

Entrepreneurial orientation and firm performance in different environmental settings

Contingency and configurational approaches

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Abstract

Purpose – The purpose of this paper is to explore the relationship between entrepreneurial orientation (EO) and firm performance across different levels of environmental hostility and market growth. The contingency approach of two-way interactions of EO with each environmental variable is contrasted with the configurational approach of three-way interactions of EO simultaneously with different levels of both environmental variables.

Design/methodology/approach – Hierarchical regression analysis is applied for the pooled data set of 163 Finnish and Russian small- and medium-sized enterprises, and supplemented with *post hoc* analysis of the differences in regression slopes across environmental configurations.

Findings – Results show that EO is directly and positively associated with firm performance. However, the strength and direction of this relationship varies by configurations of the external environment variables. Firms achieve superior performance when adopting EO in environments with high levels of both hostility and market growth. In contrast, in favorable environments with low hostility and high market growth, EO adoption leads to lower firm performance.

Research limitations/implications – The study contributes to the EO literature by demonstrating different effects of EO on firm performance across various environmental configurations. It uses cross-sectional data from two countries. Replication studies using different samples may further corroborate the results.

Practical implications – In order to take advantage of opportunities and achieve better performance, managers of firms should analyze multiple elements of the environment concurrently and align EO to those conditions.

Originality/value – The configurations of environmental hostility and market growth, representing both favorable and unfavorable elements of business context, have not been previously investigated together in one model of the EO-performance relationship.

Keywords Firm performance, Entrepreneurial orientation, Contingency approach, Configurational approach, Environmental hostility, Market growth

Paper type Research paper

Introduction

Companies tend to seek new opportunities in the market so that they can grow and enlarge their market share. In a constantly changing business environment, firms tend to be more entrepreneurial and innovative and seek a competitive advantage to differentiate them from their rivals and create a sustainable position in the market (Rothaermel, 2008). The concept of entrepreneurial orientation (EO) originated more than 30 years ago and has become one of the most popular research directions in



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strategic management and entrepreneurship (Wales *et al.*, 2013). EO presumes an active strategic posture with a focus on a firm's abilities to develop constant innovations, adopt proactiveness in firm actions and undertake risky ventures despite a high probability of losses (Covin and Slevin, 1989; Stam and Elfring, 2008).

EO is often regarded from the resource-based perspective (Barney, 1991; Grant, 1991) or from the dynamic capabilities (DC) view (Teece, 2007; Teece *et al.*, 1997) as a firm's important resource or capability that facilitates attaining superior performance. Numerous studies have investigated the link between EO and firm performance and have tested variables that might affect that relationship as well as the different contexts in which it occurs (Rauch *et al.*, 2009). The results of previous research are, however, mixed. While some studies have found a positive EO-performance link (Boso *et al.*, 2013; Lumpkin and Dess, 2001; Rauch *et al.*, 2009; Wiklund and Shepherd, 2005), others have found a negative one (Arbaugh *et al.*, 2009; Hart, 1992) or even a curvilinear EO-performance relationship (Dai *et al.*, 2014; Su *et al.*, 2011; Tang *et al.*, 2008; Wales *et al.*, 2013). Such contradictions in findings may be justified from the perspective of contingency theory and the strategic fit concept (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Venkatraman and Camillus, 1984), suggesting that organizations are expected to perform better when they manage to match themselves to the requirements of the environment in which they operate. A substantial body of research has explored the environmental dimensions with a purpose of distinguishing those that would require the development of high EO level in order to enhance firm performance (e.g. Boso *et al.*, 2012; Caruana *et al.*, 2002; Covin and Slevin, 1989, 1991; Engelen *et al.*, 2015; Lumpkin and Dess, 2001; Martins and Rialp, 2013; McGee *et al.*, 2012; Ruiz-Ortega *et al.*, 2013). However, given somewhat contradictory findings resulting from research efforts in this field, the puzzle of identifying environmental conditions that would indeed make EO drive a firm toward success remains to be solved.

Drawing on the aforementioned theoretical perspectives, this paper aims to address the issue of EO-environment fit and its performance implications focussing on the environmental characteristics of hostility and market growth. These dimensions have been chosen as they are considered to be attributes of the hostile-benign environment continuum that have produced contradictory findings with regard to the EO-performance relationship in previous research (see e.g. Alexandrova, 2004; Kreiser and Davis, 2010; Kreiser *et al.*, 2002; Martins and Rialp, 2013; Rosenbusch *et al.*, 2013; Zahra and Covin, 1995). In order to tackle this issue, we analyze two-way and three-way interactions applying both contingency and configurational approaches. The results are obtained from a pooled data analysis of 163 small- and medium-sized enterprises (SMEs) in Russia and Finland.

This research contributes to the existing literature in several ways. First, we contribute to the overall EO-performance research stream by specifying situational factors that frame the conditions for positive EO to take effect. Second, we extend the application of the strategic fit concept by examining EO-environment fit with both contingency and configurational approaches, taking into account complementarity and complex configurations of environmental and strategy variables (Engelen *et al.*, 2015; Lumpkin and Dess, 1996; Wiklund and Shepherd, 2005). The chosen environmental variables, representing both favorable and unfavorable elements of business context, as well as their configurations, to the best of our knowledge, have not been previously investigated together in one model of the EO-performance relationship. Third, while most EO studies have been conducted in a single country (Rauch *et al.*, 2009), this study utilizes data collected from two countries and explores

common relationships across the contexts establishing in this way cross-cultural generalizability of the focal relationships.

The paper proceeds as follows. First, it develops the theoretical framework and research hypotheses. It then describes the sample and data collection and operationalization of the variables. This is followed by hypothesis testing and presentation of empirical findings. Lastly, the paper discusses the results as well as provides directions for further research.

Theoretical framework and research hypotheses

EO and its role in enhancing firm performance

EO refers to a strategy-making process which guides firms to develop constant innovations, adopt a proactive posture in the market and undertake risky investments (Covin and Slevin, 1989; Stam and Elfring, 2008). It captures various practices, activities and processes that help firms to behave entrepreneurially. EO is primarily described with the dimensions of innovativeness, proactiveness and risk-taking (Covin and Slevin, 1989). Innovativeness reflects a firm's proclivity to support new ideas, experimentations and creativity which lead to modification and development of new products, services or technological processes (Lechner and Gudmundsson, 2014; Lumpkin and Dess, 1996; Vij and Bedi, 2012). Proactiveness describes a tendency of the firm to act on future needs by seeking new business opportunities and introduce new products and services ahead of competition, striving for first-mover advantage (Dess and Lumpkin, 2005). Finally, risk-taking reflects the degree of top management readiness to make investments in projects with high level of uncertainty and unknown outcomes (Lumpkin and Dess, 1996; Miller, 1983).

EO dimensions may work in combination to enable a firm to be entrepreneurial. This view underlies a unidimensional approach to EO conceptualization (Covin and Slevin, 1989), suggesting that in order to be entrepreneurial a firm has to develop a high level of all three dimensions. This conceptualization describes a phenomenon of firm-level entrepreneurship as a composite of innovative, proactive and risk-taking behaviors (Covin and Lumpkin, 2011) and is frequently utilized in entrepreneurship research (Wales *et al.*, 2013). By focussing on commonalities of EO dimensions rather than their distinctiveness, the unidimensional approach is fully consistent with the definition of EO adopted in this study, being a sustained firm-level attribute represented by innovative, proactive and risk-taking behaviors (Covin and Lumpkin, 2011).

The role of EO in a firm has been predominantly explained by two theoretical approaches: the resource-based view (RBV) and the DC perspective. Within the RBV framework, EO may be considered as a distinct intangible resource or organizational capability: it is valuable for identifying and exploiting new business opportunities and deeply integrated in organizational routines, and cannot be easily imitated or substituted by competitors (Barney, 1991; Lonial and Carter, 2015). For these characteristics, EO can serve as a source of sustainable competitive advantage and superior firm performance (Aloulou and Fayolle, 2005; Grande *et al.*, 2011; Madsen, 2007; Wiklund and Shepherd, 2011).

Being an extension of the RBV of the firm, the DC framework (Teece, 2007; Teece *et al.*, 1997) captures the dynamic nature of capabilities which is especially vital for achieving competitive advantage in fast changing environments (Barreto, 2010). From this viewpoint, EO can be aligned with an embedded higher-order DC helping a firm to identify opportunities in the market, act in response to them and reconfigure tangible capabilities to maintain competitiveness and improve firm performance (Gnizy *et al.*, 2014; Teece, 2007). Performance outcomes of EO have been investigated in a large

number of empirical studies which, in general, confirm benefits from the adoption of an entrepreneurial strategic posture (Gupta and Gupta, 2015; Rauch *et al.*, 2009; Soininen *et al.*, 2012; Wiklund and Shepherd, 2003; Zahra, 1991). Specifically, EO was positively related to a firm's sales performance (Spillecke and Brettel, 2014), profitability in both the short and the long run (Gupta and Gupta, 2015), speed to the market (Clausen and Korneliusson, 2012), and growth pace creating better chances to mitigate the repercussions of economic recession (Soininen *et al.*, 2012).

EO and the concept of strategic fit

Even though a significant body of research supports the idea of EO to be a valuable organizational asset and a driver of superior performance, some empirical evidence supports a negative or curvilinear EO-performance relationship (Arbaugh *et al.*, 2009; Hart, 1992; Su *et al.*, 2011; Tang *et al.*, 2008; Wales *et al.*, 2013). This divergence might be rooted in the contingent-theoretic view which posits the need to align firm strategic posture with various situational factors in an effort to achieve strategic fit (Venkatraman and Camillus, 1984; Zajac *et al.*, 2000).

The general notion of strategic fit is broad and touches upon such issues as connecting competences and resources or building other organizational configurations in various internal domains (Venkatraman and Camillus, 1984) such as achieving congruence between strategy and structure (Chandler, 1962); human resources, operations, marketing, finance and distribution strategies (Agnihotri, 2013); organizational structure and decision-making styles (Green *et al.*, 2008) production administrative structure and firm strategy (Jelinek and Burstein, 1982); organizational climate and strategic type (Burton *et al.*, 2004); exploration, exploitation and reliance upon cost leadership or differentiation strategies (Yamakawa *et al.*, 2011); and organizational design and strategic orientation (Saidov, 2014). Additionally, one of the mainstream lines of academic discussion is centered on the problem of matching a firm to its external business settings.

The idea of bringing an organization into compliance with its environment is rooted in works of Chandler (1962) and Lawrence and Lorsch (1967) who elaborated upon the importance of environmental peculiarities. According to Miles and Snow (1994, p. 12), "the process of achieving fit begins, conceptually at least, by aligning the company to its marketplace," defining by these means firm strategy. Moreover, achieving fit between strategy and the requirements of the milieu in which a firm operates is crucial in terms of enhancing organizational performance (Aragon-Correa and Sharma, 2003; Venkatraman and Prescott, 1990). The idea of environmental fit has been addressed from various angles in the strategic management literature (see e.g. Gammeltoft *et al.*, 2012; He *et al.*, 2015; Yamakawa *et al.*, 2011; Zajac *et al.*, 2000). From a methodological perspective, this issue is usually tackled via contingency models[1] which elaborate on the distil role of separate business environment features (i.e. two-way interactions) or via the configurational approach which considers the joint effect of an alignment between firm's internal qualities and several environmental parameters at a time (e.g. three-way interactions) (Wiklund and Shepherd, 2005). It might be, therefore, inferred that both contingency and configurational approaches can be viewed as conductors of the idea of organizational strategic fit to the environment, each addressing this relationship from somewhat different perspectives.

EO may be regarded as an instrument of organizational adaptation toward business environment conditions (Covin and Slevin, 1989; Hameed, 2011; Khandwalla, 1976). Therefore, development of EO may help firms more accurately position themselves in

the market taking into account peculiarities of the external and internal environment which, in turn, may enhance firm financial performance.

A substantial amount of literature has addressed the issue of an adjustment between the level of firm EO and external environment conditions. In their seminal work, Dess and Beard (1984) identified three dimensions of organizational task environments: munificence, complexity and dynamism. Munificence refers to environmental support for a firm's sustained growth, complexity stands for the level of environmental heterogeneity, a high level of which implies that firms have to deal with a great variety of inputs while producing a no lesser variety of outputs, and dynamism presumes intensity and unpredictability of changes. A large body of research has examined these dimensions in terms of the level of EO each of them requires (e.g. Boso *et al.*, 2012; Caruana *et al.*, 2002; Covin and Slevin, 1989, 1991; Engelen *et al.*, 2015; Li *et al.*, 2005; Lumpkin and Dess, 2001; Martins and Rialp, 2013; McGee *et al.*, 2012; Ruiz-Ortega *et al.*, 2013; Tang and Marino, 2010). In their insightful work, Kreiser and Davis (2010) distinguished several environmental configurations that are expected to be conducive or inhibiting to development of high EO and its positive impact on firm performance. It was posited that the development of a high level of EO will be of the strongest benefit for a firm operating in munificent and dynamic environments provided it develops an organic organizational structure. It is widely believed that firms operating in dynamic conditions benefit from high EO (Gupta and Pandit, 2013; Jalali, 2012; Lumpkin and Dess, 2001; Rosenbusch *et al.*, 2013; Ruiz-Ortega *et al.*, 2013). However, the role of environmental munificence or – the opposite end of the continuum, its hostility – remains questionable. Some studies provide arguments for the positive moderating role of environmental munificence in the EO-performance relationship (e.g. Kreiser and Davis, 2010; Kreiser *et al.*, 2002; Rosenbusch *et al.*, 2013), while others give evidence of EO being an important driver of firm performance in hostile environments (Alexandrova, 2004; Covin and Slevin, 1989; Martins and Rialp, 2013; McGee *et al.*, 2012; Zahra and Covin, 1995).

Taking into account the abovementioned argument, in this study we focus on the role of two environmental characteristics that may be assigned to the opposite ends of the hostility-munificence continuum – environmental hostility and market growth, the latter being regarded as an element of a benign environment. We examine the EO-performance relationship based on the idea of a strategic fit between an organization and its environment from the perspective of a contingency approach (i.e. two-way interaction analysis) and a configurational approach (i.e. three-way interaction analysis).

Environmental contingencies of the EO-performance relationship

The strategic management literature highlights the importance of a contingency approach to strategy development and implementation as it takes into account various characteristics of a firm's business environment (Cyert and March, 1963; Saeed *et al.*, 2014; Simon, 1957). The contingency approach describes two-way interactions, specifically in our context: the interaction between EO and characteristics of the external environment, or between EO and internal contexts, and their joint influence on firm performance (Wiklund and Shepherd, 2005).

As asserted by Bamiatzi and Kirchmaier (2014), the relationship between firm strategy and growth can be properly identified only in context. According to Zahra *et al.* (2014), contextualization is currently considered to be one of the leading forces of advancement in the entrepreneurship field. Previous research has shown that firms' strategies are dependent on the environment, especially with regard to different

resources and business opportunities that can be explored and exploited (Rosenbusch *et al.*, 2013). As EO is a context-dependent strategic orientation (Rauch *et al.*, 2009), the strength of the relationship between EO and firm performance may be dependent on the characteristics of the external business environment (Kreiser and Davis, 2010), including environmental hostility and market growth for a firm's products or services. As it has been stated before, scoring high on each of these two environmental dimensions represents the two ends of the hostility-munificence continuum. While the role of environmental favorability in the EO-performance link has been debated in previous research, we choose to support the standpoint of the adherents of the facilitating role of environmental hostility in this relationship. The explanation of this choice is provided below.

Environmental hostility. Environmental hostility refers to the extent to which the business environment poses threats to a firm's survival (Miller and Friesen, 1982). Hostility includes such challenges as intensive price, product, technological and distributional competition within the industry, and constraints on access to necessary inputs, scarcity of labor and material resources, governmental intervention, severe regulatory restrictions, and unfavorable demographic trends (Alexandrova, 2004; Caruana *et al.*, 2002; McGee *et al.*, 2012; Miller and Friesen, 1983). In general, environmental hostility is an encompassing construct which includes the elements of threat and lack of control over the agents and events in a firm's external environment (Alexandrova, 2004).

Several pieces of research corroborate the idea of a positive link between entrepreneurial strategic posture and firm performance to be stronger among firms operating in hostile environments (Casillas *et al.*, 2010; Covin and Slevin, 1989; Martins and Rialp, 2013; McGee *et al.*, 2012; Miller, 1983; Miller and Friesen, 1982, 1983) since hostile conditions create a greater need for innovative, proactive and risk-taking behavior (Miller and Friesen, 1982). Innovative behavior enables firms to modify their products and services in order to better respond to customers' needs and preferences (Kreiser and Davis, 2010; Vij and Bedi, 2012). More risky and proactive actions allow firms to respond to competitors' actions (De Clercq *et al.*, 2010; Miller, 1983). Additionally, in hostile environments strategies of expansion through new products and markets were found to be associated with higher growth rates (Moreno and Casillas, 2008). In order to compete aggressively, managers are "inclined to take business-related risks, to favor change and innovation" (Covin and Slevin, 1989, p. 218), rather than remaining passive and reactive. In hostile environments, risk-averse firms are more likely to lose their market shares by being attacked by competitors (Casillas *et al.*, 2010).

Based on the foregoing discussion, the following hypothesis is proposed:

- H1. The relationship between EO and firm performance is moderated by environmental hostility, such that firm performance increases with EO at a faster rate for firms operating in hostile environments.

Market growth

The opposite of hostile environments is benign environments, which provide safe settings for business operations in the industry and create a wide range of business opportunities for firms (Covin and Slevin, 1989). One element of favorable business environments is market growth for a firm's products or services. High-growth markets are primarily characterized by high growth in customer demand, which is driven by

increasing demands of existing customers and/or product adoption by new customers (Aaker and Day, 1986; Song and Chen, 2014). In an environment where the market for a firm is expanding, consumers are willing and able to purchase more goods and services. In such a favorable external environment, there is little need for firms to become highly entrepreneurial.

Previous studies have shown that in benign environments, firms do not need to develop a high level of EO, and sticking to a conservative strategic posture is less of a misfit with that environment (Martins and Rialp, 2013). In such environments, firms with conservative strategic postures achieve better performance indicators, and the relationship between EO and firm performance may be much weaker or even negative (Covin and Slevin, 1989). Firms with low levels of EO, or conservative firms, have been found to perform better in favorable external environments, compared to non-favorable ones (Covin and Slevin, 1989). Therefore, in benign business environments with favorable conditions for a firm's operations and market growth for its products/services, entrepreneurial behavior is not needed as a way of achieving better performance from a strategic fit perspective. Entrepreneurial firms are less often found in benign environments compared to hostile contexts, which create high risks and high rewards for managers who prefer rapid growth and new opportunities (Miller and Friesen, 1982). Thus, it is hypothesized that:

- H2. The relationship between EO and firm performance is moderated by market growth, so that firm performance increases with EO at a slower rate for firms experiencing market growth for their products/services.

The configuration of EO, environmental hostility and market growth

A configurational approach to EO can be depicted by a three-way interaction model: the interaction between EO with two environmental variables. It has been suggested that in organizations several elements of structure, strategy, process and environment are formed into clusters and configurations (Meyer *et al.*, 1993; Wiklund and Shepherd, 2005). Originally, the configurational approach emphasized the relationship between a firm's structure, strategy and environment, and recent studies have examined different combinations of variables, including a firm's strategic orientations (Lonial and Carter, 2015), leadership behaviors (Engelen *et al.*, 2015), strategic variables, and external/internal environments (Boso *et al.*, 2012, 2013) among others. In this study, given the discrepancies in the previous research results regarding the environmental hostility/munificence role in the EO-performance relationship and the multidimensional nature of a firm's external environment, we also adopt a configurational approach in order to reveal the complementary effects of different environmental dimensions on the EO-performance link to provide deeper insights on EO as an organizational capability necessary to achieve strategic fit between an organization and its environment.

As discussed earlier, environmental hostility and market growth for a firm's products and services in the industry are elements of unfavorable and favorable environments, respectively, in which the firm operates. Environments with low market growth or declining markets for a firm's products lead firms to compete more aggressively for customers or to search for new business opportunities in other markets. Such hostile environments with intensive competition require firms to be more innovative in order to differentiate their products from competitors and attract more customers by offering new products or services with higher quality. Also, the adoption of proactive behavior will allow firms to enter with new products to the market before

competitors, which gives a first-mover advantage (De Clercq *et al.*, 2010; Hult *et al.*, 2004). Additionally, in declining markets, firms may also benefit from the ability to search for and exploit new market opportunities, which should help them to expand their operations to other markets and improve business performance. Innovative and proactive firm behavior is also closely connected to risk taking, which may enable firms to outperform competitors as a result of successful realization of entrepreneurial initiatives (Kreiser and Davis, 2010).

On the contrary, in non-hostile environments with high market growth, which form favorable environments for a firm's operations, the adoption of a costly entrepreneurial strategic orientation may be less beneficial for firm performance. Therefore, it is argued that firms may benefit more from developing EO in unfavorable external environments characterized by high levels of hostility and low demand for their products or services, so that EO will have the highest positive effect on firm performance. Conversely, in favorable environmental settings with low hostility levels and high industry demand, there is no need for firms to adopt high levels of EO, and the relationship between EO and performance outcomes will be the lowest compared to other environmental configurations. Thus, it is proposed that:

H3. Firm performance is explained by configurations of EO in combination with environmental hostility and market growth, such that firms achieve higher performance with high levels of EO in hostile environments with low market growth, and lower performance with high levels of EO in non-hostile environments with high market growth, compared to other configurations.

The overall theoretical model of the research is presented in Figure 1.

Method

Sampling

The data for this study were collected in a survey conducted in 2013-2014 in Finland and the European part of Russia, including northwestern and central regions. The countries are closely connected with each other by their historical, geographic, political and economic ties. Russia and Finland share a common border and a long history of relationships. Finland was under Russian domination during the tsarist period

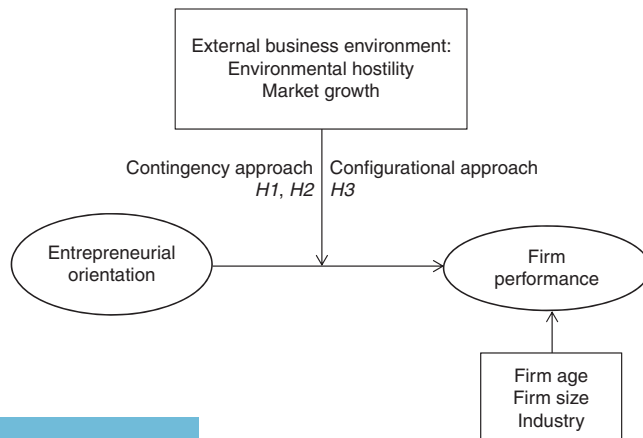


Figure 1.
Theoretical model

prior to 1917. Later, while being a democracy and a market economy, the country was under the watchful eye of the Soviet regime from a political and military perspective. Perhaps as a result, over many decades Finland has enjoyed strong economic relations with Russia, one of its major trading partners.

The companies were selected according to size (SMEs), location and legal form (privately owned firms). A standardized questionnaire was distributed to key respondents – company executives. In order to reduce potential cross-country construct invariances and to evaluate the questionnaire, the standard method of translation and back translation of the questionnaire was used (Brislin, 1970), and pilot testing was undertaken.

The population of Finnish and Russian firms was retrieved from the Amadeus database[2] and SPARK-Interfax database[3], respectively. From the populations, 8,000 Finnish and 12,000 Russian companies meeting the selection criteria were randomly selected. The standardized questionnaire was transformed into online form using the online survey and analysis tool Webropol 2.0. This software also allowed distributing the questionnaire to key respondents of the whole sample. Potential technical issues and e-mail protection tools may have reduced the number of e-mails that reached respondents. Therefore, an effective response rate calculation was employed. This calculation does not account for potential respondents who were not willing to open an electronic questionnaire or who simply missed the e-mail. The number of Finnish and Russian respondents who actually received and opened the questionnaire was estimated as being 535 and 1,340 respondents, respectively. Among them 117 responses in Finland and 104 in Russia were received, yielding an effective response rate of 22 and 7 percent accordingly. The low response rate among Russian firms has been noted in other studies and is seen as likely being caused by the general reluctance of managers to respond to surveys and to disclose their activities (Shirokova *et al.*, 2015). The overall pooled sample of Finnish and Russian companies was estimated as 221 observations, and after cleaning the data and omitting extreme and missing values, the final data set consisted of 163 observations.

Measures

Dependent variable. Firm performance is a multifaceted construct with different approaches to its measurement (Delmar *et al.*, 2003; Rauch *et al.*, 2009). In general, firm performance can be assessed with financial and non-financial indicators. Among financial indicators, the widely used measures of firm performance are sales growth rate and profitability measures (Soininen *et al.*, 2012). Non-financial performance measures include goal achievement, customer and owner satisfaction, global success ratings and other indicators (Rauch *et al.*, 2009). Additionally, firm performance can be assessed with subjective measures, which are self-reported and reflect managers' perceptions of their firm's market performance, as well as objective measures collected from secondary sources including statistical databases, company documents or archival data (Rauch *et al.*, 2009). While subjective measures may offer more opportunities for estimating multiple dimensions of firm performance and comparing them with competitors or previous performance outcomes (Stam and Elfring, 2008; Wiklund and Shepherd, 2005), such measures may also be subject to common method bias related to self-reported assessments of both firm strategy and performance (Rauch *et al.*, 2009).

In this study, business performance was operationalized with the financial indicator of sales growth rate, measured as the percentage change in a firm's sales from 2010 to 2012. Sales growth is a widely used measure of SME performance (Delmar *et al.*, 2003), and most studies of EO take into account the information on a company's sales when assessing its performance (Boso *et al.*, 2013; Frank *et al.*, 2010; Lumpkin and Dess, 2001; Simon *et al.*, 2011; Soininen *et al.*, 2012; Stam and Elfring, 2008). The measure of sales growth rate was obtained from the questionnaire, and then checked and supplemented by official databases (SPARK-Interfax, Amadeus).

Independent and moderator variables. For construct measurement, the study relies on established scales. All the questions in the survey focused on the firms' activities in 2012. The latent variables used in the research were examined for dimensionality, reliability and validity.

Covin and Slevin's (1989) nine-item scale was used to measure EO. The scale includes three items for each dimension of innovativeness, proactiveness and risk-taking. In a factor analysis, item 6 showed cross-loadings and, therefore, was omitted from further analysis. All other items significantly loaded on the EO construct with factor loadings between 0.61 and 0.78, all being above the 0.5 threshold and exhibiting adequate convergent validity. The Cronbach's α coefficient for the EO construct was 0.881 which confirms the overall level of the scale's internal consistency. The eigenvalue for the factor analysis equalled 3.97 with all items loading into a single factor. The average variance explained (AVE) equalled 0.50. The composite factor reliability (CR) of the scale was 0.89, which is well above the threshold of 0.7, showing adequate CR. The resulting values of the multiple-item variable were calculated as an average score on its items (Table I).

Environmental hostility, measured by a six-item scale developed by Miller and Friesen (1982), reflects the overall level of hostility in the external environment and the severity of different challenges for firms including tough competition in price and product quality, scarcity of labor and material resources, and government intervention. The factor analysis did not confirm adequate internal consistency, potentially caused by the diversity of scale items which assess different aspects of the hostile external environment and may not show high inter-item correlations. Similar results were found in other research (Kreiser *et al.*, 2002; Lee *et al.*, 2008). Therefore, environment hostility was assessed with the overall hostility level, measured by the item on a seven-point Likert scale, where "1" refers to "The environment causes a great deal of threat to the survival of my firm," and "7" corresponds to "There is very little threat to survival." The question was adapted from Miller and Friesen (1982) and was reverse scored such that a higher value represented greater environmental hostility.

Since market growth is characterized by high growth in customer demand, it was operationalized with a self-reported indicator of demand growth rate for a firm's products/services in the main industry within which the firm operates (Song and Chen, 2014), from 2010 to 2012.

Control variables. Since EO and firm performance outcomes have been found to depend on such variables as a firm's *age*, *size* and *type* of industry (Pole and Bondy, 2010), these variables were controlled for.

Firm *age* was operationalized as the number of years since a firm's founding. Older firms are expected to be more conservative and less entrepreneurial in their operations, and might react more slowly to environmental changes (Song *et al.*, 2008). Firm *size* was represented by the number of employees in 2012. Previous studies have shown that size

EO items	Factor loadings	Entrepreneurial orientation and firm performance
<i>Entrepreneurial orientation (Covin and Slevin, 1989)^a</i>		
(1) In general, the top managers of my firm favor a strong emphasis on R&D, technological leadership and innovations	0.61	713
(2) My firm has marketed very many new lines of products or services in the past 5 years	0.76	
(3) Changes in product or service lines have usually been quite dramatic	0.77	
(4) In dealing with its competitors, my firm typically initiates actions which competitors then respond to	0.68	
(5) In dealing with its competitors, my firm is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.	0.78	
(6) In dealing with its competitors, my firm typically adopts a very competitive, "undo-the-competitors" posture ^b	-	
(7) In general, the top managers of my firm have a strong proclivity for high-risk projects (with chances of very high returns)	0.69	
(8) In general, the top managers of my firm believe that owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives	0.69	
(9) When confronted with decision-making situations involving uncertainty, my firm typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities	0.64	
<i>Environmental hostility (Miller and Friesen, 1982)</i>		
The environment causes a great deal of threat to the survival of my firm (= 1); there is very little threat to survival (= 7) ^c	-	
<i>Market growth (Song and Chen, 2014)</i>		
Demand growth rate for a firm's products/services in the main industry within which the firm operates, from 2010 to 2012	-	
Notes: ^a Eigenvalue = 3.97, Cronbach's α = 0.881, CR = 0.89, AVE = 0.50; ^b the item was omitted because of cross-loadings; ^c reverse-coded		

Table I.
Measurement of EO, environmental hostility and market growth

influences firm EO and growth (Durand and Courderoy, 2001; Obeng *et al.*, 2014) as well as performance indicators (Ahuja and Lampert, 2001). To address the assumption of distribution normality, age and size were transformed using the natural logarithm.

Previous research has shown that the interaction between EO and firm performance may differ in various *industry* types (Zahra, 2008). To control for industry, dummy variables were created representing companies' activities in one of the following three sectors: manufacturing, services, or intellectual and informational activities.

Tables II and III contain descriptive statistics of the sampled firms and a correlation matrix of the variables, respectively.

Almost half of the firms (46 percent) operated in the service sector, and the percentage of firms involved in production or informational and intellectual activities was distributed equally (27 percent). On average, the demand growth for products/services in a firm's main industry was 13.5 percent. The average performance growth rate was 28.74 percent. Finnish firms represented 61 percent of the sample.

Data analysis and results

As the data were collected in Finland and Russia, the country of origin may have an impact on the relationship between the variables. Because the focus of the paper is not

Table II.
Descriptive statistics

Variable	Mean	SD	Min.	Max.	Categories	Frequencies ^a	
						%	Frequency
<i>Dependent variable</i>							
Performance (sales growth)	28.74	55.42	-50	300			
<i>Controls</i>							
Firm age (NLog)	2.46	0.69	0.69	4.68			
Firm size (NLog)	2.48	1.52	0	6.21			
Production	-	-	0	1	Production	27	44
Services	-	-	0	1	Services	46	75
Intellectual and informational activities	-	-	0	1	Intellectual and informational activities	27	44
Country	-	-	0	1	Finland	61	100
<i>Independent and moderator variables</i>							
Entrepreneurial orientation	4.13	1.28	1	7			
Hostility	3.96	1.66	1	7			
Market growth	13.51	21.19	-50	100			

Notes: $n = 163$. ^aCategorical variables only

Table III.
Correlations

No.	Variable	1	2	3	4	5	6	7	8
1	Performance (sales growth)	1							
2	Firm age	-0.313***	1						
3	Firm size	-0.141*	0.369***	1					
4	Production	-0.029	0.151*	0.260***	1				
5	Services	0.068	-0.103	-0.197**	-0.561***	1			
6	Entrepreneurial orientation	0.195**	0.133	0.144*	0.069	-0.107	1		
7	Hostility	0.016	-0.066	-0.040	-0.068	0.018	-0.072	1	
8	Market growth	0.216**	-0.173**	-0.135*	-0.144*	0.045	0.139*	-0.005	1

Notes: $n = 163$. Significant at * $p < 0.1$; ** $p < 0.05$; *** $p < 0.001$

on comparing performance outcomes of EO in two counties, but rather on revealing strong relationships generalizable across the contexts, the national bias was removed through data standardization in each country. This preliminary step helped to make the data “decultured” (Song *et al.*, 2010), so that the true correlation between the variables is not affected by country-specific characteristics, and to increase confidence in the robustness of hypothesized effects (Engelen *et al.*, 2015). Then, the hierarchical regression analysis using ordinary least squares (OLS) for the pooled data was applied.

The test for multicollinearity showed that variance of inflation factors did not exceed 2, indicating that multicollinearity is not a problem and implying that the model with all variables included can be estimated (O’Brien, 2007). To control for possible heteroskedasticity in OLS estimation and potential correlated errors across observations, the heteroskedasticity-robust standard errors were employed.

To analyze the hypothesized relationships, the following equation was estimated:

$$\text{Performance} = [A + S + I] + [EO + H + M] + [EO \times H + EO \times M + H \times M] + [EO \times H \times M] + \varepsilon,$$

where *A* is the firm age; *S* the firm size; *I* the industry (production; services); *EO* the entrepreneurial orientation; *H* the environmental hostility; *M* the market growth; ε = error term.

The hypothesis testing was performed in four steps: first, all control variables were included in the model (Model 1), then the main effects of EO and variables of the external environment were added (Model 2), followed by inclusion of two-way interaction effects (Model 3) and a three-way interaction effect (Model 4). The restricted models (Models 1-3) were compared with the unrestricted model (Model 4) by observing variations in the R^2 change. An interaction effect is significant when it shows a significant contribution above the direct effects (Wiklund and Shepherd, 2005). Results are presented in Table IV.

Model 2 revealed a positive relationship between EO and firm performance ($b = 0.313, p < 0.05$). Its significant and positive effect remained in Models 3 and 4 ($b = 0.307, p < 0.05; b = 0.302, p < 0.05$). The results showed that, in general, firms may benefit from adopting an entrepreneurial strategic posture to their operations. Additionally, firm performance was positively influenced by market growth for a firm's products and services ($b = 0.166, p < 0.1$).

Variable	Model 1	Model 2	Model 3	Model 4
<i>Controls</i>				
Firm age	-0.316 (0.095)**	-0.318 (0.101)**	-0.315 (0.103)**	-0.325 (0.103)**
Firm size	-0.034 (0.092)	-0.049 (0.086)	-0.060 (0.097)	-0.037 (0.096)
Production	0.135 (0.187)	0.190 (0.184)	0.188 (0.208)	0.201 (0.211)
Services	0.126 (0.155)	0.183 (0.155)	0.186 (0.166)	0.200 (0.168)
<i>Main effects</i>				
Entrepreneurial orientation (EO)		0.313 (0.129)**	0.307 (0.135)**	0.302 (0.132)**
Hostility		0.015 (0.058)	0.014 (0.063)	0.011 (0.061)
Market growth		0.166 (0.095)*	0.176 (0.095)*	0.226 (0.078)**
<i>Two-way interaction effects</i>				
EO × hostility			0.133 (0.090)	0.187 (0.092)**
EO × market growth			-0.014 (0.128)	-0.045 (0.107)
Market growth × hostility			-0.020 (0.110)	-0.038 (0.096)
<i>Three-way interaction effect</i>				
EO × market growth × hostility				0.293 (0.123)**
<i>Regression function</i>				
Constant	-0.092 (0.104)	-0.135 (0.097)	-0.128 (0.105)	-0.126 (0.104)
R^2	0.10	0.18	0.19	0.20
Change in R^2	-	0.078**	0.009	0.015**
<i>n</i>	163	163	163	163

Notes: Prob $> \chi^2 = 0.001$ for all models, all models are statistically significant at * $p < 0.1$; ** $p < 0.05$

Table IV. Regression results (dependent variable – sales growth)

The contingency relationship between EO, the external business environment and firm performance was tested in Model 3. *H1* and *H2* which predicted a positive moderating effect of environmental hostility and a negative moderating effect of market growth on the EO-performance relationship, did not receive statistical support, although the positive moderating effect of hostility appeared in Model 4 ($b = 0.187, p < 0.05$).

The configurational relationship between variables was tested in Model 4. The three-way interaction between EO, hostility and market growth was positively and significantly related to firm performance ($b = 0.293, p < 0.05$), and added a significant contribution beyond the direct and two-way interaction effects. Thus, a configurational approach to EO with its three-way interaction effect between EO and external environmental variables provides a more complete picture of firm entrepreneurial behavior and better explains variance in firm performance, compared to the contingency model and the main-effects model.

To better understand the nature of fit between EO, environmental hostility and market growth, the interactive effects using sub-group analysis were plotted (Aiken and West, 1991). The level of EO was plotted on firm performance for high (1 SD above the mean) and low (1 SD below the mean) values of environmental hostility and market growth in the firm's primary industry, depicting four combinations of environmental conditions (Figure 2).

As Figure 2 indicates, superior firm performance is achieved when a firm adopts a high level of EO in an environment characterized by high levels of both environmental hostility and market growth for products/services. The figure also shows that the biggest difference is between slope 2 (high market growth, low hostility) and all other slopes, suggesting that in favorable business environments with low hostility and high market growth, an EO is not necessary to achieve higher firm performance. In this context, higher performance is achieved with low levels of EO, partially supporting *H3*.

Additionally, the differences in the regression slopes in four environmental configurations were computed and tested. Specifically, as depicted in Table V, all six pairs of the four slopes were compared following a method adapted from Dawson and Richter (2004).

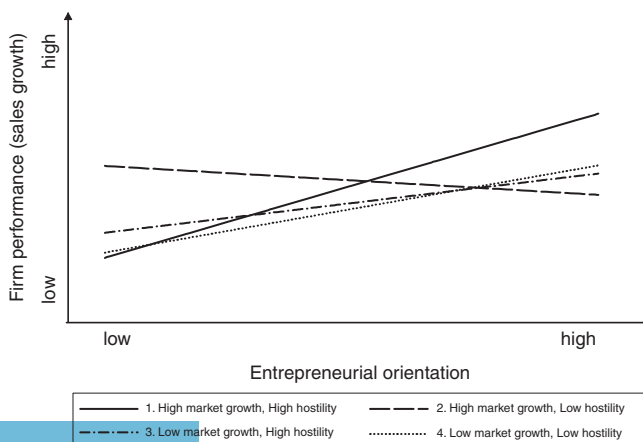


Figure 2.
Sales performance and configurations of EO, hostility and market growth

The results confirmed that the second slope (high market growth, low hostility) was significantly different from all other slopes: slope 1 ($p < 0.05$), slope 3 ($p < 0.1$) and slope 4 ($p < 0.05$). After making the Bonferroni adjustment to account for the tests of differences in slopes by multiplying p -values by the number of tests (six), the statistically significant difference remained between the second (high market growth, low hostility) and the first (high market growth, high hostility) slopes ($p < 0.05$), further supporting our results that performance outcomes of EO differ in various combinations of environmental characteristics.

In a *post hoc* analysis, the robustness of the findings was examined by applying a different indicator of firm performance – profit growth operationalized as the percentage change in a firm’s profits from 2010 to 2012. The same steps in the hierarchical regression analysis were followed. The results have shown a significant three-way interaction effect of EO, market growth and environmental hostility on profit performance ($b = 0.227$, $p < 0.05$), supporting a configurational model, which better explains the variation in profit growth ($R^2 = 12$ percent, $p < 0.001$) compared to the contingency and the main-effects models. Besides this, a graph showing the level of profit growth determined by different configurations of EO, hostility and market growth (Figure 3) is similar to the graph depicting sales growth rate (Figure 2). Additionally, the tests of differences in the regression slopes, and subsequent adjustment for the number of tests, confirmed the statistically significant difference between the slopes 1 and 2 ($p < 0.05$), further indicating the robustness of the findings.

Performance	Coef.	SE	t	P_t	(95% conf. int.)	
Slope 1 vs slope 2	0.794	0.290	2.74	0.007	0.221	1.368
Slope 1 vs slope 3	0.367	0.256	1.43	0.154	-0.139	0.872
Slope 1 vs slope 4	0.254	0.263	0.97	0.334	-0.264	0.773
Slope 2 vs slope 3	-0.428	0.228	-1.87	0.063	-0.879	0.023
Slope 2 vs slope 4	-0.540	0.253	-2.13	0.035	-1.041	-0.039
Slope 3 vs slope 4	-0.113	0.231	-0.49	0.627	-0.569	0.344

Table V.
Tests of differences
in slopes

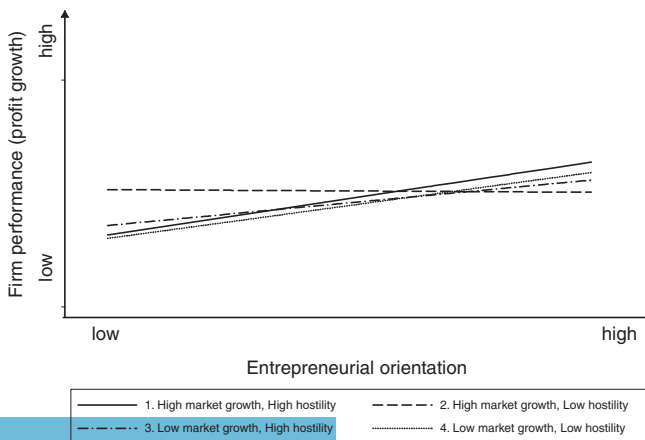


Figure 3.
Post hoc analysis:
profit performance
and configurations
of EO, hostility and
market growth

Discussion

Summary

The purpose of this study was to examine the relationship between EO and firm performance in different environmental settings by applying both contingency and configurational approaches to determine which approach created a better EO-environment fit. The results produced several principal findings, which are discussed below.

EO was found to be directly and positively associated with firm performance providing support for the idea of the overall positive benefits firms can obtain from adopting an entrepreneurial strategic posture suggested by the RBV and DC views. This finding is in line with the mainstream contention that EO is a firm's special resource or ability conducive to superior organizational performance (Clausen and Korneliusen, 2012; Keh *et al.*, 2007; Li *et al.*, 2008; Soininen *et al.*, 2012; Van Doorn *et al.*, 2013). Our more fine-grained analysis then found that the configurational approach produced a significant EO-environment fit, whereas the contingency approach did not.

Specifically, while the contingency approach using two-way interaction effects of EO and environmental variables on firm performance were not significant, the three-way interaction effect was statistically significant, showing that EO-performance relationship can be explained with a configurational approach to EO (Casillas *et al.*, 2010; Engelen *et al.*, 2015; Gupta and Pandit, 2013; Wiklund and Shepherd, 2005). Thus, although EO had a positive direct effect on firm performance, the direct effect provides an incomplete picture. The combined characteristics of the external environment – environmental hostility and market growth – provide additional understanding of a more complex EO-performance relationship over and above the main-effects model and the two-way interaction model.

In accordance with the configurational approach, firms benefit more from entrepreneurial behavior in hostile business environments with high market growth for their products and services, compared to other environmental configurations. Other research has found that firms benefit more from EO in hostile environments (Alexandrova, 2004; Covin and Slevin, 1989; Martins and Rialp, 2013; McGee *et al.*, 2012). At the same time, when the environment is both hostile and characterized by high demand growth, the market for a firm's product and services is growing along with competitive intensity. In high-growth markets, companies face new opportunities and challenges, and in order to quickly adapt to the external environment, they should take risks to experiment, explore and exploit emerging market possibilities (Song and Chen, 2014). Entrepreneurial behavior may allow firms operating in hostile and high-growth markets to better search for and utilize new opportunities in the market, attract new customers and adapt to the challenges of the external environment by modifying existing products and services and creating new ones (Ruiz-Ortega *et al.*, 2013), thus achieving strategic fit with their external environment.

Additionally, the configurational approach has shown that the relationship between EO and firm performance can be positive or negative depending on different combinations of environmental conditions. A positive EO-performance relationship was found in environments unfavorable for a firm, being hostile, or with declining markets, or both. Conversely, in favorable external environments characterized by low hostility and high market growth, better performance results can be achieved with low levels of EO, while high EO levels lead to lower performance outcomes in this environmental configuration. In their insightful work, Aragón-Correa and Sharma (2003) elaborated upon the theoretical perspective of a contingent RBV which implies that certain organizational capabilities may be of higher benefit given some

environmental settings rather than others. We posit that our results are in line with this perspective as EO was found to take its positive effect with certain environmental configurations rather than the others.

Theoretical contribution and practical implications

The paper contribution to the existing literature is threefold. First, we extend knowledge on the overall EO-performance relationship by elaborating on the situational factors facilitating that relationship. Our novel contribution lies in scrutinizing the role of contextual attributes related to both hostile and munificent environments – two ends of a continuum that have raised some debates among scholars investigating environmental contingencies of the EO-performance relationship (Alexandrova, 2004; Kreiser and Davis, 2010; Kreiser *et al.*, 2002; Martins and Rialp, 2013; Rosenbusch *et al.*, 2013; Zahra and Covin, 1995).

Second, we extend the application of the strategic fit concept toward the EO-performance relationship by applying both contingency and configurational approaches (Engelen *et al.*, 2015; Lumpkin and Dess, 1996; Wiklund and Shepherd, 2005) to understand complex mechanisms of the EO-environment interaction drawing on favorable and unfavorable environmental parameters that have not been analyzed together before.

Third, the majority of EO studies have been conducted in a single country or are very context specific (Ahlstrom and Bruton, 2002; Boso *et al.*, 2013; Engelen, 2010; Filser *et al.*, 2014; Li *et al.*, 2005). This study utilized data collected from two countries to explore common relationships across the contexts by “deculturating” the data, thereby establishing cross-cultural generalizability of the focal relationships.

Regarding practical implications, while this study documents an overall positive effect of an EO, it should not be adopted in every situation. Therefore, managers of firms operating in different contextual settings should analyze the environment carefully and align EO to it to take advantage of opportunities and achieve better performance.

Limitations and further research directions

Several limitations of our study should be borne in mind when interpreting the results. First, the data on EO and firm performance were collected at one point in time which may pose difficulties to assess causality between the two variables. With only a few longitudinal studies having been conducted (e.g. Grande *et al.*, 2011; Madsen, 2007; Wiklund, 1999; Yamada and Eshima, 2009), further research could investigate differences in the EO-performance relationship across different environmental contexts from a long-run perspective.

Second, the study was conducted with firms from Finland and the European part of Russia, a developed economy and a transition economy sharing geographic, historical, economic and political ties. Although the “decultured” pooled data analysis (Engelen *et al.*, 2015) removed country bias, replication studies in other countries would expand the external validity of the findings.

This study investigated the role of environmental hostility and market growth as moderators of the relationship between EO and firm performance. Further EO research might investigate other contextual variables (external and/or internal) and their configurations, which might also moderate and better explain the relationship between EO and firm performance.

Conclusion

Drawing on the RBV, contingency theory, and the strategic fit concept, this study investigated how EO is related to firm performance. We applied both contingency and configurational approaches to assess the role of the environmental parameters of hostility and market growth, which are attributes of the hostile-benign environment continuum. Building on prior empirical evidence, the study found that the relationship between EO and firm performance differs with various combinations of environmental characteristics, and the three-way interaction configurational approach provides new insights into performance outcomes of EO over and above the main-effects-only model and the two-way interaction contingency approach.

Notes

1. Following the terminology used in the field of strategic management, we distinguish between the general contingency perspective (Burns and Stalker, 1961; Lawrence and Lorsch, 1967) which provides the basis for the strategic fit concept emergence and evolution, and the contingency approach toward research design (Engelen *et al.*, 2015; Wiklund and Shepherd, 2005) which implies building the study around separate situational factors as opposed to a combination of them.
2. Amadeus (Bureau van Dijk) is a database of comparable financial and business information on around 21 million companies across both Eastern and Western Europe. Amadeus contains exportable financial statement data as well as basic company and management information (standardized annual accounts (consolidated and unconsolidated), financial strength indicators, sectoral activities and detailed corporate structures, stock prices for listed companies, market research, business and company-related news).
3. The SPARK-Interfax database includes information on more than five million companies registered in the territory of Russia. Interfax has set up the largest information database on Russian, Ukrainian, Kazakh companies – SPARK (Russian acronym for the System of Professional Analysis of Markets and Companies). SPARK covers 12 million Russian, Ukrainian, Kazakh entities and has tools to analyze, compare, link and benchmark companies. The database accumulates information from all possible official sources and enables comparative analysis of data on companies, markets, industries and regions as well as ranking by more than 1,000 business and financial indicators.

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