

The Role of Green Intellectual Capital and Organizational Reputation in Influencing Environmental Performance

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ABSTRACT

The current study fills the gap of the literature by analyzing the contribution of intangible resources in affecting firm's environmental performance. In doing so, the authors aim to examine the contribution of organization's reputation in driving firm's environmental performance. Furthermore, the contribution of the current study is extended to study the crucial role of green intellectual capital in influencing sustainable performance. In this regard, the study measures intellectual capital in the form of green human capital, green social capital and green relational capital in realizing their impact on firm's environmental performance. Confronting the patterns of strict natural traditions and prominent ecological awareness, organizations ought not freeze or overcompensate from the existing ecological regulations as these natural patterns could be moved toward the green practice that may drive them to convey sustainable development and bring consensus in the environmental and organizational objectives. Unlike viewing ecological policies as hindrances of firm's future improvement, the findings of the current study concentrate on finding the right assessment of intangible resources in carrying efficiency in firm's course of sustainable practices by evaluating its impact on environmental performance. The results of PLS-SEM confirm that organizational reputation and green intellectual capital have positive and significantly influenced on environmental performance. The results of partial least square structural equation modelling confirm that a unit increase in green intellectual capital bring 0.449 unit increase in environmental performance of multinational firms in Indonesia. Moreover, a unit increase in organizational reputation also brings positive increase by 0.424 unit in environmental performance in Indonesia multinational firms.

Keywords: Green Intellectual Capital, Organizational Reputation, Environmental Performance, Indonesia

JEL Classifications: Q51, Q56, R11

1. INTRODUCTION

The emergence of industrial revolution augmented the production processes all around the world through mass efficiencies but also caused numerous adverse effects in the form of extensive energy utilization, resources depletion and industrial pollution (Bohdanowicz et al., 2001). The growing awareness related to environmental condition as a result of expanded deterioration and global warming lead to increase the world-wide ecological regulations that have the tendency to impact global industries (Chen et al., 2006). Therefore, in the existing environmental

era, businesses are prone towards eco-friendly ways of meeting organizational goals to ensure the prospect of sustainability. In this regard, the notion of becoming 'green' has been witnessed to spread across many industries that altered the orthodox organizational practices and resources utilizations (Albort-Morant et al., 2016).

The inspiration of going green is instigated from several organizational motives. First, it can be recognized as a result of companies' internal consciousness for reducing ecological pressures and taking responsibility to improve environmental conditions

(Bird et al., 2007). Second, the green label of organizations can be aimed to adopt as the consequence of augmented ecological awareness and consumers rising demand for eco-friendly products that underlies the potential of providing the company a customer-driven positive image. Third, it can be accepted as the inevitable notion emerged from obligatory requirements from both local and international regularities driving the businesses towards sustainable corporate procedures (Albort-Morant et al., 2016).

Hence, in the presence of rigorous natural controls and mainstream ecological awareness of customers, there exist numerous progressions and effects for the guidelines and examples through which firms can influence their environmental performance and improve competitive position (Driessen et al., 2013). In this regard, the importance of green intellectual capital is noteworthy to supplement the prospect of sustainable development and improve firm performance and competitiveness (Chen, 2008). With the fear of the negative potential link between sustainable practices and financial performance of the firm (Rees, 2003; Jensen, 2010; Chen and Chang, 2013; Zomorodi and Zhou, 2016; Danbaba et al., 2016; Ekpung, 2014; Marshal, 2017; Mušić, 2017; Elshamy and Ahmed, 2017; Chen et al., 2018), organizations often evade eco-investments considering their lack of profitability for the firm and hindering firm's future progress. In this regard, Chen (2008) established that intangible resources are widely recognized for granting competitive advantages and improve organizational performance. Unlike, Johnson (1999) that equate firm's market value with its financial and intellectual capital, the vitality of intellectual capital in the prevailing era of ecological awareness is far greater than its financial capital (Joia, 2000). Furthermore, the extensive adoption of internet and service industries has enabled to augment the difference between firm's market value and book value leading to bring ambiguity in firm's real value reflected in its financial statements (Pew-Tan et al., 2007; Meiryani et al., 2017; Leitão, 2013; Al-Mashailie and Al-Karraz, 2015; Muñoz, 2017).

Thus, the motivation of organizations in realizing the importance of intellectual capital underlies the potential to improve their environmental performance. In addition, the aspirations for environmental conditions strengthen organizational image for being responsive, adaptive and responsible for instigating, improving and supporting sustainable development. Consequently, the strive for improved organizational reputation instigate organization's green image that motivate green culture with enhanced concerns for environmental condition that drives improvements in performance (Linnenluecke and Griffiths, 2010). Therefore, the intangible reputation of the firm can be regarded as the crucial attribute of supporting organization's goals for sustainability and thus improve firm's competitiveness and environmental performance.

Hence, identifying the inability of conventional accounting methods to express firm's market value, the focus of literature has been transferred in acknowledging the importance of intangible assets in reflecting organization's real value. In the existing literature, numerous researches studied the association between intellectual capital and firm competitiveness (Edvinsson and Malone, 1997; Johnson, 1999; Stewart, 1994), reputation and performance (Greenwood et al., 2005; Carmeli and Tishler, 2005;

Meiryani and Lusianah, 2018), green intellectual capital and competitive advantage (Chen, 2008), however, there is the lack of academic studies that identify the impact of green intellectual capital and reputation in influencing environmental performance of the firms.

In compliance, the current study fills the gap of the literature by analyzing the contribution of intangible resources in affecting firm's environmental performance. In doing so, the authors aim to examine the contribution of organization's reputation in driving firm's environmental performance. Furthermore, the contribution of the current study is extended to study the crucial role of green intellectual capital in influencing sustainable performance. In this regard, the study measures intellectual capital by following Johnson (1999) and Bontis (2001) in the form of green human capital, green social capital and green relational capital in realizing their impact on firm's environmental performance. Confronting the patterns of strict natural traditions and prominent ecological awareness, organizations ought not freeze or overcompensate from the existing ecological regulations as these natural patterns could be moved toward the green practice that may drive them to convey sustainable development and bring consensus in the environmental and organizational objectives (Ali and Haseeb, 2019; Haseeb et al., 2018; Haseeb et al., 2019; Suryanto et al., 2018). Unlike viewing ecological policies as hindrances of firm's future improvement, the findings of the current study concentrate on finding the right assessment of intangible resources in carrying efficiency in firm's course of sustainable practices by evaluating its impact on environmental performance.

The remaining of the present study follows the later pattern. Section two will give the literary knowledge regarding prevailing studies and support to form hypotheses. Section three will guide the methods of the current study regarding instrument development, measures utilized and data collection. Section four will demonstrate empirical findings and interpret the results of the tested hypothesis. Finally, section five will discuss the results and conclude the investigation with future recommendations.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The theory of resource based view (RBV) suggested that the key to achieve organizational competitiveness lies in utilizing organizational resources effectively. Given the significance of organizational assets and resources in driving firm's productivity and growth, the usefulness of organization's intangible assets is valuable to boost performance. In this regard, the emphasis of the literature in studying intangible assets is confined to actualize its relationship with monetary, social and economic fundamentals and a very little is known about their link with environmental performance. Among them, several studies identify the association of intangible resources with economic and financial factors (Wyatt, 2005; Simon, and Sullivan, 1993), knowledge spillovers (Corrado et al., 2017); O'Mahony, and Vecchi, 2009) financial performance (Surroca et al., 2010; Riahi-Belkaoui, 2003) and organizational competitiveness (Hall, 1993; Ivanov, and Mayorova, 2015).

The theoretical fundamentals of RBV explains the role of organizational reputation as an eminent intangible asset (Dangelico, 2015). Describing the vitality of firm reputation, Dowling, (2006) elaborated that optimistic reputation underlies the potentials of raising firm's brands and provide the business to utilize the equity generated from the brand to enlarge market segmentation, improves financial performance, organized institutional investment and upsurge share values. By definition, organizational reputation is referred as the collective judgment for the business by the populace (Fombrun and Shanley, 1990). The importance of good reputation is well preserved by the institutional investors that prefer to contemplate the improvements in environmental and social conditions prior implementing investment decisions. In this regard, Russo and Fouts (1997) while examining the RBV approach in attaining environmental and financial performance established that intangible resource of reputation is highly substantial to boost organizational performances for being more valuable, difficult to imitate and supplementary to the consumers rising demand of sustainable environment.

Likewise, the growing emphasis on environmental management strengthen firm's reputation for adopting eco-friendly methods of providing goods and services, thereby impact ecological performance. In this context, Lee and Klassen (2008) stated that the notion of ecological management contains the organizational abilities to influence its environmental performance. In addition, Dangelico (2015) in his search for examining the critical role of environmental management in improving firm's environmental performance and reputation found that the presence of green managerial teams positively improves firm's reputation and consequently impact its environmental performance. Hence, in the light of the above literature, the present study hypothesizes that;

Hypothesis 1: Organizational reputation is significant to influence Firm's environmental performance.

More recently, the prominence of organization's intellectual capital has been witnessed to upsurge in the environmental management literature (Tonial et al., 2019; Zhu et al., 2017; Guerrero-Baena et al., 2015). In this regard, the role of green intellectual capital is critical to ensure the successful implementation of green corporate practices to meet the objectives of sustainable development. By definition followed by Bontis (2001) and Johanson (1999), green intellectual capital represents the assimilation of intangible assets of the business that extends the utilization and potentials capabilities of the resources in three forms of expertise namely human capital, structural capital and relational capital. Many studies established that intellectual capital of the organization contain the ability to improve organizational competitiveness (Edvinsson and Malone, 1997; Johnson, 1999; Stewart, 1994).

Focusing on green intellectual capital, Chen (2008) investigated the environmental management of small and medium enterprises (SMEs) in Taiwan. Distributing the intangible resources into green human capital, green relational capital and green structural capital, the results of the study established that all three forms of green intellectual capitals are significant to affect SMEs' competitive advantage. In particular, the study reported that green relational capital is the most substantial driver of firm's competitiveness.

Similarly, Díaz-Fernández et al. (2015) also examined the role of intellectual capital in influencing MNCs performance in Spain. The findings of the study reported that intellectual capital diversity brings positive significant impact on firm's performance.

In another study, Asiaei and Jusoh (2015) also analyzed the contribution of intellectual capital in enhancing firm performance in Tehran. The authors examined the four aspects of intellectual capital namely, human capital, social capital, relational capital and structural capital. The results of the study elaborated that three forms of intellectual capital i.e., human capital, structural capital and relational capital are significant to bring positive impact in firm's performance. However, the study failed to find the contribution of social capital in driving firm performance. Thus, the current study hypothesizes that;

Hypothesis 2: Green intellectual capital is significant to influence Firm's environmental performance.

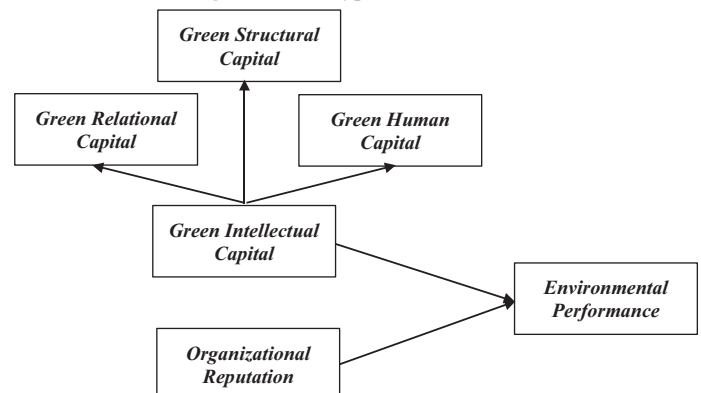
The research hypothesized model is demonstrated in Figure 1.

3. METHODOLOGY

3.1. Measures

The current examination broke down the role of green intellectual capital and organizational relationship on environmental performance in Indonesia manufacturing ventures. In doing to complete the objective, we examine the hypothesized model presented in Figure 1. The features of the examined factors are investigated by using the Likert scale 1 (strongly disagree) to 5 (strongly agree). All to together, the present research used three variables to examine the role of green intellectual capital and organizational reputation in influencing environmental performance. The variable involve in this study are green intellectual capital (GIC), organizational reputation (ORR) and environmental performance (ENP). Furthermore, GIC is making by the combination of three sub variables which includes green relational capital (GRC), green structural capital (GSC) and green human capital (GHC). The twelve items of GIC sub-variables are adopted from the study of Chen, (2008). The four items of ORR are adopted from the study of Turban, Forret and Hendrickson (1998). Finally, the current study used four measures of environmental performance adapted from the study of Zhu et al. (2017).

Figure 1: The hypothesized model



3.2. Data Collection and Sample

The technique of data gathering in the present investigation is done by gathering information from the Multinational companies of Indonesia. Thusly, we select 21 multinational firms by conveying the survey to the different multinational outlets in all of the fourteen states of Indonesia. For increasingly information gathering, we converted our study instrument in to English language and distributed to the selected outlets of multinational firms. Subsequently, an aggregate of 372 research instrument were sent utilizing both on the soft copy and hard copy of the online survey. The process for information gathering took a time of total 3 months and got 313 review response with the reaction rate of 84.13%.

4. DATA ANALYSIS AND DISUCSSION

The data exploration of this study is done by utilizing the SmartPLS Version 3.2.8 (Ringle et al., 2015) and Statistical Package for Social Sciences (V-23). A last considerable sample used in the present examination is 293 by removing univariate and multivariate anomalies. The procedure for recognizing of univariate and multivariate anomalies are Z-test score and Mahalanobis remove (D2) by utilizing SPSS (V-23) and rest of data investigation is finished by utilizing SmartPLS. Shown Table 1 is the organization and structure of the valid answers of the gathered data used in this research. Likewise, Table 2 light up the mean and Pearson's Correlation of the factors used in the present examination. Moreover, to recognize the problem of multicollinearity, the present investigation utilizes Hair et al. (2010) initiate that by far most of the features in the Pearson's Correlation examination should under 0.90. In this manner, affirm the nonappearance of multicollinearity between the factors (Hair et al., 2013; Sharif and Raza, 2017; Afshan et al., 2018).

Additionally, content validity is affirmed if the items utilizing in the data analysis load with more greater value in their respective factor then other items showed in the framwork, while internal consistency is practiced if the value of Cronbach's alpha and composite reliability exceeds 0.7 (Arif et al., 2016; Sharif and Raza, 2017; Frooghi et al., 2015; Hair et al., 2013; Afshan et al., 2018). Factor loadings and composite reliability displayed in Table 3 which show that most of the items factor loadings are >0.7 also, these loading are shown in their respective columns which conforming the threshold or previously stated internal consistency.

Moreover, convergent validity advises to what degree an item of a particular factor consolidated and loaded to a close factor where they assumed to be loaded (Mehmood and Najmi, 2017; Sharif and Bukhari, 2014; Sharif and Raza, 2017). In the present examination, convergent validity is declared by utilizing an average variance extracted (AVE) for every variable (Fornell and Larcker, 1981). They provide limit of greater than and comparing to 0.5 for certifying up the convergent validity. Thusly, AVE in Table 3 is confirming the basic measures.

In the following step, discriminant validity is uncovered as how much an item of an explicit factor is novel and discriminant from other variables (Waseem et al., 2013; Frooghi et al., 2015;

Table 1: Descriptive statistics

Valid	Frequency (%)
Gender	
Female	101 (34)
Male	192 (66)
Total	293 (100)
Age	
20–30 years	31 (11)
31–40 years	136 (46)
41–50 years	87 (30)
51 and above	39 (13)
Total	293 (100)
Working experience	
1–5 years	44 (15)
6–10 years	163 (56)
11–15 years	67 (23)
>15 years	19 (6)
Total	293 (100)
Education	
Undergraduate	26 (9)
Graduate	182 (62)
Post graduate	20 (7)
Others	65 (22)
Total	293 (100)

Source: Authors estimation

Table 2: Means, standard deviations, pearson correlations

Variables	MEAN	GRC	GSC	GHC	ORR	ENP
GRC	3.832	-				
GSC	4.023	0.402**	-			
GHC	4.432	0.321**	0.332**	-		
ORR	4.112	0.291**	0.375**	0.324**	-	
ENP	4.372	0.226**	0.441**	0.382**	0.392**	-

n=293 . **Correlation is significant at the 0.01 level (2-tailed)

Carmines and Zeller, 1979). According to Fornell and Larcker (1981), the discriminant validity is said to be confirmed if the square root of AVE surpasses the pair-wise connection of the latent variable. As appeared to be Table 4, italic values are the square root of AVE which is surpassing the off diagonal values which are the pair-wise connection of each factor (which are GRC, GSC, GHC, ORR and ENP). The Table 5 shows the exploration loadings of different and separate factors therefore affirming the cut-off limit. Subsequently, the discriminant validity is moreover expressed if the Hetro Trait and Mono Trait extent is lower than 0.85 as prescribed by Henseler et al. (2015). The results in Table 6 revealed that all elements have Discriminant validity.

In the final step, partial least square approach, research hypothesis and model framework were evaluated by presenting path coefficients, t-stats and significance value. According to Chin's (1998) recommendations, a bootstrapping procedure using 1000 sub-sample was connected to affirm the quantifiable critical values of all beta coefficient. Table 7 reveals beta coefficients, t-statistics and their significance values.

Table 7 demonstrated the outcomes of partial least square equation modeling d, regression path coefficient, t-statistics, probability values (P-values) and the comments related with theorized path. The results of the PLS_SEM affirm that organizational reputation ($\beta = 0.424$, $P < 0.000$) and green intellectual capital

Table 3: Measurement model results

Variables	Items	Factor loadings	Cronbach's alpha	Composite reliability	AVE
Green rational capital	GRC1	0.923	0.826	0.824	0.612
	GRC2	0.891			
	GRC3	0.939			
	GRC4	0.831			
Green structural capital	GSC1	0.902	0.815	0.832	0.662
	GSC2	0.935			
	GSC3	0.942			
	GSC4	0.870			
Green human capital	GHC1	0.872	0.834	0.821	0.614
	GHC2	0.849			
	GHC3	0.906			
	GHC4	0.820			
Organizational reputation	ORR1	0.883	0.827	0.729	0.616
	ORR2	0.840			
	ORR3	0.790			
	ORR4	0.840			
Environmental performance	ENP1	0.860	0.821	0.842	0.565
	ENP2	0.850			
	ENP3	0.821			
	ENP4	0.800			

Source: Authors estimation

Table 4: Discriminant validity Fornell-larcker criterion

Variables	GRC	GSC	GHC	ORR	ENP
GRC	0.782				
GSC	0.404	0.816			
GHC	0.412	0.442	0.783		
ORR	0.483	0.394	0.394	0.784	
ENP	0.217	0.504	0.345	0.341	0.751

Source: Authors estimation

Table 5: Results of loadings and cross loadings

Variables	GRC	GSC	GHC	ORR	ENP
Green rational capital	0.923	0.347	0.483	0.235	0.491
	0.891	0.567	0.369	0.344	0.416
	0.939	0.144	0.270	0.312	0.466
	0.831	0.480	0.465	0.372	0.506
Green structural capital	0.902	0.270	0.630	0.288	0.381
	0.935	0.235	0.382	0.589	0.324
	0.942	0.144	0.279	0.517	0.362
	0.870	0.352	0.317	0.385	0.468
Green human capital	0.872	0.372	0.319	0.297	0.410
	0.849	0.238	0.503	0.324	0.527
	0.906	0.238	0.248	0.299	0.463
	0.820	0.568	0.461	0.207	0.402
Organizational reputation	0.883	0.399	0.248	0.921	0.419
	0.840	0.506	0.501	0.828	0.592
	0.790	0.618	0.467	0.800	0.419
	0.840	0.462	0.387	0.851	0.361
Environmental performance	0.860	0.309	0.261	0.358	0.518
	0.850	0.251	0.380	0.445	0.371
	0.821	0.369	0.571	0.413	0.434
	0.800	0.580	0.270	0.471	0.419

Source: Authors estimation

($\beta = 0.449$, $P < 0.000$) have positive and significantly influenced on environmental performance hence affirming H_1 and H_2 . The results of partial least square structural equation modelling confirm that a unit increase in green intellectual capital bring 0.449 unit increase in environmental performance of multinational firms in Indonesia. Moreover, a unit increase in organizational reputation also bring

Table 6: Results of HTMT ratio of correlations

Variables	GRC	GSC	GHC	ORR	ENP
GRC					
GSC	0.642				
GHC	0.479	0.642			
ORR	0.493	0.470	0.674		
ENP	0.650	0.604	0.615	0.486	

Source: Authors estimation

Table 7: Results of path coefficients

Hypothesized path	Path coefficient	CR	P value	Remarks
ENP ← ORR	0.424	3.786	0.000	Supported
ENP ← GIC	0.449	3.9984	0.000	Supported

Level of Significance (5% i.e., 0.050). Source: Authors' estimation

positive increase by 0.424 unit in environmental performance in INDONESIA multinational firms.

5. CONCLUSION

The emergence of industrial revolution augmented the production processes all around the world through mass efficiencies but also caused numerous adverse effects in the form of extensive energy utilization, resources depletion and industrial pollution. The growing awareness related to environmental condition as a result of expanded deterioration and global warming lead to increase the world-wide ecological regulations that have the tendency to impact global industries. Therefore, in the existing environmental era, businesses are prone towards eco-friendly ways of meeting organizational goals to ensure the prospect of sustainability. In this regard, the notion of becoming 'green' has been witnessed to spread across many industries that altered the orthodox organizational practices and resources utilizations.

Thus, the motivation of organizations in realizing the importance of intellectual capital underlies the potential to improve their

environmental performance. In addition, the aspirations for environmental conditions strengthen organizational image for being responsive, adaptive and responsible for instigating, improving and supporting sustainable development. Consequently, the strive for improved organizational reputation instigate organization's green image that motivate green culture with enhanced concerns for environmental condition that drives improvements in performance. Therefore, the intangible reputation of the firm can be regarded as the crucial attribute of supporting organization's goals for sustainability and thus improve firm's competitiveness and environmental performance.

The current study fills the gap of the literature by analyzing the contribution of intangible resources in affecting firm's environmental performance. In doing so, the authors aim to examine the contribution of organization's reputation in driving firm's environmental performance. Furthermore, the contribution of the current study is extended to study the crucial role of green intellectual capital in influencing sustainable performance. In this regard, the study measures intellectual capital in the form of green human capital, green social capital and green relational capital in realizing their impact on firm's environmental performance. Confronting the patterns of strict natural traditions and prominent ecological awareness, organizations ought not freeze or overcompensate from the existing ecological regulations as these natural patterns could be moved toward the green practice that may drive them to convey sustainable development and bring consensus in the environmental and organizational objectives. Unlike viewing ecological policies as hindrances of firm's future improvement, the findings of the current study concentrate on finding the right assessment of intangible resources in carrying efficiency in firm's course of sustainable practices by evaluating its impact on environmental performance. The results of PLS-SEM confirm that organizational reputation and green intellectual capital have positive and significantly influenced on environmental performance. The results of partial least square structural equation modelling confirm that a unit increase in green intellectual capital bring 0.449 unit increase in environmental performance of multinational firms in Indonesia. Moreover, a unit increase in organizational reputation also bring positive increase by 0.424 unit in environmental performance in INDONESIA multinational firms.

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