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The impact of entrepreneurial orientation on the competitiveness of agricultural SMEs in the Fes_Meknes region by structural equation modelling

By

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Abstract

Purpose

The objective of this research is to fill the existing gap in studies on EO of SMEs in Morocco. The study attempted to empirically examine the impact of each dimension of EO on SME competitiveness in the context of agricultural SMEs in the Fez-Meknes region of Morocco.

Design/methodology/approach

This study examines the relationship between three dimensions of EO (innovation, proactivity, risk-taking) and firm competitiveness. Data are collected from 330 agricultural small and medium-sized enterprises (SMEs) through a face-to-face survey. The proposed hypotheses are tested with structural equation modeling (SEM) using SPSS AMOS 23 software.

Findings

The results show that the three dimensions of EO are related in different ways to the competitiveness of agricultural SMEs. Indeed a positive relationship is observed between the two dimensions of EO (innovation and proactivity) and the dimensions of competitiveness. A negative relationship exists between risk taking and cost control.

Practical implications

The results of this study suggest that not all three dimensions of EO are beneficial to firms in creating advantage and improving competitiveness. Owners/managers of agricultural SMEs in the RFM should therefore review their EO capabilities and assess whether they bring value to their businesses while taking into account the business environment in which they operate.

Originality/value

The contribution of this study is that it highlights the dimensions of EO that affect the competitiveness of SMEs. This paper fills a gap in the literature by exploring agricultural SMEs in a developing country (Morocco).

Introduction

Entrepreneurial orientation (EO) is a key concept in entrepreneurship that has become a focus of research attention [1]–[3]. EO refers to the process of strategy development that provides organizations with a basis for entrepreneurial decisions and actions[4]–[6].

A large number of empirical studies have reported that EO has a positive effect on firm performance [5], [5], [7], [8]. However, the OE-performance relationship has been questioned in several studies, with a number of them finding little or no association and others even reporting a negative relationship (Hart, 1992; Matsuno et al., 2002; Morgan & Strong, 2003; Smart & Conant, 1994) cited by[9]–[11].

Thus the literature on EO has been well established in the context of Western developed economies[5], [12], Martens et al. (2016) stated that emerging countries "have received little scholarly attention in this area" (p. 575). Four review studies on EO[5], [12]–[14] showed that EO is well established in developed economies, and that few studies have been conducted in developing countries. They subsequently suggest that additional research is needed to explore EO in the context of developing economies. This study seeks to address this gap by focusing on small and medium-sized agricultural enterprises in the Fez-Meknes region of Morocco. In this context, the question that challenges us is the following:

How does EO, through its dimensions, influence the competitiveness of SMEs: the case of agricultural SMEs in the Fez-Meknes region?

Conceptual framework of the research

Entrepreneurial orientation:

The concept of entrepreneurial orientation (EO) is now one of the most popular research areas in strategic management and entrepreneurship [1]-[3].

Lumpkin and Dess (1996) describe EO as the "propensity to act autonomously, innovate, take risks, and act proactively when confronted with market opportunities" [4, p. 137]. A company is said to enter a new entry when it introduces new products, services, technological innovations, markets, or business model innovations that did not previously exist [1]. Entrepreneurial orientation involves a set of behaviours that characterize the decision-making processes and practices of organizations with respect to the competition, its markets and its environment [5]-[8].

The three-dimensionality of EO

According to several authors [5], [8]-[12] entrepreneurial orientation consists of three dimensions, namely innovation, proactivity and risk taking. Other researchers have added two additional dimensions: autonomy and competitive aggressiveness (Lumpkin & Dess, 1996).

Indeed, the concept "OE" was conceptualized in two different ways [1], [13]. Covin and wales (2012) distinguish between two conceptions of EO on criteria as shown in the following table:

Table 1: *conceptualization of entrepreneurial orientation:*

		Conception de l'OE	
		Unidimensional	**Multidimensional**
Distinctive points	Key Authors	Miller (1983), Covin et Slevin (1989)	Lumpking et Dess (1996)
	Number of dimensions	3	5
	Detail of the dimensions	Innovation, Proactivity and Risk Taking	Innovation, proactivity, risk-taking, competitive aggressiveness and autonomy
	Links between dimensions	Covariance	Independence
	Measurement model	reflective	formative
	Scale used	Covin et slevin (1989)	Morgan et al (2007)

Source: *Covin and Wales 2012*

Autonomy, which is "the ability and willingness to be autonomous in the pursuit of opportunities" (Lumpkin 1996, p: 140), is not considered. According to Basso et al, (2009) autonomy is not part of the EO construct, but rather an antecedent to it [15].

Similar to Basso et al. (2009), we believe that the dimension of aggressiveness towards competition is indistinguishable from the dimension of proactivity and that autonomy is included in the dimension of risk taking.

Therefore, the initial three dimensions of innovation, risk-taking, and proactivity are chosen and will be deeply analyzed in this thesis, as there are many previous studies that support the adoption of these three dimensions[16]-[18] and this improves the comparability of the results of this study (Covin & Slevin, 1989; Wiklund & Shepherd, 2005).

Innovation

Innovation has been defined as "the tendency of a firm to engage in and support new ideas, novelty, experimentation, and creative processes in order to result in new products, services, or technologies" (Lumpkin and Dess, 1996:142). For [24:45] "product innovation refers to the ability of a firm to create new products or modify existing products to meet the demands of current or future markets".

Innovation refers to the tendency of a company to engage and sustain novelty in the creation and introduction of new products and services [19]-[21].

Risk taking

In the context of EO, risk-taking refers to the organizational risk resulting from new entry and innovation.

Risk taking is characterized by venturing into the unknown with bold actions, borrowing heavily, and committing substantial resources to ventures in uncertain contexts [8], [18], [20]. Risk taking refers to a firm's propensity to support projects with uncertain expected returns, such as entering new and unknown markets and committing substantial resources to ventures with uncertain outcomes [22].

Proactivity

Proactivity is described as a potential-oriented perspective, characterized by launching new products and services, ahead of the competition and anticipating future demand [8], [16], [23]. Proactive companies act on future needs by actively seeking new opportunities. Miller suggested that proactivity could be defined as "being the first to propose proactive" innovations [20, p. 702].

Proactivity was characterized by opportunity seeking and pioneering vision that introduces new products and services before competitors and also acts in anticipation of future demand (Covin and Wales 2012b; Linton and Kask 2017).

1.1.2. Measuring entrepreneurial orientation:

The following table presents the indicators (items) for measuring each dimension of EO (innovation, risk taking, and proactivity):

Table 2: *EO Measurement Indicators*

Dimensions	Measurement indicators
Innovation	- research and development (R&D), technological change and innovation - the company introduces several new product lines or services - the company radically changes its products or services
Risk taking	- Our company is more interested in risky projects with a high probability of high revenues. -Given the nature of our environment, radical measures are sometimes necessary to achieve our company's objectives. -In situations of uncertainty, I am not afraid to take risks to exploit new opportunities
Proactivity	- the company undertakes actions that its competitors replicate - The company is often the first to introduce new products, services, techniques or technologies, production methods, etc. - the company adopts a highly competitive position aimed at reducing competition

Source : *Wales 2012, Covin et Slevin (1989)*

Competitiveness: A multidimensional concept

1.2.1. Generalities on competitiveness:

Competitiveness is a multifaceted concept whose understanding comes from economics, management, history, politics and culture [25]. It has been described as a complex, multidimensional and relative concept, whose relevance changes over time and context [26].

Countries can only be competitive if their firms can be competitive [25]. According to Porter (1980), it is firms, not nations, that compete in international markets. In fact, firms compete on the global stage and face direct competition.

Moreover, the ultimate determinant of the competitiveness of an economy is related to the competitiveness of firms within the economy [27]. No nation or industry will be competitive if it does not have thriving firms, which are competitive in domestic and international markets. Therefore, the competitiveness of firms is particularly important for industries and nations, in addition to the firms themselves (Delbari et al. Seyyed, 2015).

1.2.2. SME competitiveness: A daily challenge

The concept of competitiveness at the firm level is clearly understood as the ability of a firm to compete in a competitive environment, to grow and to be profitable [29]. Competitiveness at this level is mainly related to the long-term profitability of the company [30]. For [31] the competitiveness of companies: "the ability of a company to sustainably meet its dual objective: to meet the needs of customers while making a profit. This ability is achieved by offering goods and services in the market that customers value more than those offered by competitors" (p. 24).

Nevertheless, despite a large number of empirical studies on competitiveness, as well as several reviews of the theoretical literature, the concept of competitiveness is still elusive[27], [32].

A review of the existing literature reveals that competitiveness at the level of large firms may not be directly applied to the level of SMEs. Indeed, a small firm is not a reduced version of large firms [33]. Large and small firms differ from each other in their organizational structures, their responses to the environment, their management styles and, most importantly, in the way they compete with other firms[25].

Horne et al (1992) cited by [34] pointed out that the competitiveness of small firms should be the interaction of the scope or growth of the business environment, the degree of access to capital resources and the intrinsic ability of the firm to play the role represented in entrepreneurship.

1.2.3 Indicators of measuring the competitiveness of the firm :

According to Ajitbah 2003, productivity has often been qualified as a good indicator of the long-term competitiveness of a firm. In line with the postulates of the RBV framework

[35]-[37], these studies support the idea that competitiveness is a multidimensional construct related to resources and capabilities, and that competitiveness is positively correlated with performance.

Table 3: *Indicators for measuring competitiveness*

Authors	Indicators for measuring competitive advantage	Page
[15]	- Product and service differentiation - Cost leadership	192
[16]	The measurement of sustainable competitiveness can be conceived along four main dimensions. These are (1) effective supply chain management, (2) product differentiation and innovation, (3) organizational responsiveness, and (4) cost control.	32
[17]	Cost; quality; product and service delivery capability; core competencies; market share; information technology applications; human resources; technology.	670
[18]	speed of innovation, speed of reaction to the market, production efficiency, product quality, production flexibility and R&D capacity	220
[19]	Market Competitiveness, Cost Competitiveness and Knowledge Competitiveness	96
[20]	cost, quality, reliability and speed of delivery	9
[21]	cost advantage, product advantage and service advantage	143

Source: *Compiled by us from the literature review*

However, the measurement of productivity and profitability has some limitations such as the lack of availability and reliability of data and the inability to measure the level of quality [44]. Productivity in the agricultural sector can be defined in different terms, namely land productivity, labor productivity and capital productivity. There is no universally accepted criterion for measuring productivity.

Similar to the limitations of the productivity and profitability dimensions, the lack of availability and reliability of financial data on total market sales distances market share from the dimension of measuring competitive advantage. This limitation is accentuated in the agricultural sector because many farms operating in this sector are family-owned and are mostly small and medium enterprises (SMEs) [45].

In order to measure the competitive advantage of small businesses, previous studies have used subjective metrics rather than financial performance indicators (Sidik, 2012). Thus, subjective measures are used in this research.

SME competitiveness As already stated, there are several measurement indicators. For our research, we selected the measure of Sigalas Chissitos and Vassilis M Papadakis (2018) and Sigalas Chissitos et al (2013) and Porter (1980).

Impact of entrepreneurial orientation on SME competitiveness

This section highlights the interactions (theoretical links) between the concepts mobilized namely: the dimensions of EO, those of competitiveness (differentiation and cost control).

1.3.1. The impact of innovation on the competitiveness of the company

Innovation helps companies to seize new opportunities[46] and contributes significantly to the success of companies [19], [40].

The introduction of new production technologies, often allows companies to increase their productivity through the use of new machines or equipment. As a result, each unit produced has a lower production cost, allowing it to be resold at a lower price while still making a profit. Productivity gains, which promote price competitiveness, can also come from innovations in work organization.

H1: Innovation has a significant positive effect on the cost control of agricultural SMEs in the Fez-Meknes region.

Innovation capacity is characterized by the importance given to R&D, technological leadership, the introduction of new products and the degree of change in product or service lines [24]. A high level of innovation in organizations therefore leads to management openness to new ideas and acceptance that innovation is necessary to maintain efficiency and build a sustainable competitive advantage for the future [47].

H2: Innovation has a significant positive effect on the differentiation of agricultural SMEs in the Fez-Meknes region.

1.3.2. The impact of proactivity on differentiation and cost control

The importance of proactivity and its influence on firm performance has been highlighted in both theoretical discussions and empirical research (Wambugu et al., 2015).

Proactivity "gives firms the ability to respond positively to market opportunities" (Lumpkin and Dess 1996, p.149).

Uniqueness provides first-mover advantages, the magnitude of which depends on the timeliness of the actions. Proactivity anticipates competitive movements and maintains the first-mover advantage; it is an important element of the differentiation factor.

H3: Proactivity is positively related to product differentiation

Low-cost models require less market uncertainty (Lieberman and Montgomery, 1988); implementing low-cost production, supply, distribution, or service systems, in order to maximize efficiency, must be stable and standardized, which reduces firm flexibility. Late entry allows for learning from past mistakes and reconfiguring products for more efficient production. Proactivity is about anticipating and creating future demand, anticipating competition and promoting uniqueness; it is less about efficiently meeting existing demand (Hughes and Morgan, 2007).

H4: proactivity is positively linked to cost control

1.3.3. The impact of risk-taking on differentiation and cost control

The differentiation strategy can be a means of risk control, due to the reduction of initial investments and thus fixed costs (Lechner & Gudmundsson, 2014). On the other hand, a differentiation strategy usually aims to develop unique products where customer demand is unknown, requiring risk taking (Dess et al., 1997). Thus, the literature is not clear on how risktaking fits into differentiation and cost containment [20].

In relation to cost control, the differentiation strategy may be a way for a small firm to control risk, by reducing fixed costs and initial investments.

H5: Risk taking is positively associated with differentiation in agricultural SMEs in the FezMeknes region.
H6: Risk-taking is positively associated with cost control in agricultural SMEs in the FezMeknes region

Research Methodology

The objective of using quantitative methods in this study is to test the generalization of the exploratory research results [49], [50] and the test of the conceptual model. A questionnaire is used as a tool to collect data through a face-to-face survey. The questionnaire items were based on relevant literature dealing with EO, SME competitiveness and the results of the qualitative study.

2.1. Operationalization of variables:

The measures of EO used in the questionnaire are presented in the following table:

Table 4: *Measures of entrepreneurial orientation*

N° items	Items	Dimensions de L'OE
INNO 1	My company has many new product lines (varieties or species) in the last five years (or since its creation).	innovation
INNO 2	My company focuses on R&D, (training, participation in conferences, experiments, testing platforms for new inputs ...)	
INNO 3	My company implements progressive and innovative production processes and practices	
INNO 4	It is usual for my company to seek commercial and technical solutions (best practices) by calling on experts	
PRO 1	My company usually initiates actions to which competitors must respond.	proactivity
PRO 2	My company is often the first to introduce new products (variety or species), services, new techniques or technologies, production methods, etc.	
PRO 3	My company typically monitors emerging market trends, identifies future customer needs and anticipates changes in demand that may lead to new business opportunities	
PRO 4	My company is always in competition with its competitors	
PRIR 1	My company has a strong propensity to engage in high-risk projects with a very high chance of return	Risk taking
PRIR 2	When faced with uncertain decision-making situations, my company generally seeks to be bold and aggressive in order to maximize the probability of exploiting opportunities	
PRIR 3	My company generally believes that because of the environmental conditions in which it operates, bold and far-reaching actions are necessary to achieve the goals.	
PRIR 4	My company has a strong tendency to invest or devote significant resources to pursue a business opportunity, even if the probability of success is highly uncertain.	
PRIR 5	When faced with an uncertain situation, my company is the first to face it	

Source: Compiled by us from Covin & Slevin (1989) and the results of the exploratory study As a dependent variable in this study, SME competitiveness is measured by two dimensions: cost control and differentiation.

Table 5: *SME competitiveness measurement table*

Dimensions		Items	Sources
Cost	control	Our company is able to offer prices as low or lower than those of our competitors	[22] [23] [24]
		des coûts de fabrication inférieurs à ceux de nos concurrents	[25]
	Differentiation	Our company offers better quality products than those of our customers	[22], [25]
		We offer high quality products to our customers	(Thatte et
		Our response to competitive movements in the market is good.	al., 2013)
		We deliver our customers' orders on time	[26], [20],
		We offer products that last after the harvest	[18], [21],
		Our returns are superior to those of our competitors	[25], [27]–
		We offer products that are very durable	[38]

Source: Compiled by us from the literature review and results of the qualitative study All concepts of EO and SME competitiveness were measured in a consistent manner, using a 5-point Likert scale.

2.2. Unit of Analysis, Population and Sampling

This study used the firm as the unit of analysis, because EO theory and its dimensions operate at the firm level. Wales, Monsen, and McKelvie (2011) asserted that as an organizational construct, EO manifests itself within firms such that entrepreneurial attitudes and behaviours permeate the organization at all levels.

The target population for the study is all agricultural SMEs in the Fez-Meknes region of Morocco. In Morocco, the sector generally includes both formal sector enterprises (registered with official agencies) and informal sector enterprises (not registered with public administrations). Thus, data were obtained from agricultural SMEs in the formal sector. The agricultural sector was selected to control for industry effects that might arise from using samples from various industries.

The reason for selecting agricultural SMEs was their significant contribution to regional GDP (30%) and job creation (45%). In addition to the fact that much previous empirical research did not focus on this type of industry, this would allow the results of the present study to be more consistently compared and discussed with other industries.

Thus, the population selected for this study is SMEs that meet the criteria described below:

1. Registered and listed or registered with DRA, ONSSA, CCI and OMPIC
2. Defined as an SME, according to the definition formulated by MAROCPME and CGEM.
3. The companies have been in operation for at least 3 years.

The study population included the 2510 agricultural businesses registered in the commercial registry and registered with OMPIC. According to the OMPIC 2018 database, there were

127345 enterprises including 39950 legal entities in the region. If we take the definition of the SME according to ANPME and CGEM, we find that 98% (2% a turnover greater than 175 million DH) of these companies are SMEs or 1913[1] are SMEs.

2.3. Sample size and sample selection in quantitative methods

The determination of the sample size depends on several elements, namely: "the significance level, the desired precision, the variance of the phenomenon studied in the population, the sampling technique used, the size of the population, the importance of the effect studied, the desired power of the test and the number of parameters to be estimated" [66, p. 226].

In our research, the sample size was determined according to the requirements of the data analysis techniques and the requirements of representativeness of the population. Indeed the sample size according to the recommendations of Hair et al 2010 is 15 *20 or 300 SMEs.

[1] According to the data of the OMPIC visited on 23/2/2021 and on the basis of the list received from the DRA and CRI and CCI Fez-Meknes

Taking into account the formula provided by Kothari (2004) the sample size is 330, in fact the formula is as follows:

$$n = \frac{Z^2 pq}{e^2}$$

Equation 1:

$$n\ adjsuted = \frac{nN}{n+N}$$

Equation 2: Source: Kothari 2004

Taking into account these considerations the size of our sample will be 330 agricultural SMEs in the region Fez-Meknes.

2.4 Sampling method:

Since the agricultural SMEs in the Fez-Meknes region were scattered in some cities, an area sampling was used in this study to select the sample. In an area sample, the population is divided into mutually exclusive and exhaustive subgroups based on geographic areas (Churchill, Brown & Sutter 2010). SMEs in seven provinces and two prefectures in the region were used as the sampling frame. Based on statistical data analysis and population representativeness requirements, a sample of 330 SMEs was proportionally and randomly selected from these 7 areas (Table 6).

Table 6: *Sample and selected area*

Provinces or prefectures	Number of companies until 2016	Percentage	Number of companies in the sample
Meknes	840	44%	146
Fez	407	21%	70
Taza	266	14%	47
El Hajeb	142	7%	24
Taounate	58	3%	10
Ifrane	83	4%	13
Sefrou	117	6%	20
Total	1913	100%	330

Source: *Our own elaboration based on OMPIC 2018 data and list provided by CRI, DRA, ONSSA, CCI.*

2.5. Pilot testing of quantitative methods

In this research, a pilot test is conducted twice with two different groups of participants, as suggested by Malhotra et al. (2006). The first group was composed of two university professors in economics and management.

The second group was composed of fifteen owners/managers of agricultural SMEs in the FezMeknes region. This group was chosen as suggested by Hair et al. (2010), who stated that when the scales used in the research are based on previous studies, it is recommended to conduct a pilot test with respondents similar to those of the population to be studied in order to verify the relevance of the items.

Structural Equation Modelling (SEM): Confirmatory Factor Analysis

In this research, the measurement model (CFA) is conducted to provide a confirmatory test for each construct developed. After the validation of each of these constructs, the relationship between the dimensions of EO and those of firm competitiveness is investigated. The three dimensions of EO (innovation, proactivity and risk taking) are independent variables, while the dimensions of competitiveness are dependent variables. Each variable is measured by indicators (items).

3.1. Confirmatory factor analysis of the measurement model

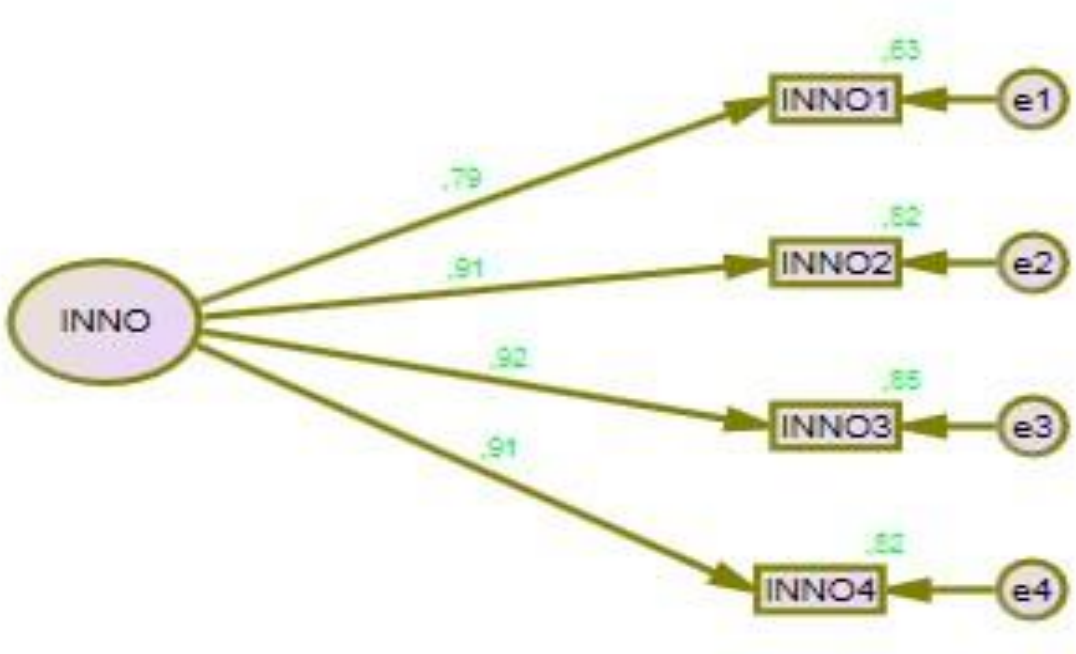
3.1.1. Confirmatory factor analysis of the innovation concept

The unidimensionality, convergent validity and reliability of the innovation concept scale will be verified in order to ensure the congeneric measurement model of this concept.

3.1.1.1. Unidimensionality of the innovation concept

The proposed innovation concept is represented by four observed variables (INNO1, INNO2, INNO3, INNO4), as shown in Figure 1.

Figure 1: *Standardized estimates of the innovation measurement model*



Source: *Compiled by us using SPSS AMOS.23*

The direction of all standardized regression weights for the innovation construct is consistent with theory (i.e., positive signs). They ranged from 0.865 (INNO1) to 0.929 (INNO4), and they are all significant (at p-values less than 0.001).

Figure 2 shows the hypothesized one-factor congeneric measurement model. The result of the CFA revealed that the indicator for the innovation construct established unidimensionality, as the standardized factor loadings (SFL) estimates for each measured item is greater than 0.7; Thus, examination of the GOF results in Table (7) revealed that the GOF index value indicated a highly satisfactory likelihood method fit. Table 7: GOF indices of innovation concept

GOF Indexes	condition	value	Decision
Chi-square (X2) with degrees of freedom (df) and probability statistic (p-value)	ρ > 0.05 (at the α = 0.05 level)	P = ,172	acceptable
Absolute indexes	GFI > 0.90	,995	Good
	SRMR < 0.05	,17	Good
	RMSEA ≤ 0.05 is good ≤ 0.08 is adequate	,048	Good
	PCLOSE >0,05	0,404	Good
Incremental indices	CFI > .95	,999	Good
	AGFI > .90	,973	Good
	TLI > .90	,996	Good
	RFI > .90	,991	Good
The parsimony index	X^2/df < 2	1,760	Good

Source: *Compilation by us based on survey data*

3.1.1.2. Convergent validity and reliability of the innovation construct scale

The standardized regression weights of the innovation construct were above the minimum acceptance level of 0.6. The t-values were also above 1.96 (CR > 1.96). Table 8 shows that all indicators used in the innovation concept are significantly related to the innovation concept. As well as the AVE is above the 0.5 threshold as shown in Table 9. Therefore, the convergent validity of the innovation concept is verified.

Table 8: *Regression weights and CR values of the innovation concept Estimate S.E. C.R. P Label*

		Estimate	S.E.	C.R.	P	Label
INNO1 <---	Innovation	1,000				
INNO2 <---	Innovation	1,063	,061	17,402	***	par_1
INNO3 <---	Innovation	1,053	,060	17,425	***	par_2
INNO4 <---	Innovation	1,043	,062	16,951	***	par_3

Source: *Compiled by us using SPSS AMOS.23 software *** probability < .001*

Table 9: *AVE calculation*

Indicators		latent variable	correlations	r^2	sum of the r^2's	Number of indicators	AVE	square
INNO1	<---	F1	0,867	0,751689	3,285764	4	0,821441	0,90633382
INNO2	<---	F1	0,909	0,826281				
INNO3	<---	F1	0,935	0,874225				
INNO4	<---	F1	0,913	0,833569				

Source: *Compilation by us based on survey data*

Table 10 shows that the reliability of the innovation construct is relatively high (0.947). Indeed, the value of the Rhô of the Jöreskog exceeds the minimum threshold of 0.7.

Table 10: *Reliability of the innovation construct scale*

indicator s		latent variable	R	R ²	ME	sum of ME	sul of loading	squarte of sum of loading	C+ME	CR=C/(C+ME)
INNO1	< -	innovation	0,865	0,748225	0,2517					
INNO2	< -	innovation	0,913	0,833569	0,1664					
INNO3	< -	innovation	0,931	0,866761	0,1332	0,723	3,62	13,097	13,820	0,947
INNO4	< -	innovation	0,91	0,8281	0,172					

Source: *Compiled by us using SPSS AMOS.23*

All indicators of unidimensionality, convergent validity, and scale reliability discussed above verified the congeneric measurement model of the innovation construct used in this study.

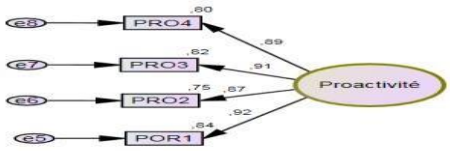
3.1.2 Confirmatory factor analysis of the proactivity construct

To evaluate the congenic measurement model of the proactivity construct, the measurement properties of the proactivity construct - unidimensionality, convergent validity and scale reliability - were examined.

3.2.2.1. Unidimensionality of the proactivity construct

The AET suggested that the proposed proactivity construct was composed of four observed variables (PRO1, PRO2, PRO3 and PRO4). The measurement model for the proactivity construct and its estimated standardized regression weights are presented below.

Figure 2: *Standardized estimates of the proactivity measurement model*



Source: *Compiled by us using SPSS AMOS.23*

The result of the CFA showed that all standardized regression weights of the proactivity construct were positive, which is consistent with theory. They ranged from 0.822 (PRO2) to

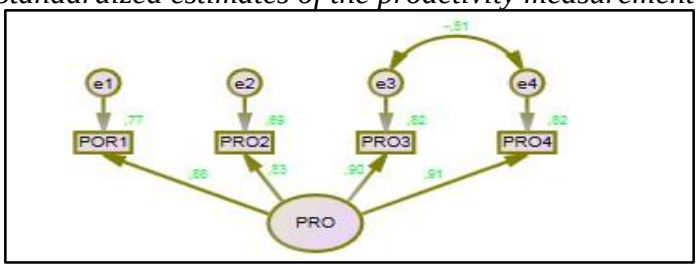
0.941 (PRO1) and are statistically significant (at $\alpha = 0.001$).

The chi-square value was 20.671 with 2 degrees of freedom. The p value associated with this result was 0.000, indicating that it was significant using $\alpha = 0.05$. This means that the observed covariance matrix did not match the estimated covariance matrix in the sampling variances.

The GFI shows a value of 0.970, The CFI 0.982, the TLI value is 0.947, which exceeds the threshold value of 0.90. However, the RMSEA and normalized chi-squared values do not meet the guidelines. AGFI shows a value of 0.851, which was below the threshold value of

0.90. To improve the quality of the model, the IM suggests that we correlate some of the measurement errors, especially those of items PRO3 and PRO4. Performing this operation significantly improves the value of the model fit indicators with satisfactory loading for all items. The respecified proactivity concept was validated by the CFA.

Figure 3: *Standardized estimates of the proactivity measurement model*



Source: *Our own elaboration based on SPSSAMOS 23 results.*

3.2.2.2. Convergent validity and reliability of the proactivity construct scale

Table (11) shows that all standardized regression weights for the proactivity construct exceeded the 0.5 acceptance level. The t-values for all indicators are also above 1.96 (CR > 1.96). This suggests that all indicators are significantly related to the proactivity construct. Therefore, the convergent validity of the proactivity construct is verified.

Similarly Table (12) shows that the reliability of the proactivity construct is 0.941, which is higher than the acceptance level of 0.7. The same result was obtained by calculating the reliability using Cronbach's alpha. The AVE estimate of 0.783 for the proactivity construct is also higher than the suggested minimum value (0.5). All of these indicators imply that the proactivity construct is reliable.

Table 11: *Regression weights and CR values for the proactivity construct*

		Estimate	S.E.	C.R.	P	Label
POR1 <---	Proactivity	1,000				
PRO3 <---	Proactivity	,978	,038	26,067	***	par_1
PRO4 <---	Proactivity	,963	,037	26,282	***	par_2
PRO2 <---	Proactivity	,855	,037	23,061	***	par_3

Source: *Developed by us using SPSSAMOS software.23*

Table 12: *Reliability of the proactivity construct scale*

Reliability of the construct	Cronbach's Alpha	Average variance extracted (AVE)
0.941	0.926	0,783

Source: *Compilation by us based on survey data*

All indicators of unidimensionality, convergent validity, and reliability of the proactivity construct scale indicate that the proactivity construct used in this study is congruent.

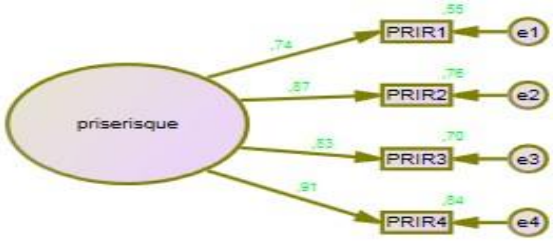
3.2.3. Confirmatory factor analysis of the risk-taking construct

The unidimensionality, convergent validity, and reliability of the risk-taking construct scale are investigated to test the congeneric measurement model of this construct.

3.2.3.1. Unidimensionality of the risk-taking construct

The proposed measurement model of risk-taking is represented by four observed variables (PRRI1, PRRI2, PRRI3 and PRRI4) as shown below.

Figure 4: *Standardized estimates of the risk-taking measurement model*



Source: *Compiled by us using SPSS AMOS.23*

The signs of these four standardized regression weights are consistent with theory. They range from 0.744 (PRIR1) to 0.915 (PRIR4) and are all significant (at p = 0.001).

Examination of the model fit indices (GOF indices) using the likelihood method indicates that the construct is unidimensional (Table 13).

Table 13: *Risk-taking concept fit indices:*

GOF Indexes	condition	Value	Decision
Chi-square (X2) with degrees of freedom (df) and probability statistic (p-value)	ρ > 0.05 (au niveau de α = 0.05)	P = ,070	acceptable
Absolute indexes	GFI > 0.90	,992	Good
	RMR < 0.05	,024	Good
	RMSEA ≤ 0.05 is good ≤ 0.08 is adequate	,071	Adequate
	PCLOSE >0,05	0,236	Good
Incremental indices	CFI > .95	,996	Good
	AGFI > .90	,960	Good
	TLI > .90	,989	Good
	RFI > .90	,982	Good
The parsimony index	X^2/df < 2	2,660	Good

Source: *Compilation by us based on survey data*

3.2.3.2. Convergent validity and reliability of the risk-taking construct

All standardized regression weights were greater than 0.5 and t-values were greater than 1.96 (CR >1.96), suggesting that the risk-taking construct was convergent (Table 14).

Table 14: *Regression weights and CR values for the risk-taking construct.*

			Estimate	S.E.	C.R.	P	Label
PRIR1	<---	risk taking	1,000				
PRIR2	<---	risk taking	1,086	,067	16,162	***	par_1
PRIR3	<---	risk taking	1,022	,066	15,395	***	par_2
PRIR4	<---	risk taking	1,058	,063	16,850	***	par_3

Source: *Compiled by us using SPSS AMOS.23*

Probability *** < .001

The construct reliability and alpha for the risk-taking construct are above the cutoff value of 0.7 (Table 15). The AVE value is also above the minimum acceptance level. All these

elements justify the reliability of the risk-taking construct used in this doctoral work. Table 15: Reliability of the risk-taking construct scale

Reliability ROh	Cronbach's Alpha	AVE
0,914	0,904	0,72

Source: *Developed by us from survey data*

All indicators of unidimensionality, convergent validity and scale reliability verified the congenital measurement model of the risk-taking construct.

3.2.4. Confirmatory factor analysis of the competitiveness construct

The congeneric measurement model of the competitiveness construct is evaluated by examining the properties of unidimensionality, convergent validity, and scale reliability of each dimension of this construct. 3.2.4.1. Unidimensionality of the competitiveness construct

Eight observed variables are assigned to the competitiveness construct. Two indicators for the cost dimension and six indicators for the differentiation dimension. The unidimensionality of each dimension is discussed in the following paragraphs:

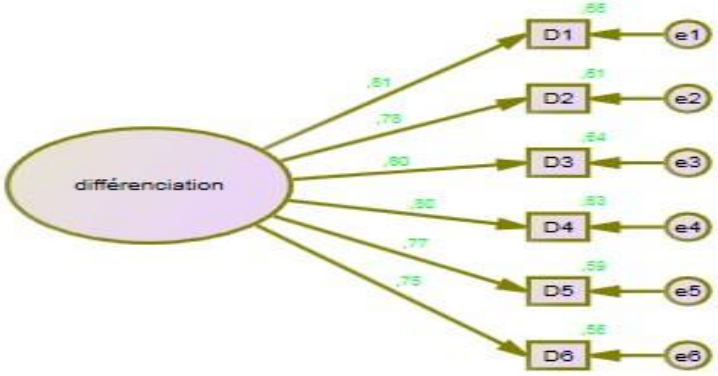
Unidimensionality of the cost dimension:

The cost dimension is measured through two indicators (two observed variables). Estimation of this model is problematic because of the small number of indicators; a two-item scale would be problematic in the confirmatory factor analysis. We retained this scale as it will be used in the estimation of the overall model.

Confirmatory factor analysis of the differentiation dimension:

The AFE suggested that the proposed differentiation construct is composed of six observed variables (D1 through D6). The measurement model for the differentiation construct and its estimated standardized regression weights are presented below.

Figure 5: *Standardized estimates of the measurement model for the differentiation dimension*



Source: *Compiled by us using SPSS AMOS.23.*

The result of the CFA showed that all standardized regression weights of the proactivity construct were positive, which is consistent with theory. They ranged from .75 (D6) to .81 (D1) and are statistically significant (at $\alpha = .001$).

The GOF fit indices are very satisfied: The χ^2/degree of freedom ratio is acceptable, absolute, incremental, and parsimony indices are excellent. These results indicate that the differentiation concept is unidimensional. The goodness of fit of the model is justified by the indices selected and presented in the following table:

Table 16: *fit indices for the differentiation dimension:*

GOF Indexes	condition	value	Decision
Chi-square (X2) with degrees of freedom (df) and probability statistic (p-value)	ρ > 0.05 (au niveau de α = 0.05)	P = ,866	acceptable
Absolute indices	GFI > 0.90	,995	Good
	SRMR < 0.05	,022	Good
	RMSEA ≤ 0,05 est bon ≤ 0,08 est adéquat	,000	Good
	PCLOSE >0,05	0,988	Good
Incremental indices	CFI > .95	1	Good
	AGFI > .90	,989	Good
	TLI > .90	1	Good
	RFI > .90	,993	Good
Parsimony index	X^2/df < 2	,514	Good

Source: *Elaboration by us under the SPSSAMOS software.23*

3.2.4.2. Convergent validity and reliability of the SME competitiveness dimensions scale

Table (17) shows that all standardized regression weights for the differentiation dimension are above the minimum acceptance level of 0.5. The t-values for all indicators were also above 1.96 (CR > 1.96).

Table 17: *Regression weights and CR values for the competitiveness dimension*

			Estimate	S.E.	C.R.	P
D1	<---	differentiation	0,81			
D2	<---	differentiation	0,781	0,062	15,61	***
D3	<---	differentiation	0,798	0,057	16,07	***
D4	<---	differentiation	0,795	0,062	15,99	***
D5	<---	differentiation	0,77	0,061	15,34	***
D6	<---	differentiation	0,752	0,057	14,85	***

Source: *Compiled by us using SPSSAMOS software.23*

Table (18) shows satisfactory results for each of the dimensions of competitiveness. Indeed, the Jöreskog Rho values exceed the minimum threshold of 0.7, while the Convergent Validity Rho (CVR) is above the 0.5 threshold for each dimension obtained. This means that all indicators are significantly related and verify convergent validity and are viable.

Table 18: *Convergent Validity and Reliability of Competitiveness Dimensions:*

Dimensions de la compétitivité	Friability (Rhô Jöreskog)	AVE	Cronbach's Alpha
Cost	0,81	0,62	0,808
differentiations	0,84	0,6	0,905

Source: *Developed by us from survey data*

All indicators of unidimensionality, validity, and reliability confirmed the congeneric measurement model of the dimensions of competitiveness.

3.2.5. Discriminant validity

The criterion of discriminant validity that is proven is the Fornell-Larcker criterion. As stated by Fornell & Larcker (1981) the elements in the diagonal (in bold) are the square root of the shared variance between the construct and its measures (AVE). The elements outside the diagonal are the correlations between the constructs.

To achieve discriminant validity, the square root of a construct's AVE must be greater than the correlation it has with any other construct. All constructs achieve discriminant validity. This criterion is presented in the following table:

Table19: *Assessment of discriminant validity and correlations between constructs.*

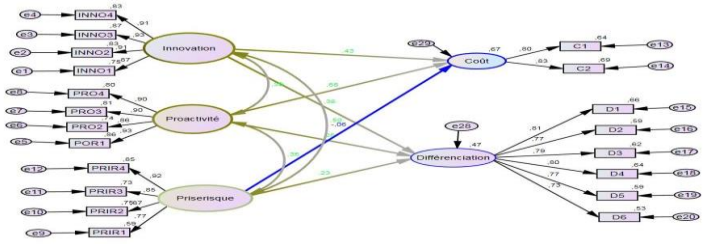
	innovation	proactivity	risk taking	differentiation	Cost
innovation	**0,90633382**				
proactivity	0,327	**0,88489067**			
risk taking	0,392	0,293	**0,8487317**		
differentiation	0,551	0,499	0,412	**0,77397104**	
Cost	0,636	0,715	0,288	0,548	**0,78959895**

Source: *Compilation by us based on survey data*

3.2. Structural model test: Full structural equation model of the relationship between EO and competitiveness of agricultural SMEs in the RFM:

To examine the relationship between the dimensions of EO and those of competitiveness of agricultural SMEs and to address the hypotheses proposed in this research, the following path model was developed. The final path of the direct model of the relationship between EO and competitiveness of SMEs (8) fitted the data well and the majority of the indices achieved a satisfactory level of goodness-of-fit statistics table (18).

Figure 6: *The final path of the direct model of the relationship between EO and SME competitiveness.*



Source: *Elaboration by us with SPPSS AMOS.23 software*

The hypothesis was that each dimension of EO would have a significant positive relationship with both dimensions of SME competitiveness.

According to the results presented in Figure 8, innovation capability has a significant positive relationship with differentiation (β = 0.36, p = 0.000) and cost control (β = 0.43, p<0.05). These results show full support for H1 and H2. We find that innovation has a significant influence at the 0.1% risk level and confirming the Hl and H2 hypothesis.

Proactivity also has a significant positive relationship with differentiation (β = 0.28, p = 0.000) and cost control (β = 0.58, p = 0.000). Therefore, H3 and H4 are fully supported. Examination of the significance tests also indicates that the hypothesis of the influence of proactivity on cost control (H3) and differentiation (H4) are confirmed at the 1% risk level.

Finally, the risk-taking factor has a significant positive relationship only with differentiation (β = 0.23, p<0.05). However, the path between risk-taking and cost control is negative but not significant (β = -0.06, p>0.05). Therefore, these results show only partial support for the hypothesis regarding the relationship between risk-taking and competitiveness of agricultural SMEs in the RFM. Indeed, hypothesis H5 is confirmed because the link between risk-taking and differentiation was found to be positive and significant at the 1% level. While the hypothesis H6 is not verified at the 5% threshold, so this hypothesis is rejected [79-84].

The results show that proactivity has the strongest effect on cost control (λ=0.572) and innovation has the strongest effect on differentiation (λ=0.376) among the EO dimensions. Furthermore, we see that the influence of risk-taking on differentiation is lower than that of the other two dimensions (innovation and risk-taking). However, they all remain positive and relatively important (standardized coefficients between 22.4% and 37.6%) [85]-[91].

Table 18 summarizes the results of the path model, the standardized coefficients, the standard error and the respective T-values between the dimensions of EO and competitiveness.

The validation of our research hypotheses are summarized in the following table:

Table 20: *Validation of research hypotheses*

Hypothesis	relations			Coefficient standardize	probability	decision
H1	Cost	<--	Innovation	0,424	P < 0,001	Accepted
H2	Differentiation	<--	Innovation	0,376	P < 0,001	Accepted
H3	Cost	<--	Proactivity	0,572	P < 0,001	Accepted
H4	Differentiation	<--	Proactivity	0,267	P < 0,001	Accepted
H5	Differentiation	<--	Risk taking	0,224	P < 0,001	Accepted
H6	Cost	<--	Risk taking	-0,06	P > 0,05	rejected

Source: *Compiled by us based on research data*

Table 21: *Direct model fit indices between EO and competitiveness of agricultural SMEs in the RFM*

Indices du GOF	condition	value	Decision
Chi-square (X2) with degrees of freedom (df) and probability statistic (p-value)	ρ > 0.05 (at the level of α = 0.05)	P = ,008	Not satisfied
Absolute indices	GFI > 0.90	,941	Good
	RMR < 0.05	,051	Good
	RMSEA ≤ 0.05 is good ≤ 0.08 is adequate	,030	Adequate
	PCLOSE >0,05	,999	Good
Incremental indices	CFI > .95	,991	Good
	AGFI > .90	,923	Good
	TLI > .90	,990	Good
	RFI > .90	,955	Good
The parsimony index	X^2/df < 2	1,287	Good

Source: *Own development based on survey data*

The following section discusses the results of the final path model examining the mediating effect of knowledge acquisition on the relationship between the dimensions of EO and competitiveness.

4. Discussion of results: Research questions: What dimensions of EO influence the competitiveness of agricultural SMEs in the RFM?

Because of the key role of EO in improving firm performance, a large number of theoretical and empirical studies on EO have been conducted in a wide range of contexts [5]. In this study, the influence of the dimensions of EO on the dimensions of competitiveness of agricultural SMEs in the RFM was analyzed through structural equation modeling (SEM).

In addition, the reliability and construct validity of the EO scale in this study was examined using CFA. The results show that each dimension of the EO has an acceptable level of convergent and discriminant validity, indicating commonality among the scale items and uniqueness among the dimensions. This supports proponents of the multidimensional nature of EO [4], [9], who have argued that each dimension of EO offers a unique contribution to the entrepreneurial process and can vary independently. This means that the effect of each dimension of EO on firm competitiveness varies, possibly depending on different industry contexts, business environments, or stages of firm development. To improve firm competitiveness, it is therefore necessary to understand which combinations of EO dimensions are most valuable to the firm [39]–[41].

4.1. Result 1: Innovation and proactivity have a significant and positive influence on competitiveness

The SEM results showed that innovation and proactivity have a positive and statistically significant relationship with the dimensions of firm competitiveness. It can be concluded that proactivity and innovation are important attributes that contribute to the competitiveness of the studied SMEs.

These results are consistent with the empirical findings of previous studies[67]-[70] that some dimensions of EO are responsible for improving firm performance, while other dimensions may have little or no influence at all. Lumpkin & Dess (1996) argued that each dimension of EO does not necessarily have the same value or relevance to improving firm performance at different stages of firm development.

The conclusion of this study, that innovation and proactivity are the two dimensions of EO that influence on firm competitiveness, is consistent with several previous empirical studies[42] that also used SMEs as samples. Lin (2007) studied 100 fastest growing Australian private and public SMEs, Frishammar & Andersson (2009) examined 188 Swedish SMEs. Similar results were also reported by Hughes & Morgan (2007), who found that the proactivity and innovativeness of small business incubators in the UK were significantly related to firm performance.

4.2. Finding 2: Risk-taking has a significant and positive influence on differentiation
Regarding the dimension of risk-taking, although this construct was found to have a positive correlation with differentiation, a significant relationship between these two constructs was not present in this study regarding risk-taking and cost control. This finding may be associated with the internal (i.e., individual) and external (i.e., business environment) characteristics of SMEs.

The capabilities of the decision maker play a major role in determining the outcome of risktaking behaviour. This means that the higher the skills and/or experience of entrepreneurs, the lower the probability of unprofitable outcomes. The majority of respondents in this study had worked in agriculture or related businesses before starting their own business. This means that the respondents have an idea about the sector, which may have prompted them to take risks in running their business. However, unfavourable external factors such as climate change (warming, water scarcity, drought...) and insufficient government support in the commercialization phase, support institutions to facilitate access to resources, assets, financing programs and infrastructure, as perceived by the respondents, are unlikely to promote the competitiveness of these SMEs.

The absence of a significant relationship between risk-taking and cost control in this study contradicts what has been reported by some previous research[5] that the dimension of risktaking is positively related to performance, even though it is significantly smaller than the other dimensions of EO. On the other hand, [40], [43] found that in family firms, risk taking is negatively related to firm performance. The results of previous studies imply that the relationship between risk taking and firm performance is not very clear[26], [44].

Therefore,[45] postulated that risk taking, by its nature, involves potential dangers and pitfalls. Only carefully managed risk is likely to lead to competitive advantage and high performance.

Conversely, actions taken without sufficient thought and planning can be very costly.

Conclusion

The objective of the research conducted was to examine the effect of EO, through its dimensions, on the competitiveness of agricultural SMEs in the RFM. More specifically, it attempted to answer the research question already posed: "What dimensions of EO influence the competitiveness of agricultural SMEs in the RFM?"

To answer this question, we used a quantitative research method. Several conclusions were drawn from the analysis of the results:

- ✓ The significant and positive effect of entrepreneurial orientation dimensions on competitiveness dimensions.
- ✓ Risk taking is the only dimension of EO to have a non-significant and negative effect on cost control.

This means that in the context of RFM agricultural SMEs being entrepreneurial contributes to gaining competitive advantage and improving firm competitiveness. Interestingly, the same results have been reported by several studies using SMEs as samples in other countries. Although this research provides some insight into the question posed and provides an understanding of the effect of each dimension of EO on those of competitiveness of agricultural SMEs in the RFM, it has a number of limitations: The study was limited to a single sector (agriculture), in a single region (RFM), and to the SME context. In addition, all respondents to the survey questions were local agricultural SMEs. Therefore, the sample studied may not accurately represent different populations. In addition, the study only considered living SMEs.

The results of this study suggest several avenues for future research on the relationship between EO and SME competitiveness.

It would be beneficial to have a larger sample size for the survey and interviews, drawn from various sectors and covering the whole of Morocco. This would not only provide more information about the phenomena under study but also identify whether particular dimensions of EO are influenced by the nature of the industry.

The agricultural SMEs studied are family-owned businesses; future research could take the family as a factor influencing OE.

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