THE MEDIATING ROLE OF MARKET INNOVATION BETWEEN ENTREPRENEURSHIP ORIENTATION AND THE FIRM PERFORMANCE (SMES SECTOR- SUDAN)

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ABSTRACT

The purpose of this study is to examine the relationship between entrepreneurship orientation (EO) and firm performance market-based innovation as mediator variable, with the SMEs sector in Sudan. The survey sample consisted of 160 owners, employees and managers in Sudanese SMEs sector, selected by purpose sampling from the membership list of the (SMEs). The final questionnaire yielded 146 usable returns after elimination of those containing inaccurate or invalid answers. The response rate was 84%. The data collection instrument was questionnaire which was first developed and pre-tested among a small group of respondents. The questionnaire contains two sections: section one deal with the SMEs perception of EO, while section two deals with firm performance. Bartlett's Test of Sphericity was used to analysis the answers of the respondence. The results show that the three dimensions of the entrepreneurship orientation: pro-activeness, risk taking and competition aggressiveness dose influence the firm's performance. Meanwhile market innovation mediating the relation between entrepreneurship orientation and firm Performance. The findings were limited to include only entrepreneurship orientation and firm Performance in Sudan. This study contributes to the rare empirical investigation on entrepreneurship orientation and firm Performance. The paper provides detail discussion, Imitations and suggestions for future research.

Keywords: Entrepreneurship Orientation, Market-Based Innovation, Performance, SMEs, Sudan.

INTRODUCTION

Nowadays many organizations looking forward to provide a healthy environment where employees can do there duties efficiently and effectively, and feel satisfied with the results they are gaining. Authors asseverated that competition is at the crux of the success or failure of firms, it decides that an appositeness of a firm's activities that can contribute to its innovation, competitive advantage grows basically is able to cost its buyers that exceed the firm's (Kenyon et al., 2016). Few studies were found to explore core competencies in small and medium sized enterprise, whereas small and medium sized enterprise tend to become significant players in

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global market, sometimes performs better than bigger counterparts (Hanson et al., 2016). Thus, this situation has been of great concern to citizenry, operators, practitioners and the organized private sector groups. As well As, Challenges facing small and medium-sized enterprises sector. However, most of the previous research studied the effect of two components of relationship: entrepreneurship orientation, as independent variable on firm performance.

Entrepreneurship causing national development of countries particularly in the domain of small and medium-sized enterprise currently there is a clear focus on entrepreneurship awards among researchers as well as policy in developed and developing counties (Kropp et al., 2006). Nevertheless this literature doesn't consider sufficient in addressing the mediator variable it only study the Impact of Entrepreneurship Orientation on Firm Performance the Mediating Role of market based Innovation. Entrepreneurial Orientation (EO) is a vital factor for a SMEs success. Entrepreneurial orientation has been conceptualized as the process and decision-making activities used by entrepreneurs that leads to entry and support of business activities (Kropp et al., 2006).

According to, Pasanen (2003) study, the objective was to identify factors affecting small and medium enterprise (SMEs) performance in peripheral locations. Little research has been focused on factors affecting the performance of established SMEs in peripheral regions. The findings suggest that there are several types of successful SMEs. This study aimed to study the factors that affecting business success of small and medium enterprises (SMEs) in Thailand. The intention of the study provided the understanding on how people should start their business by looking at those factors affecting business success, to reduce the risk or failure and to increase the chances of success. The study examined eight factors that influence the SMEs business success (Unger et al., 2011). In this paper, we compare the competitiveness between clustered and dispersed Small Medium Enterprises (SMEs) in Indonesian food processing industry. The study was driven by the important role of SMEs in Indonesian food processing industry for helping low-income people access the low-price foods.

Entrepreneurship is important for the support of small and medium enterprises. Small and Medium Enterprises (SMEs) sub- sector in the production, developed and less developed countries are expected to depend less on large industries to drive their economy towards posterity. According to an entrepreneur an individual who notices opportunities and take responsibility for mobilizing the resources.

The term SMEs covers a wide range of definitions and, varying from country to country and statistical reporting of SME. Some commonly used the number of employees, total net assets, sales and investment level. However, the most common definitional basis used is employment, but there is a variation in defining the upper and lower size limit of SMEs (Ayyagari et al., 2007). This study is seeking to investigate the mediating role of market innovation Entrepreneurship orientation on the firm performance in Sudan.

Research Questions

This research seeks to answer the following questions:

Q1: To what extent do the underpinnings of entrepreneurship orientation dimensions (i.e., risk taking, pro-activeness, and competition aggressiveness) variables influence firm performance?
Q2: To what extent does entrepreneurship orientation relate to market based on firm innovation?
Q3: Does the market-based innovation dimension mediate the relationship between entrepreneurship orientation and firm performance?

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Objectives of this Research

The objective of this research is to study The Mediating Role of Market Innovation between Entrepreneurship Orientation and the Firm Performance- field on SMEs Sector- Sudan as well as:

1. To explore the relationship between entrepreneurship orientation variables and firm performance.
2. To determine the relationship between entrepreneurship orientation variables and market-based innovation in SMEs.

The study is expected to contributing significantly in economic growth through entrepreneurship orientation and market-based innovation, firm performance success and satisfaction.

LITERATURE REVIEW

This paper considers the relationship of orientations with firm performance in business-to-business (B2B) markets simultaneously, and in particular examines the mediating effect of innovation on firm performance relationship. In the work of a definition for performance measurement is formed as follows. Entrepreneurial orientation concept emphasizes the firm-level practices, processes, decision-making style (Lumpkin & Dess, 1996), and strategic orientation (Wiklund & Shepherd, 2003) of an entrepreneurially-oriented firm. Leitão & Franco (2020) defined entrepreneurship orientation as an entrepreneurial attitude that fundamentally involves alertness to discoveries and seizing opportunity's ability. Based on this, entrepreneurial orientation has great impact on the development of dynamic capabilities (Leitão & Franco 2020). There is a broad consensus among scholars (Hughes & Morgan, 2007) around Miller & Friesen's (1983) view that entrepreneurial orientation includes three key dimensions: risk taking, pro-activeness and innovativeness, it represents resource commitment in implementing projects that involves high uncertainty level for the likely outcomes (Hughes & Morgan, 2007), which lead to increased pace in the strategic decision making regarding the introduction of innovations (Hughes & Morgan, 2007). Pro-activeness involves taking responsibility and doing whatever it takes to ensure an entrepreneurial venture produces successful outcome and it also involves insistence, flexibility and readiness to assume responsibility for failure (Morris, 1998). According to Ghobakhloo et al. (2010), small and medium sized enterprises (SMEs) are one of the fastest growing sectors of the economy. Nevertheless, measurement of IT satisfaction and acceptance in SMEs has been largely ignored in the literature while the level of user acceptance of and satisfaction with information technology has broadly been confirmed as the indicators of IT success and a number of models and theories, each with different sets of acceptance determinants have been present concerning these issues. The following sections concentrate on the integrative reviews of SMEs, entrepreneurship, firm performance literature.

With the interest of competitive aggressiveness, it is also defined as the intensity and the tendency of a firm's efforts to outperform industry rivals through assuming a combative posture and a forceful response to competitor's actions and employing a high level of competitive intension in attempts to surpass rivals (Lumpkin & Dess, 2001).

Risk taking is an important component of entrepreneurial orientation, it refers to willingness and a proclivity to accept the uncertainty and risk factor, tolerate ambiguity, and commit resources to risky ventures (Lee & Peterson, 2000). The concept of risk-taking has been

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long associated with early definition of entrepreneurship centered on the willingness of entrepreneurs to engage in business risk. The above discussion, declared that there is significant relation between market-based innovation and firm performance.

Innovation is crucial for business success (Skuras et al., 2008) and no longer concerns only technological changes (Machat, 1999). Organizational innovation has been an important area of research (Jordan et al., 2004). It is clear that the appropriate organizational form enables the good performance of some activities, such as basic research or product development. The general definition of innovation can be split into four subcomponents of innovation, defined in the Bogota and Oslo manuals as.

1. Product Innovation: the introduction of a good or service that is new or substantially improved ,
2. Process Innovation: The introduction of new or significantly improved production or delivery method ,
3. Marketing Innovation: The implementation of a new marketing method involving significant changes in product design or packaging, product promotion or pricing, and finally
4. Organizational Innovation: involves the creation or alteration of business practices, workplace organization ,or external relations (Shohreh, 2013).

Theoretically, organizational innovation (OI) is a broad concept that encompasses strategies, structural and behavioral dimensions. Organizations must change in order to survive (Cronquist, 2006). The competitiveness of an organization depends on its ability to continuously adapt to new environments, develop new products, and create innovative ideas. The structure of an organization is important to innovation as it supports innovation in small and medium enterprises (Ngah & Ibrahim, 2012). Small and medium-scale enterprises (SMEs) are the backbone of the industrialization process of many countries and play a crucial role in increasing a country's economy (Chittithaworn et al., 2011). SMEs are considered to have greater flexibility, an absence of bureaucracy, less rigidity in decision-making, and can respond more quickly to new opportunities and threats. With flexible structures in production, SMEs can overcome the economic crisis easier than the large enterprises and adapt to new situations easily (Duygulu et al., 2008). Performance Appraisal can be defined as a process which are typically performed or delivered by a supervisor to a subordinate, in which the appraisal system is designed to help employees understand their responsibility, goals, expectations and performance success of an organization.

Based on the above discussions, the following hypotheses were generated:

Hypotheses

H_1: *There is a positive relationship between Entrepreneurship orientation and firm performance.*

H_2: *There is a positive relationship between Entrepreneurship orientation and market based on innovation.*

H_3: *There is a positive relationship between market based on innovation and firm performance.*

H_4: *Markets based innovation variable mediate the relationship between Entrepreneurship orientation Variables and firm performance.*

RESEARCH METHOD

Pilot questionnaire has been distributed to Owners, employees and managers with a good understanding of SMEs aims; the questionnaire was administered to 43 owners, employees and

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managers, to test the clarity and ambiguity. Pre-test divided into three items, questions on five-point Likert scale of agreement with statements containing the items, ranging from *"strongly agree"* to *"strongly disagree"*.

The survey sample consisted of 160 owners, employees and managers in Sudan SMEs sector, selected by purpose sampling from the membership list of the (SMEs). The final questionnaire yielded 146 usable returns after elimination of those containing inaccurate or invalid answers. The response rate of 84% is unusually high for a questionnaire-based survey. The data collection instrument is a structured which was first developed and pre-tested among a small group of respondents, who are academics and have significant expertise in marketing. The questionnaire contains two sections: section one deal with the SMEs perception of EO, while section two deals with firm performance.

Measurement

The variables measurements used in this study were drawn from literature and were adapted for the context of this research. The respondents indicated their agreement with each item using a five -points Likert scale.

Risk-taking involves a willingness to pursue opportunities that have a probability of producing losses or considerable performance inconsistencies. Risk taking was measured using four items adapted from Awang et al. (2009) and are evaluating on five-point Likert scale.

Pro activeness is defined as the opportunity, forward-looking perspective that involves introducing new products and services ahead of the competition and acting in anticipation of future demand to create change and first mover advantage-seeking efforts to shape the environment, (Kropp & Zolin, 2005; Wiklund & Shepherd, 2003). Pro-activeness was measured using five items adapted from (Wiklund & Shepherd, 2003; Kreiser et al., 2002).

Accordingly, competitive aggressiveness reflects to the willingness to challenge market rivals directly in order to gain market share and opportunity (Kropp & Zolin, 2005). Competition aggressiveness was measured using three items adapted from Lumpkin & Dess (1996); Naidoo (2010), are evaluating on five-point Likert scale (Naidoo, 2010).

Market based innovation assisted in developing and sustaining competitive advantages for SMEs. Market based innovation was measured using four items are evaluating on five-point Likert scale. Success as a specific aspect of performance and equate success with high performance. There is, however, much debate on what constitutes success (Awang et al., 2009) scale allowed for the measurement of Success. Success was measured using six items adapted from Awang et al. (2009). The scale included five items on five-point Likert scale. Satisfaction is defined as a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (outcome) in relation to his or her expectations (Kotler et al. 2007). Satisfaction was measured using six items and are evaluating on five-point Likert scale.

RESULTS

Descriptive statistics, factor analysis, reliability tests, correlation analysis, and regression analysis was used to analyze the data in this study. Table 1 shows the demographic data of the respondents, most of the respondents were owners and male and single with age of 31-35 years, majority is B.Sc. holders and post graduate.

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Table 1
GENERAL CHARACTERISTICS OF THE RESPONDENTS (N=146)

Variable	Category	Frequency	Percent
Ownership	Owners	65	44.5
	Employees	50	34.2
	Managers	31	21.3
Gender	Male	146	100
	Female	-	-
Marital status	Single	82	56.2
	Married	64	43.8
Educational level	PhD	4	2.7
	Master	15	10.3
	B.Sc.	86	58.9
	Others	41	28.1
Age			31-35 years

Goodness of Measures

The exploratory factor analysis (Principal component analysis) was conducted on Entrepreneurship Orientation variables, market-based innovation and firm Performance variables. Reliability test (Cronbach alpha) was done to measure the internal consistency of the items used on the questionnaire. These two methods were very important to assess the goodness of the measures (Sekaran & Bougie, 2003). The next sections presented the results of the factor analysis and reliability tests. In conducting factor analysis, this study followed assumptions that recommended by Hair et al. (1998). Firstly, there must be sufficient number of statistically significant correlations in the matrix. Secondly, Kaiser-Meyer-Olkin measure of sampling adequacy should be at least 0.6. Thirdly, Bartlett's test of sphericity should be significant at 0.05. Fourthly, communalities of items should be greater than 0.50. Fifthly, the minimum requirement of factor loading 0.50 (since the sample size of this study 160 owners, manages, employee of SMEs) based on a 0.05 significant level, with value of cross loading exceeds 0.50. Also, to provide a simple structure column for interpretation, the factors were subjected to Varimax rotation. Finally, eigenvalues should be more than 1 for factor analysis extraction. Factor analysis was done on the forty-three items, which was used to measure Entrepreneurship orientation. Table 2 showed the summary of results of factor analysis on Entrepreneurship orientation. In the first run of factor analysis, items proQ4 and proQ2 and proQ3 and proQ1 were found to have communalities less than 0.50. A close inspection on communalities table shows that item risk taking Q1, risk taking Q2, risk taking Q3 and risk taking Q4. Also, in the subsequent run showed competition aggressiveness Q2, competition aggressiveness Q3, competition aggressiveness Q1. Finally, all assumptions were satisfactory fulfilled. All the remaining items had more than recommended value of at least 0.50 in Entrepreneurship orientation with KMO value of 0.818 (above the recommended minimum level of 0.60), and Bartlett's test of sphericity is significant ($p<0.01$). Thus, the items are appropriate for factor analysis. Table 2 shows that the items for Entrepreneurship orientation loaded on three components/factors with eigenvalues exceeding 1.0. These three factors explain 40.315% of variance in the data (above the recommended level of 0.60). All the remaining items also had the factor loading values above the minimum values of 0.50, with value of cross loading less than .50. The first factors of Entrepreneurship orientation capture all the items of the pro-activeness and three items of pro-activeness, second factor captures all the items of risk taking, and the third

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factor captures all the items of competition aggressiveness. However, the items for first factor capture all the items of pro-activeness and some items of pro-activeness.

Table 2
ROTATED FACTOR LOADING FOR ENTREPRENEURSHIP ORIENTATION (EO)

Items No		Components			
		f1	f2	f3	f4
Entrepreneurship orientation (EO)					
Proac4	Our company is seldom the first one to introduce new products	0.807	0.174	0.004	0.026
Proac2	Normally react upon initiatives taken by our competitors.	0.776	0.372	0.168	0.040
Proac3	Normally initiate changes upon which our competitors react	0.764	0.181	0.036	0.155
Proac1	In general firm has strong tendency be ahead of others introducing in novel ideas or products.	0.728	0.188	0.328	0.28
Risk1	Our firm invests heavily in marketing.	0.288	0.843	0.211	0.72
Risk2	Our firm invests in high-cost projects?	0.311	0.842	-199	0.159
Risk3	Our firm spends large amount of money in renew	0.319	0.841	-184	0.79
Compet2	In dealing with its competitors, my firm is very often the first business to introduce new products operating technologies	0.134	0.145	0.799	0.021
Compet3	In dealing with its competitors, firm typically adopts a very competitive posture.	0.090	0.246	0.746	0.026
Compet1	In dealing with competitors my firm typically initiates actions that competitors then respond to	0.262	0.065	0.710	0.388
	Eigenvalues	5.241	1.775	1.234	1.008
	Percentage of Variance Explain	24.261	20.346	18.165	11.008
	Total Variance Explained (%)	0.71			
	Kaiser-Meyer-Olkin (KMO)	0.213			
	Bartlett's Test of Sphericity	0.818			747.045

Variables loaded significantly on factor with Coefficient of at least 0.5, * Items deleted due to high cross loading. Factor analysis was done on the 4 items, which was used to measure market-based innovation. Table 3 showed the summary of factor analysis on market-based innovation. Also, to provide a simple structure column for interpretation, the factors were subjected to Varimax rotation finally, all assumptions were satisfactory fulfilled. All the remaining items had more than recommended value of at least 0.50 in Entrepreneurship orientation with KMO value of 0.83 (above the recommended minimum level of 0.60), and Bartlett's test of sphericity is significant ($p<0.01$). Thus, the items are appropriate for factor analysis. Table 3 shows that the item for market-based innovation loaded on four components/factors with eigenvalues exceeding 1.0. This factor explains 71.213% of variance in the data (above the recommended level of 0.60). All the remaining items also had the factor loading values above the minimum values of 0.50, with value of cross loading less than 0.50 the factor of market-based innovation.

Variables loaded significantly on factor with Coefficient of at least 0.5, * Items deleted due to high cross loading. The questionnaire had six items measuring, six items for commitment, and six items for satisfaction. The factor analysis results indicates that the measure of (KMO) was 0.818, whilst the Bartlett test of sphericity was significant, both indicating that there is

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sufficient number of significant intercorrelation for factor analysis Table 4 shown result of the factor analysis.

Table 3
ROTATED FACTOR LOADING FOR MARKET BASED ON INNOVATION

Items No		Components f1
Market based innovation		
Market innovation	In comparison with our competitors, our products' most recent marketing program is Evolution in the market	0.790
Market innovation	New products and services in Our company often take us up Against new competitors	0.775
Market innovation	In new product Introduction our company is often at the cutting edge of Technology	0.734
Market innovation	Our recent new products and are only minor changes from our previous products	0.677
	Eigenvalues	2.924
	Percentage of Variance Explain	28.326
	Total Variance Explained (%)	71.476
	Kaiser-Meyer-Olkin (KMO)	0.674
	Bartlett's Test of Sphericity	301.088

Table 4
ROTATED FACTOR LOADING FOR FIRM PERFORMANCE

Items No		Components	
		f1	f2
Firm performance			
Satisfacton3	Are you satisfied with your advancement	0.922	0.120
Satisfacton2	Are you satisfied with your working Hours	0.838	0.346
Satisfacton5	You satisfied with working conditions	0.833	0.085
Satisfacton4	Are you satisfied with your customers	0.813	0.184
Satisfacton1	Are you satisfied with your co-workers	0.721	0.447
Success2	Growing customer base relationship is a sure sign that the SMEs are effectively reaching target markets	0.101	0.822
Success1	Profitability is the first thing to measure success your company	0.107	0.756
Success4	Employee satisfaction is another key indicator of business success	0.364	0.753
Success3	Customer satisfaction is an indication that the SMEs is understands the Needs of customers	0.215	0.741
	Eigenvalues	4.781	1.580
	Percentage of Variance Explain	40.269	30.405
	Total Variance Explained (%)	70.674	
	Kaiser-Meyer-Olkin (KMO)	0.871	
	Bartlett's Test of Sphericity	661.195	

To simplify the factor structure Varimax rotation was used. The result of factors analysis showed two factors loading. Factor one has a high loading on stisQ3 Are you satisfied with for your advancement, stisQ5 you satisfied with working conditions, stisQ4 you satisfied with your customers, stisQ2 you satisfied with your working, Hours. Therefore, the original name for this factor was retained. Factor two has high loadings on: successQ2Growing customer base is a sure sign that the SMEs are effectively reaching Target markets. SuccessQ1 Profitability is the first thing think in it when measuring success your Company. SuccessQ4 Employee satisfaction is

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another key indicator of business success, successQ3 Customer satisfaction is an indication that the SMEs is understands the Needs of customers. Therefore, the original questionnaire had two dimensions to measuring firm performance it mentioned at the first paragraph. In this context and due to an overlapping between two items of variables. Table 4 shown results of the two loading factors ranging from 0.88 to 0.65, factor one was the six questions on satisfaction. Factor two on five questions related to success. Consequently, these two factors cumulatively captured about 71.476 of the total variances in the data. All items had factor loadings above 0.05. The corresponding reliability (Cronbach alpha) for two factors was 0.97, and 0.84 respectively. Variables loaded significantly on factor with Coefficient of at least 0.5, * Items deleted due to high cross loading

Reliability Analysis and Descriptive Statistics

To test reliability, this study used Cronbach's alpha as a diagnostic measure, which assesses the consistency of entire scale, since being the most widely used measure (Sharma, 2000). The results of the reliability analysis summarized in Table (3) confirmed that all the scales display a satisfactory level of reliability (Cronbach's alpha exceeded the minimum value of 0.70). Table (4) in bellow shows the descriptive statistics of the variables specifically for the EO variables, the highest mean scored was for competition aggressiveness (2.03), followed by pro-activeness (1.99), followed by (1.71) and with the lowest mean level (1.87) for risk taking. Obviously, for market-based innovation mean score (1.71). The table also shows that the mean score on two dimensions performance (namely: satisfaction, success), the two dimensions revealed a mean score (2.79) and (1.87) Table 4 presents the results of the intercorrelation among the variables.

Table 4 shows that pro-activeness is positively and significantly correlated with risk taking (r=0.542, p–value<0.01) and pro-activeness (r=0.380, p–value<0.01) risk taking is significantly correlated with competition aggressiveness (r=0.370, p–value<0.01). The table 4.s also shown that market innovation is positively correlated with pro-activeness (r=0.261, p–value<0.01), and risk taking (r=0.354, p–value<0.01) and market innovation (r=0.305, p–Value<0.01). The correlation table 4.9 also shows that competition aggressiveness is significantly and positively correlated with the two dimensions of firm performance o, namely satisfaction (r=0.330, p–Value<0.01); as well as medit1(r=0.246, p–Value<0.01) Furthermore, the table also show that success is positively correlated with the two outcomes namely, competition aggressiveness (r=0.182, p–Value<0.01); as well as word of satisfaction (r=0.553, p–value<0.01).

Table 5
RELIABILITY AND DESCRIPTIVE ANALYSIS FOR STUDY VARIABLES

Variable	No. of items	Cronbach's alpha	Mean	Standard deviation
Pro-activeness	4	0.836	2.0408	0.75042
Risk taking	3	0.933	1.8367	0.9713
Competition aggressiveness	3	0.734	2.0567	0.65733

Note: All variables used a-5 point Likert scale with (1= strongly disagree, 5= strongly agree)

Correlation Analysis

Table 4 presents the results of the intercorrelation between the variables. Table 4 represents the correlation matrix for the constructs operationalized in this study. These bivariate

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correlations allow for preliminary inspection and information regarding hypothesized relationships. The table shows that no correlations near 1.0 (or approaching 0.8 or 0.9) were detected, which show that multicollinearity is not a significant problem in this particular data set. Table 4 shows that pro-activeness is positively and significantly correlated with risk taking (r=0.542, p–value<0.01) and pro-activeness (r=0.380, p–value<0.01) risk taking is significantly correlated with competition aggressiveness (r=0.370, p–value<0.01). The Table 6 also shown that market innovation is positively correlated with pro-activeness (r=0.261, p–value< 0.01), and risk taking (r=0.354, p–value<0.01) and competition aggressiveness (r=0.509, p–value<0.01). The next section of the analysis is testing the hypotheses.

Table 6a
CORRELATIONS AMONG THE ALL-STUDY VARIABLES

Variables		PROQ4	RSIK3	COMPQ3	M.market
PROQ4	Pro-activeness	1			
RSIKQ3	Risk taking	0.542**	1		
COMPQ3	Competition aggressiveness	0.380**	0.347**	1	
M.market		261**	354**	509**	

Notes: Level of significant: **p<0.01, N= 149

Hypotheses Testing

This section discusses the results of hypotheses of the study. Given that the new emerged variable from factor analysis and the eliminated ones, there are four hypotheses in this study. To perform regression analysis, it is generally agreed that there are at least five assumptions (normality, linearity, multicollinearity, homoscedasticity, and outliers) should be met. The results of testing these assumptions are provided below:

1. The normality had been established through the relevant Histogram. Histograms show that most values fall in the center and the curves take the bell-shape. The normal probability (P-P) plots also show that the residual points are close to the diagonal line. Therefore, the variables are normally distributed.
2. Linearity of relationships: No curvilinear pattern of relationship is apparent from the scatter plots. Therefore, there is no violation of the assumption of linearity.
3. Heteroscedasticity was checked through the scatter plots of standardized residual. The residual plots take roughly the rectangular shape, which shows that there is no problem of heteroscedasticity in the data.
4. The result of Multicollinearity test showed that all values of the VIF are less than 10, all tolerance values are more than 0.1, and all Variance Proportions are less than 0.90. This shows that, there is no multicollinearity in the data.

Outliers was identified and removed through using case-wise diagnostics. Therefore, the assumptions of the multiple regression analysis were met in this study and the regression analysis can securely be used to test the designated hypotheses. Table 6 the results show that of the regression equation testing the influence of the entrepreneurship orientation variables on pro-activeness., the market innovation variable cumulatively contributed with 36% of the variance in market based on innovation. The results, in Table 6 also shows a significant positive relationship between market based on innovation {namely; H2.1a (pro-activeness with market based on innovation), and H2.1b were accepted, (risk-taking with market based on innovation), competition aggressiveness with market based on innovation (H2.1c) showed no significant impact on market based on innovation}

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The regression coefficient in Table 6 show, the results in the above indicated that among these independent variables, communication was the most important in explaining the variance in pro-activeness (β=0.007), followed by risk taking (β=0.249), and competition aggressiveness (-.420).

Table 6b
BETA COEFFICIENT

Variables	MV: Market based on innovation
Model variables:	Std. Beta
Pro-activeness PROQ4	0.007**
Risk taking RiskOQ3	0.0249
Competition aggressiveness COMPQ3	-0.420*
R^2	0.311*
Adjusted R^2	0.296*
R^2 change	0.31
F change	8.663**

Note: Level of significant: *p<0.10, **p<0.01

DISCUSSION

Entrepreneurship orientation has been hypothesized to have significant and positive impact on firm performance; the outcomes of this research point out that risk taking, pro-activeness, and competition aggressiveness are positively related to success. However, competition aggressiveness demonstrates no significant but positive relationship with success. The risk -taking dimension refers to the willingness of management to commit significant resources to opportunities in the face of uncertainty. Pro-activeness refers to seeking new opportunities and aiming to be leaders rather than followers due to a desire to shape the environment through seizing new opportunities, thus, it is anticipated that pro-activeness will facilitate innovation. On others hand, small business risk is a particularly pertinent issue for researchers as there is a strong association between small business owner-managers/entrepreneurs and risk by virtue of the high failure rates of small firms (O'Dwyer et al., 2009).

According to, Chen et al. (2011) investigates the effects of Entrepreneurial Orientation (EO) on firm performance. In recent times, especially with the growth of globalization and other such factors, the performance measurement standards have changed. This has also led to a significant change in the factors that are now used within the operational sphere of an organization in order to affect the firm performance. The outcomes of the research demonstrated that all three components of entrepreneurship orientation (pro-activeness, risk taking and competition aggressiveness, firm performance.) have positive relationship with firm performance.

The findings of this research proved that pro-activeness, risk taking have significant relationship with firm performance. This signifies that enhancing EO impacts sales growth and satisfaction directly. This agrees with the outcomes that relation between entrepreneurship (innovation, pro- activeness and risk-taking), market orientation and social performance of social enterprise via analysis.

Entrepreneurship orientation has been hypothesized to have significant and positive impact on success. This outcome is concurring with the research that has shown. Firstly, it proposed a quantitative analysis in which entrepreneurial orientation are key success factors of

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SMEs. The findings reveal that significant relationships exist between entrepreneurial orientation and performance.

This research points out that pro-activeness, risk taking and competition aggressiveness are positively related to success. However, risk taking demonstrated the significant with success. The findings of this research, in general, provide support for the affirmation made by scholars Idar & Mahmood (2011); Abouzeedan (2011); Pasanen (2003). The outcomes show that the competition aggressiveness has positively significant impact on success. They consider firms to be closed systems, and undermine the significance of networking mechanisms in promotion and enhancement of firm performance (Abouzeedan, 2011). Particularly little research has been focused on factors affecting the performance of established SMEs in peripheral regions. The findings suggest that there are several types of successful SMEs (Pasanen 2003).

The research showed that risk taking has significant impact on success. This concurs with prior studies, which emphasize the valuable role of risk taking. Intelligent entrepreneurship orientation can offer a way for marketing owners and managers to share knowledge and expertise. Such sharing could help improve the economics and effectiveness of the marketing function, which is ultimately reflected in the entrepreneurship orientation success of small and medium sized enterprise (SMEs)

Implications of the Study

The current research has supported the present knowledge on business value of Entrepreneurship orientation within the field of small and medium sized enterprise (SMEs). The first theoretical contribution is related to entrepreneurship orientation contain three components by concentrated on firm performance. The second theoretical contribution of this research the development of better and more acceptable measures of market innovation. Third theoretical contribution the positive relationship between ntrepreneurship orientation and firm performance (non-financial measures).

The third theoretical contribution of this research set up that the three components of Entrepreneurship orientation did not equally contribute to firm performance. While two components of entrepreneurship orientation (risk taking and competition aggressiveness) have significant positive impact on two proportions of firm performance, pro-activeness has the only significant positive impact on satisfaction.

Limitations and Suggestions for Future Research

This research contributes to increased understanding of the resource-based view and system theory across organizational variables through testing the relationships between entrepreneurship orientations, market-based innovation, and firm performance, the outcomes of this research must be interpreted with caution because of some certain limitations.

First, while the research population adequately meets the acceptable statistical standards, as well as demonstrates sufficient construct its inclusiveness of the Sudanese Small and medium sized enterprise (SMEs) the potentially limits its general ability to other industry contexts such as the SMEs sector.

Second, this research investigates the relationship between entrepreneurship orientation, market-based innovation and firm performance across dissimilar forms in SMEs in their owners. On the other hand, some of the respondents were not able to answer and return the questionnaires in time due to unexplained reasons. Third, with the ongoing economic reform, nationwide

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uniform SMEs classification criteria should also be set up to enhance the research done on SMEs. The administration functions of relevant government agencies on SMEs should be merged and a State SMEs Administration with comprehensive adjustment power should be established.

Finally, instituted on the converging outcomes from the multiple regressions' analysis, it can be deducing that entrepreneurship orientation and market base on innovation can be used to explain the firm performance variation among Sudanese SMEs. The regression analysis outcomes (R^2-values) suggest that a high percentage of this variation is still unexplained or there is variables not found to measure.

Suggestions for Future Research

This research represents an early attempt to build and test a theoretical framework of entrepreneurship orientation. However, instituted on the limitations of the research mentioned above, this research provides some propositions for future research. These suggestions are as follows:

First, future studies can replicate this research using larger sample and dissimilar contexts such as dissimilar sectors or countries. Besides, confirmatory factor analysis (CFA) can be used to test if the three components proposed by the exploratory factor analysis is a good representation of entrepreneurship orientation. Further, pro-activeness scale contains only three items while there are many others that might be used to more capture the pro-activeness construct. Therefore, this warrants further research.

Secondly, with ongoing economic reform, nationwide uniform SME classification criteria should set up to enhance the research done on SMEs. The administration functions of relevant government agencies on SMEs should be merged and a State SME Administration with comprehensive adjustment power should be established.

Thirdly, the research set up some insignificant relationships between the market based on innovation and two proportions of firm performance. This inconclusive outcome is not surprising in resource-based view previous research since the capabilities-performance relationship has received only modest supports overall (Kusumawardhani et al., 2009; Chen et al. 2011; Abouzeedan, 2011). Therefore, future studies may further investigate the interactions between these variables in different small and medium sized enterprise (SMEs).

Finally, the R^2 values in this research ranges from 0.155 and 0.81 for the direct relationships between entrepreneurship orientation and firm performance, and range from 0.40 and 0.53 for the relationships between entrepreneurship orientation and market-based innovation, which are not especially low compared with R^2 values in previous research. In general, there are many factors, not just entrepreneurship orientation, that locate firm performance.

Further studies should also involve such factors. Additionally, this research has not considered the possibility that other forms of market-based innovation could intervene in the conjunction entrepreneurship orientation and firm performance. It is conceivable, for example, that other forms of market-based innovation such as innovation and imitation competency mediate this relationship. Further research is needed to investigate such mechanisms.

CONCLUSION

This research is an attempt to enhance the understanding of the firm performance concept in the context of SMEs in Sudan. Alongside, the research has investigated the relationship

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between entrepreneurship orientation and firm performance expressing the role that key market-based innovation play in mediating that relationship. The present research was run among 160 SMEs affiliated with the trading registered of Sudan.

REFERENCES

Abouzeedan, A. (2011). *SME performance and its relationship to innovation*. Unpublished doctoral dissertation, Linköping University Electronic Press.

Awang, A., Khalid, S.A., Yusof, A.A., Kassim, K.M., Ismail, M., Zain, R.S., & Madar, A.R.S. (2009). Entrepreneurial orientation and performance relations of Malaysian Bumiputera SMEs: The impact of some perceived environmental factors. *International Journal of Business and Management, 4*(9), 84-96.

Ayyagari, M., Beck, T., & Demirguc-Kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics*, *29*(4), 415-434.

Chen, K.H., Yien, J.M., Huang, K.P., & Huang, C.J. (2011). Performance and its link to entrepreneurial behavior.

Chittithaworn, C., Islam, M.A., Keawchana, T., & Yusuf, D.H.M. (2011). Factors affecting business success of small & medium enterprises (SMEs) in Thailand. *Asian Social Science*, *7*(5), 180-190.

Duygulu, E., Recep, G.Ö.K., & Özdemir, A. (2008). Factors influencing innovation in SMEs in Turkey: An interregional comparison. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (20), 367-379.

Ghobakhloo, M., Zulkifli, N.B., & Aziz, F.A. (2010). The interactive model of user information technology acceptance and satisfaction in small and medium-sized enterprises. *European Journal of Economics, Finance and Administrative Sciences*, *19*(1), 7-27.

Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1998). *Multivariate data analysis*, 5th ed. Prentice-Hall. Englewood Cliffs, NJ.

Hanson, D., Hitt, M.A., Ireland, R.D., & Hoskisson, R.E. (2016). *Strategic management: Competitiveness and globalisation*. Cengage AU.

Hughes, M., & Morgan, R.E. (2007). Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. *Industrial marketing management*, *36*(5), 651-661.

Idar, R., & Mahmood, R. (2011). Marketing orientation as mediator to entrepreneurial orientation and performance relationship: Evidence from Malaysian SMES. *Rising to the Global Challenge: Entrepreneurship and SMEs development in Asia*.

Kenyon, G.N., Meixell, M.J., & Westfall, P.H. (2016). Production outsourcing and operational performance: An empirical study using secondary data. *International Journal of Production Economics*, *171*, 336-349.

Kotler, P., Wong, V., Saunders, J., & Armstrong, G. (2007). *Moderní marketing*. Grada publishing as.

Kreiser, P.M., Marino, L.D., & Weaver, K.M. (2002). Assessing the psychometric properties of the entrepreneurial orientation scale: A multi-country analysis. *Entrepreneurship Theory and Practice*, *26*(4), 71-93.

Kropp, F., & Zolin, R. (2005). Technological entrepreneurship and small business innovation research programs.

Kropp, F., Lindsay, N.J., & Shoham, A. (2006). Entrepreneurial, market, and learning orientations and international entrepreneurial business venture performance in South African firms. *International Marketing Review*, *23*(5), 504-523.

Kusumawardhani, A., McCarthy, G., & Perera, N. (2009). Framework of entrepreneurial orientation and networking: A study of SMEs performance in a developing country.

Lee, S.M., & Peterson, S.J. (2000). Culture, entrepreneurial orientation, and global competitiveness. *Journal of World Business*, *35*(4), 401-416.

Leitão, J., & Franco, M. (2020). Non-economic organizational performance of SMEs: Is there a rationale for a cognitive entrepreneur?. In *Intrapreneurship and Sustainable Human Capital* (pp. 11-35). Springer, Cham.

Lumpkin, G.T., & Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, *21*(1), 135-172.

Lumpkin, G.T., & Dess, G.G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing*, *16*(5), 429-451.

Machat, C. (1999). The co-evolution of technological and organizational innovations in high technology based SMEs.

Miller, D., & Friesen, P.H. (1983). Strategy-making and environment: The third link. *Strategic Management Journal*, *4*(3), 221-235.

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Morris, M.H. (1998). *Entrepreneurial intensity: Sustainable advantages for individuals, organizations, and societies*. Greenwood Publishing Group.

Naidoo, V. (2010). Firm survival through a crisis: The influence of market orientation, marketing innovation and business strategy. *Industrial Marketing Management*, *39*(8), 1311-1320.

Ngah, R., & Ibrahim, A.R. (2012). The relationship of intellectual capital, innovation and organizational performance: A preliminary study in Malaysian SMEs. *Advances in Global Business Research*, *1*(1), 34-54.

O'Dwyer, M., Gilmore, A., & Carson, D. (2009). *Innovative marketing in SMEs: a theoretical framework*. *European Business Review*, *2*(6), 504-515.

Pasanen, M. (2003). *In search of factors affecting SME performance: The case of Eastern Finland*. Kuopion yliopisto.

Sekaran, U., & Bougie, R. (2003). Research methods for business, a skill building approach, John Willey & Sons.

Shohreh, S. (2012). Key factors influencing organizational innovation in small rural food industries: Case study of Iran. *African Journal of Business Management*, *6*(9), 3553-3561.

Skuras, D., Tsegenidi, K., & Tsekouras, K. (2008). Product innovation and the decision to invest in fixed capital assets: Evidence from an SME survey in six European Union member states. *Research Policy*, *37*(10), 1778-1789.

Unger, J.M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, *26*(3), 341-358.

Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, *24*(13), 1307-1314.

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