Journal of Posthumanism
2025
Volume: 5, No: 1, pp. 1307–1323
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i1.672

Nexus between Stakeholders' Pressure, Environmental Commitment, Circular Economy, and CSR For Sustainability: Evidence from Smes

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Abstract

Drawing from a sample of Chinese small-medium organizations (SMEs), this study explored the interplay between stakeholders' pressure (PSP), environmental commitment (EC), circular economy performance (CEP), and CSR for sustainability (PCS). Quantitative data from 137 managers of manufacturing SMEs was collected using convenience sampling and cross-sectional design. PLS-SEM processed the data. The findings revealed that the PSP directly affected EC and CEP but not PCS. Further, we deployed two mediators (EC and CEP) to explore the indirect mechanisms within the research framework. The mediation analysis revealed a significant association between PSP and PCS, as well as between EC and PCS. This study explored the possibility of integrating the stakeholder theory and resource-based views, which could enable policymakers to have an insight into utilizing the nuance liaison between the stakeholder and the reflection within the manufacturing sectors for sustainable development.

Keywords: *Stakeholder Theory, Resource-Based View, Environmental Commitment, Circular Economy Performance, Corporate Social Responsibility.*

Introduction

Population increases globally stimulated the demands for food, water, and energy (Del Borghi et al., 2020). Concerns of sustainability issues were raised with the topical discussion regarding CSR, ESG, etc. for enterprises that intended to progress sustainably. Small and medium-sized enterprises (i.e., SMEs), as which incredibly account for 90 percent of all businesses worldwide, provide 70% of total occupations and contribute up to 70 percent of the world's gross domestic product (World Economic Forum, 2021). However, SMEs in the manufacturing sector, significantly consume huge amounts of raw materials and energy and largely extent to cause water as well as air pollution (Ndubisi et al., 2021). Hence, the adverse environmental implications of manufacturing sectors reflect SMEs focusing on the accordance between economic performance and social well-being (Ndubisi et al., 2021).

Multiple enterprises nowadays still adopt the way "take, make, use, and waste" as the linear

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economic style that is conventional and unsustainable (Ormazabal et al., 2018). To improve the current situation, the Circular Economy (CE) was proposed as "an economic system that represents a change of paradigm in the way that human society is interrelated with nature and aims to prevent the depletion of resources, close energy, and materials loops, and facilitate sustainable development" (Prieto-Sandoval et al., 2018). The circular economy strategies provide one of the promising approaches to reaching sustainable growth for companies (Bag et al., 2021; Del Giudice et al., 2020), especially in terms of overcoming environmental challenges and achieving sustainable growth (Sundar et al., 2023). Ormazabal et al. (2018) also pointed out that the core goals of implementing the circular economy (CE) simulation are to stop resource depletion and bridge the energy and material loops at all their many levels: companies and customers within a micro-scale. In other words, the measurements of CE at various levels (e.g., micro and macro) should be aligned with the needs of stakeholders' pressure (e.g., the government, the community, etc.) to monitor the progress of CE initiatives (Rincón-Moreno et al., 2021).

Further, as mentioned by Guenther et al. (2016), various non-financial stakeholders (e.g., employees, the media, the general public, governments, customers, and even financial market participants) questioned the company's efforts in addressing environmental issues or how they tackle climate change risks. They kept explaining that due to the raising of sensitive awareness of environmental protection, employees and customers are also putting an eye on the disclosure of environmental performance to execute wiser decision-making onwards. Generally, stakeholders are divided into two types that is primary stakeholders (e.g., government, customers, suppliers, etc.) and secondary stakeholders (e.g., media, local community, etc.) (Matuleviciene & Stravinskiene, 2015; Nguyen & Adomako, 2022; Shubham et al., 2018). This formed the motivation for this research to concentrate on establishing and restructuring the internal capabilities of environmental management and business morality within the firm, wherein stakeholders like the media and the local community have a crucial role in urging the transformation of the internal enterprise environmental policy. Hence, following the views of Parmar et al. (2010), primary and secondary stakeholders have been treated equally in this particular research, wherein stakeholders are categorized as an integrated group without differentiation.

Environmental Commitment (EC) is characterized as an intra-enterprise competency that incorporates an organization's values aimed at improving environmental, financial, and social performance (Centobelli et al., 2021). As a prerequisite for businesses to adopt the circular economy, environmental commitment is also seen as the combination of willingness and involvement. This strategic orientation represents the business's attitude, anticipated financial rewards, and behavioral control (Centobelli et al., 2021). Corporate Social Responsibility (CSR) is logically linked to the socio-political context and other relevant and connected subjects, as stated by Aslaksen et al., (2021). As corporate social responsibility (CSR) has evolved as time passed, sustainability and environmental issues have taken the forefront, and CSR discourse is becoming more and more integrated with sustainability discourse (Aslaksen et al., 2021). Stakeholder theory coupled with a resource-based view (RBV) are adjusted and expanded in this research to disclose how stakeholder pressure will drive the environmental commitment and bridge the gap of insufficient evidence on the mediation effect for circular economy in the theoretical framework. Overall, this paper determines the mechanism of how external pressure will drive SMEs to reflect internally, enhancing their morality about sustainability concerns. Specifically, the research objectives are (i) to explore how stakeholders push positively on

enterprises' environmental awareness through CSR for sustainability issues and (ii) to investigate the mediating role of environmental commitment and circular economy strategies on CSR towards sustainability.

Theoretical Foundation and Hypotheses Development

Theoretical Foundation

The stakeholder theory originated in the last century with Freeman (1984). A necessity of stakeholder theory helped SMEs to firm business morality and organizational management enabled enterprises to consider stakeholders broadly to identify and control the environmental influence effectively (Mahajan et al., 2023; Schaltegger et al., 2019). As for morality considerations, the stakeholder theory was to indicate how people are treated when companies operate their business, and what consequences the companies may influence stakeholders or be influenced by them (Lange & Bundy, 2018). Stakeholder theory was proved by recent research that it should be applied in a multi-national context, with emerging markets and developing countries in particular (Waheed & Yang, 2019; Waheed & Zhang, 2022). On the other hand, from an inside-out perspective, the RBV demostrates how firms use valuable, rare, inimitable, and non-substitutable resources to construct their competitive advantages for excellent performance (Barney, 1991; Madhani, 2010). Resources could be tangible or even intangible (Lubis, 2022). Tangible resources commonly refer to assets which is approachable such as factories, equipment, and product inventories. While intangible resources stand for intelligence property (e.g., brand image, patents, etc.), technology, and knowledge that is non-touchable. Freeman et al. (2021) advocated the combination of stakeholder theory and RBV. Scholars believe even though the stakeholder theory and the RBV themselves are already effective frameworks helping companies to achieve sustainable growth, the combination is more worthy of exploration. Embedding stakeholder theory into the resource-based perspective is appropriate, the combination mainly addresses two essential problems, that is, delivering strategic counsel on optimizing resource management to attain competitive superiority; besides, intricately interweaving the discourse surrounding the equitable allocation of economic rents within the complex web of stakeholder dynamics (Parmar et al., 2010). The former will be majorly discussed in the investigation. Further, because of the rigid nature of the RBV concept, which is considered not suitable when facing rapid and dynamic challenging markets, it requires a lengthy process of developing the required resources (Lubis, 2022; Yuga & Widjaja, 2020). Past research provided evidence of the moderating effects of environmental commitment on the circular economy or relevant performance with a good fit in the model (Arsawan et al., 2023; Lin et al., 2015). Throughout the review of the relevant literature, the research model presented by Baah et al. (2023) was adapted for this particular investigation (see Figure 1).

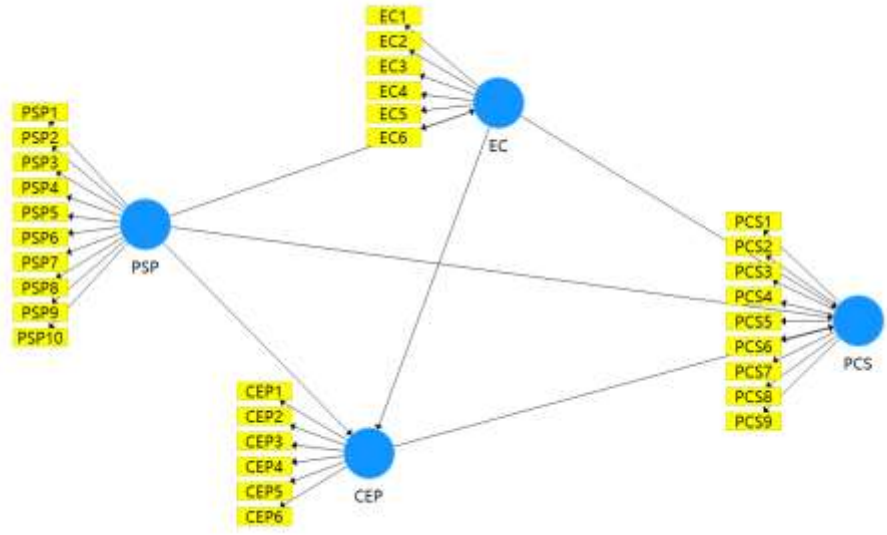

Figure 1. Research Model

Stakeholders' pressure

A recent study has already painted a picture of how the stakeholder perspective can create value in a circular economy, enabling the formation of the synergy required to promote CE business as well as sustainability (Tapaninaho & Heikkinen, 2022). Previous references also highlighted that business activities should concentrate on addressing environmental management and corporate social responsibility (CSR; Schaltegger et al., 2019). More than that, researchers intended to debate the research questions regarding what kinds of sustainable development in enterprises may associate with or even facilitate the financial target of the firm (Bartolacci et al., 2018; Xu & Chen, 2020). To be in line with the stakeholder framework, which revealed both business and ethics, however, ethics would always come first, and daily business operations would be placed second (Lange & Bundy, 2018). Hence, a connection between stakeholders' pressure, environmental commitment, circular economy performance, and CSR toward sustainability is designed to determine the mechanism with strategic management and enterprises' ethics. Therefore, the following hypotheses are presented::

H1: Stakeholders' pressure has a significant impact on environmental commitment.

H2: Stakeholders' pressure has a significant impact on circular economy performance.

H3: Stakeholders' pressure has a significant impact on perceived CSR towards sustainability.

Environmental Commitment

As an internal factor in an institution, Environmental Commitment (EC) was regarded as an important antecedent affecting circular transition (Arsawan et al., 2023; Centobelli et al., 2021; Galkina, 2021). Previous research pointed out that more moral awareness and reflection result in a much more significant environmental commitment (Afsar & Umrani, 2020). However, only few research investigated how environmental commitment driven by stakeholders will motivate an improvement in moral reflectiveness, particularly CSR toward sustainability. Song et al.

(2023) found that environmental commitment has a significant positive impact on both incremental and radical green creativity. Significant paths were also identified to have a mediating influence on circular economic performance (Arsawan et al., 2023; Singh et al., 2018). Hence, the environmental commitment was assumed to mediate with its antecedent and consequence factors. Based on the above, the following hypotheses are presented:

H4: Environmental commitment has a significant impact on circular economy performance.

H5: Environmental commitment has a significant impact on perceived CSR towards sustainability.

H6: Environmental commitment significantly mediates the relationship between stakeholders' pressure and circular economy performance.

H7: Environmental commitment significantly mediates the relationship between stakeholders' pressure and perceived CSR towards sustainability.

Circular Economy Performance

Upon discussing the antecedent factors of stakeholders' pressure and environmental commitment to the circular economy, the consequences and mediating effect of the circular economy performance are also deemed crucial in the manufacturing sector. The classification differs from the circular economy execution at different levels. According to Nikolaou et al. (2021), the first level of study focuses on the firm-level integration of traditional CE principles (e.g., refurbish, remanufacture, repurpose, redesign, reduce, recycle, and reuse) into operational and production processes (Barreiro-Gen & Lozano, 2020); The second level has excellent illustrations of how businesses are working together to advance sustainable development concepts and effectively exchange waste materials to meet the objectives of cradle-to-cradle. Introducing circular economy principles at the national level is the main objective of the macro level. We evaluated the first level of the circular economy performance, which is the most relevant and straightforward dimension for the manufacturing sector in this research. Baah et al. (2023) revealed a non-significant association between the circular economy and CSR. However, it provides insight into where circular economy performance can influence the corporate's CSR participation. Although the research also integrated the elements of stakeholders' pressure, circular economy performance, and CSR into the research model, it did not explain the mechanism of how circular economy mediates between stakeholders' pressure and CSR towards sustainability. As the circular economy performance was also pointed out it has not been fully explored yet (Le et al., 2023). Hence, to bridge the gap for insufficient circular economy research, especially regarding circular economy performance as an internal initiative to mediate the other internal and external factors in this research, we hypothesize the following:

H8: Circular economy performance significantly impacts perceived CSR towards sustainability.

H9: Circular economy performance significantly mediates the relationship between stakeholders' pressure and perceived CSR towards sustainability.

H10: Circular economy performance significantly mediates the relationship between environmental commitment and perceived CSR towards sustainability.

Methods

Research Design

A cross-sectional approach was implemented in the study. To determine perceived stakeholders' pressure (PSP), circular economy performance (CEP), environmental commitment (EC), and perceived CSR towards sustainability (PCS), the measurements were borrowed from existing studies. Specifically, the items of perceived stakeholders' pressure (PSP) were adapted from Nguyen and Adomako's (2022) and Shubham et al. (2018). Also, the CEP, the EC, and the PCS are adopted and adapted from Agyabeng-Mensah et al. (2022), Banerjee (2002), and Turker (2009), respectively. A seven-point Likert scale (from "1- Strongly Disagree" to "7- Strongly Agree") was employed for all scales (i.e., PSP, CEP, EC, and PCS).

Sample Size and Data Collection

Besides, the power of 0.8 with a medium effect size of 0.15 and significant $p < 0.05$ was used to measure the required sample size for this reseach using G*Power 3.1.9.7. Hence, this reseach required a sample size of 77 to test the model with 3 predictors. As indicated by Reinartz et al. (2009), at least 100 samples are sufficient to run PLS-SEM. Hence, this research gathered 137 responses from managers employed in Chinese manufacturing SMEs. The participants in this study were the first-line managers, middle managers, senior managers, general managers, and entrepreneurs from manufacturing SMEs in China. The questionnaire was distributed online via a professional survey website (i.e., www.wjx.cn). A non-probability-based convenience sampling approach was employed to collect data.

Data Analysis

Data was analyzed by PLS-SEM. Moreover, a bootstrapping approach with 5000 subsamples was employed to evaluate the importance of the loading and route coefficient

Findings

Respondents Demographic

Data was gathered from 137 managers or entrepreneurs from the manufacturing sectors among SMEs while over one-third of them are first-line managers (32.8%; see Table 1). Over 40 percent (40.9%) of the managers have 0-5 years of working experience, followed by managers with 6 years to 10 years of experience took up 24.8 percent of the total responses. Nearly 40 percent (39.4%) of managers have limited knowledge about the SDGs (i.e., Sustainable Development Goals), while one-third of them have a general understanding of SDGs, around a quarter of them have no knowledge about SDGs, and over 10 percent of the managers identify they have an in-depth understanding regarding SDGs. However, in terms of the SMEs that are associated with those responding managers, most of them have been established within a 5-year duration (42.3%), followed by 26 companies (19%) that obtained 6-10 years of experience in the industry. Manufacturing SMEs have experience of 16-20 years and 21 and above occupied 5.8% and 14.6% of the responses, respectively. Within the range for investigation, beyond 30% of the SMEs with 21 to 300 employees, while the enterprises with staffs less than 9 took up 29.9%, companies have more than 300 employees with 37.2%, but those have less than 1000 employees occupied 16.8%, companies have employees more than 9 but less than 21 were ranked the least (16.1%).

Years of establishment of the enterprise			**Type of your firm**			**Your position**			**How much you know about SDGs**		
	N	%		N	%		N	%		N	%
0-5 years	58	42.3	Chemical engineering	12	8.8	Entrepreneur	24	17.5	Not at all	22	16.1
6-10 years	26	19	Machine	10	7.3	General Manager	21	15.3	Limited	54	39.4
11-15 years	25	18.2	Furniture	4	2.9	Senior manager	17	12.4	General understanding	45	32.8
16-20 years	8	5.8	Tobacco	2	1.5	Middle manager	30	21.9	In-depth understanding	16	11.7
≥21years	20	14.6	Recycle	3	2.2	Grassroots manager (First-line manager)	45	32.8	Total	137	100
Total	137	100	Food, Beverage	6	4.4	Total	137	100			
			Medical treatment	8	5.8						
			Products of metal	8	5.8						
			Paper, printing and publishing	1	0.7						
Number of employees			Textiles, clothing and leather	3	2.2	**Your working experiences**					

Table1. Profile of Respondents

	N	%	Precision and optical instruments	10	7.3		N	%			
<9 people	41	29.9	Wood and other wood products	2	1.5	0-5 years	56	40.9			
9-20 people	22	16.1	Electronics, appliances, and electrical	12	8.8	6-10 years	34	24.8			
21-300 people	51	37.2	Railway, ship, aerospace and other transportation equipment	1	0.7	11-15 years	27	19.7			
300-1000 people	23	16.8	Other	55	40.1	≥16 years	20	14.6			
Total	137	100	Total	137	100	Total	137	100			

Measurement Model Assessment

Prior to the assessment, Cronbach's Alpha (CA) along with Composite Reliability (CR) were used to measure construct reliability and validity between the latent variables. The results are shown in Table 2. Perceived CSR toward sustainability had the greatest CA of 0.968, while circular economy performance had the lowest CA of 0.941. Meanwhile, the CR score is greater than 0.70, indicating excellent internal dependability. (Hair et al., 2011, 2019). Moreover, the average variance extracted (AVE) was utilized to quantify the convergent validity. Based on the clarification by Hair et al. (2019), a minimum of 0.50 is required for the AVE. Each factor that is being analyzed has a valid ideal AVE value, which is larger than 0.50.

The results signify that responding manufacturing SME managers in China have strongly perceived the pressure from either internal or external stakeholders, have a strong sense of environmental commitment are aware of executing circular economy practices, and have a strong sense of CSR which provided solid and relevant evidence to the sustainability debates. A positive mindset to take accountability on sustainability affairs has already been performed and aware.

Common Method Bias (CMB)

To minimize the possibility of common method bias (CMB), this study made the point, "Please note that this questionnaire is for academic purposes only and will be filled out voluntarily and anonymously. The information you fill in will be kept strictly confidential." "Please select the answer that is in line with your most immediate thoughts." and "There is no "good or bad", or

"right or wrong" in the answers to this questionnaire, so you only need to fill it out according to your own knowledge.", etc. In addition, we adopted the 7-point Likert scale throughout the entire questionnaire (Podsakoff et al., 2003). Followed by Kock (2015) and Kock & Lynn (2012), a full-collinearity VIF test was also conducted in this study, where it could be confirmed that predictors had a VIF index below 3.3 which is believed to be the ideal threshold for the absence of multicollinearity issues (Hair et al., 2019).

Variables	Item	mean	Std. Deviation	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)	VIF
PSP	10	5.141	1.454	0.967	0.969	0.971	0.773	1.843
EC	6	4.877	0.855	0.951	0.951	0.961	0.803	2.581
CEP	6	5.748	1.101	0.941	0.942	0.953	0.772	2.365
PCS	9	5.663	1.139	0.968	0.969	0.972	0.796	-

Note. PSP: Perceived Stakeholders' Pressure, EC: Environmental Commitment, CEP: Circular Economy Performance, PCS: Perceived CSR towards Sustainability. Source: Authors' compilation.

Items/ Variables	**CEP**	**EC**	**PCS**	**PSP**
CEP - Item 1	*0.852*	0.664	0.715	0.530
CEP - Item 2	*0.902*	0.656	0.691	0.537
CEP - Item 3	*0.921*	0.703	0.738	0.550
CEP - Item 4	*0.843*	0.648	0.697	0.549
CEP - Item 5	*0.888*	0.665	0.686	0.523
CEP - Item 6	*0.863*	0.563	0.674	0.513
EC - Item 1	0.758	*0.881*	0.755	0.609
EC - Item 2	0.694	*0.909*	0.787	0.574
EC - Item 3	0.647	*0.889*	0.681	0.618

EC - Item 4	0.617	*0.930*	0.796	0.598
EC - Item 5	0.645	*0.891*	0.785	0.561
EC - Item 6	0.618	*0.876*	0.788	0.532
PCS - Item 1	0.768	0.784	*0.906*	0.570
PCS - Item 2	0.719	0.815	*0.937*	0.559
PCS - Item 3	0.736	0.792	*0.931*	0.543
PCS - Item 4	0.702	0.791	*0.898*	0.541
PCS - Item 5	0.674	0.738	*0.911*	0.524
PCS - Item 6	0.624	0.675	*0.843*	0.489
PCS - Item 7	0.683	0.807	*0.891*	0.576
PCS - Item 8	0.776	0.767	*0.896*	0.597
PCS - Item 9	0.713	0.678	*0.810*	0.483
PSP - Item 1	0.491	0.444	0.483	*0.775*
PSP - Item 2	0.534	0.549	0.533	*0.897*
PSP - Item 3	0.505	0.578	0.510	*0.897*
PSP - Item 4	0.582	0.603	0.556	*0.914*
PSP - Item 5	0.530	0.595	0.543	*0.911*
PSP - Item 6	0.533	0.544	0.488	*0.906*
PSP - Item 7	0.584	0.618	0.578	*0.867*
PSP - Item 8	0.482	0.528	0.528	*0.831*
PSP - Item 9	0.549	0.645	0.576	*0.906*
PSP - Item 10	0.540	0.581	0.548	*0.878*
Fornell-Larcker Criterion				
Circular Economy Performance	0.879			
Environmental Commitment	0.741	0.896		
Perceived CSR towards Sustainability	0.798	0.855	0.892	
Perceived Stakeholders' Pressure	0.608	0.650	0.609	0.879
Heterotrait-Monotrait Ratio (HTMT)				
Circular Economy Performance	-			
Environmental Commitment	0.781	-		

Perceived CSR towards Sustainability	0.835	0.889	-	
Perceived Stakeholders' Pressure	0.636	0.675	0.628	-

Table 3. Cross-loading and Discriminant Validity

Note. PSP: Perceived Stakeholders' Pressure, EC: Environmental Commitment, CEP: Circular Economy Performance, PCS: Perceived CSR towards Sustainability. The values in italics above are the items' indicator loadings, while others are cross-loadings. Source: Authors' compilation.

All indicator loadings (in the Italic format) and cross-loadings met the criteria following the guideline where the reflective indicator loadings are all above 0.708, and the discriminant validity reflecting on HTMT is below 0.90 (Hair et al., 2019). Further, the Fornell-Larcker Criterion was employed to ascertain the discriminant validity whereby the square root of AVE of each scale thereof is larger than the corresponding construct's correlation with other constructs (see Table 3).

Hypothesis	Path	Beta	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
H1	PSP -> EC	0.650	0.653	0.067	9.738	0.000	Support
H2	PSP -> CEP	0.218	0.221	0.094	2.307	0.011	Support
H3	PSP -> PCS	0.015	0.018	0.065	0.229	0.409	Not Support
H4	EC -> CEP	0.600	0.600	0.104	5.761	0.000	Support
H5	EC -> PCS	0.578	0.580	0.085	6.840	0.000	Support
H8	CEP -> PCS	0.360	0.356	0.092	3.905	0.000	Support

Table 4. Path Coefficients

Note. PSP: Perceived Stakeholders' Pressure, EC: Environmental Commitment, CEP: Circular Economy Performance, PCS: Perceived CSR towards Sustainability. Source: Authors' compilation.

The experiment revealed very considerable results where indicating the stakeholders' pressure will affect the internal factors (i.e., environmental commitment and circular economy performance; see Table 4). It testified the stakeholder theory further when it stressed not only the environmental commitment ($\beta = 0.650$, $t = 9.738$, $p = 0.000$) but also circular economy performance ($\beta = 0.218$, $t = 2.307$, $p = 0.011$) within the organization. Surprisingly, the pressure

does not reflect on the sustainability awareness externally (β = 0.015, t = 0.229, p = 0.409). For the path internally, environmental commitment correspondingly relates to the circular economy performance positively and significantly. Even though the external pressure did not create any awareness for manufacturing SMEs to conduct their CSR toward sustainability, the evolution of internal reflection did. Both EC (β = 0.578, t = 6.840, p = 0.000) and CEP (β = 0.360, t = 3.905, p = 0.000) noted an advantage plus to the perceived CSR towards sustainability (PCS), respectively.

The R^2 and f^2 were testified and also conducted in this research. The value of the determination coefficient (R^2) for the reseach engagement was 0.790, thus indicating that perceived stakeholder pressure, environmental commitment, and circular economy performance accounted for 79% of the variance in the perceived CSR toward sustainability. The examination of f2 shows that environmental commitment and circular economy performance emphasized a huge effect size on the perceived CSR towards sustainability (PCS; f^2 = 0.618 for EC, and f^2 = 0.261 for CEP), while the other predictors showcased a small effect size to PCS.

R^2 for EC and CEP are 0.422 and 0.577, respectively. As estimated, EC influences CEP in a big size effect (f^2 = 0.492). Additionally, the perceived stakeholders' pressure (PSP) impacts the minimum size effect on CEP, while PSP puts a giant size effect (f^2 = 0.73) on EC.

Table 5. Mediating Effects

Hypothesis	Path	Beta	T Statistics (|O/STDEV|)	P Values	CI - Min	CI - Max	Decision
H6	PSP -> EC -> CEP	0.390	5.163	0.000	0.270	0.519	Partial Mediation
H7	PSP -> EC -> PCS	0.376	6.205	0.000	0.284	0.482	Mediation
H9	PSP -> CEP -> PCS	0.078	1.958	0.025	0.026	0.162	Mediation
H10	EC -> CEP -> PCS	0.216	3.209	0.001	0.123	0.354	Partial mediation

Note. PSP: Perceived Stakeholders' Pressure, EC: Environmental Commitment, CEP: Circular Economy Performance, PCS: Perceived CSR towards Sustainability. Source: Authors' compilation.

As the direct effect results prior to the mediating testing, the environmental commitment shows the partial mediating effect (β = 0.390, t = 5.163, p = 0.000, CI – Min = 0.270, CI – Max = 0.519) between the stakeholders' pressure and the circular economy performance (see Table 5). However, the EC fully mediates the directions when stakeholders' pressure on the perceived CSR towards sustainability (β = 0.376, t = 6.205, p = 0.000, CI – Min = 0.284, CI – Max = 0.482). This finding reveals the scenario when environmental commitment stepped in, and the drive of external stakeholders helped more to function regardless of the internal output internally (e.g., circular economy performance) or external (e.g., perceived CSR toward sustainability).

A similar significance mediation was demonstrated from the circular economy performance perspective (β = 0.078, t = 1.958, p = 0.025, CI – Min = 0.026, CI – Max = 0.162). Once the circular economy performance was aware in a Manufacturing SME, the stakeholders' pressure would convert into a drive to sustainable responsibility (β = 0.216, t = 3.209, p = 0.001, CI – Min = 0.123, CI – Max = 0.354). That is, from the supervision of the public and within, the enterprise may do better to take their duty on the climate change topics.

Discussion

The views of stakeholders are indeed confirmed as a genuine motivation for enterprises' reflections on environmental commitment as well as circular economy performance. The empirical result of this research suggested that the stakeholders' pressure may not be able to directly stress the external responsibility or action that is visible to the public. Nonetheless, the alignment between the present study and the previous research reassured that public awareness, pressure, and deployment directly impact the further production of the manufacturing sectors' design, development, and even innovation into a sustainable eco-system (Elmustapha et al., 2018; Fazal et al., 2023). It is undeniable that the co-existence and interrelation between the inner governance of the corporations and their stakeholders enable the circular effect on sustainable practices (Almagtome et al., 2020). Particularly, for a developing country like China, economic growth is certainly one of the most crucial elements to pursue, and the voluntary environmental commitment and the circular economy awareness thereof becomes a counterpart workaround to maintain corporate responsibility concurrently (Zhang et al., 2014, 2019). Further, China's institutional and cultural context determines that voluntary CSR participation is challenging, particularly when it comes to environmental preservation. That is also the reason why the law and the regulation need to intervene; from a stakeholder perspective, the external pressure would push those manufacturing SMEs to change from within (Guttman et al., 2018). According to Parmar et al. (2010), this research highlights that manufacturing SMEs should be able to manage their utility in a strategic view that optimizes the efficiency of resource allocation, establishing a competitive advantage. Continuous improvement took place from both the stakeholders' side and the enterprise side; the dynamic interaction therefore enables a virtuous cycle between stakeholder theory and resource-based view.

Conclusion

This research offered several insights concerning how sustainable awareness functions internally and externally with multiple perspectives and expanded the combination of stakeholder theory coupled with resource-based view while fulfilling the circular economy performance references concurrently. The crucial liaison of the path from the external stakeholders' pressure along to the perceived CSR toward sustainability also implied how the manufacturing sectors reflect and react to the public and the stakeholders through their CSR (i.e., Corporate Social Responsibility) and ESG (i.e., Environmental, social and governance) reports. With the sample investigation from China, the result is also expected to alert manufacturing enterprises around the globe to raise their awareness of sustainable development; the policymakers and relevant parties to design the appropriate offerings to manufacturing companies moving forward in a green way.

Concerning the limitation, the financial performance as a straightforward indicator was not taken into account where previous research has already been explored. Also, even if the data collected more than 100 samples from various organizations with their managers, future study is encouraged to have more respondents for justification. From the strategy perspective, the respondents should concentrate more on upper management in order to have an inclination about

specifically what upper management will consider and execute for environmental affairs. However, fortunately, according to our database, the number of entrepreneurs and general managers is equal to the number of grassroots managers. Future research may also expand the number of respondents to re-assure the mechanics of such awareness functioning within and outside the organization and obtain a further conclusion.

Funding Statement

This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No. KFU251100].

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