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Exploring determinants affecting the sustainable performance of Vietnamese Small and Medium-sized Enterprises

The Thesis of the PhD dissertation

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1. INTRODUCTION

1.1. Problem statement

In the last few years, companies have started to understand the importance of such sustainable practices in their businesses and offer environmentally friendly products or services. The ability to manage and higher financial stability make the larger firms able to be the most efficient in the implementation of such sustainable practices. Nevertheless, it is crucial to consider the role of SMEs in this context of the argument on sustainable business practice as well, since SMEs hold a significant part of a nation's overall economy and, at the same time, the labor market (Adamu et al., 2019).

Research indicates that most SME entrepreneurs are generally uninformed about sustainable business practices and their overall impact on performance. Since SMEs have made substantial contributions to national economic growth, they need to build sustainability into their core principles. Therefore, the growing practices of sustainable businesses worldwide will force SMEs in different sectors to adopt sustainability as one of their core principles. The role of SMEs in the reduction of environmental issues is most important. Research reports have also shown that SMEs contribute 60–70% of total pollution (Hoogendoorn et al., 2015). The research has shed light on the vital importance of SMEs in reducing the environmental footprint and thereby signifies the need for schemes for the development of such SMEs that would adopt sustainable practices (Yadav et al., 2018).

SMEs are vital to Vietnam's economy, contributing over 40% to the national GDP and employing approximately half of the workforce. Despite their significant presence, Vietnamese SMEs face many challenges to sustainable performance, mainly because they are unable to penetrate global markets, which restricts their growth and capacity to invest in sustainable technologies. Globalization, while offering opportunities to enter new marketplaces, international partnerships, and sophisticated technology that might support sustainability, opens the possibility of SMEs facing even higher competition, continuously pressing them to come up with new ideas to improve their policies on sustainability to remain in a competitive position. This may impose a burden on the constrained resources of Vietnamese SMEs as they try to catch up with international standards and manage different market requirements, hence making it difficult for such firms to achieve sustained success over the long term (Le & Tran, 2021).

This thesis, "*Exploring Determinants Affecting the Sustainable Performance of Vietnamese Small and Medium-Sized Enterprises*", will discover insights into factors—both internal and external—forming the sustainable performance of SMEs in Vietnam. The study will further establish how globalization moderates the determinants and the subsequent effects on the sustainable performance of SMEs in Vietnam. This research uses Partial Least Squares Structural Equation Modeling (PLS-SEM) to test whether or not a set of constructs, including the most influential factor on sustainable performance, depended significantly on the moderating effect of globalization.

This study's practical implications are substantial for Vietnamese SMEs. By identifying the key determinants influencing sustainable performance, the research will provide actionable recommendations to enhance sustainability practices and leverage globalization for long-term success. SMEs can use these insights to improve operational efficiency, reduce costs, and strengthen their market position. Furthermore, the study's findings will aid Vietnamese policymakers in understanding the necessary support and measures to enhance the sustainable performance of SMEs. This may include recommendations for regulatory improvement, financial incentives, or support programs to encourage the adoption of sustainable practices. Policymakers can use these findings to develop targeted policies that promote the growth and sustainability of SMEs in the global market.

1.2. Objectives of the study

The primary purpose of this research study is to identify the significant factors that critically determine the sustainable performance of SMEs in Vietnam within the operating environment of globalization. To accomplish the research objectives of this study, the study will follow the following four objectives:

01. Systematic literature review to outline the conceptual framework, introduce, examine, and thoroughly assess empirical findings regarding the sustainable performance of SMEs, including the influence of various determinants and globalization on their sustainability outcomes.

02. Investigate the external and internal determinants that influence the sustainable performance of SMEs in Vietnam within the context of globalization.

O3. Examine how globalization, through its impact on external and internal determinants, influences sustainability.

1.3. Research questions and Hypotheses

1.3.1 Research questions

Based on the study's objectives, the research design looked at answering the following research questions:

1. How can the relevant literature be conceptualized to explore the relationships between the factors influencing the sustainable performance of Vietnamese SMEs?

2. Which external and internal factors affect the sustainable performance of SMEs in Vietnam in the context of globalization?

3. How does globalization affect the sustainable performance of SMEs in Vietnam by influencing both external and internal factors?

1.3.2 Hypotheses

This research proposes the following hypotheses to investigate the direct and moderating effects of the examined variables.

<u>Direct effect</u>

Hypothesis 1a: External and internal determinants have impacts on the economic performance of SMEs in Vietnam.

Hypothesis 1b: External and internal determinants have impacts on the social performance of SMEs in Vietnam.

Hypothesis 1c: External and internal determinants have impacts on the environmental performance of SMEs in Vietnam.

Moderating effect

Hypothesis 2a: Globalization indirectly influences the economic performance of Vietnamese SMEs by moderating the effects of External and Internal determinants.

Hypothesis 2b: Globalization indirectly influences the social performance of Vietnamese SMEs by moderating the effects of External and Internal determinants.

Hypothesis 2c: Globalization indirectly influences the environmental performance of Vietnamese SMEs by moderating the effects of External and Internal determinants.

1.4. Conceptual framework of the study



Figure 1. The conceptual framework

Source: Author's construction

The conceptual framework for this research, based on the proposed hypotheses, is visually depicted in Figure 1. The blue, orange, and green arrows represent the impacts of exogenous variables on the economic performance, social performance, and environmental performance of SMEs, respectively. The direct effects of these predictors on sustainable performance are represented by solid arrows, while the indirect effects are represented by dashed arrows in the conceptual framework.

1.5. Systematic map of the study

The study has developed a comprehensive correlation system, integrating all key components such as hypotheses, research methodologies, and objectives. This systematic framework is visually depicted in Figure 2.



Figure 2. The systematic map of the study

Source: Author's construction

2. MATERIALS AND METHODS

2.1. Data collection

2.1.1 Questionnaire Design

The questionnaire was divided into four distinct sections, utilizing a 5-point Likert's scale to gauge respondents' level of agreement with statements. This scale ranged from "1" indicating "strongly disagree" to "5" representing "strongly agree" (Joshi et al., 2015). The initial section focused on gathering demographic information about respondents and key characteristics of their SMEs. The subsequent section delved into assessing the sustainable performance of Vietnamese SMEs across three primary dimensions: economic, social, and environmental. The third part of the questionnaire was dedicated to examining the moderating influence of globalization on Vietnamese SMEs. The final section concentrated on evaluating two primary categories of determinants or variables: external and internal factors that potentially impact the sustainable performance of SMEs in Vietname.

Given the advantages and the application of closed-ended questions in many previous studies (Le & Ikram, 2018; Ahmad et al., 2019; Ullah et al., 2021; Afzal & Lim, 2022; Wang & Huang, 2022) on SME sustainability, this study gathered data using a closed-ended structured questionnaire.

2.1.2 Collecting method and sample size

The study is grounded in survey data collected from Vietnamese SMEs to investigate their sustainable performance. Respondents were selected based on their knowledge of sustainability performance issues and their employment within the SME sector. To overcome challenges associated with accessing survey participants, a snowball sampling approach was employed (Sedgwick, 2013). The study commenced by directly contacting SMEs in Vietnam, followed by encouraging initial participants to disseminate the survey among their acquaintances and colleagues within the SME sector.

Data collection spanned from February to June 2024, resulting in 407 completed surveys. After excluding invalid responses, a usable sample of 384 responses was obtained for analysis.

Given the study's reliance on PLS-SEM for data analysis, sample size determination is crucial. Adhering to the commonly accepted 10-times rule (Hair et al., 2011), the sample size should ideally be ten times the largest number of predictors in the structural model. Focusing on the most complex construct with the highest number of predictors, the model necessitates a minimum sample size of 110 observations due to the presence of 11 predictors.

The Gamma-Exponential method offers a robust and contemporary approach to sample size estimation within the context of Partial Least Squares Structural Equation Modeling (PLS-SEM). Compared to traditional methods such as the 10times rule, this method provides more conservative and often more precise sample size estimates (Kock & Hadaya, 2018). Key parameters influencing the calculation include alpha, beta, and effect size. To determine an appropriate sample size, this study employed the 'pwr' package in R Studio (Champely et al., 2020). Alpha, set at 0.05, signifies the significance level, corresponding to a 5% risk of a Type I error (rejecting the null hypothesis when it's actually true). Beta, established at 0.2, represents the probability of a Type II error (failing to reject the null hypothesis when it's actually false), equating to a power level of 0.80. The effect size, set at 0.15, indicates a medium-sized effect, suggesting a reasonable likelihood of detecting a meaningful relationship between variables. With these parameters, the calculated sample size of 349 provides a strong foundation for conducting a rigorous PLS-SEM analysis, enabling the exploration of determinants influencing SME sustainable performance in the context of globalization with high confidence.

Considering both traditional and contemporary sample size estimation methods, the obtained sample of 384 observations is deemed adequate for conducting a robust PLS-SEM analysis to investigate the determinants influencing the sustainable performance of SMEs within a global context.

2.2. Methodology

2.2.1 Partial Least Squares Structural Equation Modeling (PLS-SEM)

PLS-SEM is a versatile statistical technique employed to model intricate relationships between observed (manifest) and latent variables. Particularly well-suited for exploratory research and situations with small sample sizes or non-normal data, PLS-SEM prioritizes maximizing the explained variance of endogenous constructs. This flexibility accommodates sophisticated models with multiple constructs, indicators, and relationships, rendering it applicable for predictive-oriented studies (Hair et al., 2011). The PLS-SEM model comprises two sub-models: the measurement model and the structural model.

Measurement Model Evaluation

The measurement model within PLS-SEM focuses on evaluating the relationships between latent constructs and their corresponding manifest variables (indicators).

For reflective constructs, crucial assessment indices include loadings, composite reliability (CR), average variance extracted (AVE), discriminant validity (Fornell & Larcker and Heterotrait-Monotrait), and Cronbach's alpha. Indicator loadings quantify the correlation between an indicator and its respective latent variable, with values exceeding 0.70 generally suggesting reliable indicators (Hair et al., 2019b). Composite reliability evaluates the internal consistency of a construct's indicators, with acceptable values surpassing 0.70. The average variance extracted (AVE) measures the proportion of a construct's variance explained by its indicators relative to measurement error, with values above 0.50 considered satisfactory (Fornell & Larcker, 1981). Discriminant validity ensures that a construct is distinct from other constructs. The Fornell-Larcker criteria is achieved when the square root of a construct's AVE is greater

than its highest correlation with any other construct (Fornell-Larcker, 1981). The Heterotrait-Monotrait (HTMT) ratio, in the meantime, can be acceptable if it is higher than 0.85 Although less preferred than CR, Cronbach's alpha can also be used to evaluate internal consistency, with acceptable values exceeding 0.70 (Field, 2005).

In the case of formative constructs, the Variance Inflation Factor (VIF) is a critical indicator of multicollinearity among the construct's indicators. VIF values exceeding 5 suggest potential multicollinearity issues, while values below 3 are generally considered acceptable. Besides, outer weights hold paramount importance in formative measurement models as they quantify the contribution of each indicator to the formation of the latent construct. These weights elucidate the relative significance of individual indicators within the formative construct. To assess the statistical significance of outer weights, bootstrapping, a resampling technique, is employed to generate standard errors, t-values, and confidence intervals (Diamantopoulos & Winklhofer, 2001).

Structural Model Evaluation

The structural model within PLS-SEM examines the relationships between latent constructs. Key metrics for evaluating the structural model include path coefficients, effect sizes (f^2), R-squared (R^2) values, and Q-squared (Q^2) values. Path coefficients quantify the strength and direction of relationships between constructs, similar to regression coefficients (Chin, 2010). Effect sizes (f^2) estimate the magnitude of the impact of an exogenous construct on an endogenous construct, with benchmarks of 0.02, 0.15, and 0.35 representing small, medium, and large effects, respectively. R-squared values indicate the proportion of variance in endogenous constructs explained by exogenous constructs, with higher values signifying stronger explanatory power. Q-squared values assess predictive relevance through cross-validated redundancy, where positive values denote predictive relevance (Hair et al., 2020).

2.2.2 Model specification

This study employs a two-stage modeling approach: a measurement model and a structural model. The measurement model, depicted by dotted shapes in the figure 3, establishes the relationships between latent constructs and their respective manifest indicators. Fifteen constructs are included in the analysis, categorized into four groups: sustainable performance of SMEs (3 constructs), external determinants (5 constructs), internal determinants (6 constructs), and globalization (1 construct).

Notably, globalization is measured using formative indicators, while the remaining constructs utilize reflective measurement models, where multiple observed variables (manifest indicators) are assumed to reflect the underlying latent construct. Formative constructs are built from distinct, independent components that together define the overall concept. If any of these components are removed, the construct's meaning fundamentally changes. Globalization exemplifies this, as it's composed of various independent dimensions, such as

policies, regulatory standards, and compliance; global competition; global market access and international customers; global networking and supply chain integration; global talent pool; global capital accessibility and economic crises; and technology access and innovation, as discussed in the literature review. Each of these dimensions contributes uniquely to globalization's impact, and removing anyone would alter the concept of globalization itself. Conversely, reflective constructs are latent variables that manifest through observable indicators. Changes in the latent variable cause changes in these indicators. In this context, the external and internal factors influencing sustainable SME performance are best understood as reflective constructs. Their indicators are effects of these underlying factors, rather than independent causes. Therefore, globalization should be modeled as a formative construct due to the independent and defining nature of its dimensions. Meanwhile, external and internal determinants are appropriately modeled as reflective constructs, as their indicators reflect the presence and strength of the underlying, unobservable factors.





Source: Author's construction

The structural model, represented by solid gray shapes in the figure 3, focuses on the hypothesized relationships between the latent constructs. Solid arrows indicate direct effects, while dashed arrows represent indirect effects mediated through other constructs. The primary objective of this research is to identify the critical factors that determine the sustainable performance of Vietnamese SMEs within the context of globalization.

3. RESULTS AND DISCUSSION

3.1. Respondent's demographic profile

The sample accurately reflects the demographics of respondents, who are working in Vietnamese SMEs, showcasing a slightly male-dominated workforce, a high proportion of bachelor's degrees, and a concentration of mid-career professionals. This aligns with the typical profile of Vietnamese SMEs, which often value experienced, well-educated employees. The age distribution mirrors Vietnam's youthful workforce, and the concentration of older individuals in leadership roles reflects cultural norms linking age and authority in Vietnamese business contexts. While early-career roles show gender parity, senior positions are predominantly held by males, mirroring broader labor market trends in Vietnam. This demographic accuracy ensures the sample's methodological soundness and strengthens the research's ability to generate relevant, context-specific insights into sustainable SME development in Vietnam.

3.2. Overview of surveyed Vietnamese Small and Medium-sized Enterprises

The sample demonstrates strong alignment with the operational characteristics of Vietnamese SMEs, ensuring relevance for an exploratory analysis of sustainable performance in the context of globalization. It strategically encompasses diverse geographic regions, including both economically dynamic and less-developed areas, while encompassing key industries that reflect the sectoral composition of Vietnam's SME ecosystem. Firm sizes and legal structures adhere to national definitions, with a focus on small and medium enterprises that drive the country's economy. It can be said that the sample provides a purposeful foundation to investigate determinants of sustainable performance, aligning with the study's objectives to generate insights into this underexplored area.

3.3. Mesurement model evaluation

By performing the assessment of the measurement models, the study can determine the accuracy with which constructs, serving as the foundation for inner model relationships, are measured and represented. The evaluation of outer models necessitates a clear distinction between reflectively and formatively measured constructs. Given the fundamentally different conceptual underpinnings of these two measurement approaches, distinct evaluation criteria must be applied (Hair et al., 2014).

3.3.1 Reflective Constructs

Reflective constructs represent latent variables conceptualized as the underlying cause of their corresponding observed indicators. In essence, these indicators (manifest variables) serve as reflections of the latent construct. To ensure the accurate and reliable measurement of these constructs, a detailed evaluation of the measurement model is essential. This process involves examining individual-item

reliability, convergent validity, internal consistency, and discriminant validity (Hair et al., 2014).

Individual-item reliability

In the context of PLS, individual item reliability is assessed by examining indicator loadings, which represent the correlation between each indicator and its corresponding latent construct. A commonly accepted threshold of 0.707 for loadings, suggests that an indicator should contribute more shared variance than error variance to be retained (Barroso et al., 2010).

Constructs and Indicators	Loadings	Constructs and Indicators Loadings		Constructs and Indicators	Loadings
Economic		Environmental		Environmental	
Performance		Performance		Performance	
EcP1	0.750	SP1	0.856	EnP1	0.854
EcP2	0.758	SP2	0.888	EnP2	0.788
EcP3	-0.764	SP3	0.740	EnP3	0.788
EcP4	0.746	SP4	0.888	EnP4	0.810
EcP5	0.774				
EcP6	0.744				
EcP7	0.859				
Government Policies &		Market		Customer	
Regulations		Competition		behaviors	
GPR1	0.780	MC1	0.910	CB1	0.809
GPR2	0.741	MC2	0.961	CB2	0.919
GPR3	0.746	MC3	0.940	CB3	0.933
GPR4	0.775	MC4	0.928	CB4	0.920
Supplier		Networks &			
behaviors		Partnerships			
SB1	0.789	NW1	0.949		
SB2	0.926	NW2	0.715		
SB3	0.849	NW3	0.742		
Human		Tashnalam f		Financial	
resource		Innovation			
practices		11110 valion		uccessionity	
HR1	0.848	TI1	0.833	FA1	0.916
HR2	0.802	TI2	0.799	FA2	0.808
HR3	0.841	TI3	0.812	FA3	0.855
HR4	0.880	TI4	0.794	FA4	0.882
HR5	0.868	TI5	0.789		
Marketing		Environmental			
strategies		management		Firm's culture	
	0.001	Capability	0.525		0.5.50
MS1	0.906	EMI	0.727	FCl	0.759
MS2	0.907	EM2	0.713	FC2	0.855
MS3	0.869	EM3	0.730	FC3	0.853
		EM4	0.745	FC4	0.830

Table 1. Loadings of reflecting constructs

Source: Author's calculation



Figure 4. Loadings of reflecting constructs Source: Author's calculation Table 1 presents the loadings for the reflective constructs in this study, calculated using the 'plspm' package in R Studio. Figure 4 provides a visual representation of the loading results, grounded in the conceptual framework, representation offers a clear and concise overview of the study's theoretical framework and the hypothesized relationships between the key variables under investigation. The diagram illustrates three distinct groups of reflective constructs: external factors, internal factors, and sustainable performance aspects. Bold arrows within the figure depict the hypothesized impact relationships between these groups of factors. To further clarify the model, dashed arrows connect each construct to its corresponding manifest variables. The calculated loading values, indicated at the destination of these dashed arrows, represent the strength of the relationship between each manifest variable and its respective construct.

The evaluation of constructs and indicators reveals strong measurement validity across most constructs. Specifically, indicators for these constructs consistently display high loadings above 0.7, suggesting they are well-defined and appropriate measures. While indicator EcP3 (related to the trend in product costs of the firm within the last 3 years) in the construct of Economic Performance exhibits a negative loading of -0.764, this is consistent with the expected negative relationship between product costs and overall business performance. This divergence from the other positive indicators within the construct is therefore justifiable.

Overall, the model demonstrates strong convergent validity, with indicators effectively capturing their respective constructs.

Convergent validity

Convergent validity establishes that a construct's indicators accurately measure the suggested theoretical concept rather than extraneous variables. This is necessary for ensuring the validity and reliability of both the constructs and the overall estimation results. Convergent validity is supported when individual item loadings exceed 0.70 and the Average Variance Extracted (AVE) for each construct surpasses 0.50. The AVE quantifies the proportion of a construct's variance explained by its indicators relative to error variance, essentially representing the construct's commonality (Hair et al., 2014). An AVE exceeding 0.50 indicates that the construct explains more than half of the variance in its indicators.

Table 2 presents the AVE values for the study's reflective constructs, calculated using the 'plspm' package in R Studio. The AVE values for the constructs collectively demonstrate a high level of convergent validity, with all values surpassing the recommended threshold of 0.50. This indicates that the constructs effectively capture a substantial portion of the variance inherent in their respective indicators, thereby establishing strong convergent validity.

Among the constructs, Market Competition, Customer Behaviors, and Marketing Strategies illustrate particularly robust convergent validity, as evidenced by their exceptionally high AVE values of 0.87, 0.80, and 0.80, respectively. While Government Policies & Regulations (0.58) and Environmental Management Capability (0.53) display slightly lower AVE values, they nevertheless meet the minimum acceptable threshold. These findings collectively underscore the model's overall consistency and reliability, providing a solid foundation for subsequent analyses.

Constructs	AVE
Economic Performance - EcP	0.60
Social Performance - SP	0.71
Environmental Performance - EnP	0.66
Government Policies & Regulations - GPR	0.58
Market Competition - MC	0.87
Customer Behaviors - CB	0.80
Supplier Behaviors - SB	0.73
Networks & Partnerships - NW	0.65
Human Resource Practices - HR	0.72
Technology & Innovation - TI	0.65
Financial Accessibility - FA	0.75
Marketing Strategies - MS	0.80
Environmental Management Capability - EM	0.53
Firm's Culture - FC	0.68

 Table 2. Average variance extracted from reflecting constructs

Source: Author's calculation

Discriminant validity

Table	3.	Fornell	&	Larcker	theory's	discriminant	validity	of	reflecting
constr	uct	S							

	EcP	SP	EnP	GPR	MC	СВ	SB	NW	HR	TI	FA	MS	EM	FC
EcP	0.771	Ì	Ì	Ì	Ì			Ì	Ì		Ì	Ì	Ì	
SP	0.435	0.845												
EnP	0.679	0.271	0.81											
GPR	0.629	0.315	0.462	0.761										
MC	0.366	0.686	0.115	0.177	0.935									
СВ	0.406	0.564	0.180	0.355	0.555	0.897								
SB	0.243	0.689	0.055	0.236	0.737	0.692	0.857							
NW	0.230	0.770	0.157	0.207	0.803	0.533	0.746	0.809						
HR	0.323	0.622	0.246	0.267	0.55	0.436	0.490	0.637	0.848					
TI	0.358	0.620	0.154	0.142	0.621	0.482	0.617	0.498	0.388	0.806				
FA	0.631	0.549	0.403	0.309	0.723	0.558	0.639	0.602	0.605	0.585	0.866			
MS	0.299	0.551	0.178	0.208	0.397	0.645	0.498	0.351	0.502	0.500	0.553	0.894		
EM	0.642	0.281	0.369	0.593	0.290	0.329	0.186	0.143	0.195	0.214	0.371	0.210	0.728	
FC	0.113	0.303	0.094	0.221	0.276	0.466	0.504	0.393	0.266	0.239	0.393	0.578	0.114	0.825

Source: Author's calculation

Discriminant validity ensures the conceptual distinctiveness of constructs. The Fornell-Larcker (1981) criterion assesses this by comparing a construct's shared variance with its indicators to its shared variance with other constructs. A higher value for the former indicates greater discriminant validity. Table 3 presents the AVE values for the study's reflective constructs, calculated using the 'plspm' package in R Studio. The data indicates that discriminant validity is supported by the Fornell-Larcker criterion. The square root of each construct's AVE exceeds its correlation with other constructs, indicating the constructs' distinctness. HTMT also was applied to assess discriminant validity in the PLS-SEM analysis.

	EcP	SP	EnP	GPR	MC	СВ	SB	NW	HR	TI	FA	MS	EM	FC
EcP	0.000													
SP	0.435	0.000												
EnP	0.679	0.271	0.000											
GPR	0.629	0.315	0.462	0.000										
MC	0.642	0.281	0.369	0.593	0.000									
СВ	0.406	0.564	0.180	0.355	0.555	0.000								
SB	0.243	0.689	0.055	0.236	0.737	0.692	0.000							
NW	0.230	0.770	0.157	0.207	0.803	0.533	0.746	0.000						
HR	0.323	0.622	0.246	0.267	0.550	0.436	0.490	0.637	0.000					
TI	0.358	0.620	0.154	0.142	0.621	0.482	0.617	0.498	0.388	0.000				
FA	0.631	0.549	0.403	0.309	0.723	0.558	0.639	0.602	0.605	0.585	0.000			
MS	0.299	0.551	0.178	0.208	0.397	0.645	0.498	0.351	0.502	0.500	0.553	0.000		
EM	0.366	0.686	0.115	0.177	0.290	0.555	0.737	0.803	0.550	0.621	0.723	0.397	0.000	
FC	0.113	0.303	0.094	0.221	0.276	0.466	0.504	0.393	0.266	0.239	0.393	0.578	0.114	0.000

Table 4. HTMT index of reflecting constructs

Source: Author's calculation

The results in Table 4 indicate that all HTMT values were below the recommended threshold of 0.85, confirming that the constructs in the model exhibit sufficient discriminant validity. This suggests that each latent variable in the model is distinct and does not overlap significantly with other constructs, thereby supporting the reliability of the measurement model.

Construct reliability

Construct reliability assesses the consistency of a variable or set of variables in measuring the suggested construct (Straub et al., 2004). Nunnally (1978) suggests a benchmark of 0.7 for acceptable reliability in early research stages and a more stringent threshold of 0.8 for established research. It is essential to note that both composite reliability and Cronbach's alpha are applicable exclusively to latent variables with reflective indicators (Barroso et al., 2010).

Composite reliability, which was developed by Jöreskog (1974), serves as a measure of internal consistency. Composite reliability offers a more precise estimate of internal consistency reliability in PLS-SEM compared to Cronbach's alpha, as it accounts for the actual loadings of individual indicators rather than assuming equal loadings (Hair et al., 2011). A higher composite reliability value indicates greater construction reliability. Generally, a value of 0.7 or above is considered acceptable, with values exceeding 0.8 signifying excellent reliability (Barroso et al., 2010).

Table 5 presents the calculated Cronbach's alpha and composite reliability values for the study's reflective constructs, obtained using the 'plspm' and 'psych' packages in R Studio. The model demonstrated robust construct reliability, as indicated by consistently high Cronbach's alpha values across all measures. While Network & Partnerships and Environmental Management Capability exhibit slightly lower, yet acceptable alpha coefficients (0.72 and 0.71, respectively), the remaining constructs, particularly Customer Behaviors and Market Competition, display exceptional internal consistency. These findings provide strong evidence for the reliability and validity of the measurement instruments.

Constructs	Cronbach's alpha	Composite Reliability
Economic Performance - EcP	0.89	0.84
Social Performance - SP	0.87	0.91
Environmental Performance - EnP	0.83	0.88
Government Policies & Regulations - GPR	0.76	0.85
Market Competition - MC	0.95	0.97
Customer Behaviors - CB	0.92	0.94
Supplier Behaviors - SB	0.82	0.89
Networks & Partnerships - NW	0.72	0.85
Human Resource Practices - HR	0.90	0.93
Technology & Innovation - TI	0.86	0.90
Financial Accessibility - FA	0.89	0.92
Marketing Strategies - MS	0.87	0.92
Environmental Management Capability - EM	0.71	0.82
Firm's Culture - FC	0.85	0.89

Table 5. Cronbach's alpha and Composite Reliability of reflecting constructs

Source: Author's calculation

Furthermore, composite reliability indices for all constructs exceeded the recommended threshold of 0.70, confirming the internal consistency and overall reliability of the model. Customer Behaviors (0.94) and Market Competition (0.97) show outstanding composite reliability, while Network & Partnerships and Environmental Management Capability demonstrated adequate levels (0.85 and 0.82, respectively). These results collectively support the conclusion that the model's constructs are reliably measured, thus enhancing its applicability for subsequent analyses and practical implications.

According to Hair et al. (2014), composite reliability should not surpass 0.95, as exceeding this threshold may lead to indicator redundancy, thereby reducing the model's validity. In this model, the market competition construct is measured using four indicators, demonstrating a high value of construct reliability (Cronbach's alpha and composite reliability ≥ 0.95). A high construct reliability index may indicate redundancy among indicators. In other words, an excessively high-reliability score might mean that several items are essentially measuring the same narrow aspect of the construct, rather than capturing its full breadth (Tavakol & Dennick, 2011; Sijtsma, 2009). However, in this study, all four indicators demonstrated strong factor loadings (> 0.9) and excellent convergent validity (AVE = 0.87). The HTMT index further confirmed discriminant validity, indicating that the construct is distinct from other constructs in the model. In this context, the high reliability is acceptable because the construct is unidimensional, and all indicators are theoretically justified, as argued by Hair et al. (2019a). Furthermore, DeVellis (2017) emphasizes that high reliability is not inherently problematic if the indicators collectively capture the full scope of the construct, which is true in this study. Finally, since this research is exploratory in nature, high reliability is acceptable as long as the construct is refined in subsequent studies, as suggested by Netemeyer et al. (2003). Thus, in this case, composite reliability can be accepted, and retaining all four indicators of the Market Competition construct ensures a comprehensive measurement of market competition while maintaining theoretical and methodological precision.

3.3.2 Formative Construct

Formative constructs in PLS-SEM are conceptualizations defined by their constituent indicators. Unlike reflective constructs, where indicators are considered manifestations of an underlying latent variable, formative indicators actively contribute to the construction of the concept. Consequently, alterations in formative indicators directly impact the construct itself. This approach is particularly suitable when the construct is comprehensively represented by multiple, distinct facets or dimensions. Assessing the measurement model of formative constructs. Key considerations encompass multicollinearity among indicators and the substantive significance and relevance of individual indicators (Hair, 2011).

Multicollinearity

Multicollinearity among formative indicators can compromise the reliability of a measurement model, as it suggests redundancy in the information provided by these indicators. To assess this issue, the Variance Inflation Factor (VIF) was calculated. A VIF value below 5, preferably below 3, indicates an acceptable level of multicollinearity (Hair et al., 2011).

A multicollinearity analysis was conducted on the formative indicators of the GLB construct using the 'plspm' and 'car' packages in R, as shown in Table 6. The 'car' package in R includes functions for testing and diagnosing multicollinearity,

a common issue in regression analysis where predictor variables are highly correlated. Key features of the 'car' package for addressing multicollinearity include the vif() function, which calculates VIFs to measure how much the variance of a regression coefficient is inflated due to collinearity with other predictors (Fox et al., 2023).

Indicator	VIF
GLB1	1.130
GLB2	1.109
GLB3	1.356
GLB4	1.317
GLB5	1.370
GLB6	1.082
GLB7	1.293
GLB8	1.401
GLB9	1.263
GLB10	1.593
GLB11	1.154

Table 6. Multicollinearity test of the formative indicators

Source: Author's calculation

The results indicate an absence of significant multicollinearity issues. All VIF values for the GLB indicators (GLB1 to GLB11) ranged from 1.082 to 1.593, well below the recommended threshold. This suggests that each indicator contributes independently to the GLB construct, reinforcing the reliability and validity of the formative measurement model.

The significance and relevance of each formative indicator

Outer weights are crucial parameters in formative measurement models within the framework of PLS-SEM. Unlike reflective models, where indicators are manifestations of a latent construct, formative indicators actively contribute to the construct's definition. Consequently, evaluating the relevance and significance of these indicators is paramount for ensuring the construct's accurate representation (Diamantopoulos & Winklhofer, 2001).

Outer weights quantify the relative contribution of each indicator to the construct. To evaluate their significance, bootstrapping is employed. This resampling technique generates a distribution of indicator weights, enabling the calculation of standard errors, t-values, and confidence intervals. A significant outer weight (typically, a t-value exceeding 1.96 for a 95% confidence level) indicates the indicator's relevance to the construct. However, practical significance should also be considered, as indicators with minimal weights might not substantially contribute. By examining bootstrapped outer weights, standard errors, t-values, and confidence intervals, researchers can validate the measurement model (Hair et al., 2014).

The determination of optimal bootstrap samples in PLS-SEM is a crucial aspect of model estimation. A standard practice involves 500 resamples, which often yield reliable estimates for standard errors, confidence intervals, and significance levels. However, for enhanced precision and stability, particularly in complex models or when demanding higher accuracy, increasing the number of resamples to between 1000 and 5000 is recommended. This elevated number of resamples contributes to reduced standard errors and more dependable confidence intervals. While 500 bootstrap resamples are often sufficient, increasing this number to 1000 or 5000 can enhance precision and stability, especially in larger models or when greater accuracy is required (Hair et al., 2014). Given the sample size of 384 in this study, using 500 bootstrap resamples is generally sufficient to obtain reliable estimates. Nevertheless, 1000 bootstrap resamples were employed for improved precision and reliability.

Table 7 presents the calculated outer weights, t-values, and p-values for the formative indicators (globalization) using the 'plspm' package in R. Figure 4 provides a visual representation of the relationships between the globalization construct and its manifest indicators. In this figure, each arrow symbolizes the contribution of a specific indicator to the overall globalization construct. The strength and direction of these arrows visually depict the relative importance of each indicator in shaping the overall globalization phenomenon.

Indicator	Outer weight	t-value	p-value
GLB1	0.253	5.835	0.000
GLB2	0.147	3.211	0.001
GLB3	0.120	2.653	0.008
GLB4	0.243	5.465	0.000
GLB5	0.205	4.366	0.000
GLB6	0.101	2.569	0.010
GLB7	0.320	8.083	0.000
GLB8	0.223	5.407	0.000
GLB9	0.142	3.232	0.001
GLB10	0.081	1.718	0.086
GLB11	0.180	4.451	0.000

Table 7. Outer weights, t-values, and p-values of the formative indicators

Source: Author's calculation

The results indicate that the majority of indicators significantly contribute to the globalization construct, supporting the construct's validity and reliability. GLB7 emerges as the most influential indicator, displaying the highest outer weight (0.320) and t-value (8.083). Additionally, GLB1, GLB4, GLB5, and GLB8 demonstrate substantial contributions based on their respective outer weights and significant t-values. The overall high significance levels of the indicators strengthen confidence in the robustness and reliability of the formative measurement model for GLB.

GLB10 shows a lower outer weight (0.081) and was found to be statistically insignificant (t-value = 1.718, p > 0.05), suggesting a comparatively weaker contribution to the GLB construct. However, indiscriminate removal of formative indicators is generally discouraged. Formative measurement theory posits that indicators collectively define the construct, necessitating comprehensive domain coverage (Hair et al., 2014). While GLB10's direct impact on GLB is relatively minor and statistically insignificant, it may contribute indirectly to the model. Moreover, retaining GLB10 ensures a more comprehensive representation of the capturing subtle distinctions construct. potentially and complexities. Consequently, its inclusion facilitates a comprehensive and detailed analysis of the construct's influence within the broader theoretical framework.



Figure 4. Relationtionships between globalization construct and its indicators

(***, **, *: p-value is less than 0.001, 0.01, 0.05 respectively)

Source: Author's calculation

3.4. Structural model evaluation

Structural model evaluation in PLS-SEM is a crucial phase to assess the validity of hypothesized relationships among constructs. Compared to covariance-based SEM, PLS-SEM prioritizes predictive power and the explained variance of endogenous constructs over strict model fit (Hair et al., 2014).

Structural model evaluation in PLS-SEM is a critical step to ensure that the hypothesized relationships between constructs are supported by the data. Unlike traditional covariance-based SEM, which focuses on model fit, PLS-SEM emphasizes prediction and the explained variance of the endogenous constructs. Several important factors are considered while evaluating the structural model, such as the coefficient of determination (R^2), cross-validated redundancy (Q^2), path coefficients, the effect size (f^2), and the overall quality of the model.

3.4.1 Coefficient of determination (R²)

The coefficient of determination (R^2) serves as a metric for evaluating the predictive accuracy of a model. Essentially, it quantifies the proportion of variance in the endogenous variables explained by the exogenous variables. R^2 values range from 0 to 1, with 1 indicating perfect predictive accuracy. While there is no universally agreed-upon threshold, common benchmarks suggest that R^2 values of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak predictive accuracy, respectively (Hair et al., 2011).

The endogenous constructs within this study encompass EcP, SP, and EnP. Given the incorporation of moderating effects of globalization on external and internal determinants, R^2 values were additionally computed for those constructs. Table 8 presents the calculated R^2 values as determined using the 'plspm' package in R.

Constructs	R ² values	Adjusted R ² values
Endogenous variables		
Economic Performance - EcP	0.833	0.828
Social Performance - SP	0.829	0.824
Environmental Performance - EnP	0.551	0.538
Constructs under the moderating effect	·	·
Government Policies & Regulations - GPR	0.575	0.574
Market Competition - MC	0.820	0.820
Customer Behaviors - CB	0.679	0.678
Supplier Behaviors - SB	0.796	0.796
Networks & Partnerships - NW	0.864	0.863
Human Resource Practices - HR	0.609	0.608
Technology & Innovation - TI	0.638	0.637
Financial Accessibility - FA	0.835	0.835
Marketing Strategies - MS	0.754	0.753
Environmental Management Capability - EM	0.512	0.511
Firm's Culture - FC	0.594	0.593

Table 8. R² values

Source: Author's calculation

The model demonstrates strong predictive power for Economic Performance (EcP) and Social Performance (SP), explaining approximately 83% of the variance in both constructs. This indicates that the model effectively captures the factors influencing these performance dimensions. However, the predictive power for Environmental Performance (EnP) is comparatively lower, explaining around 55% of the variance and showing a moderate level of predictive accuracy.

Regarding the constructs under the moderating effect, Networks & Partnerships demonstrates exceptional explanatory power with an R^2 of 0.864, indicating that approximately 86% of its variance is explained by the model. Financial Accessibility and Market Competition also reveal strong explanatory power, with R^2 values of 0.835 and 0.820, respectively. While other constructs displayed satisfactory explanatory power, Government Policies & Regulations, Market Competition, and Firm's Culture show moderate levels of explanation, with R^2 values ranging from 0.512 to 0.594. Overall, the model's strong explanatory power for most constructs supports its robustness and reliability.

3.4.2. Cross-validated redundancy (Q^2)

Cross-validated redundancy (Q^2) serves as a crucial indicator of a model's predictive relevance. This metric employs a sample reuse technique where a portion of the data is excluded, model parameters are estimated using the remaining data, and the omitted data is predicted based on these estimates. A smaller discrepancy between predicted and actual values signifies a higher Q² and, consequently, stronger predictive accuracy. A Q² value greater than zero for a specific endogenous construct signifies the model's predictive relevance for that construct. When combined with R², Q² offers a comprehensive evaluation of a model's interpretive and predictive potentialities (Hair et al., 2011). Table 9 presents the calculated Q² values for the constructs.

Constructs	Q ² values			
Endogenous variables				
Economic Performance - EcP	0.980			
Social performance - SP	0.986			
Environmental performance - EnP	0.964			
Constructs under the moderating effect	- ·			
Government Policies & Regulations - GPR	0.945			
Market Competition - MC	0.970			
Customer Behaviors - CB	0.964			
Supplier Behaviors - SB	0.981			
Networks & Partnerships - NW	0.983			
Human Resource Practices - HR	0.966			
Technology & Innovation - TI	0.966			
Financial Accessibility - FA	0.984			
Marketing Strategies - MS	0.980			
Environmental Management Capability - EM	0.948			
Firm's Culture - FC	0.941			

Table 9. Q² values

Source: Author's calculation

The model reveals exceptional predictive capabilities, as evidenced by the Q^2 values. Economic Performance and Social Performance both achieve outstanding Q^2 values of 0.980 and 0.986, respectively, indicating nearly perfect prediction

accuracy. Environmental Performance also demonstrate excellent predictive power with a Q^2 of 0.964. Moreover, all 11 determinants that are impacted by the moderating variable displayed high Q^2 values exceeding 0.94, further emphasizing the model's strong predictive performance.

The combined analysis of R^2 and Q^2 values unequivocally demonstrates the model's exceptional ability to both explain and predict the studied phenomena. This combination of high R^2 and Q^2 values underscores the model's reliability and its potential for accurate forecasting and decision-making.

3.4.3 Effect size (f²)

Effect size (f^2) is a valuable metric in PLS-SEM used to quantify the practical contribution of an exogenous construct on an endogenous construct. It offers an understanding of the relative significance of each predictor variable in clarifying the variance of the dependent variable (Hair et al., 2014).

To assess this index, Cohen's f² is computed. This metric quantifies the change in R² when a specific exogenous construct is removed from the model. The process involves estimating two PLS path models: a full model incorporating all hypothesized relationships and a reduced model excluding the target exogenous construct (Hair et al., 2014). The difference in R² between these models yields the f² value, which indicates the construct's effect size. Cohen's guidelines classify effect sizes as small (f² \geq 0.02), medium (f² \geq 0.15), or large (f² \geq 0.35). A substantial f² value implies a strong contribution of the exogenous construct to explaining the endogenous variable. By evaluating effect sizes, researchers can not only confirm the existence of relationships but also quantify their magnitude (Cohen, 1988). Table 10 presents the calculated effect sizes for the research model.

Constructs	EcP	SP	EnP
GPR	0.152	0.030	0.170
MC	0.001	0.001	0.230
CB	0.066	0.060	0.002
SB	0.180	0.116	0.220
NW	0.121	0.487	0.240
HR	0.021	0.015	0.001
TI	0.046	0.058	0.003
FA	0.477	0.309	0.351
MS	0.074	0.344	0.000
EM	0.182	0.021	0.008
FC	0.002	0.088	0.074
GLB	0.078	0.181	0.054

Table 10. Effect size

Source: Author's calculation

The findings reveal a spectrum of effect sizes, allowing for categorization into large, medium, and small/negligible impact groups, providing a nuanced understanding of their relative importance. Factors exhibiting a large effect demonstrate a substantial positive influence on SME sustainability. Financial Accessibility emerges as a crucial driver, showing strong positive impacts across all three performance dimensions (EcP, SP, and EnP). This underscores the critical role of financial resources in enabling sustainable practices and growth for SMEs. Similarly, Networks and Partnerships demonstrate a significant positive impact, particularly on social performance, highlighting the importance of collaborative relationships for enhancing social outcomes within SMEs.

Several factors demonstrate a medium effect, indicating a moderate influence on SME performance. Supplier Behavior shows moderate effect sizes across all three dimensions, suggesting its importance for both economic and environmental performance. Marketing Strategies demonstrate a moderate positive effect specifically on social performance. Environmental Management Capabilities shows a small but noteworthy effect on economic performance, suggesting a focused impact on economic sustainability. Globalization contributes to both economic and social performance with small to moderate effects. Government policies and regulations (GPR) is found to have a medium effect on both economic and environmental performance.

Finally, a number of factors demonstrate small or negligible effects, indicating minimal or no significant impact on SME performance within the context of this study, suggesting their limited direct contribution to explaining the current model while signaling potential areas for deeper exploration.

3.4.4 Path coefficients

Direct effects

Following the execution of a PLS model, estimates for the path coefficients, which indicate the hypothesized links between the constructs, are generated. Path coefficients quantify the strength and direction of relationships between constructs in a structural model. Similar to standardized regression coefficients, they range from -1 to +1, with values closer to the extremes indicating stronger relationships. Positive coefficients represent positive relationships, while negative values signify inverse associations. To assess the significance of path coefficients, bootstrapping is employed to determine standard errors, t-values, and confidence intervals. Coefficients with t-values exceeding 1.96 (for a 95% confidence level) are considered statistically significant, supporting the hypothesized relationship (Hair et al., 2014). Table 11 presents the path coefficients, t-values, and p-values for the structural model.

Path coefficient analysis reveals the significant influence of external determinants on performance outcomes. Government Policies & Regulations exert a strong positive impact on EcP (0.367, p-value < 0.001), SP (0.113, p-value < 0.001), and EnP (0.327, p-value < 0.001), indicating a crucial role in driving overall performance. Market Competition negatively impacts EnP (-0.405, p-value < 0.001), indicating potential challenges in balancing environmental sustainability with other performance dimensions. Customer Behaviors

significantly enhance EcP (0.161, p-value < 0.01) but negatively influence SP (-0.09, p-value < 0.01). Supplier Behaviors positively impact SP (0.17, p-value < 0.001) but negatively affect EcP (-0.286, p-value < 0.001) and EnP (-0.376, pvalue < 0.001). Networks & Partnerships strongly influence SP (0.609, p-value < 0.001) and positively impact EnP (0.319, p-value < 0.001) but show no significant effect on EcP (p-value > 0.05). These findings underscore the complex interplay of external factors in shaping organizational performance.

Path	Path coefficients	Standard Deviation	t-values	p-values	
$GPR \rightarrow EcP$	0.367	0.034	10.751	0.000	
$GPR \rightarrow SP$	0.113	0.031	3.642	0.000	
$GPR \rightarrow EnP$	0.327	0.052	6.234	0.000	
$MC \rightarrow EcP$	-0.053	0.043	-1.253	0.210	
$MC \rightarrow SP$	-0.023	0.035	-0.642	0.521	
$MC \rightarrow EnP$	-0.405	0.082	-4.964	0.000	
$CB \rightarrow EcP$	0.161	0.041	3.971	0.000	
$CB \rightarrow SP$	-0.090	0.033	-2.709	0.007	
$CB \rightarrow EnP$	0.028	0.067	0.415	0.678	
$SB \rightarrow EcP$	-0.286	0.052	-5.454	0.000	
$SB \rightarrow SP$	0.170	0.045	3.784	0.000	
$SB \rightarrow EnP$	-0.376	0.074	-5.118	0.000	
$NW \rightarrow EcP$	-0.046	0.058	-0.789	0.430	
$NW \rightarrow SP$	0.609	0.050	12.248	0.000	
$NW \rightarrow EnP$	0.319	0.079	4.045	0.000	
$HR \rightarrow EcP$	-0.061	0.035	-1.771	0.077	
$HR \rightarrow SP$	0.073	0.045	1.624	0.104	
$HR \rightarrow EnP$	-0.042	0.050	-0.839	0.401	
$TI \rightarrow EcP$	0.122	0.031	3.873	0.000	
$TI \rightarrow SP$	0.186	0.031	5.921	0.000	
$TI \rightarrow EnP$	0.082	0.057	1.443	0.149	
$FA \rightarrow EcP$	0.643	0.047	13.658	0.000	
$FA \rightarrow SP$	-0.215	0.038	-5.691	0.000	
$FA \rightarrow EnP$	0.603	0.058	10.332	0.000	
$MS \rightarrow EcP$	-0.064	0.042	-1.518	0.129	
$MS \rightarrow SP$	0.388	0.048	8.083	0.000	
$MS \rightarrow EnP$	-0.003	0.061	-0.053	0.957	
$EM \rightarrow EcP$	0.221	0.035	6.228	0.000	
$EM \rightarrow SP$	0.099	0.035	2.847	0.004	
$EM \rightarrow EnP$	0.083	0.055	1.507	0.132	
$FC \rightarrow EcP$	-0.120	0.033	-3.608	0.000	
$FC \rightarrow SP$	-0.213	0.028	-7.527	0.000	
$FC \rightarrow EnP$	-0.067	0.058	-1.168	0.243	

Table 11. Path coefficients, t-values, and p-values of the structural model

Source: Author's calculation

Internal determinants demonstrate varying influences on performance outcomes. Technology & Innovation construct positively contributes to EcP (0.122, p-value < 0.001) and SP (0.186, p-value < 0.001), demonstrating its role in driving overall performance improvements. However, its impact on EnP is negligible (0.082, p-value > 0.05). Financial Accessibility strongly and positively affects EcP (0.643, p-value < 0.001) and EnP (0.603, p-value < 0.001) but negatively influences SP (-0.215, p-value < 0.001), suggesting a trade-off between financial gains and social outcomes. Marketing Strategies positively impact SP (0.388, p-value < 0.001) but have minimal effects on EcP and EnP (pvalue > 0.05).

Environmental Management Capability positively affects EcP (0.221, p-value < 0.001) and SP (0.099, p-value < 0.01) but shows no significant impact on EnP. The Firm's Culture negatively influences both EcP (-0.120, p-value < 0.001) and SP (-0.213, p-value < 0.001), highlighting the importance of organizational culture in achieving positive performance outcomes.

Notably, Human Resource is the sole construct without significant impacts (p-values > 0.05) on any of the three performance dimensions (EcP, SP, and EnP), suggesting a limited influence on sustainable performance.





Figure 5. Statistical significance of path coefficients

Source: Author's calculation

Figure 5 visually represents the significant relationships between external and internal determinants and the three performance aspects of Vietnamese SMEs. The blue, orange, and green arrows represent the impacts of the predictors on the economic performance, social performance, and environmental performance of SMEs, respectively.

Moderating effects

Latent constructs reveal varying degrees of influence on the sustainable performance of Vietnamese SMEs. As hypothesized, globalization is supposed to indirectly impact these relationships. To further investigate the potential influence of globalization on these relationships, this section explores the moderating effects of globalization on the examined constructs.

The subsequent analysis will examine how globalization interacts with both exogenous and endogenous variables, as presented in Table 12. Globalization exerts a strong and significant positive influence on its related constructs, with particularly pronounced effects on Technology & Innovation (0.711), Market Competition (0.704), and Supplier Behaviors (0.681). Moderate impacts are observed on Human Resources (0.545), Network and Partnership (0.597), and Market Strategies (0.548), indicating that GLB also fosters connections, talent management, and strategic positioning. The lowest path coefficients are seen for Environmental Management (0.309) and Government Policies and Regulations (0.330), which, though significant, reflect relatively weaker influence areas. These highly significant relationships (p < 0.001) underscore the pivotal role of GLB in driving these constructs.

Path	Path coefficients	PathStandardcoefficientsDeviation		p-values
$GLB \rightarrow GPR$	0.330	0.037	8.809	0.000
$GLB \rightarrow MC$	0.704	0.028	25.571	0.000
$GLB \rightarrow CB$	0.625	0.054	11.495	0.000
$GLB \rightarrow SB$	0.681	0.037	18.584	0.000
$GLB \rightarrow NW$	0.597	0.039	15.474	0.000
$GLB \rightarrow HR$	0.545	0.053	10.275	0.000
$GLB \rightarrow TI$	0.711	0.035	20.252	0.000
$GLB \rightarrow FA$	0.663	0.037	17.929	0.000
$GLB \rightarrow MS$	0.548	0.075	7.268	0.000
$GLB \rightarrow EM$	0.309	0.041	7.616	0.000
$GLB \rightarrow FC$	0.442	0.074	5.974	0.000

Table 12. Path coefficients between GLB and the determinants

Source: Author's calculation

To examine the moderating impact of globalization on sustainable performance, the interaction effects between globalization and external variables are calculated and presented in Table 13.

The moderating influence of globalization on the relationship between external determinants and sustainable performance exhibits varying patterns. Figure 6 illustrates the significant relationships of globalization with external factors as well as aspects of the sustainable performance of SMEs. In which, solid arrows indicate direct effects, while dashed arrows indicate indirect relationships. Globalization significantly strengthens the positive impact of Government Policies & Regulations on Economic Performance (0.121, p-value < 0.05) but does not significantly influence the relationships between this construct and Social Performance or Environmental Performance. Regarding Supplier Behaviors, globalization emphasizes the negative impact on EcP (-0.195, p-value < 0.01) and EnP (-0.256, p-value < 0.01) while amplifying the positive effect on SP (0.116, p-value < 0.05). For Networks & Partnerships, globalization notably

strengthens the positive relationship with SP (0.363, p-value < 0.001) and EnP (0.19, p-value < 0.01), but its moderating effect on the relationship with EcP is insignificant. Besides, it also reveals the negative impact of globalization on Environmental Performance (-0.285, p-value < 0.01) through the Market Competition.

Moderating path	Moderating effects	Standard Deviation	t-values	p-values
$GLB \rightarrow GPR \rightarrow EcP$	0.121	0.050	2.422	0.015
$GLB \rightarrow GPR \rightarrow SP$	0.037	0.049	0.768	0.443
$GLB \rightarrow GPR \rightarrow EnP$	0.108	0.064	1.690	0.091
$GLB \rightarrow MC \rightarrow EcP$	-0.038	0.048	-0.781	0.435
$GLB \rightarrow MC \rightarrow SP$	-0.016	0.045	-0.354	0.723
$GLB \rightarrow MC \rightarrow EnP$	-0.285	0.088	-3.243	0.001
$GLB \rightarrow CB \rightarrow EcP$	0.101	0.068	1.481	0.139
$GLB \rightarrow CB \rightarrow SP$	-0.056	0.063	-0.885	0.376
$GLB \rightarrow CB \rightarrow EnP$	0.017	0.086	0.203	0.839
$GLB \rightarrow SB \rightarrow EcP$	-0.195	0.065	-2.981	0.003
$GLB \rightarrow SB \rightarrow SP$	0.116	0.059	1.971	0.049
$GLB \rightarrow SB \rightarrow EnP$	-0.256	0.088	-2.902	0.004
$GLB \rightarrow NW \rightarrow EcP$	-0.027	0.071	-0.387	0.699
$GLB \rightarrow NW \rightarrow SP$	0.363	0.063	5.767	0.000
$GLB \rightarrow NW \rightarrow EnP$	0.190	0.086	2.211	0.027

Table 13. Moderating effects through external determinants

Source: Author's calculation



(***, **, *: p-value is less than 0.001, 0.01, 0.05 respectively)

Figure 6. Moderating effects through external determinants

Source: Author's calculation

The analysis of moderating effects also reveals significant influences of globalization on the relationships between internal determinants and the sustainable performance of Vietnamese SMEs. Table 14 presents a detailed

analysis of the pathways through which globalization influences various aspects of sustainable performance. To further visualize these findings, Figure 7 provides a graphical representation of the pathways with statistically significant impacts. This visual representation will serve as a valuable tool in identifying the specific internal factors that most effectively transmit the influence of globalization on the sustainable performance of Vietnamese SMEs. Solid arrows represent direct impacts, whereas dashed arrows represent indirect impacts.

Moderating path	Moderating effects	Standard Deviation	t-values	p-values
$GLB \rightarrow HR \rightarrow EcP$	-0.033	0.064	-0.524	0.600
$GLB \rightarrow HR \rightarrow SP$	0.040	0.071	0.561	0.575
$GLB \rightarrow HR \rightarrow EnP$	-0.023	0.072	-0.322	0.748
$GLB \rightarrow TI \rightarrow EcP$	0.087	0.047	1.857	0.063
$GLB \rightarrow TI \rightarrow SP$	0.132	0.048	2.753	0.006
$GLB \rightarrow TI \rightarrow EnP$	0.059	0.070	0.836	0.403
$GLB \rightarrow FA \rightarrow EcP$	0.426	0.060	7.069	0.000
$GLB \rightarrow FA \rightarrow SP$	-0.143	0.055	-2.612	0.009
$GLB \rightarrow FA \rightarrow EnP$	0.400	0.071	5.631	0.000
$GLB \rightarrow MS \rightarrow EcP$	-0.035	0.085	-0.412	0.680
$GLB \rightarrow MS \rightarrow SP$	0.212	0.090	2.356	0.018
$GLB \rightarrow MS \rightarrow EnP$	-0.002	0.097	-0.019	0.985
$GLB \rightarrow EM \rightarrow EcP$	-0.038	0.048	-0.781	0.435
$GLB \rightarrow EM \rightarrow SP$	0.068	0.053	1.277	0.202
$GLB \rightarrow EM \rightarrow EnP$	0.031	0.055	0.562	0.574
$GLB \rightarrow FC \rightarrow EcP$	0.026	0.069	0.369	0.712
$GLB \rightarrow FC \rightarrow SP$	-0.094	0.080	-1.183	0.237
$GLB \rightarrow FC \rightarrow EnP$	-0.030	0.093	-0.319	0.750

 Table 14. Moderating effects through internal determinants

Source: Author's calculation

Globalization significantly enhances the positive impact of Technologies & Innovations on Social Performance (0.132, p-values < 0.01). However, the moderation effects of this construct on Economic Performance and Environmental Performance are negligible. Regarding Financial Acessibility, globalization strengthens its positive impacts on EcP (0.436, p-values < 0.001) and EnP while mitigating its negative impact on SP (0.4, p-values < 0.001). Furthermore, globalization significantly enhances the positive impact of Marketing Strategies on SP (0.212, p-values < 0.05). These findings suggest that globalization plays a crucial role in optimizing the impact of internal factors on sustainable performance.

The moderating effects of GLB on relationships involving Customer Behaviors (CB), Human Resources (HR), Environmental Management Capability (EM), and Firm's Culture (FC) are found to be generally insignificant. Thus, there are no pathways of these constructs to the three aspects of sustainable performance presented in Figure 7. These findings suggest that GLB does not significantly influence the impact of these constructs on the three aspects of the sustainable performance of Vietnamese SMEs.



(***, **, *: p-value is less than 0.001, 0.01, 0.05 respectively)

Figure 7. Moderating effects through internal determinants

Source: Author's calculation

The analysis of path coefficients and moderating effects revealed a nuanced picture of the factors influencing Vietnamese SMEs' sustainable performance. Our findings demonstrate that several external factors exhibit significant influence on these outcomes. Specifically, Government Policies & Regulations (GPR), Supplier Behaviors (SB), Networks & Partnerships (NW), Technology & Innovation (TI), Financial Accessibility (FA), and Marketing Strategies (MS) are found to have a substantial impact on various dimensions of sustainable performance. Notably, globalization (GLB) plays a crucial moderating role in these relationships, influencing the strength and direction of these impacts. While Government Policies & Regulations (GPR) and Marketing Strategies (MS) consistently demonstrate positive influences on various aspects of sustainable performance, the remaining four factors display more complex relationships. Some variables demonstrated positive impacts on certain dimensions of sustainable performance while showing negative or insignificant impacts on others.

Conversely, Environmental Management Capability (EM), Customer Behaviors (CB), Human Resources (HR), and Firm's Culture (FC) possess limited or no significant direct or moderated effects on sustainable performance. These findings underscore the need for further research to fully understand the role of these internal factors and their potential interactions with other variables.

Table 15 provides a concise summary of the empirical findings, presenting the test results for all 12 proposed hypotheses. The table employs an organized coding

system to clearly indicate the significance of each predictor's influence on various aspects of SMEs' sustainable performance. Specifically, the symbol "O" is used to denote a statistically significant influence of a predictor on a particular dimension of sustainable performance. Conversely, the symbol "X" indicates that a predictor did not exhibit a statistically significant impact on the respective aspect of sustainable performance. Recognizing the potential moderating role of globalization, the symbol "M" is used to denote cases where globalization significantly moderates the relationship between a predictor variable and the dependent variables (sustainable performance).

						Res	sult					
Hypo - theses	Government Policies & Regulations	Market Competition	Customer Behaviors	Supplier Behaviors	Networks & Partnerships	Human Resource Practices	Technology & Innovation	Financial Accessibility	Marketing Strategies	Environmental Management Capability	Firm's Culture	Globalization
1a	0	Χ	0	0	Χ	Χ	0	0	Χ	0	0	
1b	0	Χ	0	0	0	Χ	0	0	0	0	0	
1c	0	0	Χ	0	0	Χ	X	0	Χ	Χ	X	
2a	Μ			Μ				Μ				0
2b				Μ	Μ		Μ	Μ	Μ			0
2c		Μ		Μ	Μ			Μ				0

Table	15.	Summary	of	Hy	potheses	test	results
		•		•			

O: Accepted; X: Rejected; M: significant moderating effect

Hypothesis 1a: External and internal determinants have impacts on the economic performance of SMEs in Vietnam.

Hypothesis 1b: External and internal determinants have impacts on the social performance of SMEs in Vietnam.

Hypothesis 1c: External and internal determinants have impacts on the environmental performance of SMEs in Vietnam.

Hypothesis 2a: Globalization indirectly influences the economic performance of Vietnamese SMEs by moderating the effects of External and Internal determinants.

Hypothesis 2b: Globalization indirectly influences the social performance of Vietnamese SMEs by moderating the effects of External and Internal determinants.

Hypothesis 2c: Globalization indirectly influences the environmental performance of Vietnamese SMEs by moderating the effects of External and Internal determinants.

Source: *Author's compilation*

3.5. Discussion

3.5.1 Direct effects

This study aimed to identify critical factors influencing the sustainable performance of SMEs in Vietnam within the context of globalization. Given the pivotal role of SMEs in economic development and their contribution to the Sustainable Development Goals, understanding the determinants of their sustainability is essential (OECD, 2017). Despite the growing recognition of SMEs' importance, research on the factors influencing their sustainable

performance in Vietnam remains limited, with existing studies often focusing narrowly on either internal or external factors. This research addressed this gap by investigating the impacts of both external (Government policies & Regulations, Market Competition, Customer behaviors, Supplier behaviors, and Networks & Partnerships) and internal (Human resources, Technology & Innovation, Financial accessibility, Marketing strategies, Environmental management capability, and Firm's culture) determinants on SME's sustainable performance in Vietnam. Moreover, the study explored the moderating effects of globalization on these relationships. By employing a survey-based research design and utilizing PLS-SEM for data analysis, the study examined the proposed relationships, tested hypotheses, and evaluated the model's fit.

Empirical findings derived from PLS-SEM reveal that, except for human resources, all proposed determinants significantly influence Vietnamese SMEs' sustainable performance. Regarding external factors, Government Policies and Regulations positively correlate with all three pillars of sustainability, aligning with previous research (Songling et al., 2018; Gandhi et al., 2018; Ullah et al., 2021; Witjes et al., 2017; OECD, 2023a) and emphasizing the government's pivotal role in supporting SMEs. Vietnam's centralized governance model exemplifies this correlation, where institutional frameworks actively steer SMEs toward compliance with national sustainability agendas, underscoring the strong positive influence of governmental interventions in aligning business practices with broader environmental, social, and economic goals. Conversely, supplier behaviors demonstrate a more complex impact on SMEs' sustainable performance, exhibiting a moderate negative correlation with both economic and environmental performance. The negative economic impact suggests that while SMEs may align goals with key suppliers and adopt sustainable practices in the supply chain, these actions do not necessarily translate into financial benefits. The pressure to collaborate with suppliers on sustainability efforts might increase operational costs, reduce efficiency, or create supply chain disruptions, ultimately hindering economic performance. The strong negative effect on environmental performance indicates that while enterprises may attemp to enhance sustainability through supplier collaboration, external supplier practices may still lead to environmental inefficiencies. Dependence on suppliers with unsustainable practices may harm the environmental outcomes. These findings align with the arguments drawn in the studies by Kusi-Sarpong et al. (2016), and Valdez-Juárez et al. (2018). In contrast, this factor positively influences social performance, indicating that interactions with suppliers can enhance the social dimensions of a business. These enhancements may include improved employee satisfaction, stronger stakeholder relationships, and contributions to corporate social responsibility initiatives, consistent with the observations of Dubey et al. (2018).

Market competition possesses a strong negative impact on environmental performance, implying that competition can force small and medium-sized enterprises to focus intensely on cost reduction and efficiency, sometimes at the expense of environmental considerations. This pressure may lead to reduced investment and initiatives in environmental sustainability as companies prioritize short-term financial survival over long-term sustainability goals. These results align with the findings of Duanmu et al. (2018), and Grether et al. (2010).

Customer behavior shows a moderately positive impact on economic performance, similar to the suggestions of Abrokwah-Larbi (2024) and Madhani (2020), which imply that businesses can increase sales, revenue growth, and financial efficiency by analyzing and responding to customer behavior. However, this variable exerts an insignificant negative impact on social performance. As mentioned by Marolt et al. (2022), catering to customer behaviors may diminish certain social aspects of the organization, such as employee morale or public perception. Evaluations of networks and partnerships reveal a substantial positive impact on environmental performance and a strong positive impact on social performance. These results indicate that effective networks and partnerships play a pivotal role in enhancing a company's environmental outcomes through collaborations that foster sustainable practices, resource and technology sharing for environmental conservation, and joint initiatives to reduce the environmental footprint. Moreover, these relationships can facilitate improved stakeholder relations, community engagement, and corporate social responsibility initiatives. This leads to better working conditions, enhanced employee morale, and a stronger corporate social image. These findings complement the evidence drawn from studies by Xie et al. (2024); OECD, (2023b), and Gandhi et al. (2018).

Regarding the internal determinants, financial accessibility has significantly positive effects on both economic and environmental performance. SMEs with greater financial access can invest more in economic growth and sustainability initiatives, enhancing both financial health and environmental practices. Financial resources facilitate investments in technology, infrastructure, and innovative solutions, driving economic success and environmental conservation. This aligns with the findings of Jin & Zhang (2019), Chowdhury et al. (2022), and Ullah et al. (2021). However, this determinant moderately negatively impacts social performance, implying that while it promotes economic and environmental improvements, it may inadvertently reduce social outcomes. SMEs might prioritize financial and environmental investments over corporate social responsibility initiatives, leading to a decline in social performance. This situation has also been noted in studies by Msomi & Olarewaju (2021) and Hussain et al. (2018).

Technology and innovation positively contribute to both economic and social performance. This result is also supported by the studies of Bouwman et al. (2018), Ahmad et al. (2019), Geng et al. (2021), Rustiarini et al. (2022), and Oduro (2024). The weak impact on economic performance suggests that while technological advancements and innovative practices enhance efficiency, productivity, and financial performance, they are not the main drivers of economic success for Vietnamese SMEs. Similarly, the weak positive impact on social performance indicates that technology and innovation can improve working

conditions, employee satisfaction, and corporate social responsibility, but this impact is not strong enough to be the primary determinant of social performance. This dynamic aligns with Vietnam's emphasis on digital transformation, where institutional efforts to modernize SMEs have fostered efficiency gains but underscore the need for complementary strategies to amplify broader economic and social progress. Marketing strategies also positively impact social performance, but with a stronger effect. As Prasanna et al. (2019) and Syaifullah et al. (2021) noted, effective marketing strategies can enhance public awareness, communicate corporate social responsibility initiatives, promote ethical practices, and engage the community, thereby improving the company's social standing. This can result in increased customer loyalty, improved employee morale, and stronger community relationships, all of which contribute to overall social performance.

Empirical evidence on the firm's culture reveals a negative influence on both economic and social performance, supporting the arguments of Kadam et al. (2019) and Bocquet et al. (2017). While integrating sustainability into recruitment and training programs may enhance long-term resilience, it could initially lead to higher operational costs, workforce adaptation challenges, or resource allocation which put pressure on the financial performance. Although the impact is not significant, it suggests that some aspects of the firm's culture may need reevaluation to improve economic outcomes. A moderate negative effect on social performance indicates that corporate culture can lead to lower employee morale, reduced engagement, and poor internal communication, all adversely affecting social performance. Although fostering a sustainability-oriented workplace culture is expected to improve employee engagement and social responsibility, it may face misalignment with existing workforce values. Employees and stakeholders may struggle to adapt to new regulation and working rules, and increased focus on a new sustainable culture may distract attention from current social concerns such as employee satisfaction, leading to unintended negative effects on social performance.

The assessment of environmental management capability indicates that it has a weak positive impact on the economic and social performance of SMEs. Effective environmental management can enhance economic performance by achieving waste reduction, improved resource efficiency, and reduced operational costs. These capabilities empower SMEs to optimize their processes and leverage cost savings from sustainable practices, thereby driving profitability and competitive advantage. Furthermore, the implementation of green initiatives can lead to a positive corporate image, attracting socially conscious consumers and investors. It can also foster a supportive and motivated workforce. This comprehensive approach to environmental management not only promotes economic benefits but also generates positive social impacts by advancing CSR and ethical business practices. These findings are consistent with the research of Ali et al. (2021), Bhatti et al. (2022), and Eikelenboom & de Jong (2019). However, the magnitude of the effect suggests that this factor is not one of the significant factors contributing to the improved sustainable performance of SMEs in Vietnam.

Research on human resources indicates no significant impact on any of the three dimensions of sustainable performance, contradicting the studies of Afzal & Lim (2022), Styaningrum et al. (2020), and Chaudhary (2019). The influence of human resources on these dimensions is negligible, suggesting that human resource activities within the company do not significantly affect these operational outcomes in Vietnamese SMEs. Effective human resource management typically plays a crucial role in improving financial performance, enhancing employee satisfaction, and promoting corporate social responsibility or environmental awareness; however, this appears to be lacking in the current human resource approach of Vietnamese SMEs.

3.5.2. Moderating effects

In examining the moderating effects of globalization on the sustainable performance of Vietnamese SMEs, the estimated results indicate that globalization, through supplier behaviors and financial accessibility, impacts all three proposed dimensions. Through supplier behaviors, globalization demonstrates a complex influence on sustainable performance. The negative impact on economic and environmental performance suggests that the interaction between globalization and supplier behavior can lead to higher costs, operational inefficiencies, or increased competitive pressures, adversely impacting financial results and potentially worsening environmental challenges. These findings align with the conclusions drawn by Govindan et al. (2013), Naradda Gamage et al. (2020), and Dzikriansyah et al. (2023). The weak negative impact on economic performance (-0.195) can be attributed to increased costs or inefficiencies associated with global supply chain management, where fluctuations in supplier reliability or cost-effectiveness can negatively affect economic performance. Though this effect is not significant, it highlights the potential for globalization to introduce economic challenges through supplier behaviors. Regarding environmental performance, difficulties in enforcing consistent environmental practices among all suppliers can have significant negative impacts. The complex effect of Supplier Behavior reflects the global challenge of aligning supply chain partners with sustainability goals. Conversely, the medium positive correlation with social performance suggests that globalization, mediated through supplier behaviors, can slightly improve social outcomes. This positive impact can be attributed to improvements in labor practices, better working conditions, and a stronger emphasis on corporate social responsibility initiatives, driven by global norms and expectations. However, the effect's magnitude is relatively small, corroborating the suggestions of Han et al. (2024).

Concerning financial accessibility, globalization through this variable has had a strong positive impact on both economic and environmental performance, aligning with the evidence from the studies of Dzikriansyah et al. (2023) and Prasanna et al. (2019). The robust positive impact on economic performance

indicates that as globalization enhances access to finance, it fosters access to financial resources, providing opportunities for growth, innovation, and improved efficiency. Global markets can offer better access to capital, lower financial costs, and open up new revenue streams, yielding significant economic benefits. Similarly, the strong positive impact on environmental performance suggests that globalization, by increasing financial accessibility, enables firms to invest in sustainable technologies, energy-efficient processes, and comprehensive environmental management systems, reducing their ecological footprint and improving overall environmental performance. In Vietnam, integration into global financial markets and attraction of foreign investment enhance financial accessibility, fostering improvements in both economic and environmental performance. These results, which highlight Financial Accessibility's significant impact on economic and environmental performance, align with international studies demonstrating that SMEs globally require accessible funding for investments in sustainability. Conversely, the weak negative impact on social performance may arise from an excessive focus on financial and environmental investments at the expense of social initiatives. Firms might prioritize economic growth and environmental sustainability, thereby neglecting social issues such as employee welfare, community engagement, or corporate social responsibility. This concern is also highlighted in the research of Liñán et al. (2020) and Bux et al. (2024).

The moderating effect of globalization through networks and partnerships has a positive impact on both social and environmental performance, consistent with the research of Han et al. (2024), Audretsch et al. (2023), and Ekanayake et al. (2020). The strong positive impact on social performance indicates that globalization, when mediated through robust networks and partnerships, facilitates the exchange of best practices, fosters collaboration, and promotes corporate social responsibility initiatives. These relationships can lead to improved working conditions, higher employee satisfaction, greater stakeholder engagement, and stronger community relations, thereby significantly enhancing their social performance. Additionally, partnerships and networks within a global context can help companies gradually improve their environmental performance. The significant impact of networks and partnerships, particularly their strong positive effect on social performance, aligns with global findings suggesting that SMEs benefit from collaborative relationships to enhance knowledge sharing, access new markets, and improve social sustainability outcomes in increasingly interconnected and globalized business environments.

Additionally, globalization has unique impacts on individual dimensions of SMEs' sustainable performance. It has a positive effect on economic performance through government policies and regulations, positive effects on social performance via technologies, innovation, and marketing strategies, and a negative effect on environmental performance due to market competition. These findings are supported by previous research, such as Moursellas et al. (2022), Bhatti et al. (2022), and Singh et al. (2022b). These results also underscore the

multifaceted influence of globalization on different aspects of SMEs' sustainable performance through a variety of external and internal factors.

The findings underscore the critical role of globalization as a moderator in enhancing SMEs' sustainable performance through globally applicable mechanisms, including, financial accessibility, supplier behaviors, and networks and partnerships, and technology and innovation. These determinants align with global SME literature, where technology adoption and resource efficiency are recognized as cross-border drivers of sustainability, particularly in emerging economies navigating competitive and interconnected markets. The role of globalized networks and supply chain collaboration emphasizes the transferability of these insights to SMEs in similar institutional and economic contexts. The results of moderating effects also highlights the critical role of cross-border capital flows, such as remittances and foreign direct investment, togerther with local financial ecosystems in achieving sustainable performance, particular the emergin economies. Additionally, the moderating effect of globalization on marketing strategies highlights the universal relevance of aligning marketoriented practices with global standards to achieve sustainable growth. These results contribute to a broader understanding of how SMEs can leverage globalization to advance sustainability, offering actionable pathways for policymakers and firms operating in diverse yet interconnected economies.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. Conclusion

This research aimed to identify key determinants of sustainable performance among Vietnamese SMEs operating within a globalized environment. Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM), the study examined the impact of these determinants on sustainable performance and explored the moderating influence of globalization.

The study investigated the influence of external and internal determinants on Vietnamese SMEs' sustainable performance. Government Policies and Regulations (GPR), Supplier Behaviors (SB), and Financial Accessibility (FA) emerge as key factors impacting all three performance dimensions. Government policies and regulations demonstrated a strong positive correlation with both economic and environmental performance, highlighting their critical role in fostering SME growth and sustainability. Similarly, financial accessibility displays as a critical determinant of both economic and environmental performance. Adequate financial resources facilitate investments in growth and sustainability initiatives, enhancing financial health and environmental practices. In contrast, supplier behaviors exert a negative influence on economic and environmental performance and may be attributed to factors such as increased costs, operational inefficiencies, and unsustainable practices. The remaining variables influence one or two dimensions of sustainable performance with varying degrees of intensity.

The study further investigated the moderating influence of globalization on the relationship between determinants and the sustainable performance of Vietnamese SMEs. Globalization, operationalized through financial accessibility, has significantly enhanced economic and environmental outcomes. Conversely, globalization through supplier behaviors presented a complex interplay, with negative effects on economic and environmental performance but a positive influence on social performance. Networks and partnerships, in the context of globalization, positively influenced social and environmental performance, highlighting the benefits of international collaboration. Notably, globalization's influence on environmental management poses challenges to maintaining effective environmental practices.

These findings provide a valuable resource for future researchers seeking to delve deeper into this domain and inform policymakers about developing strategies to enhance SME sustainability within a globalized economy.

4.2. Recommendations and implications

Based on the research findings, actionable recommendations for policymakers, SME managers, and future research can be formulated to enhance the sustainable performance of Vietnamese SMEs.

To Policymakers

Policymakers should prioritize enhancing financial accessibility for SMEs through the implementation of financial support programs, including grants, low-interest loans, and tax incentives. Research indicates that improved financial access positively correlates with economic and environmental performance. Additionally, stringent environmental regulations, coupled with clear guidelines and support mechanisms, are essential for driving sustainable practices among SMEs. Furthermore, fostering domestic and international networks and partnerships can significantly enhance social and environmental performance by facilitating knowledge exchange, innovation, and resource optimization.

Effective supplier management is crucial for enhancing sustainable performance. Implementing policies that promote sustainable practices, such as supplier certifications, incentives, and penalties for non-compliance, can mitigate negative environmental and economic impacts. Additionally, fostering technological innovation through incentives and support programs may be essential for enhancing SME competitiveness and long-term sustainability, despite the presently weak impact of technology and innovation on Vietnamese SMEs' sustainable performance.

Globalization influences SMEs' sustainable performance by shaping supplier behaviors, expanding financial accessibility, and fostering international networks. To leverage these effects, policymakers should facilitate SMEs' integration into global supply chains by promoting sustainable sourcing requirements and international supplier certifications. Expanding access to global financial markets, foreign investment, and trade credit can help SMEs invest in sustainability-driven innovations. Additionally, policies that encourage cross-border collaborations and international partnerships can enable SMEs to adopt global best practices, enhance social responsibility, and improve environmental performance while remaining competitive in global markets.

To SME managers

SME managers should prioritize a balanced approach to sustainability by integrating social initiatives with economic and environmental goals. This includes enhancing corporate social responsibility, employee welfare, and community engagement to boost social performance. Since social performance is weakly impacted by government regulations, managers should emphasize internal policies and practices that cultivate a positive workplace culture and actively engage with their communities. Simultaneously, strengthening financial strategies through strategic investments in sustainable technologies is essential for long-term economic and environmental viability.

The study's findings underscore the need for a critical reassessment of current human resource practices. The absence of a significant correlation between human resource practices and sustainable performance underscores the necessity for strategic adjustments. Aligning human resource strategies with sustainability objectives could enhance SMEs' overall performance. This may involve introducing comprehensive sustainability-focused training programs, fostering a corporate culture centered on environmental and social responsibility, and improving employee engagement and satisfaction. Such revisions should aim to develop human resource practices that not only optimize operational efficiency but also advance broader sustainability initiatives, ensuring the workforce plays an active role in achieving the firm's sustainability goals. Effective human resource management can thus become a crucial factor in achieving comprehensive sustainability and long-term success for SMEs.

SME managers should strategically navigate the complexities of globalization to optimize sustainable performance. It is vital to prioritize financial strategies that are aligned with sustainability goals. This involves actively seeking financial support programs and investing in sustainable technologies to ensure both longterm economic growth and environmental sustainability. Effective supplier management, which includes selecting sustainable partners and fostering longterm relationships, is key to reducing the negative environmental impacts of globalization and enhancing social responsibility. At the same time, leveraging global networks to drive innovation and sustainability is crucial for gaining access to new technologies, markets, and best practices. Additionally, internal policies should emphasize sustainability awareness and provide training to cultivate a corporate culture that values environmental and social responsibility. Striking a balance between economic, social, and environmental objectives is essential to ensuring that the benefits of globalization are achieved without compromising societal or environmental well-being.

To researchers

Future research should prioritize in-depth exploration of Financial Accessibility (FA), Supplier Behaviors (SB), and Government Policies & Regulations (GPR) due to their significant impact on economic and environmental performance. Researchers should examine the specific mechanisms through which financial accessibility, supplier behaviros, and government regulations promote sustainability outcomes. This could involve investigating the types of financial support most effective for encouraging sustainable practices or identifying specific regulatory policies that have the most significant impact on SMEs' sustainable performance.

The absence of a significant relationship between human resources and sustainable performance necessitates further investigation. Future research should focus on developing more refined human resource metrics to better capture their potential impact on sustainability. Additionally, investigating indirect effects and mediating variables of this factor, such as leadership styles or employee engagement, could offer valuable insights into how human resources contribute to driving sustainable outcomes. These areas of study could help clarify the complex role of human resources in enhancing sustainability performance within SMEs.

The role of globalization as a moderating factor requires further examination. Future research should explore how globalization impacts SME sustainability across different sectors, regions, and timeframes to gain a more comprehensive understanding of its influence. Studies would provide valuable insights into the long-term effects of globalization on SMEs. Additionally, investigating the relationship between globalization, innovation capabilities, and digital transformation could reveal strategies that maximize the benefits of globalization while addressing its potential challenges. This would help SMEs better navigate the global landscape and enhance their sustainability outcomes.

By implementing the recommended strategies, policymakers can create a supportive environment for Vietnamese SMEs to thrive sustainably. SME managers can adopt a balanced approach to enhance overall performance, while researchers can continue to advance knowledge in this field. The findings highlight the need for integrated strategies that capitalize on the benefits of globalization while addressing its challenges, thereby improving sustainable performance. This multifaceted approach is essential for ensuring that Vietnamese SMEs can prosper economically, socially, and environmentally in a globalized world.

4.3. Limitations and Future research directions

Despite the study's comprehensive analysis of Vietnamese SME sustainable performance, certain limitations emerged that warrant further investigation in future research to enhance the robustness and generalizability of the findings.

Firstly, the cross-sectional research design presents a limitation as it offers a snapshot in time, hindering the assessment of long-term impacts and dynamic changes in sustainable performance. Future studies are recommended to capture the evolution of sustainable practices and their effects over time.

Secondly, the study's ability to theorize is limited by its geographic focus on Vietnamese SMEs. Consequently, the findings may not be directly applicable to SMEs in other regions with distinct economic, cultural, and regulatory contexts.

Thirdly, given the research's reliance on self-reported surveys, future studies should consider adopting mixed methods, combining qualitative and quantitative approaches. This integration will provide a deeper understanding of contextual factors influencing responses. Additionally, incorporating third-party assessments and objective performance metrics can strengthen data validity and mitigate potential biases inherent in self-reported data.

Lastly, the study's model did not find a significant impact of human resources practices on sustainable performance, suggesting that the existing human resources metrics may not fully capture their potential influence. Future research could develop more sophisticated human resources metrics that better reflect how human resources practices contribute to sustainability, potentially revealing indirect effects and mediating variables not captured in this study.

By addressing these limitations, future research can build on the findings of this study to provide deeper, more comprehensive views into the sustainable performance of SMEs and the factors that drive it.

5. NEW SCIENTIFIC RESULTS

The findings of this study contribute new knowledge to the field of SME sustainability by identifying critical determinants of sustainable performance and the moderating role of globalization. These results provide a foundational framework for future research, enabling further exploration and expansion of the research through the application of the analytical approach employed to other contexts or by incorporating additional constructs into the model.

1. This study represents a pioneering effort to comprehensively examine all three dimensions of sustainable performance —economic, social, and environmental—within the context of Vietnamese SMEs. By adopting a comprehensive perspective, the research underscores the importance of a balanced approach to achieving sustainability. The findings offer valuable insights into the factors influencing each performance dimension, enabling the development of targeted strategies to enhance overall sustainability. This comprehensive framework provides a foundation for organizations to simultaneously pursue economic prosperity, social responsibility, and environmental stewardship.

2. This study offers a thorough examination of both external and internal determinants impacting the sustainable performance of Vietnamese SMEs, filling a significant gap in the literature, which has typically explored these groups of factors separately. These results underscore Vietnam's distinct socio-economic environment, characterized by rapid globalization, a state-influenced market economy, and localized business practices that influence SME sustainability. For instance, the strong positive influence of Government Policies and Regulations reflects Vietnam's centralized governance model, where institutional frameworks actively steer SMEs toward compliance with national sustainability agendas. The conflicting effects of Supplier Behaviors—hindering economic and environmental performance while boosting social outcomes-reflect the challenges Vietnamese SMEs face in balancing sustainability commitments with operational costs, supply chain disruptions, and dependencies on suppliers with unsustainable practices. Internally, Financial Accessibility plays a dual role: it significantly improves economic and environmental performance, but paradoxically, it negatively impacts social performance. This highlights the difficult trade-offs Vietnamese SMEs face between financial priorities and social initiatives within their limited resources. Meanwhile, the positive impact of Technology and Innovation aligns with Vietnam's focus on digital transformation, allowing SMEs to modernize and improve efficiency. The negative influence of Firm Culture on economic and social performance-evidenced by operational costs, workforce adaptation challenges, and misalignment with existing values highlights the tension between sustainability integration and immediate operational demands in Vietnamese SMEs. These findings highlight the necessity of customized strategies to enhance sustainable performance in Vietnamese

SMEs, taking into account the interactions between state influence, supply chain informality, and cultural traditions such as hierarchical firm structures, rather than relying on general models. By focusing on Vietnam's unique institutional and cultural contexts, this study offers a framework for policymakers and SMEs to navigate the challenges of a transitioning economy, where sustainability success depends on balancing top-down policies with the realities of grassroots business operations.

3. The study provides an in-depth analysis of how globalization interacts with other determinants to affect the sustainable performance of SMEs. The results show that globalization creates a double-edged effect. It enhances Financial Accessibility, driven by Vietnam's integration into global finance and reliance on foreign investment, which improves economic and environmental performance. However, it also brings challenges, like the conflicting pressures of Supplier Behaviors. Global supply chains can negatively impact economic and environmental performance, while simultaneously driving social improvements through ethical sourcing requirements. Similarly, Global Networks and Partnerships, facilitated by Vietnam's trade connections, improve social and environmental performance. However, SMEs must confront with unequal power dynamics within global supply chains. These contradictions highlight the multifaceted nature of globalization: it simultaneously empowers Vietnamese SMEs with resources and markets while exposing them to risks like supply chain volatility and compliance costs.

This study offers a comprehensive assessment of Vietnamese SMEs' sustainable performance, delving into economic, social, and environmental dimensions. By examining the interplay of external and internal factors, as well as the moderating influence of globalization, the research provides valuable insights into the complexities of achieving sustainability. The findings underscore the need for integrated management strategies that capitalize on globalization's opportunities while mitigating its challenges. This study serves as a foundation for future research and informs policymakers and practitioners seeking to enhance SME sustainability in Vietnam and worldwide.

6. SUMMARY

This research sought to identify the significant factors influencing the sustainable performance of Vietnamese SMEs within the globalized business landscape. A core objective was to investigate the moderating role of globalization on the interplay between internal and external determinants and their subsequent impact on sustainability outcomes. By incorporating a diverse range of constructs, including Government policies & Regulation, Market Competition, Customer behaviors, Supplier behaviors, Networks & Partnerships, Human resources, Technology & Innovation, Financial accessibility, Marketing strategies, Capability for Environmental management, and Firm's culture, this study aimed to provide a comprehensive understanding of the factors driving sustainable performance.

Data collected from Vietnamese SMEs was analyzed using PLS-SEM in RStudio. The resulting model identified key determinants of sustainable performance. Financial accessibility and government policies emerged as critical factors positively influencing economic and environmental performance, emphasizing the importance of financial support and regulatory frameworks. Customer behaviors and firm culture also demonstrated a positive impact on multiple performance dimensions, underscoring the significance of understanding customer expectations and cultivating a strong organizational culture. In contrast, human resource practices exhibited no significant impact, indicating a need for SMEs to revise their human resource strategies to better support sustainability objectives.

The study further examined the moderating role of globalization on the relationship between determinants and sustainable performance. Globalization, particularly through financial accessibility, and networks and partnerships, positively influenced sustainability outcomes, providing Vietnamese SMEs with access to resources and collaborative opportunities. However, the study also highlighted the challenges posed by globalization, particularly in managing supply chain impacts. By uncovering these dynamics, the research provides valuable insights into navigating the complexities of globalization to achieve sustainable performance across economic, social, and environmental dimensions.

This research provides a comprehensive evaluation of Vietnamese SMEs' sustainable performance, examining economic, social, and environmental dimensions. By analyzing the interplay of external and internal factors, as well as the moderating influence of globalization, the study offers valuable insights into the complexities of achieving sustainability. The findings underscore the need for integrated management strategies that leverage globalization's benefits while addressing its challenges.

7. PUBLICATIONS AND OTHER SCIENTIFIC OUTPUT

Publications relating to the topic of the dissertation

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Publication in Conference Proceedings

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