

Is marketing orientation a prerequisite for firm financial performance? Evidence from Poultry Firms in Nigeria

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Abstract

The aim of this study is two-fold. Firstly, it explained the process of validating “market orientation” as a reflective-formative second-order latent construct operationalized in three first-order dimensions (customer orientation, competitor orientation, and inter-functional coordination). Secondly, it examined the relationship and necessity condition logic between the second-order market orientation and perceived financial performance by the combined use of PLS-SEM and NCA approaches. Based on a cross-sectional survey research design, the study analyzed the perceptions of a random sample of 150 owners/managers of poultry MSMEs actively engaged in local production and processing of poultry products within Bauchi State, Nigeria. A standard repeated indicator approach was used to confirm the relationships between the reflective-formative higher-order market orientation. Findings revealed that market orientation occurred with the presence of customer orientation, competitor orientation, and inter-functional coordination. Therefore, it should be measured as a reflective-formative Type II construct. Also, in line with the theory of market orientation, the study established the direct influence of the second-order market orientation on the perceived financial performance of poultry MSMEs.

Keywords: *Financial performance, market orientation, reflective-formative Type II, second-order construct, poultry MSMEs, NCA*

Introduction

For a business enterprise to earn revenue and profit nowadays, it must have an adequate orientation of its market; that is to say it cannot generate business profit if it does not practice market-oriented behaviours. Therefore, market orientation (MO) is a necessary condition for business financial performance. Failure is guaranteed when MO behaviours of a business are crippled. However, implementation of business MO alone may not be sufficient for business financial performance since other business-level and market-level variables in the marketing strategy literature, such as relative costs and buyer power, could play a vital role in determining business profitability (Narver & Slater, 1990).

The decline in the financial performance of poultry firms is usually associated with environmental changes (Oyewale, 2021). This usually happens when an absence of comprehensive information or the inability to segregate between relevant and irrelevant data affects the prediction ability of a firm (Milliken, 1987). Earlier in the 2019 pandemic, the lockdown measure taken to prevent community transmission of 2019 coronaviruses (COVID-19) in Nigeria had resulted in the losses of

billions of naira in sales of poultry products forced many poultry firms to go out of business and threatened about 5 to 10 million jobs (Izuaka, 2020). The financial performance of poultry firms in Nigeria was deleteriously affected by the combined consequences of movement restrictions that affected essential poultry products and inputs, such as eggs, poultry feeds, day-old chicks (DOCs), veterinary services (Izuaka, 2020; Umar, 2020); and significant decline in both household and industrial spending on poultry products (Isreal, 2021). Other contemporary issues that led to the financial losses by poultry firms in Nigeria, especially the small-and-medium-sized firms, are a decline in poultry stock due to the outbreak of a new variant of Avian flu (Oyewale, 2021), grain scarcity, and poultry feeds hike due to the high level of insecurity in the country, climate change, hoarding of grains (Izuaka, 2020).

In spite of these challenges, the Federal Government of Nigeria (FGN) has made efforts to cushion the harsh situation poultry firms found themselves. These government interventions include, among others, the importation band on frozen poultry meats, the issuance of tons of grain,

the soft loan schemes that cut across the Agribusiness/Small and Medium Enterprise Investment Scheme (AGSMEIS), Survival Fund, COVID-19 Targeted Credit Facility (TCF), and so forth.

Until the methodological breakthrough of Sarstedt et al. (2019) on higher-order construct specification, estimation, and validation, generally, the extant studies that modeled hierarchical constructs in partial least squares (PLS) did not provide adequate evidence of construct validation (Sarstedt et al., 2019). MO as a multidimensional construct is no exception (Dursun & Kilic, 2017). Similarly, before the monumental contribution of Dul (2021) on necessary condition analysis (NCA), the MO-financial performance nexus was not examined along with the necessary condition logic. In line with Wang (2019), this opens up a methodological gap for future studies.

Indeed, following an extensive search in literature, no evidence of published study in Nigeria addresses the aforementioned research gap. As such, this study addresses two key issues. First, it methodologically assessed MO as a reflective-formative second-order latent construct as operationalized by Narver and Slater (1990) in three first-order dimensions (i.e., customer orientation, competitor orientation, and inter-functional coordination) using guidelines advocated in the literature (Sarstedt et al., 2019). Second, it equally examined MO as a necessity condition logic for the financial performance of poultry micro, small, and medium enterprises (MSMEs), drawing unit of analysis (UoA) from those operating in Bauchi State, Nigeria.

Literature Review

Perceived Financial Performance

According to Sandvik and Sandvik (2003), the concept of business performance is viewed from two distinct and overlapping perspectives across efficiency and effectiveness. The former focused on issues such as value delivery to customers, sales growth, and relative market share. So, for a firm to survive in any line of business, it is necessary to attain financial efficiency. Financial efficiency, such as return on investment, and profits, is taken as “an ultimate outcome when performance is included in research” (Sandvik & Sandvik, 2003, p.359). Thereby making perceived financial performance as a major variable of interest of the study. In turn, it is defined as the extent in which firm attain its financial efficiencies on indices, such as future expectations on return on production investment, return on marketing investment and increase in sales (Micheels & Gow, 2011). These financial indicators are qualitative measures that requires the perception of owners/managers of poultry MSMEs to compare their overall performance with other sector players in business.

Market Orientation

Despite research attention among scholars on MO, the concept still lagged in empirical validation as a second-order construct in literature. Although, this concept encompasses five main classifications across cultural base behaviour, market intelligence, decision making, strategic and customer orientation perspectives (Acar & Özşahin, 2017). Based on cultural behaviour, Narver and Slater (1990) conceptualised MO as an “organisational culture that most effectively and efficiently creates necessary behaviours for creation of superior value for buyers, thus, continuous superior performance for business” (p. 21). The authors equally identified three vital components of MO, which are necessary to facilitate business activities that lead to accomplishment of goals. These include customer orientation, competitor orientation and inter-functional coordination, popularly known as MKTOR (Narver & Slater, 1990). Based on this taxonomy, customer orientation requires that to create superior value, a firm should constantly monitor and understand its potential and prospective customers (Narver & Slater, 1990). For a firm to achieve superior business performance, customer orientation alone is not sufficient and the need for understanding competitor’s behaviour cannot be stated. In the words of Acar and Özşahin (2017), competitor orientation is explained as a “firm’s understanding of the short-term strengths and weaknesses and long-term capabilities and strategies of both the key current and the key potential competitors” (p. 6). Combining both customer orientation and competitor orientation to achieve optimum business performance is equally not enough without exhibiting inter-functional coordination. This has to do with harmonious coordination and utilisation of both human and other business resources to achieve greater customer value (Slater & Narver, 1994). Zhou et al. (2009) argued that the likelihood of firm to embrace both customer orientation and competitor orientation depends largely on their perception of customers in the

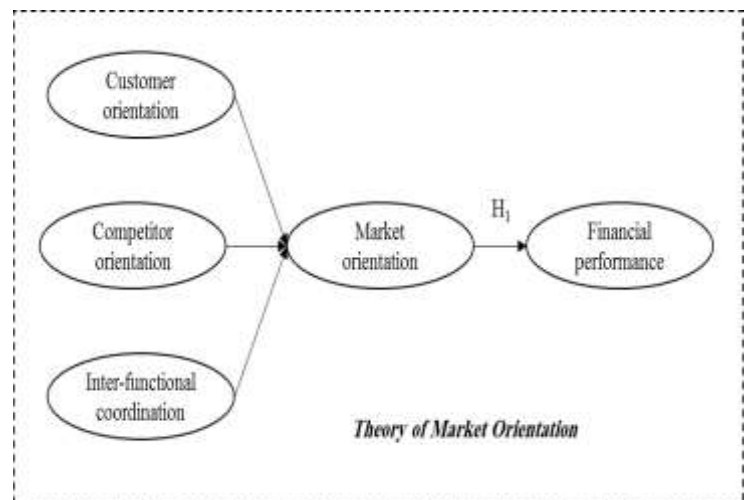
value chain. This makes firms to adopt customer orientation role in providing timely needs ahead of competitors.

Market Orientation as Higher-Order Construct

From a literature standpoint, the specification of a second-order construct as a reflective-reflective Type I, reflective-formative Type II, formative-reflective Type III or formative-formative Type IV is based on the researcher’s discretion (Research Beast [RB], 2019). Some authors have modelled MO as a second-order factor variable (e.g., Kara et al., 2005; Lin & Brown, 2010; Sandvik & Sandvik, 2003; Wang et al., 2012). Others have viewed it as a second-order composite variable (van Riel et al., 2017). In the present study, MO was used as a second-order reflective-formative construct. As such, the extant literature recommended that an alternative reflective measure of such concept should be included during questionnaire design in order to obtain data for assessing the convergent validity of formative second-order construct through Chin’s (1998) redundancy analysis (Hair et al., 2017; Hair et al., 2019). For this purpose, the use of a reflective multi-item measurement or a global single-item measurement that summarises the essence of a variable under consideration can be used in this regard (Cheah et al., 2018). Hence, considering that multi-item measurement increases the survey length (Tehseen et al., 2019), a global single-item measurement labelled “overall, this poultry business is market-oriented” was captured in the study’s questionnaire.

Figure 1 depicts the conceptual research framework of the study, which was guided by the theory of market orientation (Narver & Slater, 1990). According to this theory, the ingredient of MO constitutes three behavioural components, namely: customer orientation, competitor orientation and inter-functional coordination. The theory further suggests that, in every market environment business-specific factor, that is relative cost, relative size and the market-level factors, that is market growth, seller concentration, entry barriers, buyer power, seller power, and technological change, together with MO affect business performance.

Figure 1 Conceptual Model



Market Orientation and Perceived Financial Performance

Prior studies conducted mostly in the hospitality, transport, manufacturing and service industries predicted that MO has a significant and direct relationship with financial performance (e.g. Boso et al., 2013; Gruber-Muecke & Hofer, 2015; Lämsiluoto et al., 2018; Lee et al., 2015; Šályová et al., 2015). The positive relationship between the MO-performance link, as postulated by these studies, was based on the assumption that MO offers the firm with an in-depth knowledge of its business context and customers, which in turn creates maximum customer satisfaction (Kaynak & Kara, 2004).

In a study by Šályová et al. (2015), the interplay between MO’s dimensions on firm performance was explored. Regression and correlation analysis were used to analyse responses from a sample of 62 foodstuff firms in Slovakia. The result shows that MO predicts the proxies of financial performance (return on investment, return on asset, return on sales) in a positive direction. In another study by Becherer et al. (2003) on 215 chief executive officers (CEOs) of small-sized businesses in the United States (US), the result of the data analysis with

ANOVA revealed that firms with MO tended to have higher profits and vice versa. In the same setting, Green et al. (2005) hypothesized that MO positively predicted financial performance. Using the SEM approach to test the hypothesis on the sample of 173 US manufacturing firms confirmed the hypothesized relationship. Also, Kara et al. (2005) examined the effect of MO on financial performance using a sample of 153 owners/managers of small-scale retail outlets in three US cities. Data analysis results with CB-SEM indicated a direct and significant relationship between the two constructs. Similarly, in a study of Boso et al. (2013), the relationship between MO and profitability was examined in a sample of 203 entrepreneurial firms in Ghana. The data analysis with LISREL showed that MO significantly predicted profitability in a positive direction. In a comparative study of 77 industrial and 70 consumer good firms by Kaynak and Kara (2004) in China, path analysis with CB-SEM showed that MO was an important predictor of financial performance across the firms. In the study of Kirca (2011), the effect of subsidiary MO on financial performance was examined on a sample of 73 multinational corporations located in Turkey. The regression outcome showed that subsidiary MO was positively and significantly related to financial performance. Furthermore, the study of Lämsiluoto et al. (2018) on a sample of 122 Finnish MSMEs showed that MO has a positive and significant predictor of financial performance. Another study by Lee et al. (2015) hypothesized the positive influence of MO on financial performance. Data analysis of the structural model with a sample of 156 Korean food-service franchise firms supported the hypothesized relationship. In a study by Matear et al. (2002), the responses of 231 managers of service firms in New Zealand were analysed using hierarchical moderated regression analysis, which revealed that MO had a positive and significant influence on financial performance. In their eminent study, Narver and Slater (1990) examined the direct links between market orientation with other nine predictor variables and business profitability using a sample of 110 top managers from forest strategic business units of Western Corporation. The regression result showed that financial performance was positively explained by market orientation. Similarly, in a study by Sin et al. (2005), the relationship between MO and financial performance was analysed on the sample of 68 marketing directors of hotels in Hong Kong using multiple regression analysis. The result showed that financial performance was positively and significantly influenced by MO. Conversely, in the study of Lin and Brown (2010), the effect of MO on financial performance was investigated on a sample of 292 Taiwanese managers in travel agencies. The output of the path analysis in AMOS 7.0 showed no effect between MO and financial performance. In another study, Ho et al. (2017) used the same data analysis technique to examine the empirical relationship between MO through its sub-dimension and financial performance on the sample of 190 cattle value

chain actors in Vietnam. The authors concluded that MO had no influence on financial performance. In addition, the outcome study of Sandvik and Sandvik (2003) that used a sample of 278 hotel managers in Norway revealed that MO did not influence financial performance (sales growth, relative price premium, and profitability). In the same context and industry, Haugland et al. (2007) analysed the responses of 110 hoteliers using a multi-method approach measure of financial performance (subjective vs. objective). The analysis of the result with OLS regression indicated that MO did not have an effect on the return on assets.

Furthermore, the study of Demirbag et al. (2006) employed CB-SEM to analyse data on a sample of 141 Turkish textile SMEs. It was shown that MO was not a predictor of firm financial performance. Moreover, the study of Kajalo and Lindblom (2015) that used a similar method of data analysis technique confirmed that MO did not influence the financial performance of a sample of 202 small retail outlets in Finland. It can be deduced from the previous studies reviewed shared cultural similarities, as they were conducted in either Asia, Europe, North Africa, or America. Their findings cannot be generalised in a context such as Nigeria. Based on this, the following necessity logic hypothesis for MO and perceived financial performance was developed through the lens of market orientation theory.

H₁: Market orientation is a necessary but insufficient condition for firm financial performance

Methodology

In this study, the cross-sectional survey research design was employed. Questionnaires were distributed through the hand-delivery method to a random sample of poultry agripreneurs ($n = 150$) in Nigeria (Poultry Association of Nigeria [PAN], 2021). This sample size addresses the statistical power concern as depicted in Figure 2. With 80% statistical power, a minimum sample size of 103 is needed to detect R Squared values of at least 10% with 5% likelihood of error in the study's model comprising a formative construct with three maximum indicators (Memon et al., 2020). Podsakoff et al. (2003) advocated that procedural measures to avert common method bias were implemented prior to the data collection exercise and Harman (1967) single factor procedure with the cumulative variance of 37.094% empirically complements the absence of it. As depicted in Table 1, constructs in the nomological network were adapted from extant literature as reflective assertions and calibrated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The presence of items with z -score values above 3 necessitates the further examination of outliers using scatter plots, and there were no rare combinations among the variables (Sarstedt & Mooi, 2019).

Table 1
Items and Descriptive Statistics

Latent variable (Scale source)	Item	Mean	Range [Min, Max]	SD	Excess Kurtosis	Skewness
Financial performance, Ho et al. (2017), Santos et al. (2020)	FP1 We are very satisfied with the overall performance of the farm last year.	4.067	[1, 5]	0.720	3.328	-1.081
	FP2 The return on production investments met expectations last year.	4.160	[1, 5]	0.809	1.007	-0.912
	FP3 The return on marketing investments met expectations last year.	4.358	[1, 5]	0.698	3.591	-1.351
	FP4 The prices we received for our product is higher than that of our competitors.*	4.309	[1, 5]	0.732	2.441	-1.181
	FP5 The overall performance of the farm last year exceeds that of our major competitor.	4.311	[1, 5]	0.725	2.638	-1.200
	FP6 Compare to previous years, farm profits have increased.	4.213	[1, 5]	0.797	3.019	-1.364
	FP7 Compare to previous years, our farm increase product sales.*	4.087	[1, 5]	0.757	2.727	-1.079
Customer orientation, Matanda and Ndubisi (2009), Rapp et al. (2012)	CO1 We regularly evaluate customer preferences.	4.100	[1, 5]	0.823	1.238	-0.987
	CO2 We frequently and systematically monitor the needs of our customers.	3.933	[1, 5]	1.231	-0.095	-0.998
	CO3 Our farm objectives are determined by customer satisfaction.	4.020	[1, 5]	0.962	0.540	-0.901
	CO4 Our farm strategies have the objective to create as much value as possible for our customer.	4.141	[1, 5]	1.030	1.469	-1.367
	CO5 Our strategy to achieve a competitive advantage is based on the comprehension of customer needs.	4.094	[1, 5]	1.006	1.416	-1.271
Competitor orientation, Ho et al. (2017), Matanda and Ndubisi (2009)	CP1 We always track the business performance of key competitors.*	4.195	[1, 5]	0.880	2.506	-1.408
	CP2 If our competitors launch a campaign to promote their poultry products we respond immediately.*	4.140	[1, 5]	0.917	1.247	-1.174
	CP3 We regularly discuss about what our competitors are doing.	4.220	[1, 5]	0.878	1.307	-1.222
	CP4 We target customers where my business has opportunity for competitive advantage.	4.074	[1, 5]	0.956	0.660	-1.034
	CP5 We respond rapidly to pricing moves made by our competitors.	4.320	[1, 5]	0.919	2.026	-1.515
	CP6 We identify the area where our key competitors have succeeded or failed.	4.040	[1, 5]	0.937	0.518	-0.915

*deleted items

Table 1 Continued

Latent variable (Scale source)	Item	Mean	Range [Min, Max]	SD	Excess Kurtosis	Skewness
Inter-functional coordination, Matanda and Ndubisi (2009), Rapp et al. (2012), Auh and Menguc (2005)	IC1 We share resources with other business units.*	4.243	[1, 5]	0.882	1.886	-1.333
	IC2 information about our customers is communicated freely to everyone.	4.260	[1, 5]	0.927	1.935	-1.405
	IC3 Everyone who works here can competently handle customer queries.	4.147	[1, 5]	0.820	2.347	-1.233
	IC4 Our managers understand how employees can contribute to value of customers.	4.243	[1, 5]	0.867	2.402	-1.438
MO global single item, Self-developed	si: Overall, this poultry business is market-oriented.	4.187	[1, 5]	0.677	3.740	-1.160

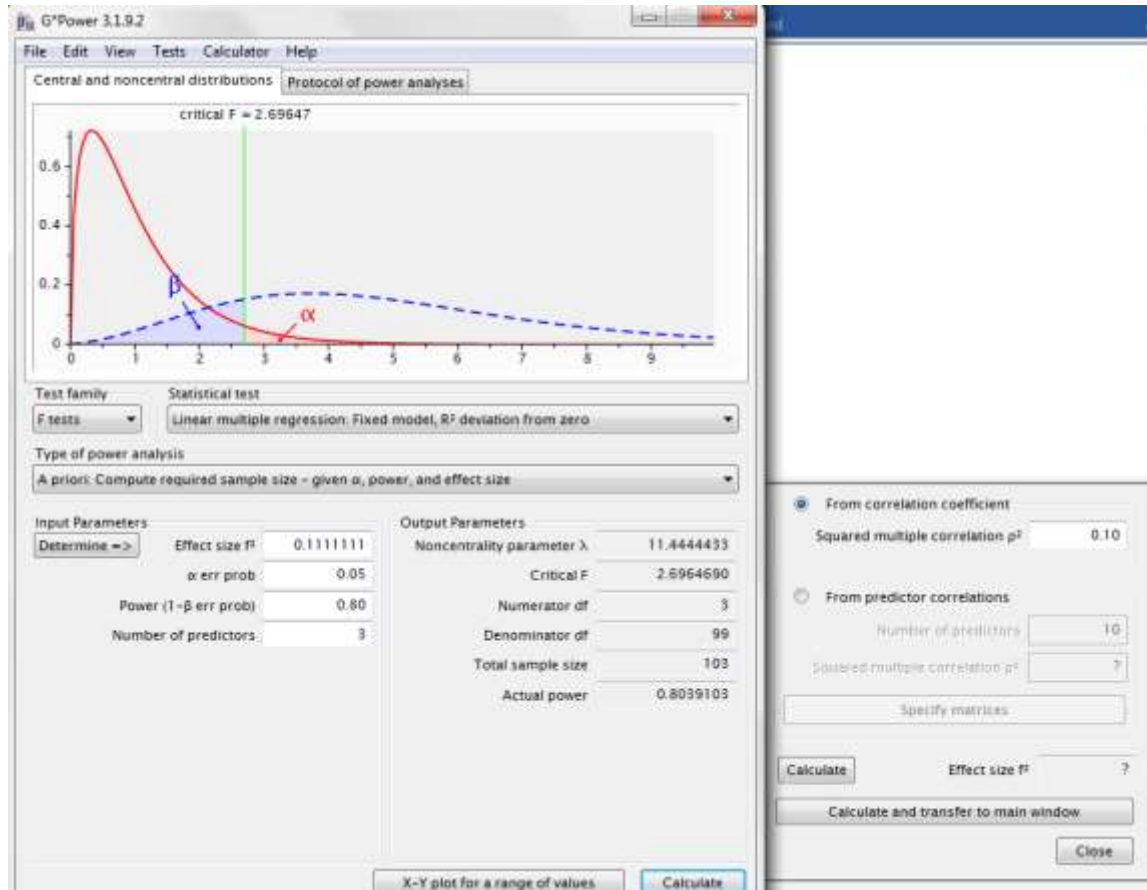
*deleted items

The combined use of SmartPLS 3 (Ringle et al., 2015) and NCA (Dul, 2016) were the analytical strategies employed in the study. This is because the modelling of MO as a second-order reflective-formative Type II construct requires Partial Least Squares-Structural Equation

Modelling (PLS-SEM) to handle its formatively measured constructs and also latent variable scores are needed for further NCA (Hair et al., 2019).

Figure 2

Statistical Power Analysis with G*Power Calculator



Results

The prominent approaches of handling hierarchical constructs in PLS-SEM include the repeated indicator approach (Wold, 1982), the embedded two-stage approach (Ringle et al., 2012), the disjoint two-stage approach (Becker et al., 2012), the extended repeated indicator approach/ total effects analysis of collect-type hierarchical component models (Becker et al., 2012), the hybrid approach (Wilson & Henseler, 2007), three-stage approach (van Riel et al., 2017) and the improved extended repeated indicator approach (Cheah et al., 2019).

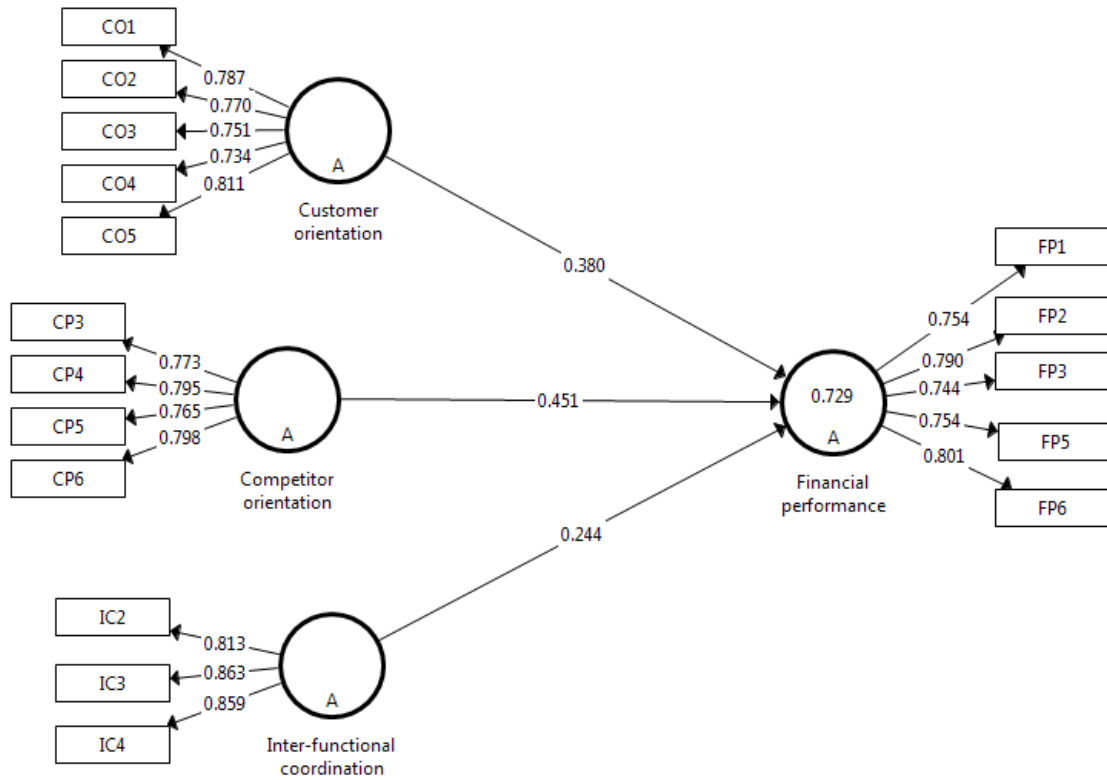
In the SmartPLS 3 project explorer, the Higher-Order Component (HOC), i.e., market orientation, is specified as the reflective-formative Type II construct and was treated using the Becker et al. (2012) disjoint two-stage approach, as recommended by Henseler (2017). Although Cheah et al. (2019) have shown that the results of two versions of the two-stage approach (i.e., the embedded and the disjoint two-stage approaches) are the same. Nevertheless, the two-stage approach is said to have better parameter recovery on the relationships between the second-order construct and its first-order construct and between the second-order and endogenous constructs (Sarstedt et al., 2019).

Stage One: Measurement Model

Following the Sarstedt et al. (2019) latest guideline on specifying, estimation, and validation of second-order constructs, the first-order reflective constructs (i.e., customer orientation, competitor orientation, and inter-functional coordination) together with the other variables that were theoretically related (i.e. financial performance) were estimated directly without the second-order construct (see Figure 3). Standardized variable scores of customer orientation, competitor orientation and inter-functional coordination were saved for the purpose of re-using them as indicators of market orientation. At this stage, the “Model A” weighing scheme was selected to correctly estimate all the first-order reflective constructs (van Riel et al., 2017).

Figure 3

Stage One Second-Order Construct



Following confirmatory composite analysis (CCA) guidelines (Hair et al., 2020), standard model evaluation criteria in the extant literature (Hair et al., 2017; Hair et al., 2019) were applied for both first-order and the second-order constructs, as shown in Table 2. Therefore, it can be seen that the three reflective lower-order components (LOCs), i.e.

customer orientation, competitor orientation and inter-functional coordination, produced acceptable measurement model criteria. The variance of LOC's indicators was above 0.5, LOCs' reliability values were above 0.7, LOCs' AVE values were above 0.5 and LOCs' HTMT were less than 0.90.

Table 2 Measurement Model Assessment Results

Reflective LOCs & Financial Performance				
Internal Consistency Reliability				
Construct/ Indicator	Cronbach's alpha (α)	Dijkstra-Henseler's rho_A (ρ_A)	Jöreskog's rho (ρ_c)	
CO	0.829	0.832	0.880	
CP	0.790	0.791	0.864	
IC	0.800	0.800	0.882	
FP	0.829	0.843	0.878	
Convergent Validity				
	Code	Indicator Loadings	AVE	
CO	CO1	0.787	0.595	
	CO2	0.770		
	CO3	0.751		
	CO4	0.734		
	CO5	0.811		
CP	CP3	0.773	0.613	
	CP4	0.795		
	CP5	0.765		
	CP6	0.798		
IC	IC2	0.813	0.714	
	IC3	0.863		
	IC4	0.859		
FP	FP1	0.754	0.591	
	FP2	0.790		
	FP3	0.744		
	FP5	0.754		
	FP6	0.801		
Discriminant Validity: HTMT				
	CO	CP	IC	FP
CO				
CP	0.668[0.446, 0.617]			
IC	0.480[0.208, 0.748]	0.359[0.159, 0.637]		
FP	0.856[0.727, 0.937]	0.855[0.743, 0.977]	0.631[0.317, 0.853]	
HOC (LOCs represents formative indicators of HOC)				
Convergent Validity				
	Path Coefficient	R ²		
MO	0.791	0.626		
Collinearity Between Indicators				
	VIF			
CO	1.543			
CP	1.426			
IC	1.193			
Significance and Relevance of Outer Weights				
	Outer Weights (Outer Loadings)	t-value	Interpretation	
CO	0.441(0.845)	5.169***[0.270, 0.595]	Relative Importance	
CP	0.527(0.851)	6.579***[0.372, 0.686]	Relative Importance	
IC	0.293(0.611)	3.017**[0.131, 0.507]	Relative Importance	

Note: Lower order components (LOCs), higher order component (HOC), Market orientation (MO), Customer orientation (CO), Competitor orientation (CP), Inter-functional coordination (IC), Financial performance (FP), Heterotrait-monotrait (HTMT), Variance inflation factors (VIF), $^{\circ}p < .10$ $^*p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Stage Two: Structural Model

While in the second stage, the reduced single items in stage one of each of the three first-order constructs (i.e. customer orientation, competitor orientation and inter-functional coordination) were used as the manifest variables (composite scores) of the second-order construct (market

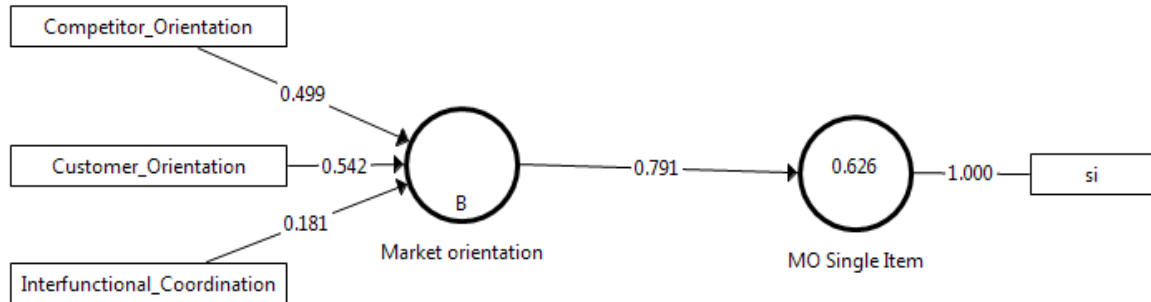
orientation), as depicted in Figure 5. Following the suggestion by van Riel et al. (2017), the structural path was then assessed with the second-order construct as a "Model B" weighing scheme.

To ascertain the convergent validity of the higher-order component (HOC), redundancy analysis was conducted where the formative

second-order market orientation was regressed on its reflectively measured latent construct with a global single item as shown in Figure 4. The construct showed adequate convergent validity as the path

coefficient was found to be above the liberal cut-off value of 0.70, which is equivalent to R Squared value of greater than 0.50 (Hair et al., 2017).

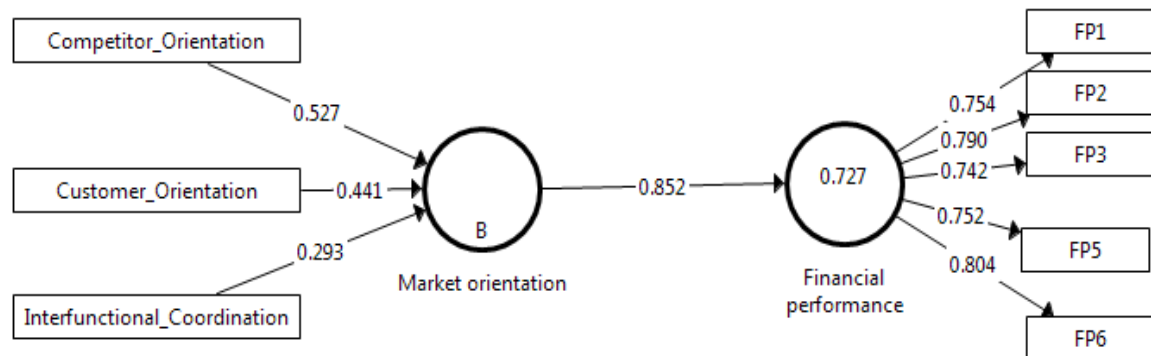
Figure 4 Redundancy Analysis



Similarly, the level of collinearity in the formative second-order construct does not reach a critical level, i.e., below the conservative threshold of three (Hair et al., 2019). As depicted in Table 2, the highest value of indicator VIF is 1.543. Finally, the relationship between the market orientation and its three formative indicators was evaluated by running bootstrap with the 5,000 resample. The three indicators' outer weights (customer orientation weight is pronounced 0.527, competitor

orientation weight is pronounced 0.441, and inter-functional coordination weight is pronounced 0.293) were found to have a relative contribution, as they were all statistically significant at 5%. Consequently, all the three formative indicators were retained. Based on these results, we find support for the validity of market orientation as a reflective-formative second-order construct. As shown in Figure 5, we also ran the bootstrap approach with the recommended 5,000 resamples to assess the theoretical model relationship

Figure 5 Structural Model with Market Orientation as a Second-Order Construct



and the path coefficient between market orientation and financial performance relationship, as shown in Table 3, reveals a statistically positive and significant result at the 5% level of significance one-sided ($\beta = 0.852, p = .001$). This result suggests that, on average, a one-unit increase in the market orientation, the firm financial performance will respond by 85.2% increase. The inner model's variance inflation factor (VIF) is below the recommended collinearity threshold of 3 (Hair

et al., 2019). The coefficient of determination is 72.7% ($R^2 = 0.727$) with the effect size of 2.657 ($f^2 = 2.657$), which according to Cohen (1988) taxonomy were regarded as substantial and large, respectively. The Stone-Geisser's Q^2 value (Stone, 1974; Geisser, 1974) of 0.397 obtained by the blindfolding procedure shows evidence of cross-validated predictive relevance of the model.

Table 3 Path Coefficient, Collinearity, Coefficient of Determination, Effect Size, Predictive Relevance

Path	Path coefficient	Standard error	t-value	95% BC Confidence Interval
Market orientation -> Financial performance	0.852	0.025	34.75***	[0.779 0.888]
VIF = 1.00, $R^2 = 0.727, f^2 = 2.657, Q^2 = 0.397$				

* $p < .10$ ** $p < .05$. *** $p < .01$. *** $p < .001$., Bias Corrected (BC)

Following Shmueli et al. (2019) guidelines on out-of-sample predictive capability, we configured and ran the Shmueli et al. (2016)'s PLSpredict algorithm in SmartPLS by specifying 10-folds cross-validation and ten repetitions. As evidenced the five indicators in Table

4, the model has low out-of-sample predictive power as evidenced by the indicator's $Q^2_{predict}$ values above zero and two out of five indicators showed predictive errors lower than the naive linear model (LM) benchmark.

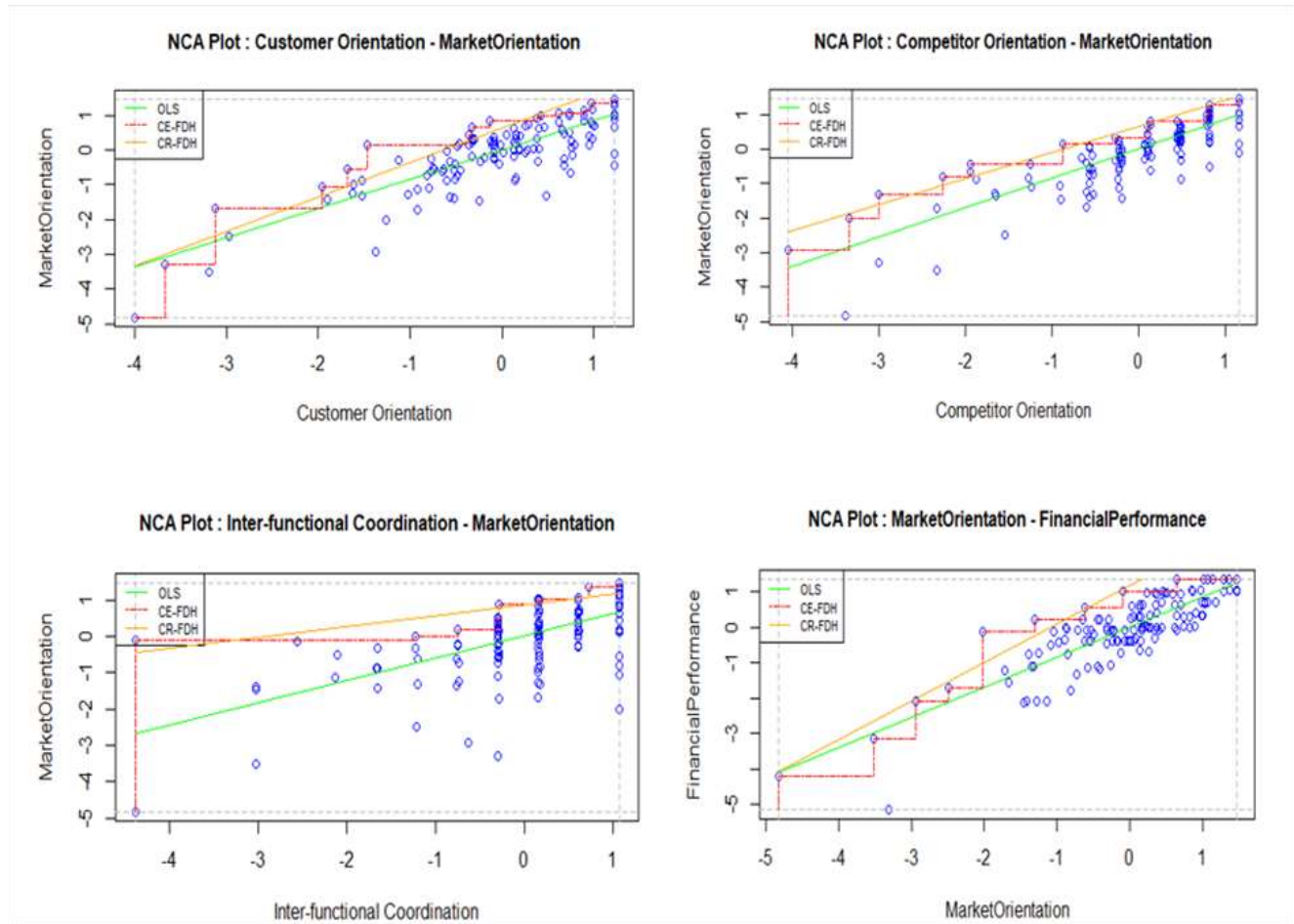
Table 4 PLSpredict Indicator Prediction Summary

Financial Performance Indicators	Q ² _{predict}	PLS-SEM		LM		PLS-SEM - LM	
		RMSE	MAE	RMSE	MAE	RMSE	MAE
FP1	0.323	0.592	0.442	0.584	0.440	0.008	0.002
FP2	0.601	0.514	0.416	0.418	0.333	0.096	0.083
FP3	0.211	0.619	0.509	0.622	0.523	-0.003	-0.014
FP5	0.223	0.639	0.517	0.642	0.526	-0.003	-0.009
FP6	0.544	0.542	0.419	0.509	0.368	0.033	0.051

For the purpose of NCA computation, the standardised latent scores for the reflective LOCs, namely, customer orientation, competitor orientation, inter-functional coordination, the formative HOC market orientation, and the reflective financial performance, were exported from SmartPLS 3 to an Excel™ file and then later transferred into R. In the beginning, we tested the hypothesis that says market orientation is a necessary but insufficient condition for financial performance. Then later, we confirmed whether market orientation is formative HOC with customer orientation, competitor orientation, and inter-functional coordination LOCs using the R codes for advanced NCA analysis developed by Dul (2021) (see Appendix).

As shown in Figure 6, the NCA plot for market orientation and financial performance produces enough ceiling zone relative to the scope as demarcated by the ceiling envelopment-free disposal hull (CE-FDH) line. Based on the Dul (2016) proposed taxonomy of necessity effect sizes, that is $0 < d < 0.1$ as small, $0.1 < d < 0.3$ as medium, $0.3 < d < 0.5$ as large, $d \geq 0.5$ as very large, the value of $d = 0.375$, as see Table 5, is regarded as large effect size. Considering the necessity hypothesis threshold value of $d > 0.1$ as recommended by Richter et al. (2020) and our PLS-SEM bootstrap significance result, it was concluded that market orientation is a significant determinant and a necessary condition for firm financial performance

Figure 6 Scatter Plots



As such, our hypothesis was supported. This finding is further substantiated by bottleneck CE-FDH values in Table 6. It is inevitable

for poultry firm to achieve a minimum of 20.9% of market orientation in order to gain at least 20% of its financial performance.

Table 5 NCA Effect Sizes

LOC	Market orientation		HOC	Financial performance	
	CE-FDH	p-value		CE-FDH	p-value
Customer orientation	0.357	0.000	Market orientation	0.375	0.000
Competitor orientation	0.331	0.000			
Inter-functional coordination	0.197	0.000			

Reflecting on the weights and significance tests results in Table 2, the PLS-SEM analysis suggests that customer orientation, competitor orientation, and inter-functional coordination were formative LOCs of market orientation. Similarly, the bottleneck table specifies the

minimum necessity requirement for the manifestation of firm-level market orientation as follows: 6.3%, 13.5%, and 75.0% of customer orientation, competitor orientation, and inter-functional coordination, respectively

Table 6 Bottleneck Table (Percentages)

Market orientation		Customer orientation	Competitor orientation	Inter-functional coordination
<i>Bottleneck CE-FDH: Financial performance</i>		<i>Bottleneck CE-FDH: Market orientation</i>		
0	NN	NN	NN	NN
10	NN	6.3	NN	NN
20	20.9	6.3	NN	NN
30	20.9	16.8	NN	NN
40	30.1	16.8	13.5	NN
50	37.3	16.8	20.1	NN
60	44.6	39.1	34.4	NN
70	44.6	48.4	61.0	NN
80	56.0	69.6	72.6	75.0
90	75.2	74.0	92.8	75.2
100	87.0	NA	NA	NA

Note: NN not necessary, NA not applicable

Discussion

The goal of this paper is two-fold. First, the paper is set to test whether a certain level of MO is required as a necessary condition for the manifestation of firm financial performance. Secondly, it seeks to validate MO as a reflective-formative Type II second-order. Based on the findings from our analysis and the support from the market orientation theory, undisputable backing has pointed in the direction that support MO is not only a relevant determinant but also a necessary condition for the financial performance of poultry firms. Our study demonstrates that, on average, an increase in MO behaviour of poultry firm will lead to an increase in their financial performance by 85.4%, but as a matter of necessity a poultry firm need to exhibit not less than 20.9% of market-oriented behaviours before it can achieve financial performance. Without exhibiting market-oriented behaviours, financial failure is guaranteed. Furthermore, our findings revealed that the MO behaviour capable of boosting poultry financial performance must be a function of their customer orientation, competitor orientation, and inter-functional coordination.

Implications

The managerial implication of the findings of this study is that owners/managers of poultry firms whose business operations were affected seriously by the restriction of post-COVID-19 pandemic needed, in addition to other survival strategies, a certain level of MO to revive financial performance. To do that, recuperating poultry firms should embark on a data mining quest to build competitive advantage by consistently creating and satisfying poultry products based on current market needs and preferences. For example, owners/managers and employees should be obsessed with the “fresh from the farm” mantra. As a convalescing strategy, owners/managers of poultry firms can study competitors’ activities such as price adjustments and respond according to their core competence. Importation ban on frozen poultry meat in Nigeria coupled with the requirement of chicken intake in the diet of COVID-19 patients and those put in isolation facilities can serve as good sources of competitive advantage, especially when indigenous poultry firms exploit the just-in-time (JIT) supply opportunities. Superior poultry products that can plough back finance to business can only be actualized with a free flow of information about existing and new customer needs and preferences. In addition to competent staff that can handle customer queries, management commitment towards employees’ contribution to customer value is a vital requirement.

Conclusion

The construct validity of MO as a reflective-formative Type II second-order was established using PLS-SEM, and its link with financial performance was also confirmed empirically. In other words, market orientation based on the Narver and Slater (1990) taxonomy was validated as a reflective-formative Type II higher-order construct in the Nigerian agri-business environment, i.e., poultry MSMEs. The study not only found support that suggests highly market-oriented poultry businesses achieve higher financial performance, but also concluded that MO is a precondition for the manifestation of financial performance in a poultry firm, without which financial failure is guaranteed. Thus, supporting the works of Šályová et al. (2015) and Kirca (2011),

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```

model<-nca_analysis(R4NCA0,c("Customer
Orientation","Competitor
Orientation","Inter-functional
Coordination"),"MarketOrientation")
nca_output(model,plots = TRUE, summaries = TRUE, bottlenecks =
TRUE, pdf = TRUE)
model<-nca_analysis(R4NCA0,c("Customer
Orientation","Competitor
Orientation","Inter-functional
Coordination"),"MarketOrientation",ceilings = "ce_fdh",test.rep =
10000)
nca_output(model)

```

Appendix

```

install.packages("NCA",dependencies = TRUE)
update.packages("NCA")
library(NCA)
model<-
nca_analysis(R4NCA0,"MarketOrientation","FinancialPerformance"
,ceilings = "ce_fdh",test.rep = 10000,test.p_confidence = 0.95)
nca_output(model)
nca_output(model,plots = TRUE, summaries = TRUE, bottlenecks =
TRUE, pdf = TRUE)

```