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The impacts of social responsibility on the environmental sustainability performance of the Malaysian construction industry

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ABSTRACT

Properly harnessed social responsibility is vital for construction organization's environmental sustainability as it provides a resource for their competitive edge in construction project delivery. This study examines the impacts of social responsibility on Malaysian construction firms' environmental sustainability performance. A cross-sectional survey of 185 questionnaires was administered to respondents from Malaysian G7 construction firms. PLS path modelling outcomes show that social responsibility and coercive pressure are positive predictors of environmental sustainability performance. The results also established that, despite the charitable nature of social responsibility, construction firms are still obliged to be socially responsible through investment in environmental and social responsibility activities. This could result from conformity with guidelines that mandated them to spend on social responsibility activities and secure legitimacy from multiple stakeholders. Our results also reveal that coercive pressure transmits the positive effects of social responsibility on environmental sustainability performance. Thus, it was established that coercive pressure is a positive mediator and a facilitator that plays a complementary role between social responsibility and environmental sustainability performance. The implications and recommendations for future research are also discussed.

KEYWORDS

CSR; social responsibility; coercive pressure; environmental sustainability performance; construction industry; mediator

Introduction

With the increase in awareness of environmental protection since the 1960s, firms have gradually been mandated to conform with global agreements and guidelines, such as the 'Montreal Protocol' (1987); the 'United Framework Convention on Climate Change' (1992), the 'Kyoto Protocol' (2005) and of recent 'Millennium Development Goals' (2000), 'Sustainable Development Goals' (2015) and Paris Agreement (2015). Consequently, the rules associated with environmental pacts are increasing global prominence, and implementation has become progressively more rigorous, leading to a massive impact on the corporate environment (Abbas 2020). In furtherance to the global environmental agreements, firms have also started to acknowledge environmental sustainability as an integral component of social responsibility in line with the global environmental philosophy and more expectations for social responsibility from the community. Consequently, firms have started to incorporate environmental sustainability into their corporate social responsibility (CSR), allowing them to boost their output while cutting waste and emission levels to minimise future generations' impact (Grayson and Hodges 2017; Abbas 2020). This has given environmental sustainability a rising influence on business thinking. The growing importance of environmental sustainability emanating from environmental organisations and governments with its related rules implies that firms are under growing pressure to comply with environmental sustainability practices (Ortiz-de-Mandojana et al. 2016).

The conventional belief is that compliance with appropriate environmental laws, coupled with an investment of inadequate resources in unproductive pollution control technology along with low investment in proper equipment, decreases productivity (Christainsen et al. 1980; Conrad and Morrison 1985). A few researches have demonstrated that environmental sustainability practices have no substantial impact on corporate performance (Rockness et al. 1986). Currently, studies have shown that decent corporate environmental practices can efficiently reduce waste generation and energy use, thereby allowing firms to realise cost savings (Chen and Chang 2013; Sánchez-Medina et al. 2015; Fernando et al. 2019; Yusliza et al. 2019). Studies have also demonstrated that while conformity with environmental rules produces added expenses, it can as well lead to subsequent drops in cost in other areas, which comprise initial costs and profit on investments (for instance, recycling, saving paper, and energy investment), long-term costs on recovery (like improved logistics efficacy), and direct costs (like waste treatment technology) (Chen and Chang 2013; Sánchez-Medina et al. 2015).

The incorporation of social responsibility and guaranteeing environmental sustainability is expected to help firms handle ecological challenges and economic growth. Yet, the safety effect of corporate social responsibility on the social and physical environment has resulted in varied outcomes (Ağan et al. 2016; Helfaya and Moussa 2017). There is sketchy evidence, yet, from a case-based study, that firms enhance their ecological performance through engagement in corporate social responsibility. For example, a manufacturing firm in India involved in paper recycling reduced its wastewater because of its commitment to CSR related activities (Kanchan 2010). Nevertheless, this association may not have been thoroughly investigated in the context of the Malaysian construction industry. The lack of empirical studies, particularly in emerging nations like Malaysia, may be ascribed

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to the questions of assessing the multifaceted nature of constructs like environmental sustainability and social responsibility. Hence, this study presents theoretical and empirical data on the correlation between social responsibility and environmental sustainability performance in Malaysian G7 construction firms. Social responsibility is measured by accumulating expenditure on aids, community and social spending, pollution, and environment control-related spending. These indicators have been utilized in a few other researches (Lu and Castka 2009; Rai and Bansal 2014; Verma and Kumar 2014). Environmental sustainability performance was examined using pollution control, energy conservation, biodiversity protection, waste minimisation, and so on.

In this study, we build on ethics and CSR concepts to understand how firms' engagement in social responsibility acts by minimising the impact of their firm's activities on the natural environment. To shape our claim, we draw on the legitimacy theory (Suchman 1995) to understand how firms can gain legitimacy from their social responsibility activities. This study focused on Grade 7 (G7) construction firms holding a G7 licence approved by the Construction Industry Development Board (CIDB) Malaysia. The G7 license allows them to bid and deliver projects for an unlimited amount. Specifically, we focussed on the contractors undertaking civil engineering and building construction. This study's results have implications for stakeholders and policymakers in the construction industry, which may help effective policymaking and monitoring firms' expenditure on social responsibility. The remaining segments of this study continue with this structure: the next part explains the theoretical considerations that resulted in developing this study's hypotheses, followed by the section on design and research methods used in this study. Lastly, the segment on results and conclusions is given with limitations and directions for future research, which were as well explained.

Theoretical consideration and hypotheses development

Theoretical consideration

Legitimacy is a global view or belief that an individual's activities are proper, correct, or appropriate within some socially formulated structure of rules, values, principles, and descriptions (Suchman 1995). Legitimacy theory has been used as a tool of communication to enlighten or influence the firm's dealings. As emphasised by Islam and Deegan (2008), the legitimacy theory states that firms attempt to guarantee that external parties see their actions as acceptable to ensure that they are seen as operating within their respective societies' limits and rules. In addition to this, legitimacy theory suggests that firms are compelled by the social agreement in which the firms concur to execute different socially coveted activities in response for endorsement of its aims and other compensations, which eventually assures its continual existence. Hence, firms utilise communication or accounting to uphold or sustain their legality in society's face.

Islam and Deegan (2008) stated that there exists a 'social contract' between a firm and the society(ies) wherein it conducts its businesses, and there will be damaging consequences for the unending existence of the firm if there is any infringement of the 'social contract.' In a way, management strives for the similarity between the public assessments of its firm's social beliefs and what is considered by society to be proper social conduct and equally pursues to sustain or institutionalise its legality (Deegan and Gordon 1996). For instance, different groups, audiences or appropriate publics appraise the organisation based on their observations and expectations vis-à-vis similarity between their ethics and organisational ethics. Suppose the appropriate audiences are unmindful of the deviation. In that case, that firm may substantially deviate from expectations and still uphold its legality (Mobus 2005). Additionally, responsibility and moral acceptability consider the social values and beliefs from an organisational viewpoint, as emphasised by O'Sullivan & O'Dwyer et al. (2009). Succinctly, firms should provide information on social responsibility through reporting of their CSR events to the society and act in accordance with the 'legitimacy theory' to remain contentious and continue to operate in the marketplace, and at the same time to make itself answerable to the public along with society in which it operates.

Hypotheses development

Social responsibility (SR), coercive pressure (CP) and environmental sustainability performance (ESP)

Sustainable development, as defined by Brundtland (1985), is a combination of the economic, social and environmental aspects of development and has appeared to be a crucial subject of discussion among different sections of society like the government, corporates, and non-profit organisations, media, and clients/consumers. Environmental sustainability is an essential part of sustainable development. The environment is a vital stakeholder for organisations, employees, investors, customers/clients, and the community due to their reliance on the environment. Fundamentally, the firms' activities impact the environment in considerable ways. With the increasing significance of ecological hazards, firms have reacted at a collective level through associations to cooperate with institutions; and at an individual level – by introducing and incorporating sustainability-related matters in their operation and policy (Pogutz 2008). Three motivations have been acknowledged by Rai and Bansal (2014) for organisations reacting to environmental concerns: competitiveness, legitimacy, and environmental responsibility.

Organisations driven by competitiveness concentrate on cost-effectiveness through low cost and variation (Bansal and Roth 2000). Their judgment is based on analysis of 'cost-benefit' with a concentrated effort on the clients/customers and shareholders' desires. Firms driven by legitimacy concentrate on conforming with rules and guidelines to guarantee their businesses' easy running. They concentrate on their stakeholders, local community and the government. Also, firms inspired by environmental responsibility aim at increasing corporate confidence. Indicators on environmental sustainability offer statistics on firms' progress, subject to the definition of environmental sustainability's construct. For example, environmental sustainability is defined by Zoogah (2014) from the point of view of the practices and processes deployed by firms which increases the quality of the ecosystem in the long run. Contrary, corporate environmental sustainability is defined by Dwyer et al. (2009) in terms of the environmental practices of green organisations, whereas Donald (2009) considers eco-friendly practices in his own definition. Others, such as Cowan et al. (2010), describe environmental sustainability from the lens of energy management, resource management, and product sustainability. Firms like Walmart have incorporated energy, waste, and product development to signify their effort on environmental sustainability (Walmart 2015).

Although there are an array of procedures that an organisation may embrace to guarantee the sustainability of the environment, including the environment itself as a component of the

CSR policy, which is undisputed to positively add to being sustainable (Pogutz 2008). As both variables, environmental sustainability performance and social responsibility, target plummeting the effect of firms' activities on the environment. There is an upgradable opposition in the descriptions resulting from practical and theoretical perspectives (Pogutz 2008). Dahlsrud (2008) noted that social responsibility comprises safeguarding the sustainability of the environment, as CSR's goal is to incorporate environmental and social issues into the firms' business activities.

The theoretical oppositeness between environmental sustainability and social responsibility has been named 'environmental CSR', which encompasses firms going beyond conformity to participate in eco-friendly activities (Demmerling 2014). The quest towards 'environmental CSR' is motivated by the level of competitiveness in the marketplace, ethically inspired employees, socially responsible shareholders, and pressure from global markets (Jamali and Karam 2016; Duanmu et al. 2018). The 'supply-side' factors swaying 'environmental CSR' comprise regulation from the government and enhancement in environmental effectiveness in reducing costs (You et al. 2019). Additional, firms are found to divulge environmental information in their yearly reports to guarantee legitimacy (Lu and Castka 2009; Kansal et al. 2014). As a developing economy, Malaysia is struggling with environmental trepidations, while also pushing for a sustained economic growth. It is now mandatory, especially for government-linked companies, to incur CSR spending to enhance investors' accountability, including responsibility to the environment.

As per the Companies Act's procedures, 2016 with the tagline 'driving business beyond profitability', firms are expected to constitute a CSR Board of committee and incur a minimum of 2% of the average proceeds netted on CSR activities (Malaysian Company Act 2016). This regulation from the government is expected to swing the supply of 'environmental CSR' upwardly, encouraging firms to participate in 'environmental CSR' at the same par with production, which is expected to aid firms in improving their environmental sustainability performance owing to their expenditure in environmental activities as a fragment of the CSR policy (Lys et al. 2015). In this case, social responsibility will be positively correlated with environmental sustainability performance. Though, Williamson et al. (2006) emphasised that one of CSR's measurements is its charitable nature; therefore, despite the obligation to expend on social responsibility related activities, firms have the choice of exact areas for financing. In India, organisations may spend on education, environment, community development, and sanitation as a fragment of their social responsibility (Verma and Kumar 2014). Owing to the charitable disposition of the CSR events, firms may expand into areas apart from the environment, as long as they do not presume the mandate for the rise in 'environmental CSR'.

Under such a development, firms are expected to spend on developing the environment once they have superfluous resources, thus making their commitment a charitable act, leading to no correlation between environmental sustainability performance and social responsibility (Lys et al. 2015). For instance, Verma and Kumar (2014) longitudinal research on social responsibility spending of thirty firms of the BSE Sensex indicated that the environment had not been a primacy area for CSR in India. Though the study was carried out before the regulation on CSR as a component of the 'Companies Act, 2013', and it is expected that firms might have improved their allocation to the environment after the enforcement of the regulation. For instance, the CSR spending of the top 20 Indian companies for the years 2014 and 2015 indicates that safeguarding environmental sustainability is the third after healthcare and education as the most attentive area, responsible for almost 20% of total CSR spending for the years under reviewed (Press Information Bureau (PIB)) 2015). Similarly, in the Malaysian context, Lu and Castka (2009) noted that firms ensure more CSR expenditure in the social sector when compared to the environment. Their assertion is established on a qualitative survey of annual reports of firms from various industries. This assertion also in line with the study of Alazzani et al. (2017) who carried out emphirical research on the Impact of gender diversity on social and environmental performance in Malaysia. Their findings revealed that firms' directors pay much more attention to issues related to the social aspect of CSR than to the environment. In the same vein, the study of Yam (2013) also revealed a similar findings in which philanthropic activities are the mostly widely reported CSR than the environmental activities. Even though the majority of property companies reported their environmental practices, only the top few developers had their projects certified by sustainability rating agencies.

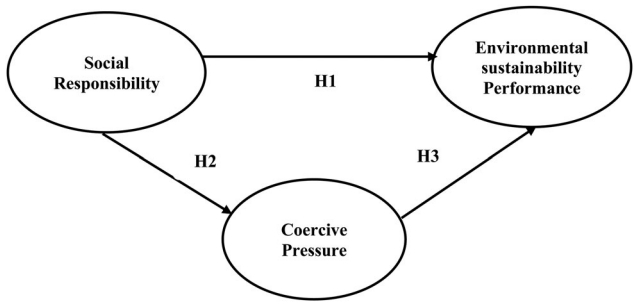

Figure 1. Effects of SR and CP on ESP.

The hypothetical model for the interaction between social responsibility, coercive pressure, and environmental sustainability performance is shown in Figure 1. Hence, it is hypothesised thus:

H1: There is a significant positive effect of social responsibility on construction firms' environmental sustainability performance.

H2: There is a significant positive effect of coercive pressure on environmental sustainability performance.

H3: There is a significant positive effect of social responsibility on coercive pressure.

Mediating Effects of coercive pressure

A mediating variable is a variable that explicates the relationship between an independent (predictor) variable and a dependent (criterion) variable (Baron and Kenny 1986). Mediators tell us *how* or *why* the predictor variable influence or affect the criterion variable. The mediator is considered an intervening variable that explains the relationship between a predictor variable and a criterion variable (Kenny and Judd 1984). One justification for assessing mediation is to see how the independent variable affects the outcome (dependent) variable. Businesses worldwide are facing growing pressure to re-organise their strategic orientations and resources in reaction to demands for sustainability in which Malaysia is not an exception. This led to numerous regulatory and legislative reforms been put in place to consolidate the Malaysian government's capacity to establish an institutional framework that successfully compels the industrial sector to incorporate environmental sustainability practices into their operation (Bamgbade et al., 2019). Nevertheless, questions evolve

concerning the nature and scope of the influences of different institutional environmental considerations, such as government regulations, policies, and industry practices on firms' disposition to incorporate environmental sustainability practices into their operations.

Environmental policies are approved to curb the environmental harms triggered by firms' operations (Dechezleprêtre and Sato 2017). Hence, construction firms are obliged to work under regulation constraints (Lai and Wong 2012; Wagner 2015). Environmental regulation reinforces the performance of environmental sustainability in construction firms through environmental measures and requirements on compliance. Hence, there is a necessity for environmental law's compliance to bolster the construction firms' commitment to implementing environmental sustainability strategies and approaches. This statement is in line with Lai and Wong (2012) result on green logistics management among the Chinese manufacturing exporter, which found that environmental regulation mediates the correlation between environmental practices and the firm's performance. Although, the conventional viewpoint of environmental regulation on the firms' performance is that environmental regulation goes with an added cost that eats away the firms' profits. However, suppose environmental regulations are well-conceived and properly channelled. In that case, it tends to make up for the cost of compliance and strives innovation which results in environmental and business performance (Chen et al. 2016; Geng et al. 2017). Following Ramayah et al. (2018) and Gunzler et al. (2013), this study, therefore, introduces coercive pressure as a mediating variable to understand how managerial attitudes affect environmental sustainability performance. We then hypothesised that coercive pressure is a significant mediating construct in managerial attitudes and ESP relationships. Therefore, it suffices to hypothesise as follows:

H4: Coercive pressure significantly mediates the correlation between social responsibility and environmental sustainability performance.

Research methods, analysis and results

Sample size and data collection technique

In line with Bamgbade et al. (2019), this study was designed to target the top and middle management levels of Malaysian G7 construction firms as respondents. From the data gathered from the Construction Industry Development Board (CIDB) website, a total of 7,358 G7 construction firms were available as of January 2020. Regarding the sample size, Iacobucci (2010) strongly advocated as 'bigger is always better'. It is generally agreed that a larger sample size enhances the power and lowers the estimation error (Van Voorhis and Morgan 2007). To obtain a proportionate cluster sampling of the targeted respondents in each construction firm, GPower 3.1 (Faul et al. 2007) was deployed to guide the measurement of this study's sample size. From the outcome of GPower statistics, an appropriate sample size of 146 was measured having power (1-β err prob. = 0.9).

Following the recommendation of Waris et al. (2014) and Bamgbade et al. (2019), that the Malaysian construction industry has been characterized with low response's rate, and to take good care of this idiosyncratic trend and also reduce sampling error, the recommendations of (Hair et al. 2010), that the sample size is doubled or tripled, is adhered to. Hence, a sample size of 438 is adhered to, which is also in line with Sekaran and Bougie (2016), that the perfect sample should be between thirty (30) and five hundred (500). In light of the argument mentioned above, this study managed to get a response from 185 respondents. Meanwhile, the survey was carried out online because of the current pandemic ravaging the whole world. One hundred and eighty-five (185) of 438 questionnaires mailed were returned and completed, and all found appropriate for analysis, reflecting a response rate of 42%. This response rate is in line with existing studies (Waris et al. 2014; Adeleke et al. 2018; Bamgbade et al., 2019).

The measurement items were examined by an expert from both industry and academics before distribution. This was followed by a pilot study with 60 respondents (Bamgbade et al. 2017; Taofeeq et al. 2020). After that, the main data was conducted. Participants' anonymity was assured to help prevent common method bias. SPSS software version 26 was used for the data screening, the descriptive statistics and demographics of this study. Additionally, in line with the recommendations of Kock (2015) for assessment of collinearity, the variance inflation factor (VIF) results which range from 2.416 to 2.764, as shown in Table 2, indicates that the maximum VIF value is substantially lower than the benchmark of 3.3. Consequently, it can be assumed that common method bias (CMB) has not been a major concern in this research (Kock 2015).

Measures

This study's social responsibility was measured by 7 items adopted and adapted from Bamgbade et al. (2017). An example is 'Health and safety is an important consideration in our project delivery' (Appendix). Responses to statements are stated in a '5-point Likert' scale, with 5 representing strongly agreed while 1 represent strongly disagreed. Coercive pressure was equally measured with 7 items comprise of statements such as 'stringent government regulations on recycling, environmental protection, and client rights protection force our company to adopt and implement environmental sustainability strategies' (Appendix), for which respondents were asked to specify their level of agreement or otherwise using a '5-point Likert' scale where 5 represent strongly agreed while 1 represent strongly disagreed. These items were adopted and adapted from (Zhu et al. 2012). Environmental sustainability performance was also measured using 8 items. Respondents were asked to specify whether their firms contemplate the fundamental environmental concerns in construction project implementation on a 7-point scale anchored by 'strongly disagreed' and 'strongly agreed' (Appendix). The items were adapted from Bamgbade et al. (2019) and Abidin (2005). The difference in the measuring scale between independent and dependent variables was to ensure common method bias is not an issue (Robinson 2018). All the construct are measured reflectively because all the indicators are highly correlated (Hulland 1999).

Analysis

First, this study used the Statistical Package for Social Sciences (SPSS) version 26 to perform descriptive analysis. Then, partial least squares structural equation modelling (PLS-SEM) was employed to test the research model. PLS-SEM was used due to the simplicity of the model's distribution assumptions and complexity, specification of the model, ease of interpretation, and the 'prediction-oriented' and exploratory nature of this research (Hair et al. 2019). PLS-SEM is equally recognised to concurrently tackle multiple dependence correlation with higher statistical efficacy (Ringle et al. 2020). It is also recommended because the

primary objective of this study is causal predictive instead of theory testing, as emphasised by Sarstedt et al. 2016). Hence, SmartPLS3 was used for the main data analysis.

Results

The sample of 185 respondents has a moderately imbalanced distribution between male (68.1%) and female (31.9%) respondents. The main group of respondents were Chief Executive Officer (14.6%), Executive Officers (18.9%), Managing Directors (21.1%), Construction Managers (13.5%), Project Managers (21.1%), and others (10.8%) respectively. Generally, 47.0% of the respondents have a minimum of 1 and 5 years of experience within construction firms under review. The summary of demographic characteristics of respondents and firms are shown in Table 1.

The results of standard deviation (SD) from the descriptive statistics vary from 0.769 to 0.869. Simultaneously, values of mean also range from 3.697 – 3.971, which imply no significant variation among the examined constructs in this research due to the constructs' moderately proximate scores. Similarly, skewness and kurtosis fluctuated between −0.424 and −0.606; −0.065 and 0.405, respectively, which equally imply a normal distribution (Hair et al. 2010).

All the measurement items, as shown in Figure 2, loaded beyond the recommended minimum threshold of 0.708 (Hair et al. 2017; Cheah et al. 2018) except SR1, SR5, CP6 and CP7 but were retained since the AVE and CR meet their necessary thresholds level and keeping them does not meaningfully hinder the integrity of the model (Hair et al. 2010; Md Noor et al. 2019). Therefore, it can be assumed that all individual measurement items append significant value to their studied constructs (Hair et al. 2019).

As indicated in Table 2, CR values show the constructs' internal reliability and consistency, and the values of AVE equally reinforce convergent validity (Hair et al. 2016). The HTMT results in Table 2 also signify the constructs' discriminant validity (Henseler et al. 2015). All the VIF values are less than the threshold of 3.3, as shown in Table 2 (Henseler et al. 2015), indicating no multicollinearity issue in this research. Concerning the model fit, it is strongly recommended by Hair et al. (2019) that 'the use of model fit in PLS-SEM be carried out with extreme restraint as the assessments of measures are still not comprehensive, but recently optimistic thresholds are still uncertain, and the concept of model fit as in covariance-based SEM is of questionable value to PLS-SEM in general'. Therefore, estimations in PLS-SEM as advocated by Sarstedt et al. (2017) and Hair et al. (2017) should retain a 'causal-predictive approach' and rely on model's predictive accuracy and relevance (Q^2, β, and R^2).

Consequently, the structural model was assessed utilizing the PLS bootstrapping with an overall model's statistical significance test of 5000 subsamples. Values of R^2 for ESP (R^2 = 0.530) and CP (R^2 = 0.458) demonstrate moderate levels of variance explained in both ESP and CP, respectively, as emphasised by Sarstedt et al. (2017). Following the recommendations of Hair et al. (2019), the values of inner model as shown in Fig. 3 and Table 3 reveal that CP is the strongest positive predictor of ESP (β = 0.480, t = 6.132, p = 0.000), followed by SR (β = 0.311, t = 3.712, p = 0.000). These results support the hypotheses H1 and H3. Also, as earlier predicted, SR significantly influence CP ((β = 0.679, t = 13.181, p = 0.000). So, H2 is significant and also supported with a very strong t-value. Effect sizes (f^2) for SR (0.111) and CP (0.264) had small and medium effects, respectively (Cohen et al. 2013).

To access mediation effects, the guidelines of Zhao et al. (2010) was followed to investigate specific indirect effects. The results show that CP complementarily mediates the correlation between SR and ESP, wherein both the direct and indirect effects do exist and point in the same directions (i.e., both are positive), as shown in Table 3 and Figure 3 (Zhao et al. 2010). This result is significant and confirms the initial H4 hypothesis.

Finally, given the model's predictive relevance of this study, the Q^2 of CP (0.219) and ESP (0.350) signify a satisfactory level

Table 1. Demographic Characteristics of Respondents and Firms.

Respondents	Frequency	%
Position in the company		
Chief Executive Officer	27	14.6
Executive Director	35	18.9
Managing Director	39	21.1
Construction Manager	25	13.5
Project Manager	39	21.1
Others	20	10.8
Gender		
Male	126	68.1
Female	59	31.9
Work experience		
1 to 5 years	87	47.0
6 to 10 years	45	24.3
Over 10 years	53	28.6
Company Age		
1 to 5 years	39	21.1
6 to 10 years	29	15.7
Over 10 years	117	63.2
Location of Operation		
Local market	41	22.2
Within a few states	46	24.9
Regional	19	10.3
Across entire Malaysia	71	38.4
International market	8	4.3
Company Ownership		
Local	156	84.3
Foreign-invested enterprise	29	15.7
Joint Venture	–	–
Workforce		
<100	126	68.1
101–250	17	9.2
251–500	9	4.9
>500	31	16.8
Specialization		
Residential apartment	83	44.9
Non-residential apartment	75	40.5
Social amenities	31	16.8
Infrastructure	83	44.9
Others	25	13.5

Table 2. Descriptive Statistics, Reliability and Validity of Measurement Model, Normality and HTMT Assessments.

Construct	N	Mean	SD	Kurtosis	Skewness	CA	CR	AVE	VIF	CP	ESP	SR
CP	185	3.826	0.806	0.177	−0.446	0.866	0.895	0.549	2.449			
ESP	185	3.971	0.769	−0.065	−0.424	0.930	0.942	0.669	2.764	0.757		
SR	185	3.697	0.869	0.405	−0.606	0.883	0.903	0.572	2.416	0.726	0.690	

HTMT < 0.85 (Henseler et al. 2015).

Note: N, Observation; CR, composite reliability; CA, Cronbach alpha; AVE, average variance extracted; SD, Standard Deviation; CP, Coercive Pressure; ESP, Environmental Sustainability Performance; SR, Social Responsibility; VIF, variance inflation factor.

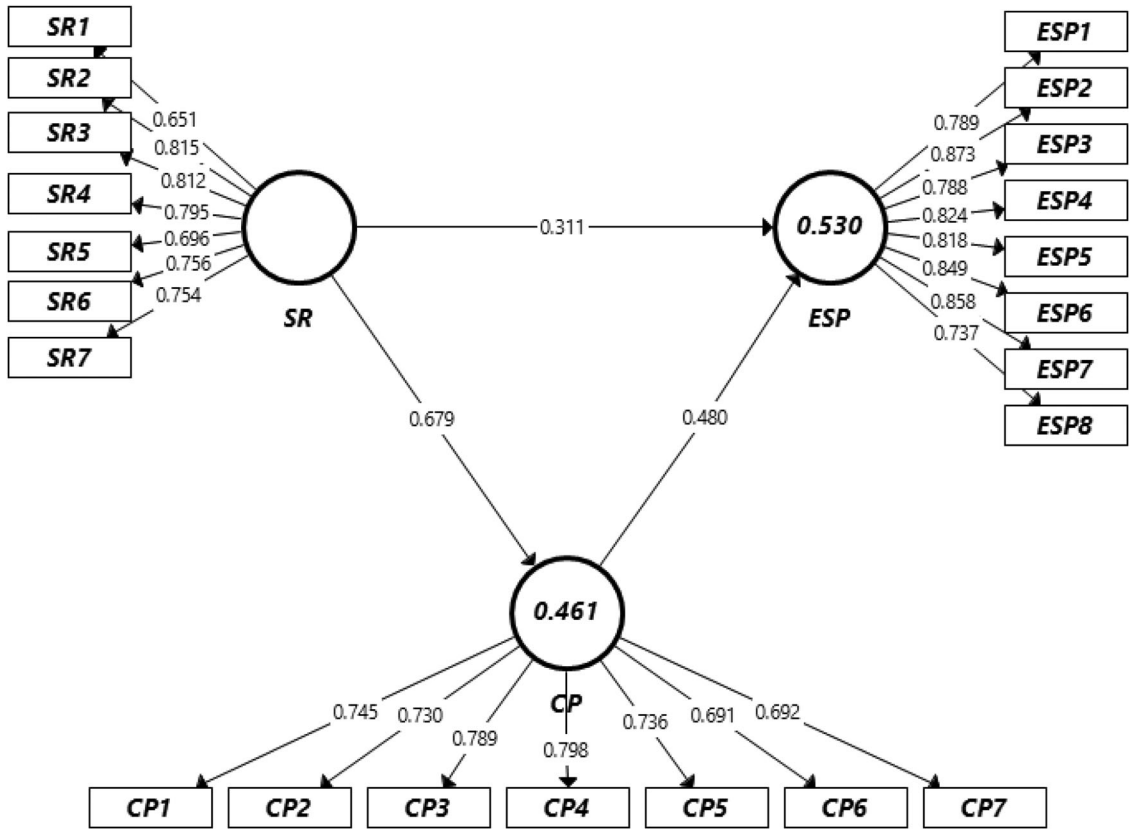

Figure 2. Measurement Model.

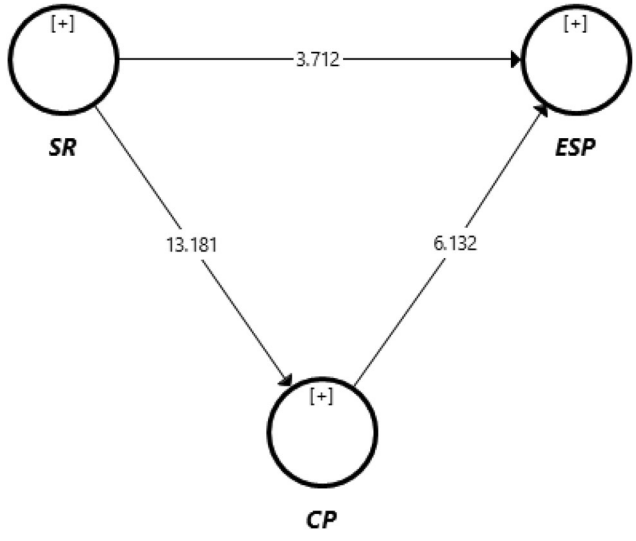

Figure 3. Structural Model.

of predictive relevance and support for predictive accuracy as emphasised by Shmueli et al. (2016).

Discussions and conclusion

Discussions

This study's main objective was to evaluate how and why coercive pressure influences the effect of social responsibility on the environmental sustainability performance of Malaysian large construction firms. The study established strong empirical proof for the hypothesized positive impact of social responsibility on the G7 construction firms' environmental sustainability performance. Both coercive pressure and social responsibility have also demonstrated to have positive effects on the environmental sustainability performance of the G7 construction firms within the sample framework. In line with the existing literature (Rai and Bansal 2014; Verma and Kumar 2014), this study validates that both SR and CP are significant predictors of ESP. Hypothesis H1 and H2, which predicted a significant positive correlation between social responsibility, coercive pressure, and environmental sustainability performance, were significant and supported. Although Lu and Castka (2009) have noted that most Malaysian firms incur more social responsibility expenditure in the social sector when compared to the environment. However, this study negated that fact and confirmed the positive effect of social responsibility on the Malaysian large construction firms' environmental sustainability performance.

The positive effects of social responsibility on the firms' environmental sustainability performance present innovative empirical evidence that large construction firms are better placed to gain legitimacy from their social responsibility activities by minimising the impact of their firm's activities on the natural environment. The findings offer empirical support to the basic tenet of legitimacy theory (Suchman 1995; Mobus 2005) that firms attempt to guarantee that external parties see their actions as acceptable to ensure that they are seen as operating within their respective societies' limits and rules (Deegan and Gordon 1996; Islam and Deegan 2008). While the theory underlines the importance of social contract between a firm and the society(ies) wherein it conducts its businesses and the need to be answerable to the public along with society through activities that will reduce environmental burden as key to firm environmental sustainability, this study's findings present a more robust

Table 3. Structural Model Results.

Hypotheses	Path	Beta	Standard Error	T-value	P-Values	Bias	Confidence Interval 2.50%	Confidence Interval 97.50%	Decision
	Direct Effect								
H1	SR -> ESP	0.311	0.084	3.712	0.000	0.000	0.176	0.455	Supported
H2	SR -> CP	0.679	0.051	13.181	0.000	0.009	0.588	0.755	Supported
H3	CP -> ESP	0.480	0.078	6.132	0.000	0.003	0.352	0.608	Supported
	Indirect Effect								
H4	SR -> CP -> ESP	0.326	0.060	5.434	0.000	0.006	0.234	0.431	Supported

clarification on how construction firms' engagement in social responsibility activities may bolster these attitudes with the aid of responsive environmental regulations.

The results also established that, despite the charitable nature of social responsibility (Williamson et al. 2006), construction firms are still obliged to be socially responsible through investment in environmental, social responsibility activities. This could be due to conformity with regulations that mandate them to expend on social responsibility activities and secure acceptability from various stakeholders (Ahmad and Tower 2011). This will undoubtedly lead to improved environmental sustainability performance due to investment in environmental activities as part of the social responsibility strategy (Lys et al. 2015). Likewise, in line with existing studies (Chen and Chang 2013; Sánchez-Medina et al. 2015; Ortiz-de-Mandojana et al. 2016), our findings show that CP transfers the positive impacts of SR to ESP. Thus, it was established that CP is a constructive mediator and a catalyst that plays a complementary role between SR and ESP. This outcome has proven that although pressures from government agencies and environmentalist (coercive pressure) remain a formidable driver of ESP, construction firms are also urged to expend more on the environmental aspect of social responsibility activities not only to gain legitimacy but also to improve their environmental sustainability.

Conclusion

Generally, the outcomes of this study emphasize some key points. First, this study's outcome presents a more refined understanding of how pressure from government regulatory agencies and environmentalist may offer superior clarifications on how and why some large construction firms are motivated to do better in their social responsibility activities through minimization of the impact of their firm's activities towards the natural environment (Ajibike et al. 2020). This study presents empirical data that, notwithstanding their capability to participate in environmental sustainability practices and strategies, large construction firms in many emerging nations are forced to pay attention to environmental sustainability issues (Bamgbade et al., 2019). The adoption of environmental sustainability practices and strategies in large construction firms has always been described with bureaucratic processes compared to small firms that are less methodical and mostly unofficial. This study's results indicate that environmental sustainability policies are considered necessary to be bolstered to assist large construction firms in conquering the inherent constraints associated with being socially responsible.

More importantly, this study also highlighted the significance of government pressure regarding policies and regulations to environmental sustainability performance (Lai and Wong 2012; Wagner 2015). Environmental policies and regulations provide the necessity for firms to enforce environmental sustainability strategies while the regulation requirements monitor construction firms' practices to safeguard the environment. For a business to gain more competence in an environment with strict environmental regulation, environmentally sustainable construction practices are essential to counterbalance the ineffective cost of non-compliance. More importantly, one of the efficient measures to embark on is to promote environmental incentives in the taxation system. This, according to (Bamgbade et al. 2017), will considerably ease the problems linked with environmental sustainability in construction project delivery.

Finally, a supportive environmental regulation aimed explicitly at the exceptional composition of large construction firms in the Malaysian context is expected to contribute to their environmental sustainability performance undoubtedly. Though this study has been able to establish that large construction firms in an emerging nation like Malaysia are well-positioned to do better in environmental sustainability if they spend more social responsibility activities that will improve the natural environment, it is recognized that the effects of social responsibility and coercive pressure on environmental sustainability performance may vary for construction small and medium enterprises (SMEs). Amazingly, other construction small and medium enterprises in several developed countries have been observed to become more aggressively involved in environmental sustainability practices (Bamgbade et al. 2017), probably due to their failure to withstand pressure from government agencies and other stakeholders within the industry.

Study's implications

The finding of this study achieves some theoretical and practical contributions in social responsibility and environmental sustainability. Theoretically, this study fills the study gap of quantitative analysis's inadequacy on the correlation between social responsibility and its impact on the construction industry's environmental sustainability performance, especially in the Malaysian context. In practice, this study's outcomes will provide many practical managerial recommendations for firms within the industry and policymakers to incur more social responsibility spending in the environment than social sectors as against the findings of Lu and Castka (2009). For instance, economic and technological viability reports, public engagement, information disclosure, and environmental protection should be accorded more urgencies to stimulate social responsibility. Construction firms should consider social responsibility, particularly the legal responsibility and construction regulations, to enhance construction projects' environmental sustainability performance. This should be a simple model for firms within the industry to follow, which can bolster their financial performance.

Limitations and recommendations

This study is not without its several limitations. First, this study examined the mediating effects of coercive pressure on the

correlation between social responsibility expenditure and environmental sustainability performance in the case of large (G7) construction firms. Although, previous researchers have discovered that pressure from government agencies in complying with environmental regulations coerce larger construction firms to be mindful of environmental sustainability concerns (Sezer 2015), and owing to the fact that sustainability practices and strategies go beyond the size of the firm, but a function of awareness of pure economic gains to a large degree. Therefore, subsequent studies may be extended to include construction SMEs as they also add to the degradation of the environment due to their activities. Secondly, this study's outcomes are based on the Malaysian context; hence it may not be generalisable to other countries or regions. The future studies can be extended to other emerging nations like Brunei, Indonesia, Myanmar, Thailand, Philippines, Vietnam, India, and Brazil.

Secondly, this research used a cross-sectional research design as data was collected only once. Hence, future study design can also contemplate a longitudinal procedure toward better understanding variations in construction firms' environmental sustainability performance connected with this organisational internal factor and coercive pressure over time. This is because a comprehensive knowledge of how construction firms implement and perform environmental sustainability issues over time would be cherished by policymaking.

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Appendix: List of Measurement Items

Social Responsibility		
The following are condiderd by your firm as part of it social responsibility		
1.	Health and safety.	Bamgbade et al. (2017)
2.	User comfort and satisfaction	
3.	Community welfare	
4.	Accessibility	
5.	Social involvement	
6.	Workers' welfare	
7.	Aesthetics value	
Coercive Pressure		
1.	Compliance with regulatory requirements positively influences the competitiveness of our business	Zhu et al. (2013)
2.	Penalties will be imposed if our company does not comply with the environmental regulations	
3.	The government provides subsidies and preferential support to participate in voluntary programs	
4.	Stringent government regulations on recycling, environmental protection, and client rights protection force our company to adopt and implement environmental sustainability strategies	
5.	The preferential subsidy and tax policy on environmental sustainability strategies have increased our company's willingness for its adoption and implementation	
6.	The increasing environmental consciousnesses of our clients have spurred our company to adopt and implement environmental sustainability strategies	
7.	Clients have a strong influence on our company's environmental sustainability strategies adoption and implementation	
Environmental Sustainability Performance		
The following environmental sustainability practices are given more consideration in our project delivery		
1.	Material selection	Abidin (2005); Bamgbade et al. (2019)
2.	Solid waste minimisation	
3.	Energy conservation	
4.	Water efficiency	
5.	Pollution control	
6.	Biodiversity protection	
7.	Reduction in toxic wastes	
8.	Heritage and amenity protection	