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DOES BUYER POWER CONTRIBUTE TO ENVIRONMENTAL SUSTAINABILITY PERFORMANCE IN SUPPLY CHAINS?

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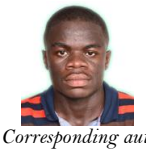
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ABSTRACT

Sustainability issues have gained the widespread attention of researchers and policymakers across the globe. Resultantly, studies on sustainability in supply chains and its associated relational and structural mechanisms are rife. This study has examined how the amount of power wielded by a buying organization affects its ability to lead the sustainability charge, to improve the environmental compliance among firms within the supply chain. The study adopted a quantitative approach for data analysis and reporting. A survey of 116 construction and Manufacturing and construction firms in Ghana. Data was collected using a structured questionnaire and analyzed using ordinary least squares (OLS) regression procedure using the PROCESS macro in SPSS. The findings of this study reveal a significant positive relationship between buyer power, collaboration with suppliers, and environmental sustainability performance. This study has implications for large corporations that are the target of stakeholder pressures, and small firms that need to corporate with their supply chain partners on the sustainability front.

Contribution/Originality: This paper contributes to the supply chain sustainability literature by examining from an RDT perspective, how buyer dominance influences supplier relationships and environmental performance. This is one of the very few studies that seek to explore how power imbalances among supply chain partners influence sustainability.

1. INTRODUCTION

Owing to the emergence of various mega-developments such as heightening societal concerns about ecological deterioration and regulators' tightening environmental control over business activities, firms today are under increasing pressure to act in an environmentally oriented manner (Chan, He, Chan, & Wang, 2012). In response to increasing environmental requirements, firms are forced to reconfigure their capabilities and strategic orientations (Zhou, Xia, Feng, Jiang, & He, 2020). As society pays increasing attention to ecological deterioration, regulatory authorities have formulated strict environmental regulations for business activities (Zhou et al., 2020). Organizational and regulatory stakeholders have taken front seat roles concerning the adoption of green practices due to their enormous influence on organizational survival (Baah et al., 2021). Recent evidence has suggested that stakeholders have begun to mount pressure on some visible organizations, who have been seen in the eyes of these stakeholders as the supply chain leaders to incorporate sustainability practices in their respective supply chains (Davis-Sramek, Thomas, & Fugate, 2018; Rezaei, Hadi, & Shu, 2020). When ethical dilemmas arise in a supply

chain, large multinationals are often held responsible for the behavior of their suppliers (Touboulic, Chicksand, & Walker, 2014). The focal companies, with an enormous amount of power, have been tasked with the goals of ensuring that other supply chain partners, most often in the upstream part of the chain, are compliant with environmental regulations. Thus, there is the need to understand how these focal organizations, with the amount of power available to them, can improve the sustainability performance in their supply chains to the expectations of the stakeholders. Unfortunately, the role of power in business-to-business relationships has been either overlooked or dealt with as a side issue, whereby the concept of power is rarely discussed in supply chains except to deny its importance (Hingley, 2005). Research in sustainable supply chain management has gained momentum, and there is increasing research output year in and out (Martins & Pato, 2019). To date, researchers are still exploring different sets of antecedents, mediators, and moderators in sustainability research. Whiles this may seem worrying because of a lack of focused research direction, the inclusion of different variables can be seen in a positive light as increasing the exploration of knowledge in the area, allowing for possible consolidation in the area (Lis, Sudolska, & Tomanek, 2020). Power asymmetry, despite being ever present in supply chain relationships, has obtained very little attention, more especially in the sustainability literature (Hingley, 2005). This study contends that the amount of power held by a firm in the supply chain influences its ability to foster environmental performance (Nyaga, Lynch, Marshall, & Ambrose, 2013) via the creation of collaborative relationships with its supplier. Touboulic et al. (2014) argued that power and dependence are relevant to understanding compliance to sustainability initiatives and identification of appropriate relationship management strategies in supply chains. It is known that collaboration with supply chain partners forms a foundation for sustainability actions and performance (Blome, Antony, & Kai, 2014; Davis-Sramek, Hopkins, Richey, & Morgan, 2020; Kang, Yang, Park, & Huo, 2018; Porteous, Rammohan, & Lee, 2015). However, there is an increasing need to understand the boundary conditions and mechanisms under which these collaborations occur (Wang, Wang, & Lai, 2019). Since firms in the supply chain have a difference in levels of resource availability, focus and environmental orientation, the level of collaboration may be dependent on some other factors (Porteous et al., 2015). This study identifies power as one of such factors and examines to what extent it influences supplier collaboration and environmental performance. Resource dependency theory (RDT) suggests that a supply chain member is vulnerable to the extent that it depends on other firms for resources that are important to its outcomes (Huo, Flynn, & Zhao, 2017). Recent evidence shows that powerful organizations in supply chains have been targeted by pressure groups to take charge of sustainability initiatives within the supply chain (Das, 2018; Murfiled & Tate, 2017; Wijethilake, Rahat, & Ranjith, 2017). From Nike struggling with child labor at supplier factories in the 1990s to Apple besieged by employee suicides at supplier Foxconn in the early 2000s to pharmaceutical companies coming under pressure for the waste management practices of their Indian suppliers in 2016, supply chain-related sustainability scandals are recurring for firms with global supply chains (Koberg & Longoni, 2019). Key research questions to be addressed in the study includes (i) how does buyer power influence environmental sustainability and (ii) what is the role of collaboration with suppliers in this relationship?. This study is conducted among construction and Manufacturing firms in Ghana. Environmental challenges are prevalent in Ghana, like other countries in Africa. However, research attention in the African setting is limited (Nkomo, 2017). Manufacturing and construction are key environmental pollutants. Ghana is a developing economy characterized by increasing industrialization (Baah-Boateng, Nketiah-Amponsah, & Alagidede, 2013). The current Government's strategy to build at least one factory in each of the 275 districts has increased the construction needs of the country, and it subsequently comes with the rise in manufacturing. Increased manufacturing and construction increases the spate of environmental challenges in the country, worthy of attention.

2. LITERATURE REVIEW

El-Ansary and Stern (1972) defined power as "the ability of a channel member to control the decision variables in the marketing strategy of another member in a given channel at a different level of distribution'. In supply chains,

power refers to the ability, capacity, or potential of one actor to get others to do something; to command, influence, determine or control the behaviours, intentions, decisions, or actions of others (Wang et al., 2019). According to Huo et al. (2017) power forms the foundation of supply chain relationships. Calls for an examination into the power dimensions in supply chain management began when visible firms started getting confronted for actions in other parts of the supply chain (Chen & Chen, 2019). The impact of power on environmental performance stems from the fact that large corporations within the supply chains are often the target of environmentalists when there is an incidence of unethical environmental practices. These firms are charged to use their power in the supply chain to oversee the actions of other firms in the chain, to ultimately ensure compliance to environmental laws (Touboulic et al., 2014). This notion is based on the Resource dependency theory (Pfeffer & Gerald, 1978) that smaller firms have a higher dependence on the business of the larger firms for survival, which makes them susceptible to the demands of these larger firms. RDT argues that a supply chain member is vulnerable to the extent that it depends on other firms for resources that are important to its outcomes (Huo et al., 2017).

Even though the supply is conceptualized as a network of interdependent organizations, the disparity in resource availability and size of operations, creates power asymmetry, which makes some firms dominant over others (Nyaga et al., 2013). The use of power to influence sustainability performance could be in two ways. One is to force smaller firms to comply with the directives of the dominant entity, and another is to use power to foster collaboration among parties in the supply chain. Studies on power and supply chain relations have already shown that the use of coercion often hurts supply chain coordination (Vera Belaya & Hanf, 2016; Benton & Maloni, 2005; Nyaga et al., 2013) and over time, the weaker parties may seek revenge against the powerful party. Thus, it is safe to infer that the direct use of power to enforce regulations may be short-lived in usefulness.

Collaboration with other entities has been touted in the supply chain literature as the foundation for improved performance (Brun, Karaosman, & Barresi, 2020; Kumar & Mohit, 2019). The relational view Theory (Dyer & Singh, 1998) contend that the interrelationship between organizations in the supply chain contributes to the accumulation of "relational rents" that act as performance enhancers. It is difficult for a firm to protect the environment independently (Zhou et al., 2020). Thus, it is expected that using power as a tool to enhance collaboration within the supply chain will lead to better environmental sustainability performance, which can be sustained. This is because a careful and controlled use of power can promote SC integration and have positive effects on performance (Huo et al., 2017).

Empirical studies suggest that despite being often perceived in negative terms (Hingley, 2005) power is crucial in supply chain relationships (Vera Belaya & Hanf, 2016) and could potentially be leveraged to implement sustainable supply chain management (Chen & Chen, 2019; Hoejmose, Johanne, & Andrew, 2013; Touboulic et al., 2014). Similarly, collaboration among supply chain members is found to be an enabler of sustainability (Blome et al., 2014). This study then examines the relationship between power, collaboration, and sustainability by proposing that the mechanism through which the powerful firm in the supply chain can foster sustainability performance is through collaboration.

3. RESEARCH MODEL AND HYPOTHESIS

From the standpoint of the RDT, we argue that power, supplier collaboration for sustainability, and environmental sustainability performance are interlinked. The research model is shown in Figure 1.

3.1. Buyer Power and Environmental Sustainability Performance

Power refers to the ability of a party "A" to get another party "B" to perform a task, which otherwise party "B" would not have performed (Sanfiel-Fumero, María, Ángel, & Juan, 2012). Increasingly, powerful buyer firms have become the target of stakeholders in ensuring that other members in the supply chain adhere to rules of environmental sustainability (Marshall et al., 2016; Wang et al., 2019).

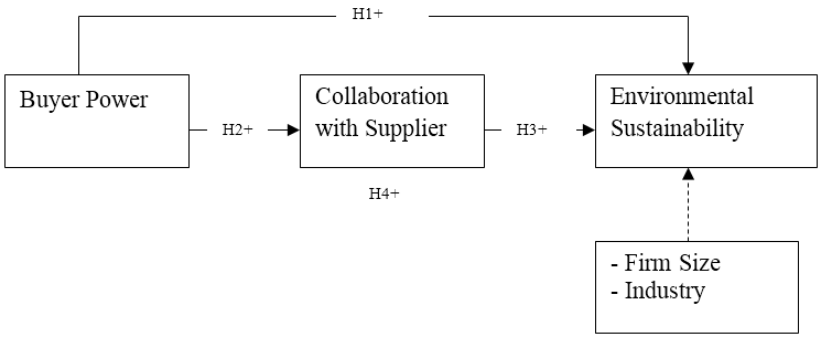

Figure-1. Research Model.

Several researchers have argued that sustainability initiatives are unlikely to be considered by smaller firms, especially in locations where regulation is low, as part of the normal course of business. Also, environmentally friendly practices come with costs, at least in the initial stages, before benefits accrue in the long term, meaning that certain organizations may be willing to shy away from them if possible (Rezaei et al., 2020). These firms may not readily take initiatives unless under the leadership of some other, more enlightened organizations (De Haan-Hoek, Lambrechts, Semeijn, & Caniels, 2020). Powerful buyer firms will be better able to demand compliance from their suppliers in terms of compliance with environmental standards (Wang et al., 2019). RDT argues that a supply chain member is vulnerable to the extent that it depends on other firms for resources that are important to its outcomes (Huo et al., 2017). The power imbalance between a buyer and the supplier, where much of the power resides with the buyer side ensures that the buyer will be able to demand specific, comprehensive environmental commitment from the suppliers. For instance, Brockhaus, Kersten, and Knemeyer (2013) reported that sustainability initiatives in their target supply chains across Europe and the USA were initiated by the strong members in the supply chain and implemented in a mandated function as a "pull process". The findings of Hoejmose et al. (2013) indicate that while supplier power constrains the creation of socially responsible supply chains, buyer power becomes increasingly important as geographical distance increases between partners. Marshall et al. (2016) also found that customer use of non-mediated power influences positively the adoption of socially responsible practices of suppliers.

To this end, this study argues that:

H1: Buyer Power is positively related to environmental sustainability performance.

3.2. Buyer Power and collaboration with Supplier

In the view of Maloni and Benton (2000) careful and controlled use of power is key to achieving integration and promoting performance. Several studies have reported on the positive relationship between power usage and collaboration among supply chain members e.g. (Vera Belaya & Hanf, 2016; Caniëls & Gelderman, 2007). Conversely, other studies have reported bullying actions by powerful firms in the supply chain e.g. (Boyd, Spekman, Kamauff, & Werhane, 2007; Hall & Stelvia, 2010). As powerful firms become the target of stakeholder pressures, they act in their interest to foster collaboration with other actors in the supply chain. The embeddedness perspective (Granovetter, 1985) argues that power creates a joint dependence among firms in the supply chain, causing firms to willingly cooperate (Huo et al., 2017). Given the level of resources available to these firms in the supply chain, firms with high buyer power have a better chance of developing joint programs with suppliers to work together on sustainability initiatives. Also, as suppliers become increasingly dependent on highly powerful buyers, they are more open to collaborating with these buyers on the sustainability front (Sanfiel-Fumero et al., 2012). Thus, firms with buyer power are better to provide the resources needed for collaborative programs with suppliers and are also more likely to obtain the commitment of suppliers towards these programs. To this end, this study argues that:

H2: Power is positively related to supplier collaboration.

3.3. Supplier Collaboration and Environmental Sustainability performance

Sustainability initiatives taken at isolated stages in the supply chain are below optimal and may contribute little towards the overall supply chain's sustainability performance (Vachon & Klassen, 2006). The relational view of the firm (Dyer & Singh, 1998) considers collaboration among firms as a "relational asset" that contributes to the building of rare inimitable and valuable and non-substitutable competitive advantage (Rota, Reynolds, & Zanasi, 2012). The term green supply chain management/sustainable supply chain management is developed with collaboration as the central theorem. RDT explains how partner coordination and resource sharing are beneficial for environmental and productivity improvements (León-Bravo, Caniato, Caridi, & Johnsen, 2017). Collaboration plays a central role in influencing the sustainability relations across the supply chain (Touboulic et al., 2014). The effectiveness of green supply chain management systems is dependent on the interaction of multiple actors in the supply chain, beyond the actions taken at individual stages of the supply chain (Plambeck, 2012). Collaboration with suppliers permits the transfer of knowledge between both parties and permits the development of an integrated effort towards the achievement of environmental sustainability. Managing buyer-supplier relationships through the collaborative approach is key to achieving success in sustainability efforts. An alignment between supply chain initiatives of partners does pay off Blome et al. (2014). Better collaboration with suppliers will enable a buying firm to navigate all the barriers towards the integration of objectives towards the achievement of sustainable environmental performance. This study, therefore, hypothesizes that:

H3: Supplier collaboration is positively related to environmental performance

3.4. The Mediating Role of Collaboration with Suppliers

Power imbalances have two potential ways of influencing supply chain relationships. In one case, the power may act as an enhancer of supply chain relationships that will spur performance (Caniëls & Gelderman, 2007; Maloni & Benton, 2000). In another vein, power may be used to coerce other supply chain partners into acting in the requirement of the powerful entity e.g. (Hall & Stelvia, 2010). Depending on the type of power being exercised, power may be an enhancer on an inhibitor in supply chain relationships (Vera Belaya & Hanf, 2016). In any of these two ways, provides a medium for the effective coordination of supply chain relationships. In supply chains, the power dominant entities influence other firms and encourage them to be competitive. Already Chen and Chen (2019) found that coercive and reward buyer power can facilitate Sustainable supplier management implementation. We argue that collaboration with suppliers is the medium through which buyer power can enhance environmental sustainability in the supply chain. Through collaborating with their suppliers, dominant firms in the supply chain can co-develop sustainability initiatives and improve the environmental impact of their operations. Because sustainability performance is better achieved across the supply chain, powerful buyers can substantially improve the environmental sustainability in their supply chains when they work together with their suppliers. To this end, we argue that:

H4: collaboration with suppliers mediates the relationship between buyer power and environmental performance.

4. RESEARCH METHODOLOGY

4.1. Research Setting

The study uses a survey of construction and Manufacturing firms in the Ashanti and Greater regions of Ghana. The two regions are the most industrialized in the country and home to the biggest firms.

4.2. Data Collection

A structured questionnaire was used to collect data from company executives (senior Managers) in the respondent firms. All questionnaires were personally administered and retrieved by the researchers and trained field assistants. Data collection was done between January and March 2021.

4.3. Sampling

A list of manufacturing and construction firms in the two regions was obtained from an online database, www.ghanayello.com. The use of online databases as a sampling frame for studies conducted in Ghana is acceptable (Danso, Adomako, Lartey, Amankwah-Amoah, & Owusu-Yirenkyi, 2019). Identifying firms for research in Ghana is difficult as several public institutions such as The Registrar General, The Association of Ghana industries, etc. do not keep accurate and readily accessible information. A total of 345 firms were identified from the two industries during the search. Questionnaires were taken to these 345 firms, targeting senior management respondents. Out of 345 firms, the team could only retrieve 121 questionnaires after several rounds of visits in the three-month data collection period. Out of the 121 questionnaires, missing values were considered significant in six of them, leaving 116 of the questionnaires usable.

4.4. Main Variables

All the items used in measuring the constructs of the study are adapted from previous studies. Buyer power (BP) is defined as the extent to which a buying firm can persuade its key supplier to yield to the buyer's requests. BP is measured using three items adapted from. Sustainable supplier collaboration (SSC) is defined as the degree to which a firm undertakes joint sustainability initiatives with its key suppliers. SSC in this study is measured using three items adapted from Kang et al. (2018); Pakdeechoho and Vatcharapol (2018). Environmental performance (EP) is defined as the extent to which a firm can achieve its environmental goals. Three items adapted from Paulraj, Injazz, and Constantin (2017) are used to measure environmental performance. All items were measured on a 7 point Likert scale where 1= strongly disagree and 7 = strongly agree.

4.5. Control Variables

In all the analysis, firm size and firm type (manufacturing or construction) have been used as control variables.

5. DATA ANALYSIS AND RESULTS

5.1. Firm Demographics

The table below presents information on the firm size and types of the 116 respondent organizations. As seen in Table 1, manufacturing and construction firms make 62.9% and 37.1% respectively. About 62% of respondent firms have more than 100 employees.

Table-1. Respondent firm characteristics.

	Total	Percentage
Firm type		
Manufacturing	73	62.9
Construction	43	37.1
Total	116	100
Firm Size (No. of employees)		
Less than 100	44	37.9
Between 101 and 300	44	37.9
Above 300	28	24.1
Total	116	100

5.2. Factor Analysis

An exploratory factor Analysis (EFA) was conducted in SPSS using the variables in the study. Even though the items were adapted from the literature, the EFA was used to assess the unidimensionality of the items in each construct. The initial questionnaire had six items each for all three variables. Some items were dropped after the factor analysis was conducted. The principal component factor extraction method with the varimax rotation procedure was selected for the EFA, following the procedure used by Bouranta and Evangelos (2017); Qiu, Jie,

Wang, and Zhao (2020). SPSS was set to extract eigenvalues above 1. All variables with factor loadings less than 0.5 were considered not significant and ignored for the analysis (Hair, Black, Barry, & Rolph, 2014). The result of the factor analysis is presented in the table below. The Kaiser-Meyer-Olkin statistic was 0.724. which demonstrates a satisfactory relationship among the variable (Qiu et al., 2020). Results of Bartlett's test of sphericity was significant at .000, which indicates that these data are suitable for factor analysis (Qiu et al., 2020). Table 2 below shows the results from the Exploratory Factor Analysis.

Table-2. Factor analysis results.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.724 Bartlett's Test of Sphericity (Approx. Chi-Square = 487.891, df =36, Sig. = 0.000)	**Factor Loadings**		
	SSC	**EP**	**BP**
EP1		0.765	
EP2		0.827	
SSC1	0.653		
SSC2	0.859		
SSC3	0.839		
SSC4	0.635		
P1			0.775
P2			0.873
P3			0.557
Eigenvalue	4.157	1.466	0.851
Cumulative variance %	46.192	16.284	9.457
Note: n = 116			

5.3. Descriptive Statistics and Reliability Tests

The table below presents the means and standard deviations of the items used to measure each construct. Cronbach's Alpha (CA) value for each construct meets the acceptable threshold of 0.7 and is reported in the table for all constructs. Inter-construct correlation is presented, to show the strength and direction of the association between the constructs. Table 3 below provides a summary of descriptive statistics (Mean and Standard Deviation), inter-construct correlation and Cronbach's Alpha coefficient for each construct.

Table-3. Descriptive statistics and Reliability tests.

	MEAN	**SD**	**CA**	**FIRM SIZE**	**FIRM TYPE**	**EP**	**BP**	**SSC**
FIRM SIZE	-	-						
FIRM TYPE	-	-		1	1			
EP	4.92	0.83	0.725	0.113	-0.072	1		
BP	4.86	1.00	0.707	0.178	0.324**	0.216*	1	
SSC	4.57	1.19	0.866	0.024	0.059	0.556**	0.489**	1

Note: *: significant at 5%, **:significant at 1%.

5.4. Regression Analysis

The ordinary least squares path analysis procedure, specified by Hayes (2013) is used to examine the relationship between the study's constructs. Ordinary least squares path analysis is used to examine the relationships. The analysis was conducted using the PROCESS macro in SPSS, following the guidelines of Hayes (2013). Two control variables, firms size and type (whether manufacturing or construction) were used in the model. Buyer power (BP), Sustainable supply chain collaboration (SSC), and Environmental Performance (EP) were then entered as an independent, mediator and dependent variables respectively. The result of the regression analysis is presented below in Table 4.

Table-4. Regression Path Analysis.

	MODEL 1	MODEL 2	MODEL 3
	Outcome = SCC	Outcome = EP	Outcome = EP
Controls			
SIZE	0.3685*(3.0270)	0.2060* (2.1307)	-0.1774(-1.2225)
TYPE	-0.3444(-1.6669	-0.3126 (-1.9046)	0.0613 (.6984)
Main Variables			
BP	0.6308**(6.3489)	0.2257* (2.8589)	-0.0221(-.2746)
SSC			0.3927** (5.9914)
Model Fit			
R^2	0.3066	0.1054	0.3240
F	16.5088	4.3985	13.3011
p	0.0000	0.0058	0.0000

Note: *:significant at 5%, **:significant at 1%.

In model 1, Supplier collaboration (SSC) is predicted using buyer power (BP). The resulting model is significant at F (16.50), $p = 0.000$. This supports *hypothesis two* of the study, that buyer power is positively related to supplier collaboration ($\beta = 0.638$, $t = 6.348$).

In model two, Environmental sustainability performance (EP) is predicted using Buyer power. The resulting model is significant at F (4.39), p = 0.005. From this study, *hypothesis one* of the study is supported. The study found evidence that buyer power is positively related to environmental sustainability performance ($\beta = 0.225$, $t = 2.85$).

In model three, both BP and SSC are used to predict EP. The resulting model is significant at F (13.30), p = 0.000. Whiles the predictive power of BP on EP is lost in this model, the impact of SSC on EP is significant at ($\beta = 0.392$, $t = 5.991$). This provides support for hypothesis three of the study that SSC is positively related to EP.

5.5. Test of Indirect Effects

We test for the indirect relationship between buyer power and environmental performance using the conditional process specified in Hayes (2013). We estimate the total, direct and indirect effects between buyer power and environmental performance. This approach is argued to provide a more robust technique for estimating indirect effects in models by using an ordinary least squares path estimation approach and bootstrapping to further evidence the rigor of results. This procedure was chosen over the popular three-stage approach developed by Baron and Kenny (1986). Results from the mediation test are provided in table 5 below.

Table-5. Mediation test results.

Total effect of X on Y							
Effect	**se**	**t**	**p**	**LLCI**	**ULCI**	**c_ps**	**c_cs**
0.2257	0.0789	2.8589	0.0051	0.0693	0.3821	0.2695	0.2701
Direct effect of X on Y							
Effect	se	t	p	LLCI	ULCI	c'_ps	c'_ps
-0.0221	0.0804	-0.2746	0.7842	-0.1813	0.1372	-0.0264	-0.0264
Indirect effect(s) of X on Y:							
	Effect	BootSE	BootLLCI	BootULCI			
SCC	0.2477	0.0426	0.1691	0.3374			

From Table 5, the overall effect of buyer power is estimated as ($\beta = 0.225$, t = 2.85, p =0.0051). The confidence intervals from bootstrapping using 10000 samples are ($0.0693 \leq \beta \geq 0.3821$), meaning the effect is unlikely to be a zero. The direct effect of power on environmental sustainability is however, not significant in the model as ($\beta = -0.0221$, t = -0.274 p =0.7482). Further, the bootstrapping confidence interval contains a zero ($-0.1813 \leq \beta \geq 0.1372$) indicating the possibility of a zero effect. In contrast, the indirect effect of buyer power on environmental

sustainability, via the mediation effect of sustainable supplier collaboration is significant, from the confidence intervals 0.1691 ≤β≥0.3821). Since the direct effect loses its significance in the presence of the mediator, a full mediating effect of supplier collaboration is found in the relationship between buyer power and environmental sustainability performance. Thus, *hypothesis four* of the study is supported.

6. DISCUSSION AND CONCLUSIONS

The findings of this study have shown that (1) power significantly affects environmental sustainability performance, (2) power significantly affects collaboration with suppliers, (3) collaboration with suppliers significantly affects environmental performance and (4) collaboration with suppliers mediates the relationship between power and environmental performance. The impact of power on environmental performance stems from the fact that large corporations within the supply chains are often the target of environmentalists when there is an incidence of unethical environmental practices. Hingley (2005) contends that a successful approach to partnering is through the admission that one channel member is normally in charge; the channel members that wish to co-operate to mutual advantage must focus on joint satisfaction of common objectives regardless of the background context of inevitable imbalance. Studies like Touboulic et al. (2014) have called for and argued that power is a key factor in creating relationships that lead to sustainability performance. These firms are charged to use their power in the supply chain to oversee the actions of other firms in the chain, to ultimately ensure compliance with environmental laws (De Haan-Hoek et al., 2020). Even though the supply is conceptualized as a network of interdependent organizations, the disparity in resource availability and size of operations, creates power asymmetry, which makes some firms dominant over others. Thus, smaller firms will yield to the demands of bigger firms to avoid the consequences of losing their business with these large firms. The study also finds that power is positively related to supplier collaboration. Earlier studies on coordination (Vera Belaya & Hanf, 2016; Benton & Maloni, 2005; Nyaga et al., 2013) found that the use of power, most effectively in the non-mediated form, positively affects coordination among supply chain members. This is because power is at the heart of all business-to-business relationships (Cox, 1999). Additionally, the findings of Huo et al. (2017) suggested that there may be a joint dependence threshold, beyond which supply chain power becomes important. At lower joint dependence, none of the firms has enough power to have much of an impact. At high joint dependence, however, supply chain power is positively associated with operational performance. The study also found that collaboration is positively related to environmental performance. Collaboration is considered a key mechanism through with sustainability is achieved (Blome et al., 2014; Kumar & Mohit, 2019; Pakdeechoho & Vatcharapol, 2018). Several studies have found a positive impact of collaboration with suppliers on environmental sustainability (e.g. (Brockhaus et al., 2013; Paulraj, 2011)). This is supported by the relational view of firms (Dyer & Singh, 1998) which asset that the interrelationship between organizations in the supply chain contributes to the accumulation of "relational rents" that act as performance enhancers. The mediating role of supplier collaboration in the link between power and environmental performance is not surprising. Powerful organizations have two ways to influence the sustainability performance of their supply chain partners. One is to force smaller firms to comply with the directives of the dominant entity, and another is to use power to foster collaboration among parties in the supply chain. Studies on power and supply chain relations have already shown that the use of coercion often has negative impact on supply chain coordination (Belaya & Hanf, 2011; Benton & Maloni, 2005) and over time, the weaker parties may seek revenge against the powerful party. Thus, it is safe to infer that the direct use of power to enforce regulations may be short lived in usefulness. On another hand, collaboration with other entities has been touted in the supply chain literature as the foundation for improved performance. Thus, it is expected that using power as a tool to enhance collaboration within the supply chain will lead to better environmental sustainability performance, which can be sustained. By ensuring a collaborative mechanism, firms with power can influence the actions of other organizations in the supply chain towards the achievement of environmental performance.

7. IMPLICATIONS

First, power can be used to enhance sustainability performance, which could transcend even beyond the current environmental focus of this study to include the entire triple bottom line (social and economic objectives included). Thus, powerful organizations in the supply chain must readily accept the role of supply chain leadership to influence the sustainability actions of the other organizations within the supply chain. Second, powerful firms while assuming the role of leaders in the sustainability charge must move away from the use of coercive tactics and adopt a rather relational approach towards collaborating with other partners to create win-win situations. This study has shown that supply chain collaboration effectively mediates the relationship between power usage and environmental performance, whiles empirical evidence suggests that the use of coercion may hurt relationships. Third, regulators and environmentalists are justified in going after the most visible firms in the supply chain and tasking them with the responsibility of the other supply chain partners. This study has shown that the proper use of power can help the achievement of environmental performance.

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APPENDIX: MEASUREMENT ITEMS

i. Power

P1. We can potentially influence our key supplier to adhere to our demands.

P2. We have the power to control our dealings with our key supplier.

P3. Our key suppliers believe they are obliged to accept our requests and recommendations.

ii. Collaboration with Suppliers

We cooperate with our suppliers to achieve sustainability objectives.

We provide our suppliers with requirements that include sustainability requirements for their processes.

We collaborate with our suppliers to provide products and/or services that support our sustainability goals.

We develop a mutual understanding of responsibilities regarding sustainability performance with our supplier.

iii. Environmental Performance

Reduction in frequency of environmental accidents.

Improvement in compliance with environmental regulations.