Evaluating the Relationship between Stakeholder Pressure and Innovation in Ghanaian SMEs: Moderating Role of Firm Size

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The study examines the relationship between stakeholder pressure and innovation (Technological and non-technological) in Ghanaian SMEs. Further, it explores the moderating role of firm size in this relationship. This is in response to the ongoing debate on the role of innovation in the performance and survival of small businesses in Ghana. Using the survey response of 523 registered SMEs, the SmartPLS model estimate reveals that; stakeholder pressure influences both technological and non-technological innovation in Ghanaian SMEs. Further, the size of the SMEs has no significant moderation in the positive relationship between stakeholder pressure and innovation in Ghana. Consequently, SMEs in Ghana can take advantage of the pressure from internal and external stakeholders to innovate for sustainable growth. Again, the government should provide avenues for innovative collaborations between universities, government agencies, and SMEs. Finally, studies should focus on inexpensive innovation channels capable of transforming the SME industry of Ghana.

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1. INTRODUCTION

The debate on the relationship between firm performance and innovation continues to gather momentum in recent years. This is why literature has time and again stressed the significance of innovation to the performance of firms irrespective of size, location, and nature of business operations [1,2,3]. Innovation is the development of improved products/ services or the introduction of new methods/processes to achieve efficient outcomes [2]. This has become significant to the survival of businesses because of intense competition, limited resources, and the diverse needs of consumers [4,5]. However, most studies limit the factors driving innovation in small businesses has to financial and human resources [6,7]. While this is true, other factors like stakeholder pressure and firm size are largely ignored. This creates a knowledge gap capable of inducing policy imbalance. Consequently, there is the need to investigate the role of stakeholder pressure and firm size in the innovation efforts of small and medium-sized businesses.

Stakeholder pressure represents the voices of both internal and external parties who have divergent interests in the businesses [8,9]. Internal stakeholders like management, the board, and employees could advocate for a change that requires innovation. Further, external stakeholders like shareholders, government agencies, and competitors could equally make demands which would see a business innovate willingly or unwillingly [8]. This phenomenon has attracted research attention in recent literature [9,10] to suggest the potency of stakeholders in the decision-making process of firms. However, the size of a business, the nature of the business, and the ownership structure of the business determine the type of stakeholders present [10]. Accordingly, the business size is a key factor to consider in the relationship between stakeholder pressure and the innovation drive of small and medium-sized businesses.

The firm size adds to the ongoing debate concerning the relationship between innovation and firm performance [11,12]. While others [13,14] believe that the size of a firm determines the availability of resources, some [15,16] suggests that there is no difference in the innovation drive of businesses irrespective of size. These confirm and also contradict the

knowledge-based view and the resource-based view theories of innovation [17,18]. However, given that stakeholders differ significantly per firm size, this creates a knowledge gap requiring empirical inquisition. Therefore, amidst the contradicting views on the role of firm size in the relationship between innovation and firm performance, stakeholder pressure presents another area wealthy of empirical investigation.

The economy of Ghana depends largely on the operations of small and medium-sized businesses [19,20]. First, the sector contributes more than 50 percent of the total gross domestic product (GDP), second, it employs a dozen of people in the country. However, this sector is often plagued with limited financial resources, low patronage, and infrastructural deficiencies [7,20]. These factors impede the progress of this class of businesses. Nevertheless, the emergence of cost-effective innovative channels for businesses to improve efficiency and reduce cost presents an opportunity for these businesses to maximize profitability. Therefore, this study weighs into the ongoing debate on innovation and firm performance to examine the role of stakeholder pressure in the innovation (Technological and non-technological) drive of SMEs in Ghana. This is significant and different from existing literature because most of the studies on this phenomenon in Ghana focus primarily on the relationship between innovation and firm performance excluding stakeholder pressure. To achieve this result, the study seeks answers to the research questions; does stakeholder pressure significantly influence innovation in Ghanaian SMEs? and does the size of the SMEs moderate the relationship between stakeholder pressure and innovation? Using data from 523 SMEs in Ghana, the SmartPLS output suggests that stakeholder pressure influences both technological and non-technological innovation in the Ghanaian SMEs. Further, the size of the SMEs has no significant moderation in the positive relationship between stakeholder pressure and innovation in Ghana. Subsequently, SMEs in Ghana can take advantage of the pressure from internal and external stakeholders to innovate for sustainable growth. Again, the government should provide avenues for innovative collaborations between universities, government agencies, and SMEs. Finally, studies should focus on inexpensive innovation channels capable of transforming the SME industry of Ghana. Consequently, the study

is significant to industry practitioners, policymakers, and scholars because it unearths the changing dynamism in innovation literature and challenges SMEs and policymakers to explore cost-effective innovative avenues to reduce the resource advantage of bigger firms.

The remainder of the paper is organized as follows; literature review and the development of the research hypothesis, then the research methodology. Next, the analysis and interpretation of the research data, then discussion, conclusion,and the limitations and recommendations for future studies.

2. LITERATURE REVIEW

This section focuses on the literature and the theories providing support for the study. Therefore, we present information on stakeholder pressure, innovation, and firm size. Further, the research hypotheses are developed based on the literature discussed.

2.1 Stakeholders Pressure

Extant literature confirmsthe positive substantialinfluence of stakeholder pressure in improving the general performance of firms [21]. Stakeholders are parties or establishments with direct or indirect concernsabout the consequences of an organization. Generally, while some stakeholders have a financial interest in establishments, others pursue to protect the interest of the society and ecosystem. Accordingly, Konadu et al. [10] outline ten different external stakeholders; customers, suppliers, competitors, industry associations, local communities, environmental organizations, regulators/legislators, media, and shareholders' funds. While the internal stakeholders have a greater influence on organizations in terms of decision-making, external stakeholders have somewhatnegligible influence except in rare instances [22]. The pressure of stakeholderscan come from; consumers, investors, regulatory requirements, and even NGOs sometimes. Per stakeholder theories, primary stakeholders are directly or indirectly involved in the shaping of the organization's goals which leads to profitability and ultimate survival [21]. Pressure from stakeholders has the potential of influencing the decisions and actions of management towards the pursuit of innovative goals {Formatting Citation}. Empirical evidence supports the significance of stakeholder pressure in motivating the pursuit of innovative goals which potentially

leads to improvement in organizational performance [10]. Following, Yu et al. [21] report that companies that consider shareholders' or stakeholders'views in decision making have a higher likelihood of pursuing innovative goals. This is consistent with existing research, to prove that the pressure from both internal or external stakeholders significantly encourages companies to improve performance. Maas et al. [23] also point out that by adopting progressive environmental management, a company will face fewer internal/external conflicts, which leads to enhancement in firm performance. The pressure from stakeholders energies management to make decisions that promote short and long-run organizational growth [10]. Following, Ahinful et al. [24] report the positive impact of stakeholder pressure on corporate performance. Bıçakcıoğlu-Peynirci and Tanyeri [25] also find a positive correlation between community stakeholder pressure and corporate performance. Again, Ahinful et al. [24] suggest that enterprises should adopt an environmental management system to advance environmental performance. Baah et al. [26] furtherestablish a positive relationship between stakeholder pressure and firms' ability to partner with other firms.

2.2 Innovation Capability

The innovation capability of firms is an overall capability that blankets the ability to absorb, adapt, and implement technologies to improve the processes and outcomes of the organization. Several find that the innovation effort of organizations positively affects innovation capability and firm performance [27,2,28]. This suggests that activities such as interfirm value co-creation and supply chain integration could increase the probability of firms diffusing new technologies. This is consistent with the findings of Le and Lei [29], to indicate that knowledge sharing between internal and external organizational parties improves innovation capability. According to Shafi [30], interactions with customers and competitors promote innovation within organizations. Thus, activities that promote these interactions should be encouraged to drive the innovation capabilities of firms. Further, Mendoza-Silva [31] reveals that the cordial relationship between internal and external organizational parties greatly improves the innovation capability of firms. However, Kim and Shim [32] find that management capabilities and external networking promotes innovation within firms. Contrary, insufficient resources and structural rigidity stifles initiative within firms.

Further, Donkor et al. [33] show that organizations with strategic goals are likely to innovate to enhance firm performance compared to those without a clearly defined strategy. According to Donbesuur et al. [34], the technological innovation of firms is a key ingredient to organizational productivity. This reveals that innovation capability is key in the nexus between interfirm value co-creation, supply chain integration, and organizational performance.

The growth, expansion, and sustainability of modern business depend on the ability to innovate technologically or non-technologically [35]. This is why this subject has attracted a global research inquisition. While innovation differsconcerning the rate of diffusion, Wang and Tan [36] confirm that radical innovations have a higher probability of increasing the performance of firms than incremental innovations. According to Popa et al. [37], firms acquiring external technology have a higher likelihood of increasing firm performance compared to the firms relying solely on internal technology. This suggests that inbound open innovation is significant for improving organizational performance. However, Oltra et al. [38] reveal that organizations with higher research and development intensity are likely to increase firm performance compared to those without. According to Hameed, et al. [39] technological innovation positively influences firm performance. However, non-technological innovation had no significant effect on the performance of the firm. These results could be explained by the fact that the study focused on the automotive industry. Wu and Hu [40] in their study suggest that planned employee training, motivation, and process control within a firm positively influence technological innovation in a firm. Further, the study establishes a significant positive relationship between technological innovation and firm performance. In confirmation, Chege et al. [1] using the partial least square structural equation model found that technological innovation influences a firm's performance. This depicts the significant role of human resources and organizational factors in technological innovation. In another study, Hung et al. [41] uncover that technological innovation (service innovation) influences firm performance. Specifically, these innovations focus on reducing cost, improving quality, and reliability. This result is consistent with the outcome of Hameed, et al [39] to confirm that the nature of the firm could affect the role of technological or non-technological innovation on firm performance.

Again, while controlling for firm size, capital, and labor cost, Ramadani et al. [5] affirms that technological innovation (product innovation) influences positively the performance of firms. Further, the study reveals a negative relationship between firm age, competition, and firm performance. However, these results are related to economies in transition and could differ when applied to different economies. On the other hand, Lee et al. [4] reveal a significant positive relationship between non-technological innovation and firm performance. This contradicts the findings of Hameed, et al. [39]. Therefore, equal attention should be given to non-technological innovation to improve overall firm performance. However, Younas and Rehman [35] find no positive associations between non-technological innovation and the performance of firms.

2.3 Firm Size

Firms can be characterized differently according to age, location, nature of operations, and size [42,43]. These differences have a significant influence on the resource availability and the decision-making processes of the firm [19,43]. Smaller businesses or resource constraint businesses are likely to make minimal commitments of resources towards strategic decisions. Similarly, innovation diffusion, firm performance, and knowledge sharing have significant connections with the size of firms [44,45]. Bigger firms are likely to invest significantly into new technology as compared to smaller firms. Again, bigger firms are likely to improve firm performance because of the commitment of adequate resources towards strategic decisions. Further, these firms are likely to create a climate that promotes knowledge sharing. Both technological and organizational innovation comes with high costs, especially to SMEs in developing economies. Thus, the high cost of innovation, for example through research and development expenditure could deter smaller firms from engaging in these activities [46]. Wadho and Chaudhry [2] note that although capital investment is not considered, larger firms have a higher probability of engaging in innovation activities compared to smaller firms with minimal resources. Further, Kijkasiwat and Phuensane [43] point that the size of firms and the financial capital moderate and mediate the positive relationship between innovation and firm performance. However, the emergence of cost-cutting innovative options like co-creation and open innovation provides supports for smaller

and resource constraint firms to innovate at an affordable cost [47]. Again, Andries and Stephan [48] discover that bigger firms have an advantage from environmental innovation over smaller firms. Therefore, this gives bigger firms the edge over smaller firms concerning firm performance related to environmental innovation. However, Shi et al. [49] show that smaller manufacturing firms show positive connections between networking and innovation compared to non-manufacturing firms. Thus, despite the size of the firm, the nature of the business operations could also significantly affect the innovation activities.

2.4 Hypothesis Development

The study examines the relationship between stakeholder pressure, innovation, the moderating role of firm size in the relationship between stakeholder pressure and innovation in Ghanaian SMEs. Consequently, the study proposes these hypotheses to answer the research questions outlined earlier.

Literature extrapolates and confirms the positive relationship between stakeholder involvement in decision-making and firm performance [18,24,26]. Consequently, recent studies explore the role of stakeholders in the innovative decision of SMEs [10,3,21]. Accordingly, some identify positive associations between the variables [24,26]. On the other hand, some studies have conflicting outcomes [3,21]. Nevertheless, the Ghanaian SME industry is experiencing rapid change in the number of new start-ups, competition, and business failures. This places innovation strategically in the jigsaw puzzle for SMEs' survival in the country. Therefore, based

on the assertion of studies [26,10,3,21] confirming positive relationships between stakeholder pressure and innovation, we propose hypotheses H1a and H1b to test this relationship in the context of Ghana.

> H1a: Stakeholder pressure significantly influences innovation in Ghanaian SMEs.
> H1b: Innovation significantly influences stakeholder pressure in Ghanaian SMEs.

The resource-based view of innovation suggests that firms are likely to have enough resources when they are bigger [17,4]. Further, it proves that firms with more resources are likely to engage in innovative activities compared to resource constraint firms. Consequently, studies prove the positive relationship between firm size and innovation [44,46,45]. Again, since stakeholders differ given the size of firms, studies suggest that bigger firms are likely to experience intense stakeholder pressure compared to relatively smaller ones [49,4]. However, recent literature suggests that the cost of innovation is greatly reduced through cost-effective options [47,19]. Therefore, it challenges the size advantage of bigger firms. Consequently, we propose these hypotheses to examine the effect of firm size in the relationship between stakeholder pressure and innovation in Ghanaian firms.

> H1c: Firm size significantly moderates the influence between stakeholder pressure and innovation in the Ghanaian SMEs.
> H2a: Firm size significantly influence stakeholder pressure in the Ghanaian SMEs
> H2b: Firm size significantly influences innovation in Ghanaian SMEs.
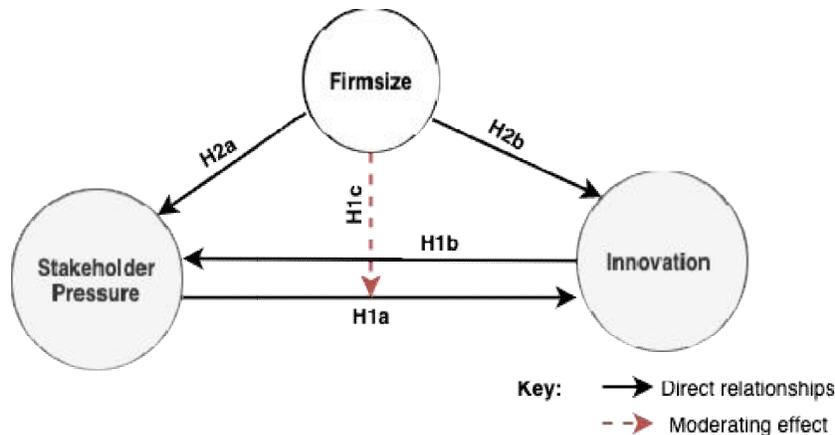

Fig. 1. Conceptual framework

3. METHODOLOGY

3.1 Data Source and Sampling Technique

Given that the study explores the role of firm size in the relationship between stakeholder pressure and innovation in Ghana. The quantitative approach is preferred over the qualitative approach. This is because the study wants to estimate quantitatively the response of the managers of the SMEs. Consequently, we can provide support for or refute existing literature based on the empirical outcome. The SME market is vast and it is impossible to survey the responses of all the managers from these businesses. Therefore, first, we limit the study scope to the capital city of Ghana (Accra). Further, Accra is big with different types of SMEs, consequently, we further limit the study to only the businesses registered with the Association of Ghanaian Industries (AGI). As of December 2020, the total population of these businesses stood over 1,000. Per the statistics, the study employs the accidental sampling technique to survey the respondents as to when they are available and willing to participate in the study. The target respondents are the SMEs managers who have a direct influence on strategic decisions like innovation. To collect data from the respondents, we employ a survey questionnaire sectioned into four distinct parts. The first section captures the biographic data of the respondents. This is important because we need to understand the background of the respondents and their ability to provide the right responses. The second part of the instrument captures information about stakeholder pressure. This is the dependent variable of the study. The third section captures information on the innovation (technological and non-technological) activities of SMEs. Finally, the last section handles information about the size of the SMEs. To proceed, the survey instrument is tested through series of processes to ensure that the instrument is uncomplicated and free from bias. The first draft of the questionnaire was given to colleagues to test their ability to understand clearly all the questionnaire items included in the survey. After, rewording was made and sent to 31 SME managers randomly to understand their perception of the instrument. After analyzing the data, further changes were made to correct all errors and reduce ambiguity. Next, the final survey questionnaire was sent to the SMEs through the mail addresses provided by the Association of Ghanaian Industries (AGI). The survey was conducted through January-March 2020. However, given the fact that some email addresses were incorrect, and some emails were not replied after series of follow-up messages, the survey returned 523 duly completed responses. Although a higher number of responses were expected, the response rate generated was good enough for the analysis because it is more than 50% of the target population. Therefore, the responses were collated, cleaned, coded, and analyzed using SPSS and the SmartPLS software.

3.2 Measurements of Constructs

The study examines an issue with abundant literature; therefore, we rely on this rich knowledge to generate the study constructs. The information provided in Table 1 is a summary of the study constructs, the number of elements in each construct as well as the respective sources. Specifically, the first construct which covers stakeholder pressure (STKH) comprises both internal and external stakeholders. Internal stakeholders are individuals within the company with an interest in the success of the company [23,24]. These groups of individuals include employees, management, or company owners. On the other hand, external stakeholders are individuals who are not within the organization yet have an interest in the progress of the company [21]. This group can be made up of government agencies, competitors, pressure groups, and trade unions. The second construct is innovation.This comprises technological and non-technological innovations. Technological innovation covers innovations concerning products and services, while non-technological innovation cover process and marketing and organizational innovations) [25,26,12]. The final construct measures the size of the SMEs. Given that the size of a firm can be measured in several ways, this study adopts the most commonly used measurement scale which is the number of employees [49, 48, 46].

3.3 Model Specification

Given the research problem, objective, and questions, the outcome of these can best be estimated with a series of regression models. Therefore, we employ the structural equation model (SEM) similar to existing studies [50] to estimate the relationship between stakeholder pressure (STKH), innovation (INNO), and firm size (FIRM SIZE). The SEM supports the estimation of complex associations between one or more independent variables as well as one or

Table 1. Measurement construct

Construct	Elements	Items	Scale	Sources
Innovation	Technological	10	Ordinal	Bıçakcıoğlu-Peynirci&Tanyeri, [25];
	Non-technological	9	Ordinal	Baah et al., [26]; Awan et a., [12]
Stakeholder pressure	Internal	5	Ordinal	Maas et al., [23]; Ahinful et al., [24]; Yu et al., [21]
	External	5	Ordinal	
Firm Size	Small	1	Ordinal	Shi et al., [49]; Andries & Stephan,
	Medium	1	Ordinal	[48]; Corsi et al., [46]
	Large	1	Ordinal	

Source:Authors construct
Note: See full details in the appendix

more dependent variables. This statistical method allows the estimation of multilevel regression models and is applied to testing research hypotheses that contain direct and indirect observations of one or more dependent and independent variables respectively. The central motivation for adopting the SEM technique in this study is to examine the relationship between the variables and also authenticate the proposed casual models. Per the research objectives, the model contains three (3) variables; STKH, INNO, and FIRM SIZE, where INNO represents technological and non-technological innovation capabilities, STKH represents the pressure from the various stakeholders, and FIRM SIZE represents the size of the businesses. Accordingly, STKH is the response variable (Y) while INNO is an exogenous variable with FIRM SIZE as the moderating variable. The model can therefore be presented theoretically in a matrix form as:

$$\begin{bmatrix} y_1 \\ \cdots \\ y_p \end{bmatrix} = \begin{pmatrix} 0 & \cdots & \beta_{1p} \\ \vdots & \ddots & \vdots \\ \beta_{p1} & \cdots & 0 \end{pmatrix} \begin{bmatrix} y_1 \\ \cdots \\ y_p \end{bmatrix} + \begin{pmatrix} \delta_{11} & \cdots & \delta_{1q} \\ \vdots & \ddots & \vdots \\ \delta_{p1} & \cdots & \delta_{pq} \end{pmatrix} \begin{bmatrix} x_1 \\ \cdots \\ x_q \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \cdots \\ \varepsilon_p \end{bmatrix} \quad (1)$$

Summarily the matrix equation in Eq. (1) can be reformulated as:

$$Y = \boldsymbol{B}Y + \boldsymbol{\Gamma}X + \varepsilon \qquad (2)$$

Where p represents the number of regression equations to be estimated simultaneously, p by p **B** square matrix contains the parameter coefficients of the regressors of Y variables on the other Y variables with the 0 diagonal values implying that a variable cannot cause itself. Also, the p by $q\boldsymbol{\Gamma}$ matrix contains coefficients of the Y's on X's whereas ε is a p by 1 vector consisting of residual terms. Based on the theoretical model specification, a deduction can be made that series of regression equations (3) are to be estimated to assess the causal effects amid the

variables employed in the study as shown in equations 3a-3d.

$$FIRMSIZE_i = \beta_0 + \beta_a\text{STKH} + \varepsilon_i \text{ (3a)}$$

$$FIRMSIZE_i = \beta_0 + \beta_b\text{INNO} + \varepsilon_i \text{ (3b)}$$

$$STKH_i = \beta_0 + \beta_b\text{INNO} + \varepsilon_i \text{ (3c)}$$

$$STKH_i = \beta_0 + \beta_c\text{FIRMSIZE*} + \beta_b\text{INNO} + \varepsilon_i \text{ (3d)}$$

4. EMPIRICAL ESTIMATION

4.1 Descriptive Statistics Multicollinearity Test

The output of the descriptive statistics is presented in Table 2. Accordingly, the gender of the respondents reveals that the majority of the business owners in Ghana are male. This is supported by a mean value of 2.56 and a standard deviation of 0.55. The level of education also indicates that most of the respondents have higher levels of education with a mean value of 3.1 and standard deviation of 0.65. Per the age group, the study shows that the respondents fall within the ages of 35 and above. The number of years the managers of the SMEs have been in services shows that most of them have worked with the firms for more than 5 years. Given these estimates, we further test for the distribution of the data with the kurtosis and the JB test respectively. Accordingly, all the values reported for the kurtosis show that the data has a heavier tail with each of the reported values less than 3.00. Since none of the values of kurtosis assumes "0" and "3" respectively, all demographic factors of the respondents are assumed not to follow a normal distribution. This is supported by the JB-test which rejects the null hypothesis of demographic factors being normally distributed all at a 1% level of significance.

Table 2. Summary of descriptive statistics

Variables	Mean	Std. Deviation	Kurtosis	JB
Gender	2.56	0.55	2.45	102.45*
Education	3.1	0.65	2.11	132.23*
Age Group	3.4	0.33	2.67	158.32*
Service years	4.5	0.87	2.08	231.12*

*Note: * Denotes statistical significance at 5%*

Subsequently, we estimate the possibility of multicollinearity between the variables using the variance inflation factor (VIF). Per the acceptance or rejection of the null hypothesis criterion, values of the VIF should not exceed 10.00. Therefore, given the output in Table 3, we can reject the null hypothesis because all the values reported are within 10.00 bound. Thus, proceed to estimate the final structural equation model.

Table 3. Collinearity statistics (VIF)

Items	VIF
INT	2.811
EXT	1.000
FIRM SIZE * INT	2.274
FIRM SIZE * EXT	3.149
TECHINNO	3.408
NON-TEC INNO	4.606

*Note: VIF (Variance Inflation Factor); INT (internal stakeholders); EXT (external stakeholders); FIRM SIZE (firm size); TECHINNO (technological innovation); and NON-TECHINNO (non-technological innovation)

4.2 Construct's Reliability and Validity Tests

Before the estimation of the proposed model to explore the relationship between the stakeholder pressure and innovation in the Ghanaian SMEs, First, reliability and validity tests on the research constructs are performed. This is significant because until the research constructs are proven reliable and valid, there is a high possibility of arriving at erroneous estimates. Therefore, the Cronbach's alpha, the composite reliability, the KMO and Bartlett's and, the Herman single factor tests are employed respectively. The outcome of these estimates is presented in Table 4. The value per Cronbach's alpha depicts that the research instrument is internally consistent with all the values above 0.80. Again, the KMO and Bartlett's test proves that the sampling is adequate with reported values above 0.80. Next, the validity of the research instrument is measured using the average variance extracted (AVE). The outcome shows cross-loadings of

above 0.8 respectively to support this assertion. Since the AVE values are expected to be 0.50 or above, this result proves that the research instrument passes both the reliability and the validity tests required for robust estimation.

4.3 Discriminant Validity

After establishing the reliability and the validity of the research instrument. Further, the discriminant validity of the instrument is tested. This is significant because the study constructs should not be identical to each other. To confirm this, we employ the Fornell-larcker criterion and the Heterotrait-Monotriat Ration (HTMT). The estimated results from these tests are presented in Table 5. Accordingly, the Fornell-Larcker test proves that the research instruments are not identical with values not exceeding 0.85. This is consistent with the assertion of Henseler et al. [51]. Consequently, per the result in Table 5 respectively to prove that the measurement constructs employed are distinguishable from each other.

Next, the study uses the Heterotrait-Monotriat Ratio to further estimate and validate the discriminant validity performed by the Fornell-Larcker Criterion. According to Clark and Watson [52], the threshold should be 0.85. Nevertheless, Teo et al. [53] also recommend an acceptance correlation threshold of 0.90. Therefore, per the results in Table 6, all the constructs fall within the acceptable thresholds. This suggests by the Fornell-Larcker Criterion, the HTMT ratio also confirms that the constructs are unrelated.

4.4 Structural Model Analysis

The study estimates the relationship between stakeholder pressure, innovation, and firm size in Ghanaian SMEs. Consequently, the path estimate, t-statistics, and the p-value (<0.05) provide the basis for acceptance or rejection of the study hypothesis. Table 7 present the SmartPLS output. All the hypotheses are accepted at the statistically significant level of 0.05 except the moderating hypothesis which is

rejected. Specifically, firm size influences stakeholder pressure in Ghana. Thus, bigger firms have more stakeholder pressure compared to smaller firms. This could also be explained by the fact that bigger firms have a firm structure that wills more to external stakeholders. Further, firm size positively influences innovation in Ghanaian SMEs. This is synonymous with existing studies [2,4] to demonstrate that firms with more resources are likely to innovate given the abundance of resources. On the other hand, smaller firms can equally innovate using cost-efficient options like value co-creation and supply chain integration. Again, the result posits that stakeholder pressure in these SMEs significantly affects innovation. This could be explained by the fact that internal stakeholders like employees and management demand improved working procedures and processes. On the other hand, external shareholders like customers, government agencies, shareholders, and suppliers could equally demand improved services, improved quality, and environmentally friendly practices which has the possibility of increasing the profitability of the firm. However, the moderating effect of firm size in the relationship between stakeholder pressure and innovation is statistically insignificant. This could be explained by the fact that there is not much difference between the SMEs in terms of the business registration structure. Again, this could also mean that the emergence of cost-effective innovation avenues providesan opportunity for both smaller and bigger firms to innovate with minimal resource commitment.

Table 4. Construct reliability and validity

Factors	Factor Loads	Eigen-value	Cum.% variance explained	Cronbach α	AVE	KMO-test	B-S test
Factor 1: STKH		3.47	82.24	0.89	0.81	0.88	3603.70***
INT	0.99						
EXT	0.92						
Factor 2: Moderating Effect		3.25	91.13	0.91	0.80	0.87	3812.40**
FIRMSIZE1 * INT	1.91						
FIRMSIZE1 * EXT	1.08						
Factor 3: INNO		3.32	88.28	0.93	0.83	0.83	3914.23***
TECH	0.82						
NON-TECH	0.86						

*Note: AVE (Average Variance Extracted). KMO represents Keiser Mayer Oklin whereas B-S stands for Bartlett's Sphericity; *** represents a 1% level of significance*

Table 5. Fornell- larcker criterion

	FIRM SIZE	STKH	Moderating Effect	INNO
FIRM SIZE	**0.74**			
STKH	-0.26	**0.72**		
Moderating Effect	-0.51	0.07	**0.84**	
INNO	-0.02	0.83	0.07	**0.81**

Table 6. Heterotrait-monotriat ratio (HTMT)

	FIRM SIZE	STKH	Moderating Effect	INNO
FIRM SIZE				
STKH	0.16			
Moderating Effect	0.35	0.07		
INNO	0.06	0.83	0.06	

Note: FIRMSIZE (firm size); STKH (stakeholder pressure), and INNO (innovation)

Table 7. Path coefficient

Path	Path estimate	Standard Deviation	t-Statistics	p-Values	Results
FIRM SIZE -> STKH	0.07	0.05	3.13	0.01[a]	Supported
FIRMSIZE->INNO	0.67	0.02	5.67	0.02[a]	Supported
STKH -> INNO	0.81	0.01	22.75	0.00[a]	Supported
Moderating Effect -> INNO	0.02	0.01	0.75	0.08	Unsupported

After estimating the structural equation model, it is important to establish the robustness of the model to determine if the model performs better above a zero model. Therefore, we employ the R square and the adjusted R^2 and, Q square respectively. Per the results in Table 8, both the R square and the adjusted R^2 values are above 0.8 to explain that the model performs more than 80% better than a zero model. Further, the F-statistics supports this assertion with values above 0.05. Therefore, the interpretations from the model reflect a robust process of estimation.

5. RESULTS AND DISCUSSION

The study examines the relationship between stakeholder pressure and innovation in Ghanaian SMEs. Further, the moderating effect of firm size is also explored in the relationship between these variables. Accordingly, all the projected relationships show statistically significant except for the moderating effect of firm size.

Firm size significantly influences stakeholder pressure in Ghanaian SMEs. This provides empirical support for the ongoing debate concerning stakeholder pressure and firm performance [17,10]. An internal stakeholder is significant to the progress of every institution. Therefore, SMEs in Ghana should prioritize the contribution of the employee and the board in innovation decisions. While the Ghanaian SME industry is characterized by the sole proprietorship ownership structure willing maximum power to the business owner, the study outcome challenges this status quo. This is the time for these SMEs to open to the external environment to generate the necessary feed to support their innovative strategies. Owners of these businesses should desist from stifling the initiatives of employees and other management members. Further, external parties like customers, suppliers, government agencies, and competitors should be considered in a broader innovative environment.
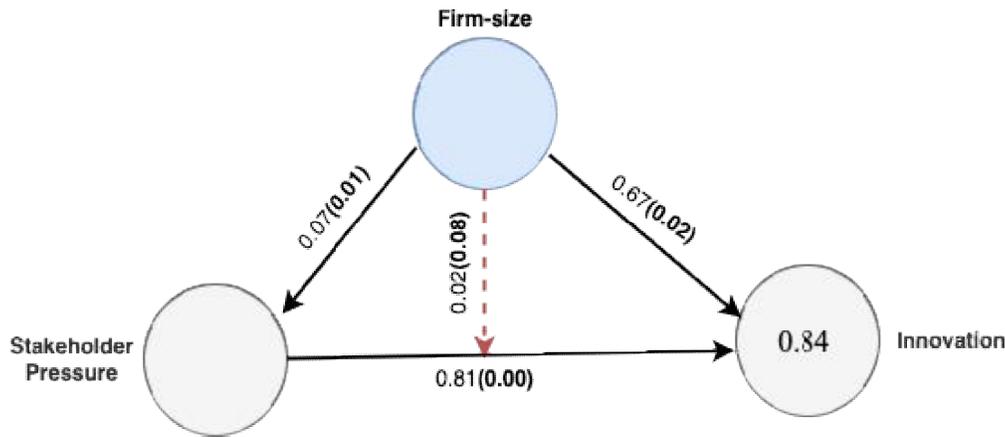
Fig. 2. SmartPLS model estimates

Table 8. Model predictive relevance

Construct	R square	Adjusted R square	Q square
INNO	0.84	0.92	0.78
F-Square			
	INNO		
Moderating Effect	0.01	Weak	

Firms' size significantly influences innovation in the Ghanaian SMEs. This confirms the assertion of existing studies [49,46,44]. According to the resource-based view, firms with adequate resources are likely to invest more into research and development. Consequently, this could be the reason for this established relationship between firm size and innovation [50]. However, the insignificant difference between the SMEs in Ghana concerning business registration, number of employments, and MundusOperandisuggest that even the smaller firms in the country are willing to commit resources towards innovation. Therefore, the management of these firms should prioritize cost-effective innovation avenues like customer co-creation and supply chain integration to maximize their resources. Again, the government should institute policies that promote collaborations between SMEs and research institutions to stimulate growth in the industry. This effort would increase the contribution of SMEs towards economic development and employment.

Stakeholder pressure significantly influences innovation in Ghanaian SMEs.Although several factors like firm resources, knowledge, location, and size significantly influence the innovation strategies of firms [33,31], stakeholder pressure also drives this strategy significantly. Given that internal stakeholders are significant to the success of every firm, there is the need for these SMEs to revise their human resource policies to recruit and select the best employees capable of exerting the right pressure to drive positive innovative efforts in the firm. Again, the firms should deliberately train and expose their employees and management to new knowledge, processes, and procedures to stimulate innovative thinking. On the other hand, the external stakeholders are equally significant to the progress of SMEs given the recent age of business. Therefore, the views of customers, suppliers, government agencies, and competitors should be considered in the innovative decisions of SMEs. This suggests a structural change in the organizational structure of the SMEs in Ghana which often wills absolute power to the business owner.

Firm size does not statistically influence the relationship between stakeholder pressure and innovation in Ghanaian SMEs. While we expected the firm size to moderate the relationship between the stakeholder pressure and the innovation-decision of the SMEs in Ghana, the statistically insignificant result

provides an interesting insight for consideration. First, it signifies the age of cost-effective innovation avenues available to these SMEs, and second, it shows that there is not much difference between the SMEs in Ghana concerning the ownership structure although the number of employees differs. Consequently, while stakeholder pressure influences innovation in these businesses, the size of the businesses has nothing to do with this because there are several cost-effective options for these businesses to innovate without the need to commit huge organizational resources. Therefore, given the recent government commitment to promoting development in the SMEs industry through innovative hubs, management of these firms should prioritize cost-effective avenues like customer co-creation and inter-firm innovations which have limited resources requirement.

6. CONCLUSION

In the estimation of the relationship between stakeholder pressure and innovation as well as the moderating effect of firm size, the study reveals interesting outcomes confirming and challenging existing theories.

The bigger the SMEs, the higher the probability of stakeholders exerting pressure on management to make the right innovation decisions.This phenomenon could be explained by the fact that bigger SMEs have a variety of stakeholders ranging from experienced employees, management, and shareholders. Significantly, this affects the daily management of the business and could potentially drive the firm in the right direction. Therefore, in Ghana where there exist so many sole-proprietorships, the role of stakeholders in decision making could be hindered. It is prudent for owners of SMEs to expand their businesses to have the advantage of innovating through the ideas of both internal and external stakeholders. The government, through the initiatives of the national board for small-scale businesses, can advance training programs assistance to these SMEs.

The size of the firm influences the innovation decisions of SMEs in Ghana. Theoretically, the bigger the size of a firm, the higher the probability of having more resources compared to smaller firms. Attracting finance, bigger market share, and sometimes the right type of employees depends partly on the size of the business. Therefore, the case of Ghana

concerning innovation could be explained by these issues. However, the emergence of cost-effective innovation avenues like open innovation, co-creation, and supply chain integration should propel the smaller businesses towards innovation. Again, the association of Ghanaian industries can provide periodic training and seminars to support these SMEs. The recent initiative of the Government of Ghana to set up industrial parks is a welcoming idea for these classes of businesses as they can leverage the expertise of the industrial parks. Further, collaborations between the universities and research institutions within the country should be encouraged to reduce the cost of innovation for smaller businesses.

The level of stakeholder pressure exerted significantly influences the innovation decisions of SMEs in Ghana. The success of every business depends largely on both the internal and the external environments. Therefore, the case of the businesses in Ghana could be explained by the willingness of these SMEs to involve internal stakeholders like employees and management in the decision-making process. Again, these SMEs demonstrate their willingness to involve external stakeholders like suppliers, shareholders, and government agencies in strategic decisions. This is significant for the growth and survival of these businesses; therefore, the businesses should create deliberate avenues to attract the views and opinions of internal and external shareholders. Again, the human resource planning in these businesses should focus on attracting the best talents to drive internal stakeholder participation. The government can create an incentive to motivate SMEs that engage in innovative activities which has the potential of contributing to economic growth and employment.

The size of the SMEs has no significant influence on the relationship between stakeholder pressure and innovation decisions. While we expected a significant moderating effect, the outcome could be explained by two scenarios. First, the emergence of cost-effective innovative avenues which reduce the cost of innovating significantly for SMEs of all sizes can be the reason for the non-significant moderating effect. Second, although the SMEs are distinguishable from each other through the number of employees, the nature of business registration is sometimes difficult to distinguish. This could be the reason for the non-significant moderating effect in the relationship between stakeholder pressure and

innovation. SMEs in the country can eliminate the size disadvantage concerning innovation through collaborations and cost-effective innovation options.

7. LIMITATIONS AND IMPLICATIONS FOR FUTURE STUDIES

The study of innovation and firm growth, survival, and profitability has attracted attention in the past and recent literature. This study adds to the ongoing debate by examining the moderating role of firm size in the relationship between stakeholder pressure and innovation. While it offers significant insight, the study employs data from SMEs mostly in the capital city of Ghana because of the COVID-19 restrictions and financial issues. Therefore, future studies can expand the scope of the study, the data can be collected in the repeated survey to employ a different method of estimation. Further, the study employs firm size as the moderating variable, nevertheless, the nature of business registration and the location of the business could be explored in future studies.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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