The inverted u-shaped relationship between entrepreneurial orientation and SMEs performance in Egypt

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Abstract

Recent research suggest that the relationship between entrepreneurial orientation (EO) and firm performance has a more complex effect than the previously stated. Accordingly, we shed new light on this view through examining the non-linear effect of each EO individual dimension (innovativeness, risk-taking and proactiveness) on firm performance in the context of developing economy, Egypt "collectivist economy". Using survey data from 140 SMEs in food industry sector, the results show that innovativeness and proactiveness have an inverted U-shaped on firm performance, while the effect of risk-taking over performance is positive and increasing overtime. The finding also drive managers not to pursue high levels of innovativeness as well as applying proactive strategies with caution because of their detrimental effect over firm performance after reaching the moderate level. Whereas, firms should be encouraged to adopt risk-taking strategies, due to the dramatic positive effect of rich business opportunities linked to risky strategies over business performance.
Introduction

Several meta-analysis studies highlight the positive relationship between EO and firm performance (Linton & Kask, 2017; Rauch, Wiklund, Lumpkin, & Frese, 2009; Saeed, Yousafzai, & Engelen, 2014). Most of EO studies point out a direct linear effect of EO on firm performance (Núñez-Pomar, Prado-Gascó, Añó Sanz, Crespo Hervás, & Calabuig Moreno, 2016; William J Wales, Patel, Vinit, & Kreiser, 2013). However, oversimplifying of the relationship between EO and firm performance could be considered an emerging issue that can be questioned (Anderson & Eshima, 2013). Patel, Kohtamaki, Vinit, & Wincent, (2015) highlight that increased variability in performance due to EO, hold that possessing high levels of EO might lead to both wins and losses situation. Thus, this views challenge the linearity of EO over firm performance as suggested by Wiklund & Shepherd (2005).

Firm's EO efforts are the internal firm capabilities that may improve the performance of entrepreneurial firms in changing the environment (Lee, Lee, & Pennings, 2001). As originally proposed by Miller (1983), entrepreneurial orientation (EO) is defined as the firm strategic orientation that includes innovativeness, risk taking and proactiveness (Covin & Slevin, 1989; Covin & Wales, 2011). Innovativeness refers to the “firm’s effort to find new opportunities and novel solutions” (Dess & Lumpkin, 2005, p.150). Risk-taking is about commitment of large resources to exploit opportunities or engaging in business activities with unceratin outcome (Hean, Thi, & Ping, 2007). Proactiveness is a “forward-looking perspective”, and it is the firm's ability to catch new opportunities (Dess & Lumpkin, 2005).

The EO literature has called for further research on the effect of individual EO dimensions on firm performance (George, 2005), where each individual dimension might hold variable effect with related outcome (Luu & Viet, 2018). Accordingly, there is a need to identify and understand contingencies affecting the EO-firm performance (Engelen, Gupta,
Thus, a number of variables have been discussed in literature for affecting and moderating the relationship between EO and firm performance: the role of leader, characteristics of management teams, national culture, networks, strategic processes (Covin, Green, & Slevin, 2006; Engelen, Flatten, Thalmann, & Brettel, 2014).

Rauch et al. (2009) call for future research to test the EO-performance relationship in different culture contexts to understand whether this positive relationship between EO and performance will be replicated or not. Miller (2011) underlines that EO tend to embrace other discipline as a way of connecting EO to theory, one attempt is to connect EO to Institutional theory. Accordingly, next section will explain institutional theory, its roots, history and its link to EO. Previously, strategic management researcher treats institutions as background in their own studies (Peng & Heath, 1996). On the other hand, it is proven that institutions determine how firms struggle to formulate and implement strategies (Peng et al., 2009). Bruton & Ahlstrom (2003, p.234) note that according to institution-based view, actions of individuals are shaped by different environmental institutions, hence, it is important to understand how different institutions affect EO and firm performance.

In this paper, the effect of national culture “part of informal institutions” is addressed. Hofstede (1991, p.25) defines culture as: “collective programming of the mind which distinguishes the members of one group or category to people from those of another”. Cultural difference may be due to differences in regional, national, ethnic and organizational levels as cited by (Tan, 2002). Informal institutions are viewed as unwritten rules that are followed and that shape their behaviour in a systematic way (Estrin & Prevezer, 2011). Culture can shape and direct behaviour, where what is considered appropriate and acceptable at one place may be rejected in another place due to differences in culture (Altinay & Wang, 2011). The same is recognized in the difference between developed and developing economies, where what is taken for granted in developed economies may be altered and
changed when dealing with emerging economies (Bruton, Ahlstrom, & Obloj, 2008). Tan (2002) and Bruton et al. (2010) highlight that influences and effects of culture over organizations are mostly recognizable at the national level, accordingly, national culture plays a major role in explaining the difference between countries. Differences in national culture differences have an impact on shaping entrepreneurial beliefs: when the environment is very supportive with a well-developed financial and legal system encourage would encourage some EO dimensions and traits that are totally different from the less-developed institutions (Tan, 2002). Hayton et al. (2002) realize that national culture that encourages autonomy, need for achievement as well as self-efficacy, leads to high rate of start-up. This is similar to the conclusion of Mueller & Thomas (2001) where the presence of supportive culture may lead to high entrepreneurship rate, where the culture leads to the development of the mind and character of entrepreneur. Bruton et al. (2008) conclude that entrepreneur tend to act differently due to differences in culture and surrounding institutional environment.

The main objective of this paper is to study the effects of the individual dimensions of EO on firm performance as being moderated by national culture, in the context of developing, collectivist economies "Egypt". Compared to developed economies, developing, collectivist economies offer a context with several unique characteristics. First, emerging economies pose challenges over businesses to develop strategies to fit within the context in which they operate (Xu & Meyer, 2013). Meyer & Peng (2016) highlight that the nature of rapidly changing environment of emerging economies lead to an important contribution to business research. Emerging economies compared to developed ones have “less sophisticated institutional frameworks” with poorly enforced property rights as well as weak developed capital markets (Estrin & Prevezer, 2011). Emerging economies environment are characterized by diversity and instability, accordingly, this environment shapes phenomenon under investigation (Meyer & Peng, 2016). Emerging economies are characterized by low-
income and high growth potential which make them attractive to international business research. They are characterized by more trends toward marketization, privatization and intense regulations (Hoskisson, Eden, Lau, & Wright, 2000). However, literature fails to provide an answer to the proposed question: ‘How do organizations play the new game when the new rules are not completely known?’ (Peng, 2003, p. 283). Research on emerging economies provide some insights and answers to this unresolved question (Meyer & Peng, 2005). Hence, institutional contexts of emerging economies attract the attention of scholars to consider the effect of institutional environment that may constrain or enable the businesses (Peng, 2003; Tatiana & Dacin, 2008).

Slevin & Terjesen (2011) highlight that from a contextual perspective, a large part of EO research conducted on developed countries is ignoring the rest of the world’s countries, although, according to Boston Consulting Group conducted in 2011, there are many rapidly developing economies such as Egypt are left with limited academic research. However, Kiss et al. (2012) and Wales, Gupta, & Mousa (2011) conclude that the least studied regions are the middle-east and Africa, while the focus was on China, Russia, Poland and Taiwan. Martens, Lacerda, Belfort, & Freitas (2016) highlight that future agenda on EO call for studies that focus on emerging/ developing economies to understand differences in entrepreneurial processes in different context. However, this future research confirm what was suggested by Boso, Story, & Cadogan (2013) that EO models need to be explored more in emerging contexts. All these data, figures and information reflect rationale behind selecting Egypt to represent developing economy.
Accordingly, the purpose of this paper is to investigate the non-linear relationship between individual EO dimensions 'innovativeness, risk-taking and proactiveness' and SMEs performance in Egypt in the developing, collectivist economy "Egypt". This study makes several contributions to the literature. First, it is among the first studies to examine the non-linear complex relationship between individual dimension of EO and SMEs performance in the context of a developing, collectivist economy. The findings of this study are important for checking and changing the expectations about EO dimensions in the extant literature. In this paper, we demonstrate that emerging/developing economy with different cultural environments, expectations about the effect of EO dimensions is not appropriate. This research also offers implications for managers in developing economies for the appropriate level of innovativeness, risk-taking and proactiveness that should be possessed by SMEs.

**Theoretical background and hypotheses development**

Several studies highlight the effect of EO in discovering in entrepreneurial opportunities and achieving superior competitive advantage which will lead to high positive performance (Li et al., 2009; Semrau et al., 2016). However, the meta-analysis of Rauch et al. (2009) reveals that there is a variation in the relationship between EO and firm performance, where some studies reported high positive correlation, while others find negative correlation or even no correlation. Tang et al. (2008) propose whether too much EO will always lead to positive performance and conclude that the relationship between EO and performance is curvilinear. However, this finding contradicts with the finding of Wiklund (1999) where the EO-performance relationship is positive and also increases over time so that investing more in EO is worthy for the firm. Since the EO-performance relationship is context specific as highlighted by Lumpkin & Dess (1996), the variation in the results of the effect of EO on firm performance may be due to differences in institutions. However, recently, research
highlights the notion of non-linearity or diminishing performance due to increase in EO in certain context (J. Tang et al., 2008; Z. Tang & Tang, 2012; William J Wales et al., 2013).

To be able to understand the effect of national culture on the EO-SMEs performance relationship, we employ three dimensions of Hofstede's work in 2001: uncertainty avoidance, power distance and in group collectivism. Differences in national culture dimensions lead to differences in the practices of firms, accordingly, differences in dimensions affect the effectiveness of EO implementation (Engelen et al., 2014). Uncertainty avoidance refers to the ability of people to deal with ambiguous, uncertain and unknown situations, power distance refers to the degree to which individuals accept that power is unequally distributed, finally, collectivism refers to the degree to which collective actions and collective distribution of resources are appreciated (Hofstede, 2011). According to Hofstede dimensions, Egypt scores low (25) in individualism which means that Egypt is a collectivist society favouring working in teams, groups as well as building ties and connections with others. Also, Egypt scores high on uncertainty avoidance (80) which means that Egyptians avoid situations with high uncertainty and ambiguity. This score is similar to one in the 2010 GEM report, where Egypt is considered risk-averse with 25.5% of the adult indicate that fear of failure may stop them from starting their own business. Regarding the power distance, Egypt scores high (70) as Egyptians understand and respect the hierarchal order where not all individuals in societies are equal. Table (1) summarizes the index of Egypt in Hofstede’s dimensions of national culture. The next part will explain the effect of individual EO dimensions on SMEs performance taking into consideration the effect of national culture.
Table 1: National Cultural dimensions of Egypt

<table>
<thead>
<tr>
<th></th>
<th>Individualism</th>
<th>Power distance</th>
<th>Uncertainty Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>38</td>
<td>80</td>
<td>68</td>
</tr>
</tbody>
</table>

Source: (Hofstede, 1980)

- The relationship between innovativeness and SMEs performance

Innovativeness reflects the firm's ability to support new ideas and engage in experimentation (Lumpkin & Dess, 2001). Hughes & Morgan (2007) report that innovativeness can enhance the firm’s creative thinking which in turn will result in entering new arenas. Lumpkin & Dess (1996) suggest that innovativeness does not mean only explorative innovation but also an exploitative innovation, where the later means improving efficiency or reducing cost in order to be better than competitors. Innovativeness improves the efficacy of market information that will enable firms to pursue existing opportunities whether through developing a new product or modifying the existing one (Hurley & Hult, 1998). However, sometimes investing in innovation may cause problems including wasting money as expenditures on R&D with no result and development of competitive climate that may stimulate competitors to develop similar product and service (Dess & Lumpkin, 2005).

The introduction of new and innovative products can improve the firm's ability to adapt to changing market conditions and environment, which is the case in Egypt 'developing economies' (Hult, 2004). Cultural scores for Egypt belongs to high collectivism, and uncertainty avoidance (Hofstede, 2011). Collectivism encourages mutual cooperation, coordination and achievement of innovative behavior (Choi & Wu, 2009). Accordingly, SMEs employing innovative efforts will be more likely to improve the overall performance in collectivist economies (Luu & Viet, 2018). However, Tiessen (1997) reveals that collectivist societies might hinder the firm's ability to develop new and breakthrough innovations.
Collectivist countries are characterized by working in groups which may affect the adoption of new techniques and innovations to minimize conflicts and problems within the group (Brewer & Venaik, 2011). The conflicts between group members can lead to anxiety and stress which may affect the performance of the group and firm (Engelen et al., 2014). Furthermore, prior research also shows that cultures of high individualism (the opposite situation of Egypt) are considered as supporters of entrepreneurship and innovation (Mueller & Thomas, 2001; Shane, 1993). Egypt also scores high in uncertainty avoidance according to Hofstede’ index, which means that Egypt prefers structured situations to avoid uncertainty and ambiguity (Saeed et al., 2014). As innovativeness associated with introducing new ideas involves some degree of risk, techniques and products, being characterized by high degree of uncertainty avoidance entail less adoption of innovation within the firm (Van Everdingen & Waarts, 2003). As adopting high degree of innovation may lead to reduction in performance, therefore, we hypothesize the following hypotheses:

**Hypothesis 1: Innovativeness has an inverted U-shaped association with firm performance**

- The relationship between risk-taking and SMEs performance

Lumpkin & Dess (2001) refer to risk-taking as taking actions that have uncertain outcomes. Therefore, risk-taking is considered an important dimension of EO in order to enable firms to exploit different opportunities in the marketplace (Lumpkin & Dess, 1996). Dess & Lumpkin (2005) argue that risk taking is not “gambling”, even though risk by nature involves high degree of risk and uncertainty. It is a must for firms to grow to go through what is uncertain. Although risk taking is one of the major characteristics of entrepreneurship, empirical results show little support for the positive effect of risk taking on the performance, and on the contrary, it may hinder the performance (Hughes & Morgan, 2007). Kollman & Stockmann (2014) realize an inverted U-shaped relationship between risk taking and
performance, however, this negative relationship may be due to firms investing their resources in exploring opportunities rather than working on traditional business practices. Egypt is characterized by high uncertainty avoidance reflecting the need to avoid risky, uncertain situations and accordingly, accepting low level of risk-taking (Hofstede, 2011). Managers in individualistic societies tend to favor risky decisions as they are independent and they may accept higher level of risks to improve themselves compared to managers in collectivist societies (Kreiser, Marino, Dickson, & Weaver, 2010). However, Egypt is characterized by a risk-averse culture, which impose large burden over firms to invest in risky projects and decisions (Hattab, 2010). Luu & Viet (2018) highlight that in risk-averse society, firms are rewarded with above average return to overcome and reduce the reluctance of firms to invest in risky projects. Accordingly, the more risk-taking activities adopted by the firm are, the more its firm performance will increase and this effect gets stronger with higher level of risk-taking. Accordingly, we hypothesize that:

**Hypothesis 2: Risk-taking has a positive association with firm performance that increases with the increase in risk-taking.**

- The relationship between proactiveness and SMEs performance

Proactiveness is defined as “opportunity-seeking” behaviour characterized by providing new products to the market before competitors (Soininen, Puumalainen, Sjogren, & Pasi, 2012). Proactiveness can be viewed as the willingness to be superior than competitors through proactive and aggressive strategies such as introducing products before competitors and responding to future demand (Hean et al., 2007). Hughes & Morgan (2007) state that responsiveness to customer’s needs as well as sensing market signals are the two main advantages of proactiveness. However, Kollman & Stockmann (2014) report that proactiveness is not only about first mover advantages but it requires a protection for this first-mover as well as increasing customer loyalty through improving the efficiency and cost
advantage. Morgan & Strong (2003, p.167) noted that: “proactiveness has been associated with competitive superiority due to the ‘step-ahead’ tactics pursued and market leadership characteristics exhibited by firms with this strategic behaviour.” Proactiveness is about shaping and directing competition to the advantage of the firm.

Proactiveness is to be a leader rather than a follower, that is why proactiveness is effective in creating competitive advantage because competitors always have to make changes to cope with proactive firm (Dess & Lumpkin, 2005). However, research suggests that uncertainty-avoidance societies may discourage firms from acting aggressively or even over competing with other firms (Choi & Wu, 2009). The degree of uncertainty acceptance level affects the level of interaction with the external environment which may increase the ability of the firm to be the first mover in the market (Covin & Slevin, 1989). Accordingly, it is suggested that there is a negative relationship between uncertainty avoidance and proactiveness (Kreiser et al., 2010). Researchs on the relationship between individualism and proactive behaviour reveals that firms in individualistic society may have limited access to resources (Tiessen, 1997). Indeed, the access to scarce resources in Egypt is contingent upon the control played by the government where there is a lack of disclosure of information as well as misuse of resources (Farid, 2007). Accordingly, costs and uncertainty associated with proactiveness may reduce benefits of being proactive and first mover in the market. Therefore, we hypothesis that:

**Hypothesis 3: Proactiveness has an inverted U-shaped association with firm performance**
Data and methods

- Measures

All items used in this research were adopted from existing tested measures with a seven point likert scales with anchors; '1' indicates not at all; and '7' indicates to an extreme extent. Table (2) represent constructs, measurement items and related reliability within the used scale. EO is divided into three dimensions: innovativeness, risk-taking, proactiveness (e.g. Covin and Slevin, 1989). Five items are used to measure the innovativeness while risk-taking, proactiveness are measured by three items each (Boso et al., 2013). Firm performance is measured through a mix between subjective and objective measures. Respondents were asked to assess their own firm performance with regard to customer satisfaction, market effectiveness and financial performance following Vorhies and Morgan (2005), where each variable is measured using four items each (Engelen et al., 2015). National culture is measured using indices as reflected in table (1), where some previous studies depend on indices reflecting Hofstede’s dimensions of Culture (Hofstede, 1984). “The
use of these measures is appropriate for four reasons: the measures were based on data from 53 countries representing both industrialized and developing nations; the measures were derived using factor analysis; the measures represent separate discernible constructs; and researchers have supported the validity of these measures through their correlation with the indices of other researchers” (Marino et al., 2002).

Table 2: Constructs, measurement items and reliability tests

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variables</th>
<th>Method used to construct the variables</th>
<th>Cronbach alpha</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Orientation EO</td>
<td>Innovativeness</td>
<td>– Our company is known as an innovator among businesses in our industry.</td>
<td>0.91</td>
<td>Boso et al. (2013)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– We promote new, innovative product/services in our company.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Our company provides leadership in developing new products/services.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Our company is constantly experimenting with new products/services.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– We have built a reputation for being the best in our industry to develop new methods and technologies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Taking</td>
<td></td>
<td>– Top managers of our company, in general, tend to invest in high-risk projects.</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– This company shows a great deal of tolerance for high risk projects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Our business strategy is characterized by a strong tendency to take risks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Performance</td>
<td>Customer satisfaction</td>
<td>Market Effectiveness</td>
<td>Financial Performance</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
</tbody>
</table>
| Proactivness     | – We seek to exploit anticipated changes in our target market ahead of our rivals.  
|                  | – We seize initiatives whenever possible in our target market operations.  
|                  | – We act opportunistically to shape the business environment in which we operate.  |
|                  | Please evaluate the performance of your firm over the last three years compared to your major competitors in terms of:  
|                  | - Increasing Customer Satisfaction  
|                  | - Delivering value to your customers  
|                  | - Delivering what your customers want  
|                  | - Retaining valued customers  
|                  | - Market share growth  
|                  | - Growth in sales revenue  
|                  | - Acquiring new customers  
|                  | - Increasing sales to existing customers.  
|                  | - Profitability  
|                  | - Return on investment (ROI)  
|                  | - Return on sales (ROS)  
|                  | - Reaching financial goals  |
| Overall 0.88     | (Engelen et al., 2015) |                     |                       |
• Research population, sample and data collection procedures

According to the Ministry of Finance report in 2005, there is no unified definition of micro, small and medium enterprises being adopted in Egypt. The “Small Enterprise Development Law” on May 29, 2004 approved by the Egyptian parliament sets a definition for micro (referred to as very small enterprises) and small enterprises in Egypt to include any company with no more than 50 employees. According to the industrial development authority, manufacturing firm SMEs are firms with less than 100 employees.

The research population was determined to include all food industry SMEs in Cairo, Giza as well as 10th of Ramadan and 6th of October cities, where those areas represent the main industrial areas within Egypt as shown in table (3). No research frame is available for SMEs in Egypt due to the availability of different sources for SMEs categorization. Accordingly, this research follows a non-probability sampling design, where the choice of the subjects or firms to be included in the sample will follow judgmental sampling where it is important to select and depend on special judging to exclude elementary businesses that will not add any value for their impact of strategic orientation. Although, the judgemental sampling affects the generalizability of the finding “not generalizable to the entire population”, it is the most appropriate type of sampling to obtain information required from people who only have needed facts and information (Cavana, Delahaye, & Sekaran, 2000).

The sampling unit involves owner and manager of SMEs as they represent the main source of knowledge and information (Semrau et al., 2016), as well as they have clear and full understanding of main business operations which may increase the accuracy of answers (Hean et al., 2007). The data collection yielded responses from 140 SMEs in food industry out of 170 questionnaires sent, yielding approximately 82% as a response rate.
To control the common method bias, the study applied several procedural remedies: respondents were assured a high level of confidentiality during data collection where no implications for right or wrong answers; measurement items were constructed carefully to avoid any item ambiguity or complexity; finally, data were collected from owners and managers of SMEs (more than one respondent) within the same firm (Luu & Viet, 2018). Accordingly, common method bias is not likely to be a serious concern in our study.

Table (3) SMEs population by locations in Egypt

<table>
<thead>
<tr>
<th></th>
<th>Cairo</th>
<th>Giza</th>
<th>10th of Ramadan</th>
<th>6th October</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and beverage</td>
<td>59</td>
<td>43</td>
<td>38</td>
<td>52</td>
<td>192</td>
</tr>
</tbody>
</table>

source: Industrial development authority 2016-2017

The questionnaire was developed in English in accordance with measures and data required to test developed hypotheses and then translated into Arabic language. The questionnaire was translated into Arabic first, then translated back to English to make sure that all items and questions have the same meaning. Data was collected through a self-administered questionnaire; a well-developed questionnaire provides accurate and useable data that will support data analysis and results. The layout is a very important step in designing the questionnaire, to guarantee that is attractive and not boring for respondent (Gilham, 2000). The layout of the questionnaire is organized as follows: a) The questionnaire starts with a brief introduction (cover page) that explains the aim of the research and the importance of the respondent’s answers to the research to attract attention and ensure the confidentiality of their answers. b) There is a logical order applied to avoid confusion, such that sensitive or personal questions are kept at the end of the questionnaire. c) Questions are organized in a table format with spaces for answers. d) Questions use simple, direct and
familiar words. Questions are clear, brief and precise. Reverse-worded items are employed in the questionnaire to reduce carelessness of the respondent and to reduce extreme respondent bias (Woods, 2006). Two questions were reversed: one item in innovativeness ‘one dimension of EO’ and another one in firm performance.

In line with the literature, different variables have been tested and recognized for control variables (Boso et al., 2013; Kreiser et al., 2010; Kreiser and Davis, 2010; Semrau et al., 2016; Tang and Tang, 2012; Wang and Altinay, 2012; Wiklund, 1999; Wiklund and Shepherd, 2003). Three control variables are taken into consideration in this study. The first control variable was firm size, where previous research has shown a relationship between firm size and the ability of the firm to act strategically (Boso et al., 2013; Kollman & Stockmann, 2014). The firm size was measured as the total number of employees within the firm. Finally, the age, education and gender of the respondent were controlled, where previous studies show direct relationship between the age of the respondent and the attitude of decision maker within the firm (Kreiser et al., 2010) and the education represents the amount of intellectual capital within the firm itself (Lechner & Gudmundsson, 2014). Although, limited number of studies study the effect of gender, but it is proven that women are more risk-averse than men (Lechner & Gudmundsson, 2014). Also, within SMEs context women tend to have high EO compared to men (Runyan, Huddleston, & Swinney, 2006).
Empirical results

- Reliability and validity of measures

Table 4 shows composite reliability (CRs) and average variance extracted (AVE) to assess the reliability and validity of scale measures used. The table shows good result for AVE scores improving the validity of measures used, as all constructs are with AVE scores greater than 0.50 (Garson, 2016). The composite reliability exceeded the acceptable range of 0.70, reflecting acceptable reliability (Hair, Hult, Ringle, & Sarstedt, 2014).

Table 4: Reliability and validity test of measures

<table>
<thead>
<tr>
<th></th>
<th>Composite reliability*</th>
<th>AVE**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovativeness</td>
<td>0.745</td>
<td>0.548</td>
</tr>
<tr>
<td>Risk-taking</td>
<td>0.783</td>
<td>0.615</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.851</td>
<td>0.610</td>
</tr>
<tr>
<td>SMEs performance</td>
<td>0.920</td>
<td>0.613</td>
</tr>
</tbody>
</table>

* sig at Composite Reliability > 0.7

** sig at AVE>0.50

- Results

This study in order to test the developed hypotheses, an OLS-based hierarchical regression is used. The hierarchal regression is used by entering the independent variables into the equation by order, one set at a time to assess the prediction of the dependent variable after controlling the previous variables (Pallant, 2011). In running the hierarchal regression, we start by entering independent 1: innovativeness, then independent 2: risk-taking and finally independent 3: proactiveness; we got in results three model whereas each model introduce new independent variable. Results of Hierarchal regression are summarized in table 5, 6 and 7. According to table 5, the model is evaluated by checking R square; after the variables in block 1 (innovativeness) have been entered, the overall model explains 11. Model 2, there is
an increase in R square to 14.5 which means that by adding the second independent variable
risk-taking this account for 3.2% extra in R square (14.5-11.3). In model 3, where all
independent variables were added to the equation, the R square value increases to 23.4%
from 14.5% with a 8.9% changes in R square value.

Table 5: Model Summary

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | |
|-------|-------|----------|-------------------|---------------------------|------------------|--|---|---|---|
|       |       |          |                   |                           | R Square Change  | F  | df1| df2| Sig. F Change |
| 1     | .340  | .113     | .109              | 24.54728                  | .113             | .532| 1  | 137| .000         |
| 2     | .358  | .145     | .143              | 25.54246                  | .032             | 3.441| 1  | 136| .066         |
| 3     | .396  | .234     | .160              | 27.54161                  | .089             | 1.432| 1  | 135| .034         |

a. Predictors: (Constant), innovall
b. Predictors: (Constant), innovall, riskall
c. Predictors: (Constant), innovall, riskall, proaall
d. Dependent Variable: SMEsperfall

In table 6, the results show that the final model improves the ability to predict the outcome
variables. Where in model 1, the F-ratio is 12.532 with a p value (0.000), throughout model 2
and 3, both F-ratio and p value are significantly as well with F-ratio equal to 21.991 and
35.809 respectively.

Table 6: ANOVAA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>823.159</td>
<td>1</td>
<td>411.159</td>
<td>12.532</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>13741.033</td>
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<td>32.300</td>
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<td>Regression</td>
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a. Dependent Variable: SMEsperfall
b. Predictors: (Constant), innovall
c. Predictors: (Constant), innovall, riskall
d. Predictors: (Constant), innovall, riskall, proaall
Both innovativeness and proactiveness have a negative inverted U-shaped associations with firm performance, where innovativeness-firm performance Beta= -0.17, t value= -2.08; proactiveness- firm performance Beta= -0.10, t value= -2.70; accordingly, hypotheses 1 and 3 are supported. To examine the positive relationship between risk-taking and firm performance, results of hierarchal regression shows that risk-taking-firm performance is positive and significant with Beta= 0.13, t value= 2.45, supporting hypotheses 2. For multicollinearity test, all values of VIFs are below 10 (ranging from 1.056 to 1.095), and tolerance values are greater than 0.2 as shown below in table 7.

| Table 7: Coefficient (main result of Hierarchal regression) |
|---------------------------------|----------------|----------------|----------------|---------|---------|---------|
| Model  | Unstandardized Coefficients | Standardized Coefficients | Collinearity Statistics |
|        | B    | Std. Error | Beta* | T**   | Sig.*** | Tolerance**** | VIF***** |
| 1      | (Constant) | 26.346 | 13.398 | 15.934 | .000 | 1.000 | 1.000 |
|        | innovall | -6.053 | 3.073 | -.062 | 1.990 | .015 | .975 | 1.026 |
| 2      | (Constant) | 5.991 | .439 | 13.659 | .000 | .975 | 1.026 |
|        | innovall | -8.032 | 4.073 | -.037 | -.433 | .011 | .975 | 1.026 |
|        | riskall | 6.089 | 3.048 | .159 | 1.855 | .002 | .975 | 1.026 |
| 3      | (Constant) | 43.319 | 21.517 | 12.231 | .000 | .947 | 1.056 |
|        | innovall | -22.017 | 11.074 | -.017 | -2.081 | .041 | .928 | 1.078 |
|        | riskall | 6.076 | 3.049 | .136 | 2.453 | .012 | .914 | 1.095 |
|        | proaall | -4.070 | 2.035 | -.106 | 2.704 | .023 | .914 | 1.095 |

* The standardized b value (Beta) identify the sign of the relationship.
** T-value sig at > 1.96
*** P less than 0.05
**** greater than 0.20
***** less than 10
Conclusion

• Analysis and discussion of results

The current study adds to the literature review by measuring how innovativeness, risk-taking and proactiveness (the three dimensions of EO) have differential nonlinear effects over firm performance by applying on SMEs in Egypt. Findings show that both innovativeness and proactiveness improve firm performance to an extent, then their effects tend to decline beyond certain point. In line with the existing literature, proactiveness and innovativeness lead to positive impact over firm performance (Cho & Pucik, 2005; Gupta & Wales, 2017; William J Wales et al., 2013). However, after a certain point investing too much in both dimensions especially in the context of collectivist culture like the case in Egypt, too much focus on innovativeness will impose obligations and constraints over firm which in turn will reduce performance (Tiessen, 1997). For proactiveness, the limited availability of resources due to government regulations and weak institutions in Egypt, will hinder the ability of firms to be aggressive and leader in the market (Sheng, Zhou, & Julie Juan Li, 2011).

However, our study provide an extension to the existing literature by proving the diminishing and declining effect of both innovativeness and proactiveness by moving from moderate to high levels.

Although, previous studies report a negative relationship between risk-taking and firm performance (Hughes & Morgan, 2007; Kreiser, Marino, Kuratko, & Weaver, 2013; J. Tang et al., 2008). Egypt is characterized by high uncertainty avoidance, which means that a risk-averse behaviour (Venaik & Brewer, 2010). However, as risk-averse would be compensated with an above average return for investing in risky ideas and projects. Thus, risk-taking activities lead to positive performance that increase over time, which contradict some
previous studies as the incremental increase in SMEs performance is larger at high levels of risk-taking rather than at its low level.

- Theoretical and managerial implications

The current study extend the literature of EO as mentioned in discussion section by investigating the individual effect of EO dimensions on SMEs performance in developing, collectivist economy "Egypt". The results shows that both innovativeness and proactiveness by moving from the moderate to high levels will lead to detrimental effect over SMEs performance. On the other hand, risk taking leads to an incremental increase in SMEs performance by moving to its high levels from its low level.

From the results of the effect of individual EO dimension on SMEs performance, a number of managerial implications have been suggested. First, managers should understand that innovativeness is an important dimension in EO, however, too much focus on innovativeness will lead to decrease in firm performance. Second, managers in developing economy should be caution when investing in proactive strategies, as too much investment in proactive strategies will lead to decline in performance. Finally, in developing economies, managers are encouraged to invest more in risky projects and strategies as opportunities offered within these economies will lead to a dramatic increase in firm performance by moving from low to high levels of risk.

- Limitations and future research

The current research includes only three dimensions of EO (innovativeness, proactiveness and risk-taking) only, thus future research that include the other two dimensions of EO (competitive aggressiveness and autonomy) to understand the effect of all dimensions of EO on performance. The second limitation is the inclusion of some indicators to measure SMEs performance (a mix of dimensions: customer satisfaction, market effectiveness and financial performance), while previous literature shows other different dimensions used to measure
firm performance. The current research is based on data collected from food industry, where only 140 questionnaires were collected due to time, money constraints. Thus, future research should incorporate different industries to understand whether the degree of technology (high tech VS low tech industries) have an impact over the EO-performance relationship.
References


