



EFFECT OF ENTREPRENEURIAL ORIENTATION (EO) ON PERFORMANCE OF WOMEN-OWNED ENTERPRISES IN NORTH CENTRAL, NIGERIA

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Abstract

Women owned enterprises play a vital role in global economic development and pivotal to the success of the economy. This study investigated the effect of Entrepreneurial Orientation (EO) on performance of women owned enterprises in North Central, Nigeria. The Entrepreneurial Orientation was been measured with Innovations (INN), Pro-activeness (PRO), Risk Taking (RKT) and Competitive Aggressiveness (CPA) in relation to the performance of women owned enterprises in North Central, Nigeria. A survey design was adopted for the study. The target population of this study are women owner managers operating enterprises in the six states of the North central, Nigeria for a minimum period of 5 years. The sample size for this study was 435 respondents obtained through Taro Yamane formulae. Structured questionnaire was used for data collection using the five (5) point liker scale. The data gathered for this study was analyzed using partial least square structural equation modeling (PLS-SEM). The results reveals that entrepreneurial orientation, innovativeness, pro-activeness, risk taking and competitive aggressiveness are positive and statistically significant determinants of performance among women running enterprises in the North Central, Nigeria. It was concluded that enterprises with entrepreneurial orientation can respond to challenges effectively and properly in a competitive and dynamic environment. The study recommends that women-owned enterprises enhance market performance by continuously improving business processes and product offerings, staying updated with market trends to seize opportunities, and taking calculated risks like investing in new markets, expanding product lines, and adopting new technologies to drive high returns and accelerated growth.

Keywords: Entrepreneurial Orientation, Performance, Women Owned Enterprises.

1. Introduction

Business performance served as an imperative tool for organisational continuity and progress. As a result, it enables all organizations to guarantee the production process, whether they manufacture or provide services. Taiwo et al. (2019) pointed out, the performance of business has been critical to stakeholders like practitioners, researchers, and government officials. Business performance is an organisation's ability to create and deliver value to internal and external stakeholders.

Today's rapidly changing business environment requires enterprises to have an Entrepreneurial Orientation (EO) in order to thrive and succeed (Wiklund & Shepherd, 2011). Regardless of their size and nation, business enterprises need to quickly seek out new opportunities to grow and succeed. It has been explained that EO leads to growth and performance differentiations between domestic and global firms'

economic activities. As a result of entrepreneurial dynamism, firms can compete in a volatile economic environment which allows them to perceive new opportunities that others cannot (Eggers & Kraus, 2013; Gupta et al., 2015). EO involves the willingness to innovate, take risks to try out new products, services and markets, and act more proactively than competitors when it comes to new opportunities in the marketplace (Covin & Slevin, 2019). However, women small scale businesses have to be innovative involving innovations of products, services and processes, have to be more proactive compared to competitors in all aspect and be risk-oriented. In fact, studies have agreed that EO is a significant contributor to a firm's success and contribute to a healthier business performance and due to the potential benefits of EO.

It has been found that women continue to play an increasingly important role in economic growth and development both in developed and developing

economies (Kjeldsen & Nielson, 2006). To support this claim Global Entrepreneurship Monitor (GEM) conducted a report in 2015 showing that women's enterprises contribute not just to the country's development, but also reduce poverty, and generate jobs, wealth, and innovation globally. Based on these, government and non-governmental agencies have been involved in the promotion of enterprises generally through increased incentive schemes including enhanced budgetary allocation for technical assistance programmes such as loan scheme and training programmes of enterprises operators, understanding the factors that influence the performance of women enterprises is crucial for fostering their success and empowering women in business.

Despite the known importance of women enterprises towards the improvement of the Nigerian economy as well as government and non-government organisations (NGOs) intervention of programs and policies in providing financial credit scheme, capacity development and linkages to women enterprises including women enterprises in the North Central. Women in the region should have typically shown profitability, growth in size, and increased sales volume but, they have continued to witness dwindling performance characterized by low market share, poor sales growth, weak profitability, low employment and poor product innovation which has rendered some of the enterprises less competitive as many of the women enterprises are unable to tap into their full revenue potential (Central Bank of Nigeria CBN, 2019).

It is a common observation that the enterprises either close down temporarily or permanently (Dey et al., 2018, Olubiyi et al., 2019). They are often unable to expand their workforce (Olagunru & Abdulraheem 2018). These enterprises struggle to compete effectively in both domestic and international markets (Olakundun et al 2017). In addition, majority of the women enterprises remain in the informal sector and are driven by survival or necessity, with little growth despite government support (SMEDAN, 2021). These seemingly unsatisfactory levels of performance could be traced to lack of entrepreneurial orientation of the enterprises as identified by (Oghenevwegba et al., 2022; Okoli et al., 2021). According to Kusumawardhani et al. (2009) posited that enterprises with higher levels of entrepreneurial orientation (EO) have been found to

perform better than those, which lack such orientation. In the same vein evidence shows that EO as a firm-level behaviour enhances firm performance in dynamic business environments (Boso et al., 2013).

With the spread of globalization, it has created a competitive business environment, which has affected the way enterprises create and sustain their business operations and strategies. It becomes pertinent for women enterprises to refigure their existing strategies (Rosli & Norshafizah, 2013). According to Taiwo et al. (2019), entrepreneurial orientation (EO) remains an under-researched area in Nigeria, particularly concerning its development among small and medium-sized enterprises (SMEs) owned by women. The mixed findings on EO's impact on business performance among SMEs including that of women indicate the need for further studies to confirm or refute existing empirical results across diverse settings. Methodologically, past research by Dzulkarnian et al. (2014) and Taiwo et al. (2019) often relied on descriptive and inferential statistical methods, which are generally limited in scope. As noted by Larry and Gaskin (2014), these traditional techniques lack the capacity to model latent variables, identify moderation effects, and capture indirect relationships (mediation).

To address these limitations, this study employs Partial Least Squares Structural Equation Modelling (PLS-SEM), which Hair et al. (2021) highlight as a more robust and suitable alternative for complex data analysis. Therefore, this study addresses the above gaps by investigating the effect of entrepreneurial orientation (EO) on the performance of women-owned enterprises in North-Central Nigeria, focusing on four key dimensions: innovativeness, proactiveness, risk-taking, and competitive. The objectives include examining the individual effects of each EO dimension on performance of women owned enterprises in North Central, Nigeria. The research hypotheses are aligned with these objectives. Ultimately, the findings are expected to guide policymakers and practitioners in crafting targeted strategies to boost the performance of women-owned SMEs in the region.

2. Literature Review

2.1 Conceptual Review

Concept of Entrepreneurial Orientation

Entrepreneurial Orientation (EO) has been recognised as an important component in the expansion and success of businesses. Pearce et al. (2010) referred to entrepreneurial orientation as “a conceptualized set of distinct but related behaviors that have the qualities of innovativeness, pro-activeness, competitive aggressiveness, risk-taking, and autonomy”. Entrepreneurship is the art of creating incremental wealth through the pursuit of lucrative ideas adventure. Using this definition and prior literature, entrepreneurship researchers have used the term entrepreneurial orientation to describe a fairly consistent set of related activities or processes (Lumpkin & Dess, 1996;). Based on Miller (1983) conceptualization, three dimensions of EO have been identified and used consistently in the literature as Innovativeness, risk taking propensity, and pro-activeness. These dimensions represent distinct constructs that may vary independently of each other in a given context (Donatus, 2008). In strategic management literature, the process of “how” a new business comes into existence is viewed as entrepreneurial orientation (Mthanti & Ojah, 2017).

Concept of Innovativeness

Innovativeness refers as a firm's inclination to support creativity, experimentation, and the creation of novel ideas, products, services, or processes. Innovativeness is concerned with fostering and encouraging new ideas, experimentation, and creativity that may lead to the development of novel products, services, or processes, is one of three aspects that make up the concept of EO as a performance stimulant for SMEs (Ibidunni et al., 2017). Boso et al. (2018) view it as introducing groundbreaking solutions in dynamic settings, while Oghenevwegba et al. (2022) include product, process, and business model innovations for market adaptability. Okoli et al. (2021) note its strategic focus on experimentation, even in resource-limited contexts, enabling competitive advantages. Collectively, innovativeness is seen as a proactive, adaptive, and creative orientation vital for entrepreneurial success (Ibrahim & Abu, 2020).

Concept of Pro-activeness,

Pro-activeness is the capacity to identify opportunities, obtain a competitive edge, and respond to changing business conditions (Lumpkin & Dess, 2011). Madsen (2018) explained pro-activeness as a posture of anticipating and acting on the future requirement of the market. Boso et al. (2018) describe it as pre-emptively addressing future customer needs to lead in dynamic markets, while Muenjohn and Armstrong (2018) highlight its role in initiating new ventures, distinguishing proactive firms. Okoli et al. (2021) emphasize proactiveness in resource-constrained settings, where firms pursue innovation and expansion, and Oghenevwegba et al. (2022) note its capacity to create demand through strategic foresight. Together, these views depict proactiveness as a dynamic, anticipatory approach driving competitive leadership (Ibrahim & Abu, 2020).

Concept of Risk-Taking

Risk-taking is the firm's readiness to invest resources in uncertain ventures, embracing bold decisions despite potential losses. Okoli et al. (2021) describe it as the courage to pursue untested markets or projects, especially in resource-scarce settings. Boso et al. (2018) view it as bold actions, like entering new markets, to gain competitive edges. Oghenevwegba et al. (2022) emphasize calculated risk-taking for innovation and growth, while Muenjohn and Armstrong (2018) highlight its role in tolerating uncertainty, setting entrepreneurial firms apart. Collectively, risk-taking is seen as a proactive, bold approach to seizing high-potential opportunities in competitive environments (Ibrahim & Abu, 2020).

Concept of Competitive Aggressiveness

Competitive aggressiveness, a pivotal dimension of entrepreneurial orientation, refers to a firm's assertive and confrontational approach to outperforming rivals in the marketplace through bold, direct, and often provocative strategies. Scholars define competitive aggressiveness as the strategic intent to challenge competitor's head-on, leveraging tactics such as aggressive pricing, marketing, or rapid market entry to secure a competitive edge. For instance, Oghenevwegba et al. (2022) describe it as a firm's proactive efforts to undermine competitors' positions

by deploying resources swiftly and decisively to capture market share. Similarly, Boso et al. (2018) define competitive aggressiveness as a firm's willingness to engage in intense competitive actions, such as outmaneuvering rivals through superior offerings or bold positioning, particularly in dynamic markets. Muenjohn and Armstrong (2018) emphasize that it involves a combative stance, distinguishing firms that actively seek to dominate their industry from those adopting more passive strategies. Okoli et al. (2021) further note that competitive aggressiveness reflects a firm's relentless pursuit of market leadership, even in resource-constrained contexts, through calculated yet forceful moves. Collectively, these definitions portray competitive aggressiveness as a bold, strategic orientation focused on outpacing competitors through assertive and opportunistic actions (Ibrahim & Abu, 2020).

Concept of Performance

Performance refers to the organization's ability to meet strategic goals by delivering value to stakeholders through financial, operational, and market outcomes. Taiwo et al. (2019) view it as sustaining operations and stakeholder value for organizational continuity, while Ibrahim and Abu (2020) describe it as the result of strategic efforts, measured by metrics like sales growth and customer satisfaction. Okoli et al. (2021) emphasize its multidimensional nature, including financial and non-financial aspects like innovation for small firms in constrained settings. Oghenevwegba et al. (2022) highlight its reflection of competitiveness and adaptability through innovation and expansion. Collectively, business performance is a comprehensive measure of organizational success, blending economic and strategic indicators (Olakundun et al., 2018).

According to Choongo (2017) and Rashid et al. (2018) a number of authors have operationalized firm performance measures in SMEs in two categories: financial performance and non-financial performance. Therefore, measuring the performance of women-owned enterprises involves assessing a variety of financial and non-financial indicators. These measures not only reflect the business's success and growth but also its contribution to gender equality and economic empowerment.

Concept of Women Owned Enterprises

A woman owned enterprise is someone who starts a business to pursue her personal goal of becoming self-employed and financially independent. She accepts challenges in running and growing the business, and she adds value to the family, community, and society in terms of economic growth (Siddiqui, 2012). They are defined as women (or a group of women) who start, organize, and run their businesses. Women-owned enterprises are businesses primarily owned, managed, or led by women, playing a crucial role in fostering economic empowerment, job creation, and sustainable development worldwide. A women-owned enterprise (WOE) is generally defined as a business in which one or more women hold at least 51% ownership, exercise substantial control over strategic and operational decisions, and actively manage the daily operations (IFC, 2021). These enterprises play a crucial role in fostering inclusive economic growth, as women entrepreneurs often reinvest in education, healthcare, and community development, creating positive socio-economic spill overs (UN Women, 2020). These enterprises, often small to medium in scale, are recognized for their contributions to reducing unemployment and promoting gender-inclusive economic growth, particularly in developing economies (We-Fi, 2022).

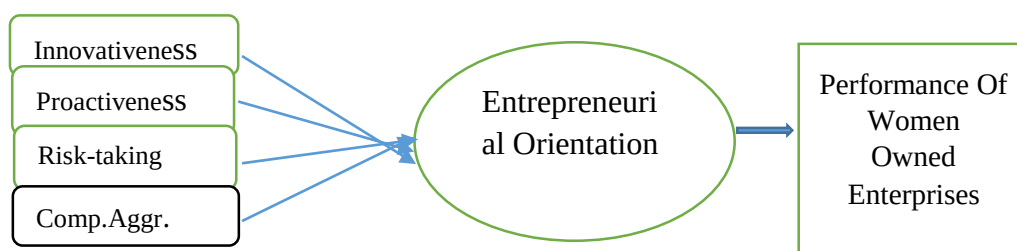


Figure 1: Conceptual Framework of (EO) and Performance of Women Enterprises

Source: Author's Conceptualization (2025)

2.2 Empirical Review

Entrepreneurial orientation and Performance of Women Enterprises

Ibrahim and Abu (2020) examined the effect of entrepreneurial orientation (EO) on small and medium enterprise (SME) performance in Nigeria, using a quantitative survey of 384 SME owners and managers. The study focused on how EO dimensions—innovativeness, proactiveness, risk-taking, and competitive aggressiveness—impact performance, measured by profitability and growth. Results showed a significant positive link between EO and SME performance, with innovativeness and pro-activeness having the strongest influence, followed by moderate effects from risk-taking and competitive aggressiveness. The study concluded that EO is vital for SME competitiveness in Nigeria's dynamic economy

Oghenevwegba et al. (2022) investigated the effect of entrepreneurial orientation (EO) on the performance of small and medium enterprises (SMEs) in Nigeria, using a quantitative survey of 412 SME owners in Lagos and Abuja. The study explored how EO dimensions—innovativeness, pro-activeness, risk-taking, and competitive aggressiveness—influence performance metrics like profitability, sales growth, and market share, finding a significant positive relationship, with pro-activeness and innovativeness having the strongest effects, followed by competitive aggressiveness, and a moderate impact from risk-taking. The study concluded that EO is vital for SME success in Nigeria's dynamic market, recommending that SME owners emphasize proactive and innovative strategies and that policymakers promote EO through capacity-building programs to enhance economic growth. The study can be replicated in states of Nigeria.

Hossain and Azmi, (2021) examined the effect of Innovativeness dimension on the apparel industry's export performance. Innovativeness was considered the determinant of export performance are firms' financial, strategic, and satisfaction levels of performance. A cross-sectional survey is carried out by providing a questionnaire to high-level managers and owners of the MLEs. Primary data of 339 treated by

partial least squares (PLS-SEM) technique examines the dimensions' effect on export performance. The findings of this study revealed that innovativeness is positively and significantly on export performance. Other entrepreneurial orientation dimensions can also have effect on export performance.

In another study by Okoli et al. (2021) investigated, the impact of entrepreneurial orientation (EO) on the performance of women-owned small and medium enterprises (SMEs) in southeastern Nigeria, using a quantitative survey of 350 women entrepreneurs. The study examined how EO dimensions—innovativeness, pro-activeness, risk-taking, and competitive aggressiveness—affect SME performance, measured by profitability, sales growth, and customer satisfaction. Results revealed a significant positive link between EO and performance, with innovativeness and pro-activeness having the strongest effects, followed by moderate contributions from risk-taking and competitive aggressiveness. The study concluded that EO is crucial for women-owned SMEs to overcome gender-specific barriers and succeed economically, recommending that women entrepreneurs focus on innovative and proactive strategies and that policymakers implement training programs to promote EO for enhanced sustainability and empowerment

Taiwo et al. (2019) investigated the impact of entrepreneurial orientation (EO) on the performance of small and medium enterprises (SMEs) in Ogun and Lagos States, Nigeria, through a quantitative survey of 300 SME owners and managers. The study explored how EO dimensions—innovativeness, pro-activeness, risk-taking, and competitive aggressiveness—affect SME performance, measured by profitability, sales growth, customer satisfaction, and market expansion. Findings showed a significant positive link between EO and performance, with innovativeness and pro-activeness having the strongest effects, followed by risk-taking, while competitive aggressiveness had a weaker impact. The study concluded that EO is essential for SME success in Nigeria's resource-constrained economy, recommending that SME owners prioritize innovative and proactive strategies and that policymakers implement training and funding programs to promote EO for economic growth.

In a similar study, Bileanmi (2022) examined the impact of Entrepreneurial Risk-Taking on the organisational performance of Small and Medium-Sized Enterprises (SMEs) in Lagos State, Nigeria. The study employed survey research design with the use of structured questionnaire. A simple random sampling technique was adopted, and 448 questionnaires were retrieved and analysed from 520 administered questionnaires among SMEs in Lagos State, Nigeria. The results of the analysis revealed that Risk-Taking have significant impact on SMEs innovation in Lagos State. More research could be conducted in other states of the country. The current study has been expanded to include Nigeria's North Central states.

2.3 Theoretical Review

Resource Based Theory

Resource-Based Theory (RBT) was propounded by Wernerfelt in 1984, posits that a firm's strategic resources are critical for gaining a competitive edge over rivals. The theory emphasizes that resources, which are valuable, rare, inimitable, and non-substitutable, are the primary drivers of a firm's competitive advantage and long-term sustainability. According to RBT, these unique resources and capabilities shape a firm's performance by enabling it to differentiate itself in the marketplace.

RBT is highly relevant to this study, as it provides a framework for understanding how the resources and capabilities of women-owned small-scale enterprises contribute to their entrepreneurial orientation (EO). The theory suggests that the effective use of resources fosters an entrepreneurial mind-set, with key EO dimensions innovativeness, pro-activeness, competitive aggressiveness, and risk-taking serving as strategic resources in this context. For women-owned enterprises, these resources are vital for enhancing performance. RBT underscores that strategic assets, being valuable, rare, difficult to replicate, and non-substitutable, are central to achieving superior outcomes, and this study leverages RBT to explore these dynamics in practice.

RBT offers a valuable perspective for examining how entrepreneurial orientation influences the performance of women-owned enterprises by focusing on the acquisition, utilization, and leveraging of both tangible

and intangible resources. EO enhances the strategic deployment of these resources, driving improved performance even in resource-scarce environments.

Schumpeterian Theory

Schumpeterian Theory developed by the economist Joseph Schumpeter, revolves around the role of innovation and entrepreneurship as the central forces driving economic development and change. The theory, highlights innovation and entrepreneurship as key drivers of economic growth. Entrepreneurs introduce new products, processes, markets, and business models, disrupting existing markets and transforming economies. For women-owned enterprises, entrepreneurial orientation—including innovativeness, pro-activeness, and risk-taking—is crucial for business success. Innovative women entrepreneurs can outperform competitors by introducing new products, optimizing production, and solving market challenges, especially in economically constrained regions. A high entrepreneurial orientation helps women entrepreneurs identify opportunities, enter new markets, and gain a competitive edge. Schumpeter also emphasizes that risk-taking is essential for innovation and economic change. Women entrepreneurs who take calculated risks, such as investing in new technology or expanding operations, can enhance their firm's performance, even with limited access to resources like capital and credit. Schumpeterian Theory is highly relevant to studying women-owned businesses in resource-limited environments. It underscores that innovation, risk-taking, and proactive opportunity-seeking are essential for business survival, growth, and competitive advantage.

3. Methodology

This study employs a survey design to quantitatively assess the effect of entrepreneurial orientation on the performance of women-owned SMEs in North-Central Nigeria, collecting data at a specific time to infer population characteristics through direct responses from participants. The target population comprises 29,772 women enterprises owners across Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, and the Federal Capital Territory, as reported by (SMEDAN,2021 & MSME Clinics 2021), with enterprises operational for

at least five years. Due to the large population, a representative sample was determined using the Taro Yamane (1964) to determine the sample size for the study population of 29,772 of women enterprises owners in North-Central Nigeria with a 5% margin of error, yielding a sample size of 395, which was increased by 20% to 474 to account for potential non-response, as supported by Israel (2003).

A stratified random sampling technique was used, proportionately allocating the sample across the six states (Benue, Kogi, Kwara, Nasarawa, Niger, Plateau) and the Federal Capital Territory, focusing on metropolitan areas. Primary data were collected via a structured questionnaire employing a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to ensure reliable behavioural data.

Data analysis was conducted using partial least square (PLS) software 4.0, an approach to structural equation modeling and presented as required. The PLS-SEM in this study tested for the measurement model and the structural model.

4. Results and Discussion

The study survey distributed 474 questionnaires, with 435 well-filled, indicating a response rate of 91.7%. The majority of women owner-managers were aged 26-35, with 33.4% having a National Diploma/National Certificate of Education. Most businesses operated for 5-10 years, with 21.6% having less than 5 years and 37.2% more than 10 years. The majority were involved in trade, 25% in manufacturing, and 34.7% in the service sector.

Assessment of Measurement model

Firstly, the measurement model was estimated to determine the accuracy of the relationship between model latent constructs and scale factors. This was evaluated in terms of reliability and validity measures. The former involved the establishment of factor reliability, as well as internal consistency of constructs, established with measures such as Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE).

Table 1: Confirmatory Factor Analysis

Construct	Item	Factor Loading	Cronbach's Alpha	CR	AVE
Innovativeness (INN)	INN1	0.82	0.88	0.91	0.72
	INN2	0.85			
	INN3	0.87			
	INN4	0.83			
Pro-activeness (PRO)	PRO1	0.81	0.87	0.90	0.70
	PRO2	0.83			
	PRO3	0.85			
	PRO4	0.84			
Risk-Taking (RKT)	RKT1	0.80	0.86	0.89	0.68
	RKT2	0.82			
	RKT3	0.84			
	RKT4	0.81			
Competitive Aggressiveness (CPA)	CPA1	0.83	0.87	0.90	0.70
	CPA2	0.84			
	CPA3	0.82			
	CPA4	0.81			
Performance (PER)	PER1	0.85	0.89	0.92	0.73
	PER2	0.86			
	PER3	0.84			
	PER4	0.85			

Source: Smart PLS Output, 2025.

Adhering to the guidelines outlined by Hair et al. (2020), the study assessed convergent validity by evaluating factor loadings, average variance extracted (AVE), and composite reliability (CR), using threshold values of 0.5 for AVE and 0.7 for CR to establish acceptability. Table 1 presents the validity and reliability outcomes for the constructs of innovativeness, pro-activeness, risk-taking, competitive aggressiveness, and performance, all of which exhibit strong measurement properties. Innovativeness recorded item loadings between 0.82 and 0.87, a Cronbach's Alpha of 0.88, a CR of 0.91, and an AVE of 0.72. Proactiveness showed loadings from 0.81 to

0.85, with a Cronbach's Alpha of 0.87, a CR of 0.90, and an AVE of 0.70. Risk-taking had loadings ranging from 0.80 to 0.84, a Cronbach's Alpha of 0.86, a CR of 0.89, and an AVE of 0.68. Competitive aggressiveness displayed loadings from 0.81 to 0.84, a Cronbach's Alpha of 0.87, a CR of 0.90, and an AVE of 0.70. Performance exhibited item loadings between 0.84 and 0.86, a Cronbach's Alpha of 0.89, a CR of 0.92, and an AVE of 0.73. These findings confirm that the constructs are measured with high reliability and validity, demonstrating the robustness of the measurement model.

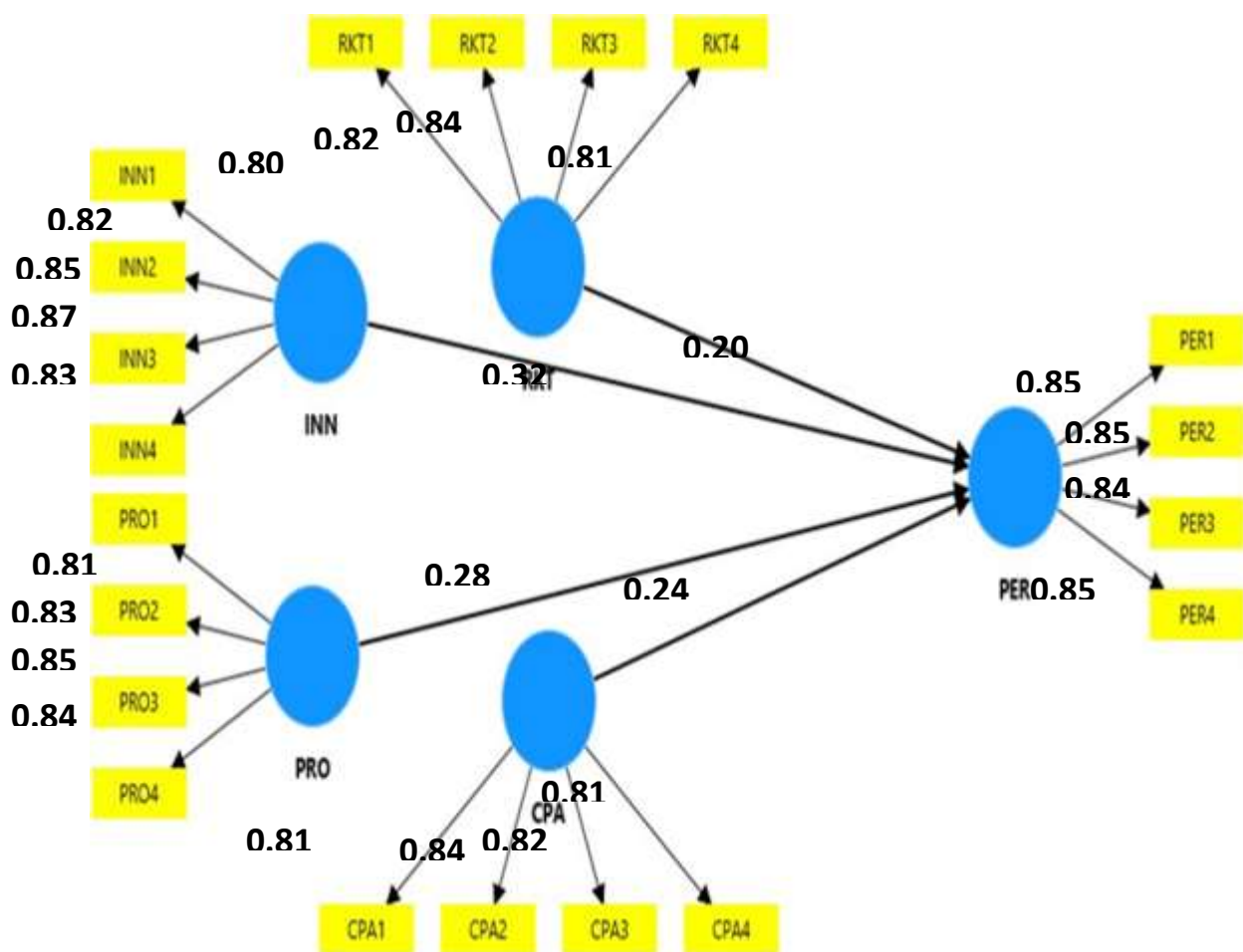


Figure 2: Measurement Model

Source: Smart PLS Output, 2025

Table 2: Cross Loadings

Item	INN	PRO	RKT	CPA	PER
INN1	0.82	0.45	0.42	0.41	0.48
INN2	0.85	0.47	0.44	0.43	0.50
INN3	0.87	0.49	0.46	0.45	0.52
INN4	0.83	0.46	0.43	0.42	0.49
PRO1	0.44	0.81	0.40	0.39	0.47
PRO2	0.46	0.83	0.42	0.41	0.49
PRO3	0.48	0.85	0.44	0.43	0.51
PRO4	0.45	0.84	0.41	0.40	0.48
RKT1	0.40	0.38	0.80	0.37	0.45
RKT2	0.42	0.40	0.82	0.39	0.47
RKT3	0.44	0.42	0.84	0.41	0.49
RKT4	0.41	0.39	0.81	0.38	0.46
CPA1	0.43	0.41	0.40	0.83	0.48
CPA2	0.45	0.43	0.42	0.84	0.50
CPA3	0.42	0.40	0.39	0.82	0.47
CPA4	0.44	0.42	0.41	0.81	0.49
PER1	0.50	0.48	0.46	0.47	0.85
PER2	0.51	0.49	0.47	0.48	0.86
PER3	0.49	0.47	0.45	0.46	0.84
PER4	0.50	0.48	0.46	0.47	0.85

Source: Smart PLS Output.

In using cross loadings, the value of factor loadings should be highest for their mother construct than for any other construct in the model. Table 2 shows cross loading values for study variables shown as **bolded**

values arranged diagonally. It can be seen that indicators were best at measuring their associated constructs as compared to other constructs in the model.

Table 3: Fornell-Larcker Test

Construct	Innovativeness	Pro-activeness	Risk-Taking	Competitive Aggressiveness	Performance
Innovativeness	0.85				
Pro-activeness	0.52	0.84			
Risk-Taking	0.49	0.47	0.82		
Competitive Aggressiveness	0.50	0.48	0.46	0.84	
Performance	0.55	0.53	0.51	0.52	0.85

Source: Smart PLS Output, 2025

The table shows the square root of AVE for each construct on the diagonal (**in bold**) and the estimated correlations between constructs on the off-diagonal.

The Fornell-Larcker criterion was satisfied for all constructs, in that values of the square root of AVE (**bold and diagonal**) were higher than the correlation

value of each construct with other constructs in the model. Furthermore, HTMT ratios, depicting correlations between constructs, were also assessed to determine unidimensionality among constructs. Here, HTMT ratios of less than 0.9 are suggested (Dzin & Lay, 2021).

Table 4: HTMT Ratios

	Heterotrait-Monotrait Ratio (HTMT)
INN <-> PRO	0.71
INN <-> RKT	0.69
INN <-> CPA	0.64
INN <-> PER	0.57
PRO <-> RKT	0.71
PRO <-> CPA	0.69
PRO <-> PER	0.60
RKT <-> CPA	0.67
RKT <-> PER	0.59
CPA <-> PER	0.61

Source: Smart PLS Output, 2025

As can be seen from the information contained in table 4, all constructs showed satisfactorily low HTMT ratios, substantiating their conformance with discriminant validity. Multicollinearity was also checked among indicators with the use of the Variance

Inflation Factor (VIF), based on a threshold value of 3. VIF values for all factors are given in table 5. As can be seen all computed values were found to be less than 3, indicating that multicollinearity was not a problem in the measurement model.

Table 5: Test of Multicollinearity (Outer Model)

Construct	Item	VIF
Innovativeness	INN1	1.85
	INN2	1.90
	INN3	1.92
	INN4	1.87
Pro-activeness	PRO1	1.82
	PRO2	1.84
	PRO3	1.86
	PRO4	1.83
Risk-Taking	RKT1	1.80
	RKT2	1.82
	RKT3	1.84
	RKT4	1.81
Competitive Aggressiveness	CPA1	1.83
	CPA2	1.85
	CPA3	1.82
	CPA4	1.84
Performance	PER1	1.88
	PER2	1.90
	PER3	1.87
	PER4	1.89

Source: Smart PLS Output, 2025

Assessing the Structural Model

Having satisfied the measurement model assessment, the next step in evaluating PLS-SEM results is to assess

the structural model. Standard assessment criteria, which was considered include the path coefficient, t-values, p-values and coefficient of determination (R²). The estimation of the path model involved a

bootstrapping procedure, with a resample process involving 5000 subsamples.

The estimated path model was assessed in terms of predictive capability with the use of Coefficient of Determination (R^2) and Effect Size (f^2). Their estimated values for the former are contained in table 6 in terms of initial value (0.62), and adjustment with the inclusion of multiple variables (0.61). Both values, as can be seen

in table 6, this means 62% of the variance in Performance is explained by the four predictor constructs. Adjusted $R^2 = 0.61 \rightarrow$ Adjusts for the number of predictors and sample size (435), still showing strong predictive accuracy. According to Cohen (1988): $0.26 < R^2 < 0.50 = \text{moderate}$. $R^2 > 0.50 = \text{substantial}$. Therefore, this is a substantial model, indicating good explanatory power.

Table 6: Coefficient of Determination (R^2) – Outer Structural Model

Endogenous Construct	Predictor Constructs	R Square (R^2)	Adjusted R Square (R^2 Adj.)
Performance	Innovativeness, Pro-activeness, Risk-Taking, Competitive Aggressiveness	0.62	0.61

Source: Smart PLS Output, 2025

Table 7: Effect Size (f^2) of Predictors on Performance

Predictor Construct	f^2 Value	Effect Size
Innovativeness	0.16	Medium
Pro-activeness	0.29	Medium–Large
Risk-Taking	0.21	Medium
Competitive Aggressiveness	0.18	Medium

Source: SmartPLS Output, 2025

Pro-activeness has the strongest effect on Performance among all predictors. All constructs show medium-level effect sizes, confirming they are important

predictors. No construct falls into the "negligible" range, validating their inclusion in the model

Table 8: Estimated Coefficients of Path Model

Hypothesis	Path Coefficients	SD	t-value	p-value	Decisions
INN $\rightarrow$ PER.	0.32	0.05	6.40	0.001	Significance
PRO $\rightarrow$ PER	0.28	0.05	5.60	0.001	Significance
RKT $\rightarrow$ PER	0.20	0.06	3.33	0.001	Significance
CPA $\rightarrow$ PER	0.24	0.05	4.80	0.001	Significance

Source: SmartPLS Output, 2025

The analysis reveals that innovativeness, a key dimension of entrepreneurial orientation (EO), has a significant positive impact on performance ($\beta = 0.32$, $t = 6.40$, $p < 0.001$). This result aligns with findings from Ibrahim and Abu (2020) and Mozumdar et al. (2020), who determined that higher levels of innovativeness lead to improved performance. The evidence supports rejecting the null hypothesis, confirming that innovativeness is essential for enhancing the performance of women enterprises.

Similarly, pro-activeness was found to have a significant positive impact on performance ($\beta = 0.28$, $t = 5.60$, $p < 0.001$) at the 5% significance level, consistent with findings by Oghenevwegba et al. (2022). Increased pro-activeness among women entrepreneur owner-managers is expected to enhance business performance. Consequently, the null hypothesis was rejected based on robust empirical evidence.

The analysis also showed that risk-taking positively and significantly affects performance ($\beta = 0.20$, $t = 3.33$, $p < 0.001$). Higher levels of risk-taking among women entrepreneur owner-managers are anticipated to improve business performance, aligning with studies like Billesanmi (2022) that confirm the positive influence of risk-taking. Thus, the null hypothesis of no significant effect on performance was rejected. Competitive aggressiveness was found to have a significant positive effect on the performance of women-owned enterprises in North-Central Nigeria ($\beta = 0.24$, $t = 4.80$, $p < 0.001$). This led to the rejection of the null hypothesis. The positive impact of competitive aggressiveness on performance is supported by research from (Okoli et al., 2021) .

5. Conclusion and Recommendations

Entrepreneurial orientation has been identified as a remedy to the challenges facing businesses that desire to attain performance. Enterprises with entrepreneurial orientation can respond to challenges effectively and properly in a competitive and dynamic environment,

which will translate into employment opportunities, increase in revenue generation, and reduction in crime rate and building just an egalitarian society which will improve the economic growth of a country. Based on the findings, the study recommended that the Women owner-managers of enterprises or their employees in North Central Nigeria should employ an aggressive and intense competitive strategy like differentiating their pricing, product innovation, effective marketing, customer relationship management, and regularly introduce new product or services. It was also recommended that they should avoid taking uncalculated risk concerning new business ideas and avoid taking unnecessary actions that competitors' response to as it doesn't improve their business performance. Create a dedicated team to identify emerging trends and launch initiatives first. Monitor and Evaluate Performance. Regularly assess performance metrics like revenue growth and profitability to ensure alignment with entrepreneurial strategies.

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