater than 0.5. In addition, all t-values of the loading factor of latent variables show statistical significance.

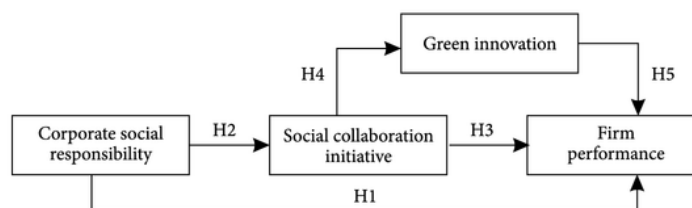


Fig. 1. Conceptual framework and the related hypothesis of the research

Table 1. Item and construct reliability

Item	CR	AVE	λ	t-value
Corporate Social Responsibility	0.789	0.555		
Business Ethics			0.792	0.000
Environmental Participation			0.725	0.000
Public Care			0.716	-
Social Collaboration Initiative	0.773	0.532		
Active social collaboration			0.753	-
Integration of Resource Capabilities			0.677	0.000
Social Interaction			0.754	0.000
Green Innovation	0.819	0.532		
Minimizing Hazardous Emission			0.748	0.000
Efficiency of Natural Resource Utilization			0.736	0.000
Production by Environmental Standard			0.778	0.000
Product Recycle			0.648	-
Firm Performance	0.844	0.520		
Market Share			0.736	-
Sales			0.712	0.000
Profitability			0.720	0.000
Reputation			0.757	0.000
Social Legitimation			0.680	0.000

Note: C.R. – Composite Reliability, AVE – Average Variance Extracted, k – indicator loading.

Inferential Analysis

Normality test results the value of critical ratio skewness and kurtosis which is less than the table of critical value ± 1.96 with the significance level of 0.05 (p value = 5%). The testing of multicollinearity and singularity shows the determinant results of covariance matrix for 0.661; meaning that the research data is free from multicollinearity and singularity.

Testing of the model suitability is conducted before analysis of the hypothesis proposed in the research (see Fig. 2). The testing results of the end model of the research are as follow: the value of Chi Square = 99.79 with df = 85, probability = 0.130, Goodness of Fit Index (GFI) = 0.932, Comparative Fit Index (CFI) = 0.984, Adjusted Goodness of Fit Index (AGFI) = 0.904, Root Mean Square Error of Approximation (RMSEA) = 0.032, Cmin/df = 1.174. All the values of the index have shown good model feasibility criteria. This means that the research data can be used to support the structural models proposed. In addition, the analysis results show that the value of squared multiple correlation of the firm performance construct can be explained by CSR, social collaboration initiative, and green innovation by 0.49 or 49%, while the remaining 51% can be explained by other variables out of the three constructs.

Mediation Factor Analysis

Sobel test is conducted to examine the mediating factors. At such a test, it would be seen the strength of the indirect influence of CSR and the firm performance through social collaboration initiative. Based on the data analysis in Figure 2 and the Sobel test, it can be concluded that t-count of 2,649 is greater than t-table of 1.96, and p-value of 0.008

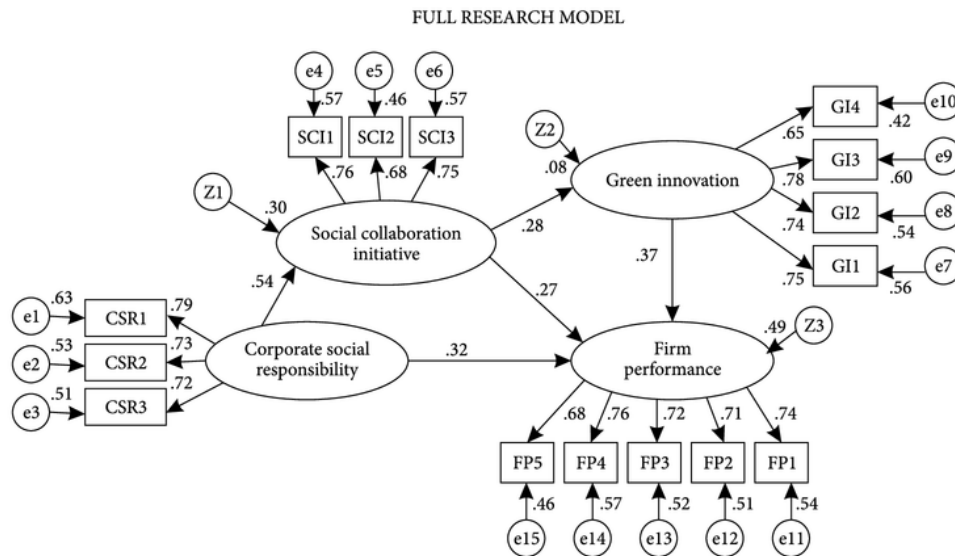


Fig. 2. Final research model

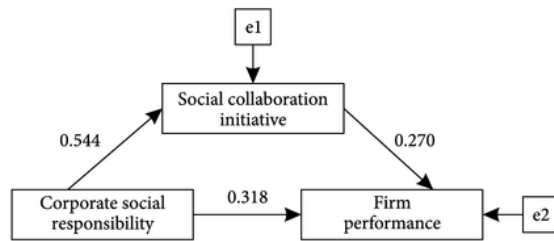


Fig. 3. Mediation path analysis

is smaller than that of 0.05. This means that there is a mediation influence of social collaborative initiative on the relationship between the CSR and the firm performance. Figure 3 shows the path analysis of mediation.

Hypotheses Testing

The data was analyzed using structural equation. Figure 1 shows a conceptual model which will be processed by AMOS 22 so as to result in a standardized path coefficient as shown in Table 2. Table 2 is used as the base in the testing of the five hypotheses proposed in the research.

Structural equation modeling analysis is conducted to determine the relationship of several variables in the research model. The analysis results of the structural equation model are summarized in Table 2. Table 2 reveals CSR and the firm performance ($\beta = 0.318$, CR = 3.078, $p < 0.05$), CSR and social collaboration initiative ($\beta = 0.544$, CR = 4.981, $p < 0.05$), social collaboration initiative and the firm performance ($\beta = 0.270$, CR = 2.587, $p < 0.05$), social collaboration initiative and green innovation ($\beta = 0.278$, CR = 2.808, $p < 0.05$), and green innovation on the firm performance ($\beta = 0.368$, CR = 4.184, $p < 0.05$) so that it can be concluded that all of these relationships have positive and significant influence. Thus, the hypothesis of H1, H2, H3, H4 and H5 are supported.

5. Discussion

Social activities, which are part of the firm's business strategy, significantly influence to the firm performance by providing social, environmental and economic benefits.

To increase its effectiveness, social collaboration initiative can be implemented by manufacturing firms by utilizing external resource to overcome the limitation of firms ability to carry out their social responsibility. As stated by Seitani and Crane (2009) and Othman and Abdellatif (2011), social collaboration initiative creates information transfer and experience sharing that can help face the difficulties that arise in implementing CSR programs.

By involving social collaboration, a firm acquires better impact for its performance as the collaboration enhance the social ability of the firm to actively involved in solving social and environmental problems. This result is consistent with. Madueñoa et al. (2015), Lee et al. (2011) and Khan et al. (2013), stating that the relationship between CSR and the firm performance, by improving the firm reputation, customer preference and social legitimacy, can be mediated by relational capabilities or intangible assets. The result indicates that the firm's sales involved in various CSR activities will be better compared to the firms that do not perform CSR (Palmer 2012, Rajput et al. 2012), by improving business efficiency and stakeholders trust and reducing the risk in carrying out its social responsibilities (Lee J. and Lee D.-R. 2008, Pelozo and Falkenberg 2009, Hsueh 2012).

Furthermore, social collaboration initiative significantly influence the firms to perform green innovation. The social collaboration increase the firm's contribution in reducing environmental problems by producing a variety of green products. The strategy of green innovation is affected by the stakeholders pressure to improve environmental sustainability and social welfare by encouraging the firms to adopt business practices which are environmentally friendly. Green innovation can improve the efficiency of resource used in the production process. The finding is in line with Lee and Kim (2012), Scarpellini et al. (2012), Chang and Lin (2014) and Minguela-Rata et al. (2014). Besides, by producing green products, the firm can boost their reputation, improve competitive advantage, create new markets, and finally achieve superior performance of the firm. This is consistent with the study of Paraschiv et al. (2012) revealing that green innovation will give positive impact to the firm performance and stakeholders trust.

Table 2. The results of hypothesis testing based on standardized path coefficient

Path Analysis				Std. Estimate	C.R (t-value)	p-value	Results
H ₁ :	CSR	→	FP	0.318	3.078	0.002	Supported
H ₂ :	CSR	→	SCI	0.544	4.981	0.000	Supported
H ₃ :	SCI	→	FP	0.270	2.587	0.010	Supported
H ₄ :	SCI	→	GI	0.278	2.808	0.005	Supported
H ₅ :	GI	→	FP	0.368	4.184	0.000	Supported

Note: p value < 0,05. CSR : Corporate Social Responsibility; SCI : Social Collaboration Initiative; GI : Green Innovation; FP : Firm Performance.

Conclusions

The originality of this study is to provide a better understanding of the development of resource dependence theory by Pfeffer and Salancik (1978) and the stakeholder theory by Hennigfeld et al. (2006). This study revealed the positive significant relationship between CSR and the firm performance; CSR and social collaboration initiative; social collaboration initiative and the firm performance; social collaboration initiative and green innovation; and, green innovation on the firm performance. The most remarkable finding of the study was the significant influence of social collaboration initiative on the firm performance and on the adoption of green innovation in all aspects of company strategy.

Especially in the term of CSR implementation, social collaboration initiative is undertaken by the firms, since the capability limitations unable to perform CSR well. Active social participation and green-oriented innovation contribute in reducing social and environmental problems by involving society in performing the CSR by producing a variety of green products, including minimizing hazardous emission, and product recycling, utilizing the resource efficiently, and producing the environmentally friendly products. The involvement of social participation and green innovation in the CSR is more likely to improve environmental sustainability and social welfare. Hence the firms need social collaboration initiative with external parties in an effort to direct CSR to better the firm performance. This, eventually, will lead to solve social, and environmental problems, as well as improve stakeholders trust and the efficiency and the effectiveness of business activity. The research findings can be a basis for further research to validate and develop better models to explain firm performance in the large-scale manufacturing firms related to CSR and social collaboration initiative.

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