

Innovations

Entrepreneurial orientation and performance of agro business in North central state, Nigeria

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Abstract

This study aimed at entrepreneurial orientation and performance of agro business in North Central State, Nigeria. The study specifically investigated the effect of EO dimensions on productivity and profitability of agro-business among others. The study adopted a survey research design with a focus on quantitative research methods. The study used the proportionate stratified sampling method. With the sample size of 375, proportionate stratified sampling was used to select the number of firms. To test the reliability of constructs, Cronbach Alpha Test was employed. The study used descriptive statistics, correlation and covariates for data analyses. Hypotheses were tested using regression technique. Finding showed that innovativeness, risk-taking, proactiveness and competitive aggressiveness have significant positive effect on productivity of agro-business in the North Central State, Nigeria. Finding further showed that innovativeness and proactiveness have significant positive effect on the profitability of agro-business in the North Central State, Nigeria. The study concluded that EO is crucial for driving desirable business performance. This study recommended that agro-business firms should focus more on innovativeness, risk-taking, proactiveness and competitive aggressiveness in the pursuit of improved productivity; and that they should target only innovativeness and proactiveness for sustainable increase in profitability.

Keywords: 1.Innovativeness, 2.Risk-Taking, 3.Proactiveness, 4.Competitive Aggressiveness, 5.Productivity, 6.Profitability

Introduction

In modern economies, entrepreneurship is the driving force of economic growth under a capitalist oriented economy. Indeed, there can be no capitalist development without entrepreneurship class (Kpelai, 2009). Entrepreneurship is seen as a key component that drives any economy, it does not only provide jobs but improves the standard of living of a country and Gross Domestic Product (Ottih, 2014; DeepaBaba & Manalili, 2016).

Agriculture plays a vital role in the economy. In most developing countries such as Nigeria; agricultural businesses have remained a major player in the economy employing over 70% of the population (Pawa, 2013). In the 1960s, Nigeria's agricultural sector was indeed a sector to reckon with in its commitment to the local population, export trade and job creation. Nearly 50 years later, the segment still has not achieved the desired economic growth in terms of Gross Domestic Product (Mayong, Ikpi, Olayemi., Yusuf, Omonona, Okoruwa, & Idachaba, 2005). The concentration on crude oil has led to a massive decline in agricultural production thus affecting the productivity, sales, market share and even profitability for indigenous agro-allied entrepreneurs (Ufiobor, 2017). Prominent among the challenges in the nation's agricultural sector include corruption, negligence, and inconsistent government policies, which have resulted in Nigeria losing its position as the prominent exporter of cocoa, groundnuts (peanuts), rubber and palm oil. Cocoa production has significantly diminished from around 300,000 tons per annum to 180,000 tons. Nigeria, once the leading producer of poultry in Africa with an output of 40 million birds per annum has dropped to about 18 million birds per annum (NEPC Report, 2011).

The national budget gives little attention to the development of this sector (Olomola, 2007), this is evident by the fact that crude oil accounts for about 95 per cent of the nation's foreign exchange, while agriculture rakes in less than 5per cent. In North Central Nigeria, the situation is deepened with the high level of insecurity as a result of farmer-herder clashes destroying both lives and business activities in the region. The illiteracy rate in the region is high as well as cultural lag has greatly affected the level of entrepreneurial orientation towards the performance of agro-processing firms (Kpelai, 2009). Nevertheless, Nigeria is still seen as a country with great agricultural potential. Olomola (2007) posits that agricultural business is still an important piece of the Nigerian economy.

Zhou, Wu, & Luo (2007) posited that in a dynamic business environment, future profit streams are uncertain and businesses need to continuously seek out new opportunities and efficiently exploit them, hence the need for entrepreneurial orientation in the agricultural sector which entails entrepreneurs to be innovative, willing to assume risk, competitive and be proactive to attain the desired level of performance in the agro-processing firms. Thus a firm's strategic posture calls for entrepreneurial decision making styles, methods and practices which could lead to greater productivity, profitability, sales and market share for the foreign and domestic markets (Ottih, 2016).

Statement of the Problem

The North Central region of Nigeria is an agrarian region comprising of Benue, Kogi, Plateau, Niger, Kwara and Nasarawa States and Federal Capital Territory. The major crops produced within the region are yam, rice, cassava, soya beans, fruits and vegetables. Despite the potential of the region in feeding the country and indeed in processing the crops for exports, the performance of agro-processing firms leaves much to be desired. The most evident challenge faced by agro-processing firms is the huge loss of post-harvest, low capacity, lack of technology to process for export, which has contributed to the low performance and collapse of some agro-processing firms within the region. According to the Center for Food Technology and Research, Benue State University 2017 report, over 50% of the food produced in the region is lost due to poor processing and storage facilities. International donor agencies like International Fund for Agricultural Development (IFAD) and Fadama have sponsored some projects in areas of rice processing, soya beans processing and cassava processing to promote entrepreneurship development in agriculture but have not yielded the desired performance.Indeed, the inability to be creative, the unwillingness to assume risk and be proactive will ultimately result in low productivity, profitability, and sales volume and even threaten the market share of already existing firms thus increasing the unemployment rate, poverty index within the region as well as a shortage of food.

Objectives of the Study

The study's objectives were to examine the nexus between EO and performance of agro-business. The study specifically;

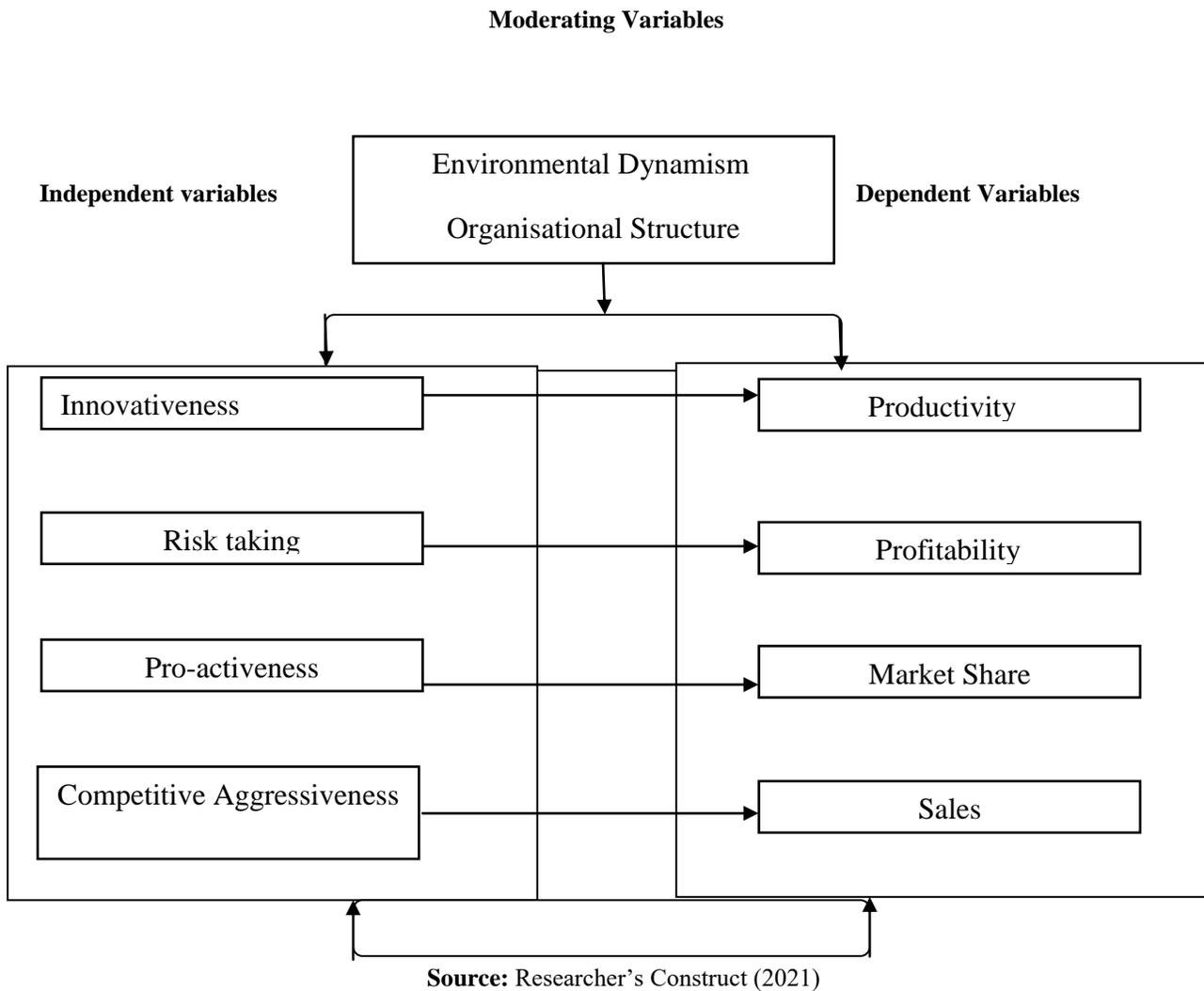
- determine the effect ofEO dimensions on productivity of agro-business;

- ascertain the extent to which EO dimensions affects profitability of agro-business;
- analyze the extent to which EO dimensions affects market share of agro-business;
- evaluate the extent to which EO dimensions affects sales of agro-business;

Review of Related Literature

The conceptual framework of this study as adapted from Milovanovic and Withine (2014) comprise of entrepreneurial orientation and performance represented by innovativeness, risk taking, pro-activeness, competitiveness aggressiveness as against their respective dependent variables; productivity, profitability, market share, sales and moderating variables; environmental dynamism and organizational structure.

Fig 1 Conceptual Framework of EO and Performance of Agro-business



Entrepreneurial Orientation (EO)

Entrepreneurship Orientation (EO) is a concept that provides prior knowledge and information about innovativeness, associated risk as well as pro-activeness. To be proactive, the entrepreneur also needs to learn about the environment, most importantly the external environment to be incongruent with the internal environment. EO

could also be viewed as a totality of policies and practices that seek to provide a base for entrepreneurial decisions and actions. Therefore, it is right to point out that EO is a strategy-making process that provides a platform for key decision-makers to use in enacting their firm's organizational purpose, sustaining vision and creating competitive advantage.

The importance of entrepreneurship orientation has been identified by scholars, little wonder the continuous increase in streams of literature tailored towards the concept of entrepreneurship orientation (Covin & Lumpkin, 2011; Covin, Green & Slevin, 2006; Covin & Wale, 2012; Filser & Egger, 2014). Duru, Ehidiemhem & Chijioke (2018) define entrepreneurship orientation as the decision-making practices, as well as methods, use to act in an entrepreneurial way. Similarly, Zhai, Sun, Tzu, Wan, Zhao & Chen (2018) describe entrepreneurship orientation as the performance style decision and actions that are involved in the process of the company's business strategy. However, entrepreneurship orientation involves the intentions and actions of individual business owners and/or key management decision makers functioning in the complex process of making strategic choices aimed at the achievement of desired business objectives (financial and non-financial).

Dimensions of Entrepreneurial Orientation

Drawing from previous research, Lumpkin and Dess (1996; 2001) and Walter et al. (2005) came up with five dimensions of entrepreneurship orientation which autonomy, innovativeness, risk-taking, pro activeness, and competitive aggressiveness. These five dimensions of entrepreneurship orientation construct vary independently and firms can have different combinations of these five dimensions.

Innovativeness

A firm adopting innovative style relies on knowledge that is possessed from both internal and external environment (Mahmood & Rufine, 2005). Innovation can best be described as the utmost utilization of new ideas which originates from the bedrock of ideas and is in essence characterized by change. It can be actualized through technological facilities, trained workers motivation of employees and management support for innovation. Innovativeness simply means the degree to which a firm engages in and embraces new idea, novelty, experimentation and creativity that ultimately lead to new product, services or process (Lumpkin & Dess, 1996). Several studies suggested that innovative firms create extraordinary performance, gain economic growth and apply creativity in business environment (Kraus, Rigtering, Hughes, & Hosman, 2012; Laukkanen, Nagy, Hirvonen, & Pasanen 2013). Ottih (2014) opines that the central theme in Schumpeter's theory is that of new combination which innovativeness is. The dimension of innovativeness shows an organization tendency to offer originality and creativity by researching into new product, services, technology, Markets, processes and system development.

Risk Taking

Wiklund & Shepherd (2003) define risk-taking as the ability to take bold actions such as venturing into unknown, a new market or committing a large portion of resources to business for an uncertain reward. Risk handling is the process in which the potential risk to a business are identified, analyzed, mitigated and prevented along. With the process of balancing the cost of protecting the company against any form of risk as regards to the cost of exposure to that risk.

Risk taking has a relationship with performance of entrepreneurial firms (Kreiser & Davis, 2010). Risk taking can be referred to as the firm's tendency to engage in high risk projects and managerial preferences for bold as against cautious actions in order to actualize the firm's objectives. It also involves the willingness to commit significant amount of resources to opportunities with a fair chance of either gain or loss. Risk taking orientation entails the wiliness to engage resources in strategies or projects when the outcome may be highly uncertain. There are several methods through which risk can be managed; it could be through engaging in experiments, testing the markets, acquiring knowledge and the ability to effectively use network.

Knight (1921) in his famous dissertation *Risk, Uncertainty and Profit*, presents his theory of entrepreneurship as one of the most interesting literature in economics. Knight opines that the main function of an entrepreneur is to assume the uncertainty related to economic events. Knight notes that entrepreneur creates the uncertainty himself by innovating; uncertainty can also arise as exogenous factor to the company. Knight distinguishes between risk and uncertainty by indicating that in risk, the range of possible future outcomes as likelihood of occurrence is known. Rauch (2003) asserts that risk taking dimension is positively related to performance. The line between risk and performance is less obvious than one between pro-activeness or innovativeness and performance.

Pro-activeness

Pro-activeness is the ability to constantly exploit opportunities. It denotes the process of anticipating and acting on future changes in market, new process and product. Alvearez & Barney (2000) assert that entrepreneurial pro activeness is the process by which a firm predicts where there is absence of product/services or product/service that have become valuable to customers. It also includes new method of manufacturing that are not previously known. Entrepreneurial pro-activeness to be linked to knowledge for coordination inputs at below market volume and processing such inputs in to output for ensuring a high performance (Arowomole, 2003). Knowledge and action help entrepreneurs pro action to be consciously and systematically alert and help eliminate error when determining the existing value of resources against the current ones.

In a competitive environment, the ability to be proactive distinguishes you from your competitors; it enables the entrepreneur to stay ahead of rivals. One key component of pro-activeness is information and knowledge. Acquisition of information puts the entrepreneur in a position in which he/she is alert to both the external and internal changes in the environment and to act or respond swiftly to environmental changes.

Competitive Aggressiveness

It refers to the firm's degree of intensity to subdue its competitors to achieve entry or improve position. Competitive aggressiveness is the degree of firm's effort to outturn its rivals, which is distinguished in a strong and offensive manner and forcefully reaches to a competitive action to improve or maintain performance (Lumkin, & Dess, (1996): Kraus, Harms & Schwarz, 2005). Competitive aggressiveness is characterized by reactionary moves which in most cases may take the form of head to head confrontation, Porter (1985) suggests three approaches for aggressively competing with other firms;

- i. Doing things in a unique way.
- ii. Changing the context; this is redefining the product or services. 3.
- iii. Changing its marketing channel or scope hence competitive aggressiveness geared towards achieving a competitive advantage.

Competitive aggressiveness can be described as a firm's propensity to intensively challenge its competitors to improve its market position and perform better than its rivals in the market place (Lumpkin & Dess, 1996). Competitive aggressive firms are firms who monitor close competitors activities and try to counteract those activities. They prefer to invest in competitive actions such as product launches, marketing campaigns and price competition on a regular basis.

Performance Measures of Agro-Processing Firms

Most measures of performance "can be grouped into one of the six general categories which include effectiveness, efficiency, quality, timeliness, productivity and health of the organization. Zeppau & Tatiana (2003) averse that there is no single best approach to measuring organizational performance but there is a need for a balance between qualification and relying on the numbers versus qualitative evidence. Julnes & Holzer (2001) argue that it is essential to identify and select appropriate measures and targets of performance. Most of these measures are grouped into one of the following categories; profitability, quality, productivity, growth and market share (Perez Timoty, Gorge, & Gerry, 2007; Liptons, 2003 & Roberts, 2004). The present study adopted productivity, profitability, sales volume and market share.

Theoretical Framework

Theory of New Combination

Schumpeter presented the theory of entrepreneurship in his magnum opus: *The Theory of economic development*, as an economic and not explicitly sociological issue. The Theory is concerned with the mechanism (process) of economic development (Ottih, 2014). The central theme in Schumpeter's theory is that of new combinations, which innovation is. Such a view places the entrepreneur in a central position in the economic process as the pivot on which everything hinges. Schumpeter distinguishes between combinations and new combinations, defining combinations as the existing order in any sphere, and new combinations as innovation. Schumpeter classified innovations into five categories:

- A new good
- A new method of the production
- A new market
- A new source of supply of raw materials, and
- The creation of a new organization of any industry.

Schumpeter's view of entrepreneurship is also one of "creative destruction" which results in new combinations. The entrepreneur is thus a disruptive force, thus the creation of a new combination ends one economic order and clears the way for a new order. Schumpeter also argued that inventions are not a new combination, the reason being that as long as inventions are put not into practice, they are economically irrelevant. Schumpeter's theory explains the concept of innovation as the key component of economic activities; it also relates to the risk factor of creative destructions and the uncertainty of the environment (Ottih, 2014).

Schumpeter theory emphasizes the innovative characteristics of the entrepreneur; the theory describes innovation which is an important aspect of entrepreneurial orientation and as the core through which entrepreneurship activities are hitched. Innovation is what distinguishes an entrepreneurial firm from conservative firms (Miller, 1982). As earlier noted, innovation could either be new products or new processes; it does not only heighten the competition; it increases profits for the entrepreneur and creates jobs. Schumpeter argued that individuals or organizations seeking profits must innovate (Sledzik, 2013). Schumpeter believed that innovation is considered as a crucial factor that drives competition as well as economic growth.

Frank Knight (1885-1972) was an American radical economist, His famous dissertation, *risk, uncertainty and profit* in 1921. Knight depicts that the major function of the entrepreneur is to assume uncertainty related to economic events. Knight argued that entrepreneurs are owners of companies and hence receive profits and to earn this profit, an entrepreneur assumes three basic responsibilities:

- Institutes useful changes are known as innovation
- Adjusts to changes emanating from the environment
- And lastly bears the consequences of uncertainty for having to initiate new changes

Knight further noted that uncertainty is created by the entrepreneur because of his desire to venture into the unknown (innovation) hence, the role of the entrepreneur as that of uncertainty absorption, Knight noted that there is a distinction between risk and uncertainty, defining risk as that which is known and can be insured upon while uncertainty is the likelihood of occurrence is unknown and assignment of probability is difficult (Kpelai, 2009). Knight theory of absorption of risk is in line with the risk-taking component of entrepreneurial orientation. The ability to venture into the unknown for a reward (profit) is a crucial factor for entrepreneurs to succeed. Knight's theory is based on the premise that profits arise out of the decisions that entrepreneurs make under conditions of uncertainty (Festinger & Arlsmith, 1959). Thus risk-taking is a central characteristic of entrepreneurship. Knight (1921) further stated that the entrepreneurship ability of an individual is defined by how well the individual can handle uncertainty and that the entrepreneur success is determined by it.

The risk could be that emanating from having to innovate, risk of acceptance of the innovation, the turbulent nature of environments such as disasters and market forces. These forces do not only deter entrepreneurs but rather place

entrepreneurs in a position where they are better able to calculate their chances of success or failure.

Methodology

The research adopted a survey research design with a focus on quantitative research methods. The survey design examined the relationship between two or more variables, which helped in prediction. The study used primary data source which included well-structured questionnaire. The study population comprised 5,761 processing firms in North Central Nigeria, broken down as; 1,310 from Benue State; 1,348 from Plateau State; 684 from Nasarawa State; 1,113 from Niger State; 894 from Kogi State and 412 from Kwara State. The targeted population is strictly comprised of managers/owners and senior staff of the firms. In determining the sample size used, the Taro Yamane statistical formula was used. The Taro Yamane formula is given by

$$n = N / (1 + N(e)^2)$$

Where:

n = sample size required from the population

N = the population size under study

e = sampling error 5 % (0.05).

$$n = 5,761 / (1 + 5,761 (0.05)^2)$$

$$n = 374.1 \text{ approximately} = 375.$$

In determining the firms' sample from each state, the study used the proportionate stratified sampling method. With the sample size of 375, proportionate stratified sampling was used to select the number of firms that were selected from each state. In adopting stratified sampling, the entire population under study was divided into six (6) strata according to the number of the states in North Central. Thus, the proportionate stratified sampling technique was adopted to take into cognizance of the following strata as presented in the table below:

Table 1 Computation of the Sample Size Using Proportionate Stratified Random Sampling Method

Stratum	No. of Firm Per State	Sample Computation	Number Sampled
1	Benue = 1,310	1,310/5,761 X 374 = 85	85
2	Plateau = 1,348	1,348/5,761 X 374 = 88	88
3	Nassarawa = 684	648/5,761 X 374 = 44	44
4	Niger = 1,113	1,113/5,761 X 374 = 72	72
5	Kogi = 894	894/5,761 X 374 = 58	58
6	Kwara = 413	413/5,761 X 374 = 27	28
			Total = 375

Source: Researcher's computation

To test the reliability of the entrepreneurial orientation, organizational and environmental dynamism and performance of agro-processing firm's measures, internal consistency was adopted by calculating the Cronbach Alpha coefficient for each of the constructs. The results of reliability test are shown in Table 2. The statistical tools used in the analysis of data included descriptive statistics, correlation and covariates. Hypotheses were tested using regression technique.

$$PY1 = a + \beta_1 IN1 + \beta_2 RT1 + \beta_3 PS1 + \beta_3 CA1 + \epsilon \dots\dots\dots i$$

$$PF1 = a + \beta_1 IN1 + \beta_2 RT1 + \beta_3 PS1 + \beta_3 CA1 + \epsilon \dots\dots\dots ii$$

$$MS1 = a + \beta_1 IN1 + \beta_2 RT1 + \beta_3 PS1 + \beta_3 CA1 + \epsilon \dots\dots\dots iii$$

$$SL1 = a + \beta_1 IN1 + \beta_2 RT1 + \beta_3 PS1 + \beta_3 CA1 + \epsilon \dots\dots\dots iii$$

Where,

a = Constant

IN1= Innovativeness, RT1= Risk-Taking, PS1= Proactiveness, CA1= Competitive Aggression; β = Regression Coefficient; PY1= Productivity, PF1= Profitability, MS1= Market Share, SL1= Sales; and ϵ = Stochastic term.

Analyses and Results

Table 2: Reliability Test Using Cronbach’s Alpha

Variable	Cronbach’s Alpha	No of Items
Innovativeness	.860	9
Risk-Taking	.855	8
Proactiveness	.783	8
Competitive Aggressiveness	.714	8
Organizational structure	.729	8
Environmental dynamism	.862	8
Productivity	.822	8
Profitability	.802	9
Market Share	.840	6
Sales	.851	8

Source: Field Survey, 2022.

Table shows innovativeness ($\alpha=.860$), risk-taking ($\alpha=.855$), proactiveness ($\alpha=.783$), competitive aggressiveness ($\alpha=.714$), organizational structure ($\alpha=.729$), environmental dynamism ($\alpha=.862$), productivity ($\alpha=.822$), profitability ($\alpha=.802$), market share ($\alpha=.840$) and sales ($\alpha=.851$). The results show that the coefficient alphas of the estimated multiple-item scale's reliability is high enough. Zikmund et al. (2010) suggested a baseline of 0.70 for good reliability, and thus all the constructs are considered reliable.

Table 3. Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
IN1	374	3.363636	1.268874	1	5
RT1	374	2.625668	1.182529	1	5
PS1	374	2.764706	1.204654	1	5
CA2	374	2.925134	1.268196	1	5
OS1	374	3.005348	1.336224	1	5
ED1	374	2.860963	1.341011	1	5
PY1	374	2.962567	1.220333	1	5
PF1	374	2.652406	1.454228	1	5
MS1	374	1.962567	1.087925	1	5
SL1	374	2.994652	1.242661	1	5

Sources: STATA 64

Table 4. Correlation and Covariates

	IN1	RT1	PS1	CA2	OS1	ED1	PY1	PF1	MS1	SL1
IN1	1.0000									
RT1	0.3751	1.0000								
PS1	0.4753	0.3370	1.0000							
CA2	0.4718	0.3799	0.4938	1.0000						
OS1	0.3704	0.1591	0.2423	0.2803	1.0000					
ED1	0.4284	0.3830	0.5074	0.4006	0.1560	1.0000				

PY1	0.5144	0.4194	0.5812	0.7084	0.4062	0.4654	1.0000		
PF1	0.3985	0.2437	0.3511	0.2868	0.2479	0.3422	0.3295	1.0000	
MS1	0.1109	0.1871	-0.0129	-0.0079	-0.1234	0.1287	-0.0616	0.0748	1.0000
SL1	0.4382	0.3544	0.4845	0.5833	0.2793	0.4162	0.6381	0.2556	0.0038 1.0000

Sources: STATA 64

Table 3 reveals the descriptive statistics of the constructs used for this study. The result shows innovativeness (\bar{x} = 3.363636; SD = 1.268874), risk-taking (\bar{x} = 2.625668; SD = 1.182529), proactiveness (\bar{x} = 2.764706; SD = 1.204654), competitive aggressiveness (\bar{x} = 2.925134; SD = 1.268196), organizational structure (\bar{x} = 3.005348; SD = 1.336224), environmental dynamism (\bar{x} = 2.860963; SD = 1.341011), productivity (\bar{x} = 2.962567; SD = 1.220333), profitability (\bar{x} = 2.652406; SD = 1.454228), market share (\bar{x} = 1.962567; SD = 1.087925), and sales (\bar{x} = 2.994652; SD = 1.242661). The mean scores describe the average data in the distribution, with the corresponding standard deviations revealing divergence of the means from the data spread.

Table 4 reveals that almost all the variables do not have high correlations. This is a good one for the study; as the result shows that the data are uniquely contributing to the data matrix.

Table 5. EO, productivity and profitability of agro-business

Var	Productivity				Profitability			
	Coef.	Std. Err.	t-stat	R ²	Coef.	Std. Err.	t-stat	R ²
IN1	.1247**	.0387	3.22	0.5972	.3053**	.0651	4.69	0.1986
RT1	.1067**	.0382	2.79		.0804	.0641	1.25	
PS1	.2472**	.0408	6.05		.2158**	.0687	3.14	
CA2	.4691**	.0392	11.96		.0550	.0659	0.83	

Sources: STATA 64

P-value= 0.01= **

In the table 5, innovativeness, risk-taking, proactiveness and competitive aggression were considered for EO. The table shows the effects of the variables on productivity and profitability of agro-business. The result shows R²-value (0.5972) between EO and productivity. This implies that EO averagely explains the 59.7% variations in the productivity of agro-business in the North Central State, Nigeria. The remaining unexplained 40.3% variations reveals other possible predictors. On the other column, the result shows R²-value (0.1986) between EO and profitability. This implies that EO accounts for 19.9% variations in the profitability of agro-business in the North Central State, Nigeria. The remaining unaccounted 80.1% variations show that there many other predictors.

The coefficient (β = .1247; p-value= 0.01) unveils a linear relationship between innovativeness and productivity of agro-business in the North Central State, Nigeria. This signifies that 12.5% mean change in innovativeness will result into proportional unit change in productivity of agro-business. This implies that innovativeness has significant positive linear relationship with productivity of agro-business in the North Central State, Nigeria. The table reveals that risk-taking has positive linear relationship with productivity of agro-business (β = .1067; p-value= 0.01). This means that 10.7%-unit change will significantly bring about similar change in the productivity of agro-business in the North Central State, Nigeria.

The table reveals that proactiveness has positive linear relationship with productivity of agro-business in the North Central State, Nigeria (given that β = .2472; p-value= 0.01). The result shows that 24.7% change in proactiveness

will lead to corresponding change in productivity of agro-business. The nexus between proactiveness and productivity of agro-business is significant based on the p-value (0.001). Competitive aggressiveness shows a positive linear link with productivity of agro-business in the North Central State, Nigeria (given that $\beta = .4691$; p-value= 0.01). That is, 46.9% change in competitive aggressiveness will result to proportionate change in productivity of agro-business. The linear link is observed significant based on the p-value.

The coefficient ($\beta = .3053$; p-value= 0.01) unveils a linear relationship between innovativeness and profitability of agro-business in the North Central State, Nigeria. This means that a 30.5% mean change in innovativeness will translate into a corresponding unit change in agro-business' profitability. This suggests that profitability of agro-business in the North Central State of Nigeria has a large positive linear association with innovativeness. Although risk-taking shows a positive linear relationship with profitability of agro-business, but the relationship is insignificant (given $\beta = .0804$; p-value> 0.05). This means that 8%-unit change will not significantly bring about similar change in the profitability of agro-business in the North Central State, Nigeria.

The table reveals that proactiveness has positive linear relationship with profitability of agro-business in the North Central State, Nigeria (given that $\beta = .2158$; p-value= 0.01). The result shows that 21.6% change in proactiveness will lead to corresponding change in profitability of agro-business. The nexus between proactiveness and profitability of agro-business is significant based on the p-value (0.001). Competitive aggressiveness shows an insignificant positive linear link with profitability of agro-business in the North Central State, Nigeria (given that $\beta = .0550$; p-value> 0.05). That is, 5.5% change in competitive aggressiveness will not significantly result to proportionate change in profitability of agro-business.

Table 6. EO, market share and sales of agro-business

Var	Market Share				Sales			
	Coef.	Std. Err.	t-stat	R ²	Coef.	Std. Err.	t-stat	R ²
IN1	.0643	.0554	1.16	0.0403	.1211**	.0476	2.54	0.4122
RT1	.1649**	.0548	3.01		.0963*	.0470	2.05	
PS1	.0178	.0585	0.30		.2085**	.0503	4.15	
CA2	-.0397	.0561	-0.71		.3824**	.0482	7.93	

P-value= 0.01= **; 0.05= *;

Table 6 shows that EO has effect on the market share of agro-business in the North Central State, Nigeria (given that R²= 0.0403). The table shows that 4.0% variations in the market share of agro-business in the North Central States are explained by EO. The remaining unexplained 96.0% indicates that ample of other variables are also accountable for the variations in the market share of agro-business in the North Central States. The other column shows that EO has effect on the sales of agro-business in the North Central State, Nigeria (given that R²= 0.4122). The table demonstrates that EO explains 41.2% of variability in agrobusiness sales in the North Central States. The remaining unexplained 58.8% indicates that ample of other variables are also accountable for the variations in the sales of agro-business in the North Central States.

The table shows that the linear relationship between innovativeness and the market share of agro-business in the North Central State, Nigeria is positive ($\beta = .0643$; p-value> 0.05). That is 6.4% change in innovativeness has no significant corresponding change in the market share of agro-business in the North Central State, Nigeria. The coefficient ($\beta = .1649$; p-value= 0.01) shows the existence of linear relationship between risk-taking and the market share of agro-business in the North Central State, Nigeria. The variable appeared in the model with positive sign and

p-value = 0.01. This implies that the linear relationship between risk-taking and the market share of agro-business in the North Central State, Nigeria is significant.

The result shows that proactiveness ($\beta = .0178$) has positive linear relationship with the market share of agro-business in the North Central State, Nigeria, but the p-value is greater than 0.05; making the relationship insignificant. This demonstrates that a 1.8% change in proactiveness will result in a negligible relative change in the market share of agro-business in the North Central State, Nigeria. The coefficient ($\beta = -.0397$) reflects negative linear relationship between competitive aggression and the market share of agro-business in the North Central State, Nigeria. The p-value > 0.05 implies that the linear relationship is insignificant. Thus, 4.0% change in competitive aggression will bring about insignificant inverse change in the market share of agro-business in the North Central State, Nigeria.

Innovativeness with the coefficient ($\beta = .1211$) shows positive linear relationship with the sales of agro-business in the North Central State, Nigeria. The result shows that the coefficient is significant; given that the p-value is less than 0.01. This means that there will be significant change in the sales of agro-business in the North Central State, Nigeria given 29.3% change in innovativeness. The coefficient ($\beta = .0963$) shows positive linear relationship between risk-taking and the sales of agro-business in the North Central State, Nigeria. The p-value = 0.05 reveals that the linear relationship is significant. That is 9.6% change in risk-taking will lead to significant positive change in the sales of agro-business in the North Central State, Nigeria.

The coefficient ($\beta = .2085$) shows positive linear relationship between proactiveness and the sales of agro-business in the North Central State, Nigeria is significant. The p-value is equal to 0.01; indicating that the linear relationship between proactiveness and the sales of agro-business in the North Central State is not only positive but also significant. That is 20.9% change in proactiveness will bring about the same proportional change in the sales of agro-business in the North Central State, Nigeria.

The result ($\beta = .3824$) shows that the competitive aggression has positive linear relationship with the sales of agro-business in the North Central State, Nigeria. That is a 38.2% change in the competitive aggression will bring about proportional change in the sales of agro-business in the North Central State, Nigeria. The p-value is equal to 0.01; indicating that competitive aggression has significant positive linear relationship with the sales of agro-business in the North Central State, Nigeria.

Discussion

This study examined the nexus between EO and performance of agro-business (productivity, profitability, market share and sales). The EO dimensions considered for this study are innovativeness, risk-taking, proactiveness and competitive aggression. Our result revealed that EO has significant effect on productivity and profitability of agro-business in the North Central State. EO has average effect on productivity of agro-business, but low effect on profitability of agro-business. The findings advance that of Eze et al. (2022) which revealed that EO has positive effect on performance of agro-business. This is because this present study is specific about the aspects of performance being affected by EO. The study also revealed a statistical significance between innovativeness and productivity of agro-business; risk-taking and productivity of agro-business; proactiveness and productivity of agro-business; and competitive aggressiveness and productivity of agro-business in the North Central State, Nigeria. This aligns with the finding of Ntiamoah et al. (2019) that innovation practices have positive effects on agribusiness performance. Wambugu et al. (2015) also found that proactiveness and risk taking have significant positive effect on the performance of agro processing SMEs. The study also supports the finding of Abdullahi et al. (2019) that competitive aggressiveness significantly affects the financial performance of the SMEs.

Finding showed that innovativeness has nexus with the profitability of agro-business in the North Central State, Nigeria. This implies that there is a substantial positive continuous relationship between innovativeness and

profitability of the agro-business in the North Central State of Nigeria. This aligns with the finding of Vollaro et al. (2019) that there is a significant nexus between innovation and profitability. Risk-taking insignificantly affect the profitability of agro-business. Finding also showed that proactiveness has a significant positive on the profitability of agro-business in the North Central State, Nigeria. Competitive aggressiveness showed an insignificant positive linear link with profitability of agro-business in the North Central State, Nigeria.

Finding revealed that EO has effect on both market share and sales of agro-business in the North Central State, Nigeria. The study revealed that innovativeness, proactiveness and competitive aggression have insignificant link with the market share of agro-business. These appear to be against the a-priori expectation of this study. It is possible that some factors have interplayed or moderated the relationship. Possible factors may be firm size, resource availability, strategy alertness/thinking and financial capacity. Deficit or gap in these may have resulted to the observed findings. Risk-taking has significant link with the market share of agro-business in the North Central State, Nigeria. Risk-taking has shown to be favourable to the market share of agro-business. It is possible that risk-taking has led to improved market share due to market niche. Innovativeness, risk-taking, proactiveness and competitive aggression have significant positive linear relationship with the sales of agro-business in the North Central State, Nigeria. The three variables (innovativeness, proactiveness and competitive aggression) are strategic in nature, and customers are bound to exhibit behaviors that favour sales where these are done in such a way that outwit other competitors.

Conclusion

It has been proven overtime that EO is crucial for driving desirable business performance. There is however lapses in previous studies, as to which dimension of performance has EO influenced in agro-business. This study was keen to unveiling the nexus between EO dimensions and four dimensions of performance of agro-business. The EO dimensions considered for this study are innovativeness, risk-taking, proactiveness and competitive aggression; while the performance dimensions are productivity, profitability, market share and sales. It was validated by this study that EO has varying effects on performance dimensions.

On a specific note, the dimensions of EO like innovativeness, proactiveness, risk-taking and competitive aggressiveness have significant positive effects on the productivity of agro-business in the North Central State, Nigeria. Only innovativeness and proactiveness have significant positive effects on the productivity of agro-business in the North Central State, Nigeria. Risk-taking has significant effect on the market share of agro-business in the North Central State, Nigeria. Also, innovativeness, risk-taking, proactiveness and competitive aggression have significant positive linear relationship with the sales of agro-business in the North Central State, Nigeria. Thus, it is required that individuals in agro-business take cognizance of these for performance improvement.

Recommendations

This study recommended that:

- Agro-business firms should focus more on innovativeness, risk-taking, proactiveness and competitive aggressiveness in the pursuit of improved productivity.
- Agro-business firms should target only innovativeness and proactiveness for sustainable increase in profitability.
- Agro-business firms and policy-makers should embrace risk-taking behavior and capture it policy framework for the purpose of achieving increased market share
- Agro-business firms should embrace innovativeness, risk-taking, proactiveness and competitive aggression for increased sales and its sustainability.

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