The Role of Entrepreneurial Orientation on Business Performance: Empirical Evidence from Selected Tanzanian SME's

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Abstract: *The objective of the study is to assess the effects of entrepreneurial orientation (EO) on business performance among SMEs in Tanzania. This study was conducted in Dar es Salaam employing a sample of 143 SMEs. The study attempted to differentiate EO into five theoretical dimensions, namely product innovation, risk taking, proactiveness, competitive aggressiveness, and autonomy. Structural Equation Modeling (SEM) was applied to fit the model, where EO dimensions were independent variables and SME performance was the dependent variable. The researchers used cluster analysis (CA), multiple discriminant analysis (DA) and factor analysis (FA) to assess whether the SMEs are following divergent EO dimensions. MANOVA was performed for the clusters to assess significant difference between EO-dimensions. The study gleaned the following; first EO does play a crucial role in influencing profitability, particularly autonomy was negatively related to performance hence suggesting that personnel tend to underperform when given sufficient freedom to act. The relationship to performance for the other dimensions of EO was positive. Secondly, EO exhibits a possibility of multidimensionality based on a maximum of three dimensions, namely; aggressiveness, innovation, and pro-activeness, while risk-taking blended into these prior dimensions autonomy was embedded within aggressiveness.*

Keywords: Entrepreneurial Orientation, SME performance, EO Dimensions

Introduction

Business performance is a multifaceted aspect. It is capable of reflecting the different features of a business. Some of these are firm's internally oriented features such as; profitability, sales levels, and liquidity levels while others are firm's externally oriented features such as firm market values, firm stock market yields, earnings per shares and price levels. A combination of these features can as well be constructed through measures such as Tobin's Q, which is a combination of accounting and market-based features of business performance (Mumtaz et al., 2013). This paper focuses on profitability as a reasonable facet of business that represents business financial performance.

Various measurements for business profitability have been used by researchers. They normally employ assets values as their numerators, because business assets are considered as key drivers for profitability. These measures include but are not limited to the following accounting measures; return on assets (ROA): calculated as the ratio of net income to total

assets, return on equity (ROE): calculated as the ratio of net income over total equity, return on capital employed (ROCE): calculated as the ratio of net income over total capital (equity and long-term liabilities) used in financing the business, net profit and gross profits margins. These are calculated based on values from financial statements (Abor, 2005; Mumtaz et al., 2013) or accounting records for the case of entrepreneurs who may not be regularly preparing financial statements.

Several factors are well established based on prior researches, which have demonstrated effects on business profitability. These include and are not limited to the following: asset size, sales growth, market power and share, investment levels, efficiency levels (by focusing on various turnover ratios such as inventory turnover, debtors' turnovers, creditors turnovers and total turnovers), capital leverage, financial liquidity, diversification levels and asset tangibility (Abor 2007; Boso et al., 2013; Kapaya and Raphael, 2016; Pratheepan 2014;). While the cited factors are business specific, other studies have tried to include macroeconomic factors such as inflation, interest rates, financial market development, size of the banking sector, market or industry power and competitiveness (e.g. Almazari, 2014; Boso et al., 2013; Jaber, 2014; Kapaya and Raphael, 2016; Obamuyi, 2013;Wang, 2000; Yiu et al., 2007) Studies have also included market behavior variables such as local suppliers' networks (e.g. Pratheepan, 2014), social networks ties, business network ties and market orientation (e.g. Boso, et al, 2013), entrepreneurial orientation (e.g. Boso et al., 2013; LeRoux and Bengesi, 2014; Rauch, et al., 2009) and lagged profitability (e.g. Kapaya and Raphael, 2016).

The effects of these factors on business profitability depend on a host of scenarios, for instance: industry type, nature of the business, governance structures and macroeconomic conditions, just to mention a few. More factors are being identified and included in studies of this type in trying to find which combination of factors are significantly affecting business performance and in which context. Particularly, this paper does not aim at finding any best combination of factors that affect business performance because they are many and are beyond that scope. Rather, we explore the contribution of entrepreneurial orientation through its various suggested dimensions on business performance. Succinctly stated: based on a *prior* acquaintance of five EO dimensions, this paper explores the suggested but well disputed five dimensions and how they affect SMEs performance in Tanzania and attempt to discover level dimensionality in EO in Tanzania.

Entrepreneurial Orientation (EO) refers to a firm-level strategic orientation which entails organization strategy making practices, managerial philosophies, and firm behaviours that are entrepreneurial in essence. The ideas about EO was initially introduced by Khandwalla in 1977 and developed further by Miller in 1983 that identified three dimensions of EO, namely innovativeness, risk-taking, and pro-activeness. The primary dimensions that distinguish EO comprise of proclivity to be pro-active, innovative and taking risks to capture market opportunities. Lumpkin and Dess (1996: 136) described EO as "…the processes, practices, and decision-making activities that lead to new entry …" Covin and Slevin (1991) basing their arguments on Miller's concepts, referred to EO as a strategic position indicating how firms implicitly and explicitly decide to compete.

Lumpkin and Dess (1996) further identified two more dimensions of EO, namely autonomy and aggressiveness which determine business performance, thus adding up to five EO dimensions. A further consideration is how each of these five dimensions behaves in relation to performance in terms of whether they do so unidimensionally or multidimensionally. Rauch et al. (2009) argue that it is premature to suggest a multidimensional rather than

unidimensional conceptualization of EO based on how the dimensions relate to performance, However, Brouthers et al. (2014) argues for a multi-dimensional construct. Lumpkin and Dess (1996) argue that dimensions of EO differ with the sort of industry and the environment in which the firm is operating. For example, a study by Shirokova et al. (2015) the environment in Russia was the explanation for the lack of innovativeness and proactiveness. There is a necessity to interpret entrepreneurial behaviour in the context of the socio-economic, political and cultural setting in which it occurs. LeRoux and Bengesi (2014) argue that little information is available in emerging economies, on how the dimensions of pro-activeness, competitive aggressiveness and risk-taking contribute to performance.

SMEs profile in Tanzania need to be assessed because, qualitative information from experts on the nature of SMEs profiles from other countries such as Greece (Avalonitis and Salavou, 2007) has been clouded by other "issues" such as traditional culture, country culture, firm-specific characteristics, competition, imitation, government protection, horizontal growth as opposed to vertical growth (Avalonitis and Salavou, 2007; Rauch et al, 2009). An important study within the Tanzanian context is that of LeRoux and Bengesi (2014). They studied a total sample of 291 SMEs from Tanzania and found a strong relationship between EO dimensions and performance, with risk-taking and competitive aggressiveness moderating the effect of pro-activeness. Their model accounted for 72% of all variations accountable for performance, however, they only studied the three original dimensions.

The research on EO-performance relationship (EO-P) is significant to firm success (Brouthers et al., 2014; Engelen et al., 2014; Shirokova et al. 2016; Wales, 2016)). To the best of our knowledge, there are very few studies on EO-P relationships in Tanzania. LeRoux and Bengesi (2014) studied only three EO dimensions in Tanzania, namely; pro-activeness, risk-taking, and competitive aggressiveness. This study explores an expanded model of entrepreneurial orientation by adding two more dimensions compared to their study, which is innovativeness and autonomy. Understanding their relationships and magnitude of variance in a holistic approach may help to develop our ability to explain SME performance better than only considering a few of the five dimensions. The literature on EO-P relationship in emerging economies is scanty. Thus, this study seeks to test the effects of EO on SMEs business performance in emerging economies particularly Tanzania.

Literature Review

EO Dimensions

EO has its foundation in strategy literature and has been employed to refer to the strategic management approach of firms having “entrepreneurial” tendencies (Eggers et al., 2013). EO comprises an organizational experience that mirrors a decision-making competence by which firms embark on practical and aggressive initiatives to reshape the competitive business environment to their advantage (Avalonitis and Salavou, 2007). EO is possibly a multifaceted aspect of business firms. Researchers are still battling on defining and deciding its dimensionality. The frequently encountered introspective dimensions of EO are briefly reviewed below.

Product Innovativeness

Product innovativeness is a concept that has an emerging attention in EO studies. It refers to the level of innovativeness embedded in each product. Significant research has been done to explore EO-P relationship based on product innovativeness profiles (Avalonitis and Salavou,

2007; Rauch et al., 2009). According to Lumpkin and Dess (1996: 142), "innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes".

Risk-taking

Risk-taking is often used to describe the uncertainty that results from entrepreneurial behaviour (Lumpkin and Dess, 1996). Entrepreneurial behaviour entails investing a momentous amount of resources into a venture with a high probability of failure. So, a vital trait that entrepreneur managers have to personify is a strong capability to establish the right path for their businesses in the face of uncertainty. The focus here lies on moderated and calculated risk-taking instead of enormous and uncontrolled risky activities (Eggers et al., 2013).

Pro-activeness

Pro-activeness refers to operating a firm in expectation of future problems, needs, and changes. It refers to efforts to seize the initiative, expecting and enacting new opportunities, and creating or contribute in emerging markets (Eggers et al., 2013), a proactive firm is one that "is first to come up with 'proactive' innovations". Pro-activeness thereby comprises the predisposition to be the first to market with new products or services. A proactive firm is often the originator of actions or events that the competition must then react to, "leading the way in products and services". Taking the initiative through participating in up-and-coming markets, for instance, plays a critical role in entrepreneurship (Lumpkin and Dess, 1996), making pro-activeness a vital dimension of EO (Eggers et al., 2013).

Competitive aggressiveness

Competitive aggressiveness refers to the firm's ability to quickly and intensely challenge its competitors and outperforms its rivals in the market (Lumpkin and Dess, 1996) to maintain or attain a competitive position (Le Roux and Bengesi, 2014). Competitive aggressiveness act to sustain performance as it reflects a willingness to compete with untraditional methods and to defend the firms market position through challenging their competitors.

Autonomy

Autonomy is about the independence of an individual or a team to launch an idea or a vision and to work with it to completion. A firm characterized by autonomy to empower their employees to act independently, take key decisions and to proceed (Lumpkin and Dess, 1996). To conclude, EO is a strategic process, which provides the organization with a foundation for entrepreneurial decisions and actions for better performance (Rauch et al., 2009; Wiklund and Shepherd, 2005).

EO-Performance

Entrepreneurs are key functionaries within SMEs. The study of SMEs dictates a retrospective analysis of their behaviours and how such behaviours are patterned into prospective entrepreneurial orientation dimensions, namely risk-taking, proactiveness, innovativeness, aggressiveness and autonomy. The results by Avalonitis and Salavou (2007), for instance, confirm that active entrepreneurs differ significantly from passive entrepreneurs in the new product uniqueness dimension, this suggests that the proactive and risk-seeking orientation of active entrepreneurs is demonstrated by product innovations leading to higher performance. This finding is in line with existing evidence that delivering a differentiated product with unique customer benefits and superior value for the user is one of the most critical success

factors. The article by Fatoki (2014) confirms the studies by Chowdhury and Ahmed (2011) contending that micro-enterprises tend to shun risk and are less proactive, they are rather adaptive and less opportunistic. Eggers et al., (2013) find that Risk, pro-activeness, and innovativeness are all correlated with each other confirming the findings of Lumpkin and Dess (1996), thus indicating that they may have related effects on business performance.

EO is an aspect that is associated with firm success, particularly in the long-run**.** Findings of Rauch et al. (2009) based on a meta-analysis study involving studies done in USA, Europe, Asia and Australia indicate that; the overall correlation for the whole sample between EO and performance, corrected for measurement and sampling errors was 0.242. They argue that this correlation can be regarded as moderately large. Their meta-analysis by regions indicated the following correlations: USA (r=0.261), Europe (0.281), Asia (0.404) and Australia (0.429), which did not vary very much from each other and from the whole sample correlation above. They argue that the differences in these effect sizes were not significant, suggesting that relationships with performance seem to be relatively similar in magnitude across identified regions. Their results support a positive EO-performance relationship. Their findings support the proposal that EO dimensions (innovation, risk-taking, pro-activeness) are of the same significance in elucidating business performance.

LeRoux and Bengesi (2014) argue that understanding how each of the EO variables is related to each other does not help to explain how they individually or as a group affects the performance of SMEs, since norms of EOs may tend to vary according to industry and environments in which the SMEs operate. In their study, they found that competitive aggressiveness account for the most variance followed by proactiveness and risk-taking. Thus it is considered crucial to consider the contribution of each EO to SMEs performance individually and holistically.

Since EOs have been considered as a multidimensional construct, in this study we believe that each dimension of EO accounts for a different magnitude of variance in SMEs performance. From this perspective, we thus, follow the Lumpkin and Dess's (2001) approach which treated EO as a five dimensions construct. Thus; innovation, risk-taking, pro-activeness, autonomy and competitive aggressiveness are treated as distinct EO dimensions. In the study of LeRoux and Bengesi (2014), SME performance indicated a significant positive correlation with proactiveness and competitive aggressiveness while it recorded significant negative correlation with risk-taking. Regression results concerning proactiveness and competitive aggressiveness indicated significant positive relationships with SME performance. On the other hand, risk-taking indicated a significant negative relationship with SME performance (Suggesting multidimensionality instead of unidimensionality), as such MANOVA analysis can best describe this phenomenon. From the literature review standpoint, we conclude that there is a need to study all five dimensions on SME's in Tanzania. Thus, our hypotheses were as listed below.

Product Innovativeness and EO-P

Empirical evidence suggests a positive relationship between EO and product innovativeness. Further, low product innovativeness is characterized by low business performance while high product innovativeness is characterized by high business performance. (Avalonitis and Salavou, 2007; Rauch et al., 2009). Innovativeness reflects a firm's inclination to engage in and sustain novel ideas, originality, carrying out tests, and inventive processes that may result in new products, services, or technological processes (Lumpkin and Dess, 1996).

H1: Product innovation success is positively related to SMEs performance

Risk-taking and EO-P

Risk has a variety of meanings; hence the context of application matters. In strategy context, Baird and Thomas (1985) point out three types of strategic risk: "venturing into the unknown," "committing a relatively large portion of assets," and "borrowing heavily". Eggers et al. (2013) found a positive association between risk-taking and EO. However, a study conducted in Tanzania, LeRoux and Bengesi (2014) found a negative relationship between risk-taking and SME performance. Unlike the case in developed economies where risk-taking is positively associated with SMEs performance, risk-taking in emerging economies is avoided by SMEs due to weak and hostile business and regulatory infrastructures which make risk-taking a threat rather than a profit-seeking avenue. They also found positive correlations between proactiveness and risk-taking indicating that the two have a complementary effect, or rather risk-taking is necessary to foster a proactive behaviour.

H2: Risk-taking is negatively related to SMEs performance

Pro-activeness and EO-P

Pro-activeness refers to acting in anticipation of future challenges (Lumpkin and Dess, 1996). It is a forward-looking perspective which is accompanied by new venturing activities. It refers to processes aimed at anticipating and acting on future needs by "seeking new opportunities which may or may not be related to the present line of operations, introduction of new products and brands ahead of competition, strategically eliminating operations which are in the mature or declining stages of life cycle" (Lumpkin and Dess, 1996). Thus, a proactive firm is a leader rather than a follower. Lumpkin and Dess, (1996) argue that, because pro-activeness implies a prominence of initiating activities, it is intimately related to innovativeness and is likely to co-vary with it. LeRoux and Bengesi (2014) found a positive relationship between pro-activeness and SME performance in Tanzania.

H3: Pro-activeness is positively related to SMEs performance

Autonomy and EO-P

In a quest for autonomy, individuals leave established businesses to seek freedom and experiment with their new business ideas. In organizations, it is the independence granted to individuals and teams who can implement their creativity and develop talented ideas that are required for entrepreneurship to occur. Thus, an imperative momentum for new-entry activity is the autonomous spirit necessary to promote new ventures. Thus, the notion of autonomy is a key dimension of an entrepreneurial orientation. "Autonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion." (Lumpkin and Dess, 1996: 140) autonomy is a function of among other factors; management style, size, and ownership (Lumpkin and Dess, 1996). It is expected therefore that autonomy would have a positive impact on the performance of a business.

H4: Autonomy is positively related to SMEs performance

Competitive Aggressiveness and EO-P

Competitive aggressiveness refers to a firm's tendency to openly and strongly confront its competitors to realize entry or improve position, that is, to surpass industry rivals in the marketplace (I think we need reference here). It is characterized by responsiveness, for instance, to lower price in response to competitiveness, or entering a market where a competitor is in. It also reflects a willingness to be unconventional. Thus, competitive

aggressiveness, which refers to firm responsiveness toward realizing a competitive advantage, is a vital component of an EO (Lumpkin and Dess, 1996). LeRoux and Bengesi (2014) find a positive relationship between competitive aggressiveness and SME performance in Tanzania.

H5: Competitive aggressiveness is positively related to SMEs performance

The prominent dimensions of EO typically demonstrate high inter-correlations with each other. Consequently, the majority of studies joined these dimensions into one single factor. Conversely, there have been some arguments in the literature about the multidimensionality of EO. A number of scholars have argued that EO is best considered as a unidimensional concept and, consequently, the different dimensions of EO should relate to performance in similar ways. (Rauch et al., 2009)

More current arguments imply that the dimensions of EO may occur in different combinations each representing a diverse and independent aspect of the multidimensional concept of EO (Anderson et al. 2015). As a consequence, the dimensions of EO may relate differently and independently to firm performance. While dissimilar theoretical arguments can be used for and against treating EO as a uni- or multidimensional factor(s), the study of all five dimensions can establish empirically whether the different dimensions of EO relate to performance the same way or in varying ways. Particularly, the study by Le Roux and Bengesi (2014) found a negative relationship between risk-taking and performance and positive relationships for pro-activeness and aggressiveness on performance in Tanzania. The differences in the directions of the two dimensions in itself raise the question: is EO multidimensional? Thus, our sixth hypotheses are

H6a: Each of the five Entrepreneurial Orientation [EO] dimensions affects SMEs performance independently

H6b: Entrepreneurial orientation is a multidimensional phenomenon among SMEs owners.

Research method

This study was conducted in Dar es Salaam, which was purposefully selected because of a large population of SMEs. The study was based on a cross-sectional research design. It is modelled following Structural Equation Modeling (SEM) to examine the structural relationship between entrepreneurial orientation and business performance. It employed a structured questionnaire for its primary data collection. The questionnaire was physically administered by the researchers to SME owners. Initially, 200 questionnaires were administered but only 143 questionnaires were returned, accounting for a response rate of 71.5%. The total sample size was therefore 143 SMEs. Based on SMEs policy classification in Tanzania, SMEs selected were businesses with employees' ranging from 5 to 99, and capital investments ranging from 5 to 800 million Tanzanian shillings (URT, 2002).

Thus, this study employed a total of 143 respondents as the sample, the sample size adequacy was ascertained based on the following formula as adapted from Milton (1986).

$$n = k + 1 + \frac{t^2(1 - R^2)}{\Delta r_j^2}$$

In order to find the sample size to be used: n, the researchers had to furnish the number of variables in the final model (k), the projected overall R of the model (typically estimated on the basis of comparable preceding research finding), and the preferred t-level (for example, approximately t = 2 for p < .05; t = 3 for p < .01). The researcher decided on a minimum addition to r-square when the variable is entered last (Δr_j^2), which, if attained, will assure a statistically significant regression coefficient given the computed sample size. The Δr_j^2 is a conditional term specified by the researcher, for any variable which contributes in addition to r-square of a specified amount (if entered last), the computed sample size: n will assure that the ratio of that variable's regression coefficient to its standard error will be equal to t or greater, this value can be 0.01, 0.02, 0.05 and so on (Kelley and Maxwell, 2003; Milton, 1986).

The sample was made up of 68 males and 75 females. Our sample was adequate according to the Kaiser-Meyer-Olkin Measure of Sampling Adequacy, which was 0.930, with a Chi-square of 1575.370 which indicated that our sample was sufficient.

The SMEs sample was from 8 different business sectors as indicated in Table 1 below. Most of them were from the food and beverage followed by clothing and tailoring and sectors.

Table 1. Types of SMEs

		Frequency	Percent	Cumulative Percent
Valid	Foods, beverages	57	39.9	39.9
	Financial services	4	2.8	42.7
	Woods, construction, mechanical,	14	9.8	52.4
	Electronics, telecommunications	4	2.8	55.2
	Clothing, tailoring, wears	26	18.2	73.4
	Books, stationaries	4	2.8	76.2
	Drugs, medicine, cosmetics	14	9.8	86.0
	Others: saloon	20	14.0	100.0
	Total	**143**	**100.0**	

Following Avalonitis and Salavou (2007) ANOVA was additionally employed to assess whether or not it was suitable to combine questionnaires from different categories of respondents/sectors, where the lack of significant differences between them would indicate sample poolability. The respondents/sectors' categories are treated as independent variables while all the variables under analysis as dependent variables. The results indicated that all of the variables under study that was used in SEM were not significant at 1% indicating that the sample was poolable, thus the researcher combined variables from different categories of SMEs.

Measurements of variables

Independent variables

The study employed 5 independent variables; namely product innovativeness, risk-taking, competitive aggressiveness, proactiveness, and autonomy. They were measured using a 5-point Likert scale. The items were assessed for suitability through EFA as a data reduction

technique, thus ending up with 5 items for product innovativeness, 4 items for risk-taking, 4 items for competitive aggressiveness, 4 items for pro-activeness and 3 items for autonomy. A Likert scale ranging from 1 to 5 was used, with scores from 1= strongly disagree to 5= strongly agree. Table 2, indicates the measure of reliability, Cronbach's Alpha, which had high measures that were well above 0.7 indicating a good reliability of the constructs.

Table 2. Reliability and correlations analysis

EO-dimensions	1	2	3	4	5	Cronbach's Alpha	N of Items
1. Innovation	1.000	.752	.747	.339	.581	.817	5
2. Proactiveness		1.000	.986	.834	.858	.808	4
3. Risk-taking			1.000	.797	.932	.808	4
4. Autonomy				1.000	.811	.754	3
5. Aggressiveness					1.000	.857	4

Dependent variable:
The performance was measured using estimated net profits from SMEs own assessments. The estimated daily average profits were annualized to produce an estimated profit figure for the year, which was further standardized to take care of the lack of normality in the data.

The regression equation was;

$$P = \alpha + \beta_1 D_1 + \beta_2 D_2 + \beta_2 D_2 + \beta_4 D_4 + \beta_5 D_5 + \varepsilon$$

Key:

D1=Product innovation, D2=Risk-taking, D3=Pro-activeness, D4=Autonomy D5 Competitive aggressiveness, P=SME performance

Data Analysis and Discussion of Findings

Data analysis
A combination of methods was employed as Structural Equation Modeling (SEM) would normally involve. First, we mapped out relationships based on Path analysis (PA). Exploratory Factor Analysis (EFA) was used to assess the presence of a single-factor structure that accounts for most of the covariance in the variables. Maximum likelihood (ML) was employed as a method of extraction.

Confirmatory factor analysis (CFA) was used to validate the variable measurements. CFA is a special case of SEM, in CFA the correlations between the factors are an explicit part of the analysis because the factors are collected in a matrix of factor correlations. With CFA, a researcher is able to decide *a priori* whether the factors would correlate or not. Specifically, we test for the dimensionality of the EO dimensions at this stage to see whether EO is unidimensional or multidimensional based on CFA and ANOVA.

To test for the construct validity of variable measurements, the researcher employed Confirmatory Factor Analysis (CFA), which contains inferential statistics that allows for more objective interpretation of validity (refer Appendix 1). That is unidimensionality, convergent and discriminant validity tests were assessed. That is (i) the significance of the

factor loading (Z-values >+/-1.96 and P-values 0.05), the correlations between a particular items and the latent constructs (ii) the overall acceptability of the measurement model in terms of its fit to data using Chi-square test and other fit indices (CFI and robust CFI), which should exceed the limit point of 0.90.

In the exploration of whether SMEs adopt divergent EO profiles, we employ cluster analysis (CA) using the five EO dimensions as independent variables. An ANOVA analysis was performed for the clusters to assess significant differences between them. Finally, Discriminant Analysis (DA) was performed; where EO dimensions were independent variables and cluster membership as the grouping variable. Finally, a multiple sequential or hierarchical linear regression analysis was conducted where performance was the dependent variable and EO dimensions the independent variables. This particular type of regression was useful, because of multi-co-linearity issues exhibited by high correlations between the five dimensions (Refer Table 2). It allowed estimating the individual effects of the five dimensions in isolation thereby avoiding non-co-linearity assumption violation. We finally tested our conceptual model hypotheses in path analysis. The businesses that were involved in the study were of the average age of 4.3 years, with sales values of 481,463,308.13 TAS and average profits of 168,288,386.13 TAS per year.

Confirmatory Factor Analysis (CFA)

The CFA results confirmed the results of the EFA that 5 factors could be extracted from the data and constructs. However, at a factor level, the factors seemed to be highly correlated indicating a departure from being multidimensional to unidimensional based on our dataset. Confirmatory Factor Analysis (CFA) allowed for more objective interpretation of validity (Refer Appendix I). That is unidimensionality, convergent and discriminant validity assessment. The constructs/items were highly correlated with the specific factors indicating high construct validity that is the constructs were more related to their respective factors. However, the high correlations between the constructs indicated a lack of high discrimination between the constructs as proposed in the study. For instance (in Table 2) the correlations between risk-taking and pro-activeness were 0.986, while risk-taking and aggressiveness were 0.932. If these factors were multidimensional we would expect lower correlations between them. Thus our findings point to the fact that all these five factors (innovativeness, proactiveness, risk-taking, autonomy, and aggressiveness) are less likely multidimensional but are more likely unidimensional as they all tend to highly correlate. That could be witnessed by the p-value that was below 0.05 in our analysis, for multidimensionality to be present the p-value for the model fit should normally be above 0.05.

Table 3. Model fit indices

Model	P	CMIN/DF	GFI	AGFI	CFI	RMSEA	PCLOSE
Default model	.000	1.487	.804	.741	.924	.041	.988
Independence model	.000	6.331	.216	.134	.000	.137	.000

The overall acceptability of the measurement model in terms of its fit to data using Chi-square test and other fit indices (CFI and robust CFI), should exceed the limit point of 0.90. The model fit indices indicated a fairly good fit, the CMIN/DF was 1.487 whereby a threshold of < 3 is recommended as good, and < 5 sometimes permissible. The GFI was 0.804 and AGFI was 0.741 the recommended threshold is normally > 0.95 and 0.8 respectively but a lower score of 0.8 and 0.7 was tolerable. The CFI was 0.924 whereby a recommended threshold of >0.95 is considered to be great, > 0.9 good and > 0.8 to be

sometimes permissible. The RMSEA was 0.041 whereby a threshold of < 0.5 is considered good and between 0.5 and 0.1 is considered moderate and lastly a PCLOSE was 0.988, the recommended value is supposed to be > 0.05. Thus, generally the model for this study moderately fitted the dataset.

Path analysis (PA)

The analysis looked at theorized five EO dimensions and how they affect SMEs performance. Multiple regression and sequential or hierarchical linear regressions analyses were conducted where performance (net income) was the dependent variable and EO dimensions in their respective constructs were independent variables. The results indicated that the coefficients were not significant with the exception of autonomy which was significant at 5%. But, innovation, risk-taking, and aggressiveness were positively related to profit/performance of the SMEs, while pro-activeness and autonomy were negatively related to it.

Table 4. Regression weights

Dependent		Independent factors	Estimate	S.E.	C.R.	P
Net income	<---	Innovation	.010	.171	.057	.955
Net income	<---	Proactiveness	-.252	.331	-.762	.446
Net income	<---	Risk-taking	.348	.251	1.386	.166
Net income	<---	Autonomy	-.842	.281	-2.995	.003
Net income	<---	Aggressiveness	.082	.260	.316	.752

The research hypotheses postulated that; H1: Product innovation success is **positively** related to SMEs performance, H2: Risk-taking is **negatively** related to SMEs performance, H3: Pro-activeness is **positively** related to SMEs performance, H4: Autonomy is **positively** related to SMEs performance and H5: Competitive aggressiveness is **positively** related to SMEs performance. The results were only statistically significant for autonomy, where autonomy was negatively related to performance and was the most important factor due to its large effect compared to other factors (-0.842).

Sequential or hierarchical linear regression analysis

Further, in order to assess the contribution of each factor to the performance of SMEs, we employed sequential linear regressions, from which we could observe the contribution of each factor to the overall R^2. From the analysis, autonomy had the largest and significant contribution to the model contributing 6.1% to the performance of SMEs. The rest of the factors were not significant contributors. Thus, our hypothesis *H6a: Each of the five Entrepreneurial Orientation [EO] dimensions affects SMEs performance independently*, could not be supported as the individual dimensions did not show any significant contribution independently, only autonomy was significantly affecting performance.

Table 5. Regression models summary

Model	R	R^2	aR^2	Std. Error	Change Statistics					Model fit	
					R^2 Change	F Change	df 1	df 2	Sig. F Change	F	Sig.
1	.011[a]	.000	-.007	1.00	.000	.016	1	141	.899	.016	.899[a]
2	.215[b]	.046	.033	.98	.046	6.758	1	140	.010	3.38	.037[b]
3	.221[c]	.049	.028	.98	.003	.411	1	139	.522	2.38	.072[c]
4	.332[d]	.110	.084	.95	.061	9.462	1	138	.003	4.26	.003[d]
5	.332[e]	.110	.078	.96	.001	.077	1	137	.782	3.40	.006[e]

a. Predictors: (Constant), innovation
b. Predictors: (Constant), innovation, proactiveness
c. Predictors: (Constant), innovation, proactiveness, risk-taking
d. Predictors: (Constant), innovation, proactiveness, risk-taking, autonomy
e. Predictors: (Constant), innovation, proactiveness, risk-taking, autonomy, aggressiveness

After regression, the standard errors were approaching zero indicating a better performance of the model. The collinearity statistics (VIF; variance inflation factors) were below 5 and the partial correlations were as well very low, both indicating a lack of multicollinearity in our models.

Cluster Analysis (CA)

In an attempt to address the issue of dimensionality in hypothesis H6b (*H6b: Entrepreneurial orientation is a multidimensional phenomenon among SMEs owners.)*, the following series of analyses were done. Cluster analysis was performed and the researchers were able to produce three clusters from the data as summarized in Table 6 below. The goal of it was to statistically establish if the data could be profiled into five dimensions. The use of two-step cluster analysis which automatically determines the best number of clusters given the data was used, the silhouette measure of cohesion and separation indicated that the cluster quality was fair (about 0.25), based on a scale of -1 and +1.

Table 6. Clusters frequency summary

Two-step Cluster Number

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	cluster_1	34	23.8	23.8	23.8
	cluster_2	60	42.0	42.0	65.7
	cluster_3	49	34.3	34.3	100.0
	Total	143	100.0	100.0	

MANOVA

Multivariate tests of ANOVAs (MANOVA) was conducted to produce statistics that would tell if the groups or clusters were from three different groups or were statistically different for

that matter, the four conventional statistics were reported in Table 7 indicates that the means for the group were statistically different.

Table 7. Multivariate tests

Clusters tests		Value	F	Hypothesis df	Sig.
	Pillai's Trace	1.222	43.030	10.000	.000
	Wilks' Lambda	.088	64.464	10.000	.000
	Hotelling's Trace	6.837	92.294	10.000	.000
	Roy's Largest Root	6.276	171.952	5.000	.000

Discriminant Analysis (DA)

Discriminant analysis was performed to assess the role of the EO hypothesized dimensions in influencing the membership into the three feasible clusters which would represent the suggested ultimate profiles for our SMEs.

Table 8. Box's M test on clusters members' covariance

Test Results		
Box's M		133.579
F	Approx.	4.208
	df1	30
	df2	41445.235
	Sig.	.000

Tests null hypothesis of equal population covariance matrices

The model fits Box'M statistics was significant at 0.01, indicating that the data fitted the model well. About 91.6% of data was correctly classified as clusters one through three by the discriminant function. EO dimensions were correctly classified, 32 (94.1%) into cluster one, 55 (91.7%) into cluster two and 44 (89.8%) into cluster three. The other items and their respective percentages were a result of misclassification (Table 9).

Table 9. Discriminant Analysis Summary

Classification Results[a,c]						
		Two Step Cluster Number	Predicted Group Membership			Total
			cluster_1	cluster_2	cluster_3	
Original	Count	cluster_1	32(94.1)	0(0)	2(5.9)	34(100)
	(%)	cluster_2	0(0)	55(91.7)	5(8.3)	60(100)
		cluster_3	1(2.0)	4(8.2)	44(89.8)	49(100)

a. 91.6% of original grouped cases correctly classified

The Eigenvalue gives the proportion of variance explained. A larger Eigenvalue explains a strong function. The higher the correlations value, the better the function that discriminates the values. For instance, functions 1 explains 91.8% of the variations with a high correlation of 0.92.9 (Table 10).

Table 10. Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	6.276[a]	91.8	91.8	.929
2	.561[a]	8.2	100.0	.599

a. First 2 canonical discriminant functions were used in the analysis.

The hypothesis testing regarding the discriminating power of variables based on Wilks' Lambda indicated that the statistic was significant for both functions indicating that the variables (innovation, pro-activeness, risk-taking, autonomy and aggressiveness) have significant discriminating power on the clusters which we designate as EO profiles (Table 11). We conclude that based on the sample data; there is a statistically significant discriminating power in the variables included in the model.

Table 11. Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.088	335.316	10	.000
2	.641	61.451	4	.000

Using the asterisks in the structure matrix (Table 12), we see that three of the five variables entered into the functions (aggressiveness, risk-taking, and proactiveness) are the most important variables in the first discriminant function, in function two variables were significant (innovation and autonomy). This suggests that there is a possibility of the dimensionality of the EO profiles but it is clear though that it is not the 5 dimensions, there is a possibility of fewer than 5 dimensions possibly 2 or 3 dimensions based on cluster, discriminant and factor analyses. Out of the initial five variables/profiles, three variables namely aggressiveness, risk-taking, and pro-activeness loaded highly in function one while the rest: innovation and autonomy loaded highly in function two. The respective correlations were high in both groups indicating that the first three: autonomy, risk-taking, and pro-activeness, could stand as a separate dimension because they all load high in the same first function. On the other hand, innovation and autonomy are highly loading in function two; they may stand as another second dimension.

EFA pattern matrix indicated the possibility of three dimensions based on merged constructs from the five previous theoretically proposed dimensions. They were composed as follows: Dimension (factor) one: Aggressiveness plus some risk-taking and autonomy constructs. This indicated that aggressiveness is coupled with risk and autonomy behaviour. Dimension (factor) two: innovation plus risk and pro-activeness behaviours. This indicated that innovativeness in products required risk as well as pro-activeness tendencies. Dimension (factor) three: pro-activeness plus risk taking tendencies. This tells us that, to be pro-active one need to also be a risk taker. Conversely, innovation was not a predominant characteristic necessary in one being aggressive or pro-active. But risk-taking was evidently a contributing trait in all three dimensions (aggressiveness, innovation, and pro-activeness).

Table 12. Structure Matrix

Variable	Function	
	1	2
Aggressiveness	.616*	-.202
Risk-taking	.602*	.124
Proactiveness	.533*	.119
Innovation	.372	.894*
Autonomy	.490	-.603*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

Variables ordered by absolute size of correlation within a function.

*. Largest absolute correlation between each variable and any discriminant function

Thus, our *H6b* hypothesis: Entrepreneurial orientation is a multidimensional phenomenon among SMEs owners was confirmed indicating that entrepreneurial orientation based on empirical findings is a multidimensional phenomenon and that it can be modelled into three dimensions, namely aggressiveness, innovation, and pro-activeness.

Conclusions, implications, and suggestion for future research

This paper explored the effects of the five EO "dimensions" (innovation, risk-taking, pro-activeness, aggressiveness and autonomy) on SMEs' performance in Tanzania and later evaluates the viability of multidimensionality of EO. The findings indicate that autonomy seems to play a significant role in influencing performance in a negative way. This indicates that the more, they felt autonomous the less they performed. The other four factors were significant in influencing SMEs performance but at lower levels of significance. Innovation, for instance, is positively related to performance indicating that innovation may be key in promoting SMEs performance. Risk-taking has two possibilities as the literature suggests (Avlonitis and Salavou, 2007), passive entrepreneurs are normally risk-averse while active entrepreneurs are risk lovers, the Tanzanian entrepreneurs are possibly related to the latter group as our data indicate a positive relationship contrary to LeRoux and Bengesi (2014) study who found a negative and significant relationship indicating that they were dealing with passive entrepreneurs. A proactive firm is characteristically a leader, the negative relationship would suggest that these SMEs are not leaders in their markets. A positive relationship in autonomy would suggest that the SMEs personnel when given sufficient freedom tend to enhance performance. However, the negative relationship in our study help to point to the fact that SMEs' personnel tend to underperform when given sufficient freedom to act. A positive relationship in aggressiveness would indicate a tendency towards responsiveness to market competition, the positive result in our study help to confirm this stance.

Similar to LeRoux and Bengesi's (2014) three dimensions (pro-activeness, risk-taking and aggressiveness) on their findings, we found high correlations between the five dimensions (pro-activeness, risk taking, aggressiveness, innovation and autonomy), this lend a support to their argument that:"the fact that these correlations existed suggested that the dimensions of EO were interrelated and it was reasonable not to assume independence among factors" (LeRoux and Bengesi, 2014: 616). In exploration as to whether SMEs in Tanzania exhibit divergent EO profiles, we followed the methods of Avlonitis and Salavou (2007), which based on their study; they were able to propose a two dimensions solution to EO. In our case, a cluster analysis was performed that used the five EO dimensions as independent variables

to produce clusters, after examining the cluster solutions, a three automated clusters solution was feasible, indicating that the EO can be designed into three dimensions rather than a five-dimension proposal. Furthermore, a discriminant analysis was performed which revealed that 91.6% of cases were correctly classified giving more support to a three-cluster solution, with an 8.4% misclassification rate. Based on EFA, a further exploration of the three clusters in our findings indicated that the five dimensions converged into three factors or dimensions (aggressiveness, innovation, and proactiveness). Unlike the findings of LeRoux and Bengesi (2014) our findings showed that innovation is clearly a distinct dimension while risk-taking was not and it was rather a trait withing aggressiveness, innovation, and pro-activeness. Thus, it is possible to model EO into three dimensions. The only issue at stake is which combination of constructs will represent the core of EO.

There are three major implications from this study; first Tanzanian SMEs based on our data indicated that EO does play a crucial role in influencing profitability, particularly autonomy which is significant at 1% and negatively related to it. Thus, researchers need to probe more into the matter to see which factors or issues are at stake, especially the study of autonomy and its ultimate effects on SMEs' performance. Policy makers need to observe the role of pro-activeness, risk-taking and autonomy in promoting SMEs performance as these factors though at different levels of significance affects SMEs' performance. Secondly, based on our exploration of EO profiles using CA, MANOVA, DA, and EFA, EO exhibit a possibility of multidimensionality based on a maximum of three dimensions rather than the five dimensions. This position is consistent with many studies reported in Rauch et al. (2009), which have supported a multidimensional position but with less than five dimensions. Lastly, the three dimensions are manifest: aggressiveness, innovation, and pro-activeness; that risk-taking are blended within these three dimensions and that autonomy is mainly adding character to aggressiveness. Thus, studies need to combine factors into three possible dimensions to assess the dimensionality of EO. Studies also need to assess and refine the actual items or constructs that would make up the three dimensions and develop possible labels for such dimensions. And consequently, studies need to be designed that would assess the effects of these dimensions on SMEs performance in various contexts, sectors, and levels for comparative purposes.

Study limitations

Our study was limited in the following ways: we did not seek to find the best combination of factors that affect business performance but rather sought EO dimensions individual contributions to business performance. We did not seek to use control variables in our model because of study scope and data limitations. We did not seek to identify and refine the constructs for the three dimensions solution in our analysis due to the focus of our research. The three dimensions were not used in the regression equations because we decided the dimensions *a prior*. We sought to prove the five EO dimensions argument first and how it affects business performance based on hypothesized prior research to enable comparisons with these studies. Later, we refined the five dimensions into three feasible ones.

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Appendix I. CFA factor loadings

Constructs		Factors	Loadings
i6: We provide a novel business model to create profit	<---	Innovation	.656
i8: The product offers more possibilities to customers	<---	Innovation	.635
i11: Competitors in this market recognize us as leaders in innovation	<---	Innovation	.706
i12: We actively introduce improvements and innovations in our business.	<---	Innovation	.743
i13: Our business seeks out new ways to do things.	<---	Innovation	.695
p2: In dealing with competitors we often initiate to introduce new services	<---	Pro-activeness	.690
p5: We seize initiatives whenever possible in our target market operations.	<---	Pro-activeness	.785
p6: We act opportunistically to shape the business environment in which we operate.	<---	Pro-activeness	.678
p13: We continuously try to discover additional needs of our customers of which they are unaware	<---	Pro-activeness	.669
r2: My enterprise typically adopts bold aggressive posture in exploring potential opportunities	<---	Risk-taking	.796
r8: We encourage people in our company to take risks with new ideas	<---	Risk-taking	.695
r10: To make effective changes to our offering, we are willing to accept at least a moderate level of risk of significant losses	<---	Risk-taking	.637
r12: People in our business are encouraged to take calculated risks with new ideas.	<---	Risk-taking	.731
t1: People in our organization are permitted to think and act without interferences	<---	Autonomy	.583
t2: People in our organization are permitted to communicate without interference	<---	Autonomy	.779
t3: People in our organization are allowed to make decisions for responsibilities that relate to their jobs	<---	Autonomy	.789

g2: We try to outperform similar organization as best as we can	<---	aggressiveness	.715
g4: Even if I launch a new venture and fail many times, I will keep in trying until I succeed	<---	aggressiveness	.779
g6: In launching a start-up business, I am confident that I could make it successful and make profit	<---	aggressiveness	.813
g7: We try to undo and out-maneuver the competition as best as we can.	<---	aggressiveness	.796