Entrepreneurial Orientation of Russian Firms:
The Role of External Environment

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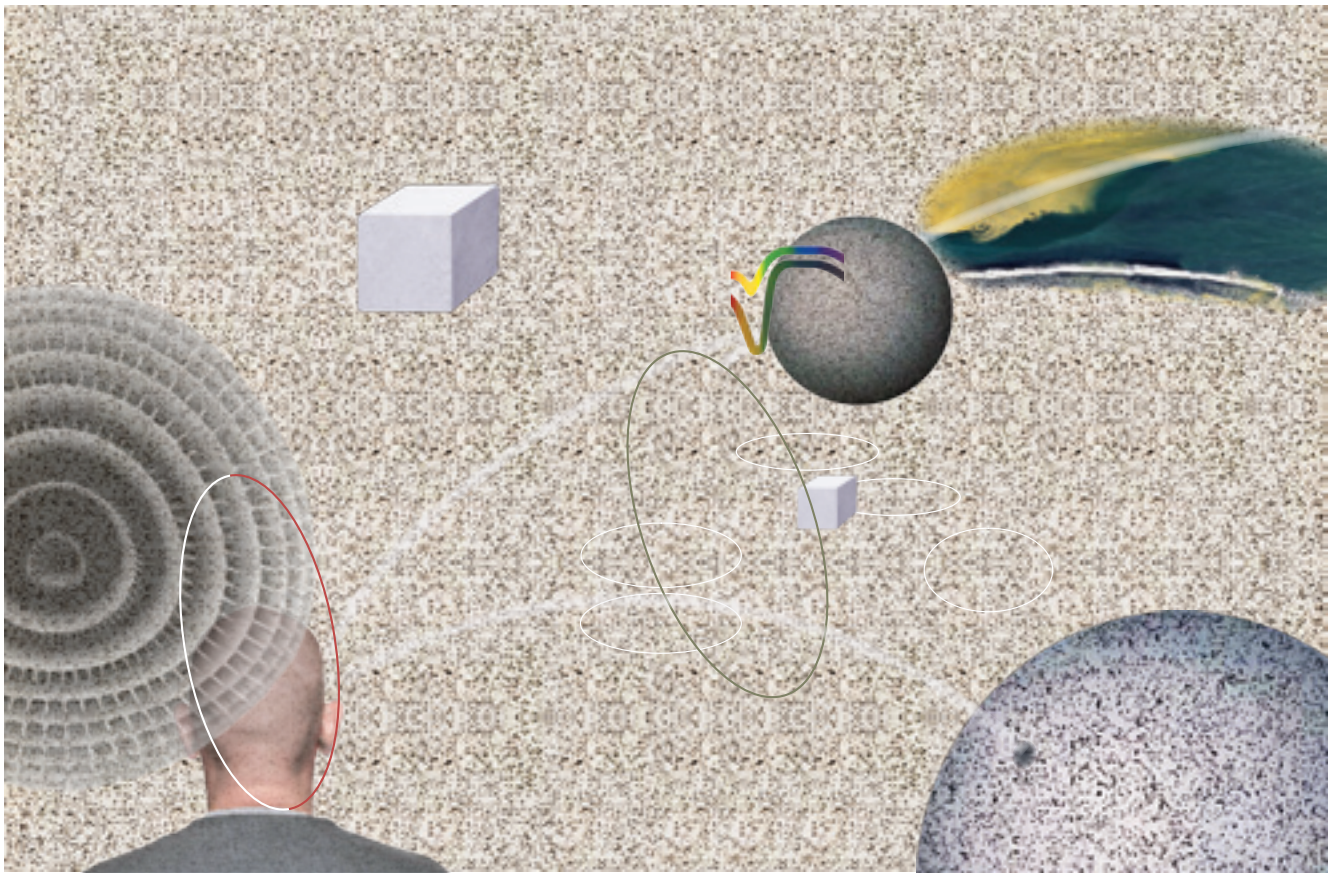

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Abstract

The paper investigates a relationship between the entrepreneurial orientation (EO) dimensions — innovativeness, proactiveness, and readiness to risk — and firm performance of Russian SMEs. We assess EO effects on firm performance in the context of an emerging market taking into account environmental contingencies.

Our findings are underpinned by the results of the survey which covered managers of 104 Russian small and medium firms. The data were processed by the structural equation modeling. The analysis has revealed that EO structure in the context of Russian market differs from the traditional three-dimensional conceptualization of entrepreneurial orientation, typical to western countries. Emerging markets i.a. Russian are characterized by the two-dimensional EO structure: innovativeness and proactiveness are perceived as a single dimension, while the and readiness to risk is a separate component.

Moreover, a positive relationship between the united dimension of entrepreneurial orientation – innovativeness and proactiveness – and firm performance is manifested only in dynamic or hostile external environment. The features of Russian institutional and cultural environment may serve as a base to explain the research findings.

Keywords: entrepreneurial orientation; firm performance; external business environment; emerging markets; structural equation modeling

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In an ever-changing business environment, companies continually seek new opportunities to guarantee growth and an augmenting market share. Firms strive to be more innovative and implement entrepreneurial initiatives in order to preserve their competitive advantage and maintain a sustainable market position [*Rothaermel,* 2008].

The concept of entrepreneurial orientation (EO) was first formulated more than 30 years ago and is now one of the most popular areas of research in strategic management [*Shirokova*, 2012; *Wales et al.*, 2013]. Entrepreneurial orientation represents the active strategic position of a company, which is linked to ongoing developments in innovation, proactiveness and willingness to invest in high-risk projects where results are not necessarily clear, and the likelihood of success is unknown [*Covin, Slevin*, 1989; *Stam, Elfring*, 2008].

Over the last three decades, while studies in developing countries have progressed at a far more sedentary pace, entrepreneurial orientation and its role in business has received widespread coverage in developed countries [*Lan, Wu*, 2010; *Wales et al.,* 2013; 2015]. Therefore, the instrument developed to operationalize entrepreneurial orientation as a theoretical construct[1], comprising three components (innovativeness, proactiveness and risk-taking) [*Covin, Slevin*, 1989], was tested in developed market conditions. Such an approach in a context different to the original setting could lead to certain problems in terms of its adequacy in measuring the corresponding components while carrying out an empirical analysis of the structure[2] of entrepreneurial orientation [*Hansen et al.*, 2011]. Discussions regarding the reliability of the entrepreneurial orientation measurement scale raised questions concerning the contextual invariance of the construct of entrepreneurial orientation. A number of studies have been carried out which have shown that the entrepreneurial orientation structure does not always consist of three components. Consequently, applying the classical approach to its conceptualization and operationalization in the context of emerging markets requires a detailed analysis of the construct's structure with regard to the reliability of the measurements.

In academic literature, there have been numerous attempts to study the relationship between a firm's entrepreneurial orientation and its performance. Different factors have been analysed on various occasions that could have an impact on the strength or direction of this relationship in different external environments [*Rauch et al.*, 2009]. Despite the fact that a number of studies have shown a positive link between a firm's entrepreneurial orientation and its performance [*Boso et al.,* 2013; *Lumpkin, Dess*, 2001; *Rauch et al.*, 2009; *Shirokova, Bogatyreva*, 2014; *Wiklund, Shepherd*, 2005], in some cases a negative relationship [*Arbaugh et al.*, 2009; *Hart,* 1992; *Kulikov, Shirokova*, 2010;] or indeed a non-linear dependence was identified [*Dai et al.*, 2014; *Su et al.*, 2011; *Tang et al.*, 2008; *Wales et al.*, 2013]. These contradictions in findings could be attributed to the fact that the strength and direction of the relationship between entrepreneurial orientation and a firm's performance are in many ways shaped by the characteristics of external environment [*Lumpkin, Dess,* 1996; *Wiklund, Shepherd*, 2005]. Business conditions in certain countries can shape entrepreneurial behaviour [*Chepurenko, Yakovlev*, 2013; *Lee, Peterson,* 2000; *Marino et al.*, 2002; *Shirokova, Sokolova,* 2013] and predetermine the nature of its impact

[1] Theoretical construct refers to mean unobserved characteristics, which may be defined by a designated set of corresponding observed variables and the relationships between them.

[2] Structure of a theoretical construct refers to associated set of components, which can be measured through numerous observed variables.

on a firm's performance. Thus, studying the relationship between a firm's performance and entrepreneurial orientation in the context of an emerging market will help to better understand the essence of this dependence in this environment and evaluate the significance of each of the aforementioned components for a firm.

The aim of this paper is to identify features reflecting entrepreneurial orientation in Russian SMEs and to study their relationship with performance, taking into account the external environment peculiarities. We use a multidimensional approach to conceptualize entrepreneurial orientation [*Lumpkin, Dess*, 1996], which assumes that components present in a firm may vary largely and change independently of one another; this allows us to evaluate the relationship between them and the firm's performance.

Ultimately, we are trying to answer the following questions in this study:

- What is the structure (set of components) of firms' entrepreneurial orientation in the Russian context?
- How is entrepreneurial orientation linked to Russian SMEs' performance?
- Does the nature of the relationship between entrepreneurial orientation and a firm's performance change in a dynamic, hostile, and heterogeneous external environment?

The theoretical framework of this research is based on the resource-based view [*Barney*, 1991], which holds firm's entrepreneurial orientation to be a rare, valuable, non-substitutable, and inimitable resource that allows for an increase in certain aspects of performance. The resource-based view is combined with the contingency approach [*Lawrence, Lorsch*, 1967], which opines that organizations demonstrating greater harmony between the parameters of their own internal environment and the features of the external surroundings [*Smith, Lewis*, 2011] are likely to be more successful. A data sample of 104 Russian SMEs, taking into account specific contextual features of an emerging market[3] forms the basis of our analysis. Finally, the study uses the structural equation modelling (SEM) method, which makes it possible to recognize the specific structure of theoretical constructs operationalized through multiple observed variables, one of which is entrepreneurial orientation. One must take into account the fact that the various concepts developed for a developed market often require adaptation when applied to emerging markets [*Bruton et al.*, 2013]. It is already established that in the Russian context it is perceived as a bivariate construct, in which innovativeness and proactiveness are combined into one component, while risk-taking constitutes a separate component. Considering the specific conditions in which a firm operates, we stress the importance of the external environmental characteristics in the formation of relationships between entrepreneurial orientation and a firm's performance.

This paper continues as follows. The first section sets out the theoretical framework of the research and the hypotheses. The second section is devoted to the empirical study method used. The third section presents the main results of the analysis; and the fourth discusses the results. The conclusion outlines the findings and examines the limitations and possible areas for future research in this field.

[3] A detailed review of approaches to defining and classifying emerging markets is given in the paper [*Alkanova, Smirnova*, 2014]. Russia falls under this category according to all the main classifications (UN, IMF, BRICS, Next Eleven, EMGP, Morgan Stanley Capital International, FTSE, Standard&Poor's, BBVA). These classifications are based on macroeconomic indicators which characterize the quality of the market environment, infrastructure development, etc.

Theoretical framework and research hypotheses

The relationship between entrepreneurial orientation and a firm's performance

As noted above, a firm's entrepreneurial orientation is a strategic process characterized by innovation development, its active position in the market, and willingness to make decisions in times of uncertainty. This gives rise to a theoretical construct, which accordingly covers three dimensions: innovativeness (inclination to develop new ideas), proactiveness (searching for new market opportunities) and risk-taking (willingness to take part in projects renowned for their uncertainty) [*Covin, Slevin*, 1989; *Stam, Elfring*, 2008]. There are two approaches to the conceptualization of entrepreneurial orientation: unidimensional [*Covin, Slevin*, 1989] and multidimensional [*Lumpkin, Dess*, 1996]. Under the unidimensional approach, only firms with high levels of development in the above components maybe considered entrepreneurial, while the multidimensional approach views them as independent of one another, where firms can be entrepreneurial without adopting all of these components.

At present, there have been a large number of empirical studies devoted to studying the relationship between entrepreneurial orientation and a firm's performance. Most of these studies have shown that this relationship is positive in nature [*Martins, Rialp*, 2013; *Rauch et al.,* 2009; *Van Doorn et al.*, 2013; *Wiklund, Shepherd*, 2003, 2005; *Zahra*, 1991].

Entrepreneurial orientation allows a firm to develop ideas and realize them in the form of new products and services, participate in risky projects, predict future requirements, and find new market opportunities [*Covin, Slevin*, 1989]. These characteristics in a firm can be positive when they face various challenges from the external environment. Thus, firms can derive benefit from their entrepreneurial strategic status [*Rauch et al.*, 2009].

Entrepreneurial orientation can serve as an instrument for a firm to adapt to external environments [*Covin, Slevin*, 1989; *Hameed*, 2011; *Khandwalla,* 1976]. Further, developing entrepreneurial behaviour can help to precisely position a company in the market, taking into account internal and external factors. Entrepreneurial orientation maybe viewed as a special resource — organizational ability, which allows companies to develop competitive advantages and improve performance [*Aloulou, Fayolle*, 2005; *Grande et al.*, 2011; *Madsen,* 2007; *Wiklund, Shepherd*, 2011]. Developing entrepreneurial orientation involves adapting a firm's alternative strategic orientations and skill sets, which can in turn have a positive impact on business performance; in particular, it can serve as a prerequisite for strengthening market orientation [*Blesa, Ripolles*, 2003; *Matsuno et al.*, 2002], learning orientation [*Alegre, Chiva*, 2013], experimental learning [*Zhao et al.*, 2011] and accelerate the process of launching new products, services, and technologies on the market [*Clausen, Korneliussen*, 2012]. In addition to the unidimensional approach for conceptualizing entrepreneurial orientation, some authors consider entrepreneurial orientation from the perspective of a multidimensional approach. They do so by studying the impact of its individual components (innovativeness, proactiveness and risk-taking) on a firm's performance [*Dai et al.*, 2014; *Kreiser, Davis*, 2010; *Shirokova, Bogatyreva*, 2014] which have yielded positive results [*Richard et al.*, 2004; *Simon et al.*, 2011; *Van Doom et al.*, 2013]. Innovative and proactive thinking form another basis to increase market share and further differentiate their products. A high level of proactiveness often allows companies to use the first-mover advantage and simultaneously enhance their ability to predict forthcoming changes in the external environment, which can in turn enable them to make well-timed decisions [*Lumpkin, Dess,* 1996]. Firms re-

nowned for their strong entrepreneurial orientation often find themselves permanently monitoring such changes, always searching for new opportunities to strengthen their competitive position, resulting in a positive impact on their performance [*Keh et al.*, 2007]. Involvement in risky projects in times of uncertainty can bring the opportunity for high profits [*Martins, Rialp*, 2013]. The specific character inherent in entrepreneurially oriented firms is critically important in emerging markets as the latter are generally characterized by heightened instability vis-à-vis the external environment [*Ahlstrom, Bruton*, 2002], which encourages firms to have an active strategic position. We can therefore deduce the following:

Hypothesis 1. Each component of entrepreneurial orientation (innovativeness, proactiveness, risk-taking) is positively related to the performance of firms operating in an emerging market context.

The impact of situational variables on the relationship between entrepreneurial orientation and a firm's performance

Entrepreneurial orientation may be viewed as a mechanism by which firms adapt to the external environment. A contingency approach in studies of the process of strategy development and implementation involves taking into account the different external environmental parameters of an organization when establishing its strategic course [*Cyert, March*, 1963; *Saeed et al.*, 2014; *Simon*, 1957]. Accordingly, a business' strategic orientations evolve under the influence of external environmental conditions [*Rosenbusch et al.*, 2013], the characteristics of which can have an impact on the strength and direction of the relationship between entrepreneurial orientation and a firm's performance [*Kreiser, Davis,* 2010].

One of these external environmental characteristics is *dynamism*, which reflects the degree of uncertainty and speed of change in an industry [*Miller, Friesen*, 1983]. Changes in the market can stem from technological innovations, transformations in consumer demand and preferences, and the unpredictability of competitor behaviour [*Caruana et al.*, 2002; *Miller, Friesen,* 1982]. These all cause complications for firms operating in times of uncertainty and unpredictability; however, a dynamic external environment still opens up new opportunities to expand business and establish and develop competitive advantages [*Ruiz-Ortega et al.*, 2013].

Various studies [*Covin, Slevin*, 1989; *Miller*, 1983; *Miller, Friesen*, 1983; *Rauch et al.*, 2009; *Wiklund, Shepherd*, 2004] show that an entrepreneurial strategic position is more preferable for firms operating in a highly dynamic external environment. Firms of this orientation, in particular those that are in high-tech industries, are found often in conditions unique for their high dynamism and short product life cycles [*Moriarty, Kosnik*, 1989]. Under these circumstances, the relationship between entrepreneurial orientation and performance is stronger [*Lisboa et al.*, 2011]; as such, firms use opportunities arising in the market in a more productive way [*Moreno, Casillas*, 2008; *Rauch et al.*, 2009; *Wales et al.*, 2013]. They adapt to the dynamic external environment by developing innovative solutions, conquering new markets, and participating in high-risk projects [*Alexandrova*, 2004; *Frank et al.*, 2010]. Reinforcing an entrepreneurial orientation in such conditions helps firms to monitor emerging trends in the marketplace, factor such variables when developing new products, and expand their product portfolio, thereby minimizing the threat of existing products becoming obsolete.

Emerging markets are often characterized by a high degree of uncertainty compared with developed markets [*Ahlstrom, Bruton,* 2002; *Tang, Tang*, 2012] and in this context an entrepreneurial orientation can contribute to

achieving better performance [*Tang, Tang*, 2012; *Zhou, Li*, 2007]. In view of the foregoing, the following hypothesis may be posited:

Hypothesis 2a. The dynamism of the external environment intensifies the positive relationship between each component of entrepreneurial orientation (innovativeness, proactiveness, risk-taking) and the performance of firms operating in emerging market context.

Another parameter of the external environment is *hostility*, which is linked to various threats to a firm's existence [*Miller, Friesen*, 1982]. These include the narrowing of products and services markets, limited access to the necessary labour, material and other resources or shortages, state interference, unfavourable demographic trends, and so on [*Alexandrova*, 2004; *Caruana et al.*, 2002; *McGee et al.*, 2012; *Miller, Friesen*, 1983].

There are several studies devoted to the role of external environmental hostility in the development of the relationship between entrepreneurial orientation and a firm's performance [*Covin, Slevin*, 1989; *Kreiser, Davis*, 2010; *McGee et al.*, 2012; *Miller*, 1983; *Miller, Friesen*, 1982, 1983; *Rosenbusch et al.*, 2013]. It has been shown that in a hostile environment, entrepreneurial firms report better results compared with conservative firms as entrepreneurial behaviour helps them to cope more effectively with external threats.

External environmental hostility not only requires innovative and proactive behaviour from firms, but also their willingness to take risks, which can in turn lead to better performance [*Miller, Friesen*, 1982; *Shirokova, Sokolova*, 2011]. Innovativeness allows businesses to modify their products and services to satisfy customers' needs and preferences [*Kreiser, Davis*, 2010; *Vij, Bedi*, 2012]. Risky and proactive market activity makes it possible for firms to outstrip their competitors, while at the same time seeking out access to the necessary resources [*De Clercq et al.*, 2010; *Miller*, 1983]. To compete successfully in a hostile environment, managers are 'inclined to take risks [and] to favor change and innovation' [*Covin, Slevin*, 1989, p. 218]. Risk-taking and proactive and innovative behaviour in place of passive reaction are a guarantee of a successful strategy to maintain competitive advantages in a hostile environment.

In contrast to the hostile environment, a benign environment is characterized primarily by broad access to resources [*Covin, Slevin*, 1989]. In these conditions, there is no pressing need to develop an entrepreneurial orientation to achieve better performance, and firms confining themselves to conservative strategies are perfectly capable of achieving success [*Martins, Rialp*, 2013]. As a result, those with a strong entrepreneurial orientation maybe found rarely in a benign environment, compared with a hostile one [*Miller, Friesen*, 1982].

In emerging markets, the level of hostility is higher than in developed markets [*Ahlstrom, Bruton*, 2002]. This is attributable to the imperfection of institutions in emerging markets, which poses certain threats to business operations. In the context of emerging markets, the regulatory environment, including the process of registering a company, the time and financial costs as per administrative regulations, or tax regulation, all serve as a hindrance to business development, which calls for an active entrepreneurial strategic position from firms [*Li, Zhang*, 2007]. In light of these points, the following research hypothesis may be put forward:

Hypothesis 2b. The hostility of the external environment intensifies the positive relationship between each component of entrepreneurial orientation (innovativeness, proactiveness, risk-taking) and the performance of firms operating in emerging market context.

An important characteristic of the external environment, which can have an impact on the relationship between entrepreneurial orientation and a firm's results, is *heterogeneity*. This type of external environment is often the backdrop for diversified firms operating in different, but not always closely related sectors [*Miller, Friesen*, 1982] and firms operating in countries with high regional differentiation in terms of economic and cultural development. A heterogeneous external environment is remarkable for the significant differences in consumer preferences, competitor behaviour, and business models [*Caruana et al.*, 2002; *Fayolle et al.*, 2010]. These differences cause complications for business operations and require extremely diverse approaches to business [*Rosenbusch et al.*, 2013].

A heterogeneous environment assumes the existence of market segmentation, and this is a question of developing a broad and diversified product portfolio. A willingness to participate in risky and innovative projects combined with proactive behaviour helps entrepreneurial firms to develop such a portfolio [*Miller, Friesen*, 1982; 1983]. A heterogeneous external environment also implies diversity in approaches to business operations in different market segments, administrative practices, and production technologies. Entrepreneurial orientation is linked to the development of learning orientation [*Wang*, 2008] and the flexibility and adaptability of a strategy to a heterogeneous environment [*Caruana et al.*, 2002; *Miller*, 1983; *Rosenbusch et al.*, 2013]. This helps in better satisfying customers' needs and, therefore, increases a firm's performance. In addition, proactive behaviour enables firms to be the first to occupy corresponding market niches, thereby deriving a first-mover advantage [*Fayolle et al.*, 2010].

Thus, it can be argued that in an external environment characterized by a high degree of heterogeneity, entrepreneurial orientation has a positive relationship with a firm's performance.

Hypothesis 2c. The heterogeneity of the external environment intensifies the positive relationship between each component of entrepreneurial orientation (innovativeness, proactiveness, risk-taking) and the performance of firms operating in an emerging market context.

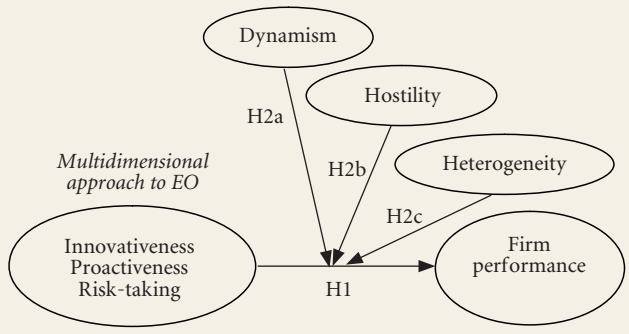
The theoretical model is outlined in Figure 1.

Research methodology

Sample description

This study is based on survey data from Russian firms carried out from September 2013 to March 2014. For the study, we selected private SMEs in different industries. The standardized survey developed in this paper,

Fig. 1. **Theoretical model**



Source: compiled by the authors.

based on the confirmed and approved measurement scales of the corresponding theoretical constructs, was distributed among representatives of firms with access to corresponding information. The survey asked questions relating to various aspects of the firm's activities and the characteristics of the main industry in which it operates. It was conducted in Russia, using the 'back translation' method [*Brislin*, 1970] to reduce the possibility of differing perceptions of notions by respondents. In the preliminary stage, a pilot test survey was carried out on a small sample, which made it possible to make certain necessary adjustments to the survey. During the data collection process, respondents were guaranteed full anonymity and non-disclosure of personal information.

The sample covered 8,000 companies selected at random from the 'SPARK-Interfax' and 'Amadeus' databases. The standardized survey was distributed automatically among respondents using the Webropol 2.0 survey software. However, the survey suffered from extremely low response rates. In particular, the number of respondents, which received and opened the survey, was 233, of which 14 responded, resulting in an effective response rate of 6%. This outcome can be explained by the fact that SMEs are generally unwilling to disclose information about their performance. Therefore, the decision was made to use the 'convenience sampling' method[4], which allows for an increase in the number of respondents. The main sources of contact with companies were the St. Petersburg Graduate School of Management (GSOM) Alumni Association, which is a community of graduates spanning the last 20 years, and students on the St. Petersburg GSOM MBA programme for managers. In the end, 121 completed surveys were collected, which were then checked for missing values.

In order to meet the company size criterion, large firms were excluded from the subsequent analysis. According to the classification set out in Federal Law No. 209-FZ dated 24 July 2007 'On the Development of Small and Medium Enterprises in the Russian Federation,' companies with staff of less than 250 employees and total sales revenue of less than 1 billion roubles are classified as small and medium businesses in Russia. The revenue criterion is widely used in statistical databases to group companies according to their size (SPARK-Interfax). Since this paper examines the relationship between entrepreneurial orientation and a firm's performance, measured using growth in sales, this criterion seems most suitable in achieving the research objectives. Using only the employee numbers criterion to group companies imposes significant restrictions as actual sales at many Russian SMEs — according to the employee numbers parameter — do not meet the criteria used for SMEs in international studies [*Shirokova et al.*, 2013]. The upper limit of the size of companies under consideration was, therefore, increased to 500 employees.

The structure of the sample broken down by criteria such as company size, age, and industry is shown in Table 1. The age of the companies in the sample varies between 2 and 26 years. The majority of them (51.5%) have been operating in the market for less than 10 years, 38.8% of companies between 10 and 20 years, and 9.7% 21 years or more. Two thirds of companies in the sample (63.7%) are small firms with less than 50 employees and the remainder is medium firms (up to 500 employees). More than half of the companies in this study operate in the services sector (54.8%), 15.4% in production, and 29.8% in intellectual and information sectors.

[4] Convenience sampling is a judgment sample. When forming the sample, only those elements of the population were selected which would make it easier to obtain responses [*Saunders et al.*, 2003].

Table 1. **Sample structure**

Criteria	Categories	Company distribution (%)
Firm age, years	≤ 10	51.5
	11–20	38.8
	≥ 21	9.7
Firm size, number of employees	≤ 10	24.5
	11–50	39.2
	51–100	10.8
	≥ 101	25.5
Industry	Production	15.4
	Services	54.8
	Intellectual and information sector	29.8

Source: calculated by the authors.

Variable measurements

Independent variables. For the latent variables, the study used approved and confirmed scales. To measure entrepreneurial orientation, it applied the classic ordinal scale developed by Jeffrey Covin and Denis Slevin [*Covin, Slevin*, 1989]. The scale involves 9 questions, three for each of the components: innovativeness, proactiveness, and risk-taking. Respondents evaluate the level of a firm's entrepreneurial orientation on a scale from 1 to 7. The Cronbach's alpha value for this scale was 0.837, which confirms the internal consistency of the scale and the reliability of the measurement. The study considered dynamism, hostility, and heterogeneity of the external environment to be moderators of the relationship between entrepreneurial orientation and a firm's performance, i.e. variables capable of affecting the strength and direction of the relationship. To measure the dynamism and heterogeneity of the external environment, the ordinal scales presented in the paper [*Miller, Friesen,* 1982], containing five and four questions respectively, were used. The Cronbach's alpha values for the dynamism and heterogeneity scales were 0.729 and 0.733.

The overall level of hostility of the external environment was measured through respondents' evaluation of statements using a 7-point scale, where 1 matched the statement 'External environmental conditions pose the greatest threat to the firm's existence' and 7 meant 'The threat to the firm's existence is small'. This question was proposed in the work of Danny Miller and Peter Friesen [*Miller, Friesen,* 1982] and upon analysis was recoded using an inverted scale so that the value would increase as the level of hostility in the external environment grew.

Dependent variables. To measure a firm's performance, financial and non-financial indicators may be used [*Delmar et al.*, 2003; *Rauch et al.*, 2009]. Empirical studies make widespread use of financial indicators reflecting a firm's growth and profitability [*Soininen et al.*, 2012]. Examples of non-financial indicators of a company's performance include achievement of set goals, customer satisfaction, company success ratings, and so on [*Rauch et al.*, 2009]. Subjective indicators reflecting managers' views on company performance can also be singled out, together with objective indicators found in statistical databases, documents, or archives [*Rauch et al.*, 2009]. The first of these make it possible to use several measurements of a business' performance, including comparisons with competitors or with figures for previous periods [*Stam, Elfring*, 2008; *Wiklund, Shepherd*, 2005], but due to their subjectivity can be the cause of bias in evaluations.

In order to operationalize a business' performance, as in many other similar studies [*Delmar et al.*, 2003; *Boso et al.* 2013; *Frank et al,* 2010; *Lumpkin, Dess,* 2001; *Simon et al.* 2011; *Soininen et al.,* 2012; *Stam, Elfring,* 2008], we

used the 'growth in sales' financial indicator, calculated as the percentage change in a firm's sales over the period 2010–2012. Corresponding questions were incorporated into the survey questionnaire. The information so received was verified and supplemented using the 'Amadeus' and 'SPARK-Interfax' databases.

Control variables. Given that a firm's performance and the level of entrepreneurial orientation can vary within firms of differing ages, sizes, and sectoral affiliation [*Lumpkin, Dess,* 1996; *Shirokova, Sokolova*, 2013; *Van Doom et al.*, 2013; *Wales et al.*, 2013], these variables were included in our study as control variables [*Pole, Bondy,* 2010].

The *firm age* is measured as the number of years since it was founded. The assumption and expectation is that firms that have been in the market for a long time will be more conservative and less entrepreneurial and could be slower to react to changes in the external environment [*Song et al.*, 2008].

The *firm size* is evaluated based on the number of employees at the time of completing the survey. Previous studies have pointed to a connection between the size of a company and the level of entrepreneurial orientation [*Durand, Courderoy*, 2001] and performance [*Ahuja, Lampert,* 2001]. Analysis of the distribution graphs showing the variables 'firm age' and 'firm size' demonstrates that the logarithm of their distribution is close to normal. In this regard, these variables were included in the model as a natural logarithm of their initial values.

The study found that the relationship between entrepreneurial orientation and a business' performance varies according to *industry* [*Zahra*, 2008]. To check the industry affiliation of a firm, binary variables were introduced to reflect the company's activity in one of three economic sectors (production, services, and the information sector).

Data analysis results

Reliability and validity of the entrepreneurial orientation construct

To test the relationship between the studied variables, the study used the *structural equation modelling* method. This is often encountered in studies of latent variables that can be indirectly measured by a number of observed variables. Structural equation modelling allows us to analyse the structure of these variables, evaluate the fit between the tested model and the empirical data, and test complex models involving several relationships between variables at the same time [*Anderson, Gerbing,* 1992].

Our data analysis was a two-stage process. The first stage involved analysing the dimensionality, reliability, and validity of the entrepreneurial orientation construct and the second comprised hypothesis testing.

A confirmatory factor analysis using the structural equation modelling package in AMOS 22.0 was used to define the structure of the entrepreneurial orientation construct. We used the maximum likelihood estimation method to define the model parameters [*Eliason*, 1993]. In order to evaluate the quality of the models, various goodness of fit indices were used: χ^2/df — a model fit indicator (threshold value < 2), GFI (goodness of fit) (threshold value > 0.9), CFI (comparative fit index) (threshold value > 0.9), TLI (Tucker-Lewis Index) (threshold value > 0.9) and RMSEA (root mean square error of approximation) (threshold value < 0.06 (< 0.08)), allow for making it possible to establish the level of fit between the model and the empirical data [*Anderson, Gerbing*, 1992; *Byrne,* 2009].

Using a confirmatory factor analysis, the applicability of the classic entrepreneurial orientation construct was verified [*Covin, Slevin*, 1989] together with the three aforementioned components (innovativeness, proactiveness,

and risk-taking) for the sample of Russian SMEs. It was revealed that the model with the two-dimensional entrepreneurial orientation structure, where innovativeness and proactiveness were combined into one indivisible component and risk-taking constituted a separate component, was the best fit for the Russian data and satisfied the threshold values of the goodness of fit indices: χ^2/df = 1.37; GFI = 0.94; CFI = 0.97; TLI = 0.95; RMSEA = 0.06 (p = 0.339).

The Cronbach's alpha value for the 'innovativeness and proactiveness' component was 0.81 and for the 'risk-taking' component 0.7. All of the observed variables in the two-component entrepreneurial orientation model show significant loadings on the corresponding items, which confirm the convergent validity.

The descriptive statistics and correlation matrix for the variables used in the study are provided in Tables 2 and 3.

Testing of the research hypotheses

The second stage involved the testing research hypotheses (Fig. 2).

The study assessed the entrepreneurial orientation components for discriminant validity.[5] The quadratic correlation between each pair of entrepreneurial orientation components was less than the explained average variance, which is in line with the criterion presented by Claes Fornell and David Larcker [*Fornell, Larcker*, 1981]. However, the composite reliability (CR) indicator[6] exceeded the threshold value of 0.7 only for the combined innovativeness/proactiveness component (0.79). As for the risk-taking dimension, this figure was 0.69, which is slightly below the required level. The average variance explained (AVE) indicator[7] was lower than the threshold value for both of the entrepreneurial orientation components under examination (0.40 for innovativeness/proactiveness and 0.42 for risk-taking). As a result, the study took into account the effect of each of the indicated components separately instead of analysing the second order model.

Table 2. **Variable descriptive statistics**

Variable	Value			Standard deviation
	Mean	Min	Max	
Innovativeness / Proactiveness	3.89	1	6.83	1.31
Risk-taking	3.88	1	7	1.38
Sales growth	34.3	–90	300	59.3
Dynamism	3.31	1	6	1.22
Hostility	4.02	1	7	1.78
Heterogeneity	3.63	1	7	1.31
Firm age natural logarithm	2.18	0.69	3.26	0.67
Firm size natural logarithm	3.55	0.00	6.21	1.54
Production	–	0	1	–
Services	–	0	1	–
Intellectual and information sector	–	0	1	–

Source: calculated by the authors.

[5] Discriminant validity is achieved when a latent variable can be explained more by the observed variables constituting it than other variables in the model. One of the ways to verify latent variables for discriminant validity is the Fornell and Larcker criteria [*Fornell, Larcker*, 1981], whereby the quadratic correlation between each pair of variables must be less than the average variance explained (AVE).

[6] Composite reliability assesses the internal coherence of observed variables constituting a latent variable and can be calculated using the formula: square of the sum of standardized coefficients / (square of the sum of standardized coefficients + square of the sum of measurement errors); threshold value > 0.7 [*Hair et al.*, 2010].

[7] Average variance explained shows the extent to which a latent variable can be demonstrated by the observed variables constituting it and can be calculated using the formula: sum of squares of standardized loadings / (sum of squares of standardized loadings + sum of measurement errors); threshold value > 0.5 [*Hair et al.*, 2010].

Table 3. **Correlation matrix**

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Innovativeness / Proactiveness	1										
2. Risk-taking	.545**	1									
3. Sales growth	-.047	.087	1								
4. Dynamism	.310**	.112	-.045	1							
5. Hostility	-.023	-.143	-.129	-.005	1						
6. Heterogeneity	.269**	.203*	-.098	.286**	.016	1					
7. Firm age natural logarithm	.045	.014	-.391**	-.074	-.005	.084	1				
8. Firm size natural logarithm	0.189†	.083	-.270*	-.116	.049	.109	.466**	1			
9. Production	.114	.215*	-.077	-.157	.025	-.045	.246*	.342**	1		
10. Services	-.075	-.150	.174	.127	.043	.032	-.062	-.192†	-.467**	1	
11. Intellectual and information sector	-.009	-.004	-.128	-.014	-.066	.001	-.128	-.062	-.277**	-.714**	1

Source: calculated by the authors.

†p < 0.1; *p < 0.05; **p < 0.01 (2-tailed)

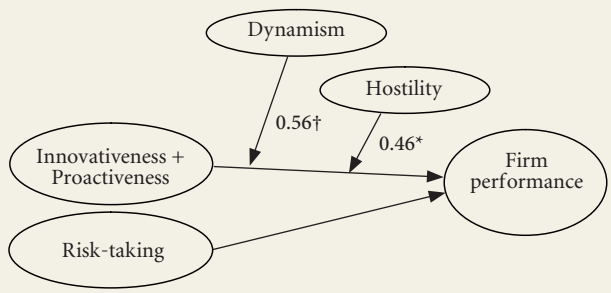
Note: when calculating the correlation between variables, one of which is binary, the spot biserial correlation coefficient is used, and in all other cases the Pearson correlation coefficient.

Both models reflecting a direct relationship between entrepreneurial orientation dimensions and growth in a firm's sales have acceptable goodness of fit indices: χ^2/df = 1.33/1.49; GFI = 0.91/0.95; CFI = 0.95/0.94; TLI = 0.93/0.90; RMSEA = 0.05 (p = 0.377)/0.07 (p = 0.263). The results of the analysis show that in the context of the Russian market, the direct relationship between the combined innovativeness/proactiveness component and the risk-taking component and a firm's performance is statistically insignificant. Therefore, the first hypothesis regarding the positive relationship between a firm's entrepreneurial orientation components and its performance has not been corroborated (Table 4).

The next stage of the analysis was to test the impact of external environmental characteristics (dynamism, hostility, and heterogeneity) on the relationship between entrepreneurial orientation components and a firm's performance by evaluating cross-sectional variables.

The calculations showed that the models in which dynamism and hostility of the external environment were considered as moderators between innovativeness/proactiveness and a firm's performance, showed good model

Fig. 2. **Results of structural equation modelling**



†p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

Source: calculated by the authors.

Table 4. **Relationship between EO and performance at Russian firms**

Assumed effects	Coefficients	
	Model 1	Model 2
Innovativeness / proactiveness → Growth in sales	0.02	
Risk-taking → Growth in sales		0.11
Control variables		
Firm age natural logarithm → Growth in sales	–0.31**	–0.31**
Firm size natural logarithm → Growth in sales	–0.10	–0.10
Production → Growth in sales	0.12	0.10
Services → Growth in sales	0.18†	0.18†
Model fit indices		
χ^2 / df	1.33	1.49
RMSEA	0.05	0.07
GFI	0.91	0.95
CFI	0.95	0.94
TLI	0.93	0.90

†p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

Source: calculated by the authors.

goodness of fit indices: χ^2/df = 1.54/1.74; GFI = 0.94/0.94; CFI = 0.98/0.96; TLI = 0.96/0.93; RMSEA = 0.07 (p = 0.272)/0.08 (p = 0.216). The two external environmental characteristics — dynamism and hostility — increase the positive relationship between the innovativeness/proactiveness component on the one hand, and growth in sales, on the other (dynamism: b = 0.56; $p < 0.1$; hostility: b = 0.46; $p < 0.05$). This means that in emerging market conditions, firms exhibiting a high degree of innovativeness and proactiveness in a dynamic or hostile external environment perform better than those whose innovativeness and proactiveness are less well developed. This therefore corroborates hypotheses 2a and 2b formulated above (Table 5).

Discussion of results

As we have seen, it was ultimately not possible to establish the direct effects of the entrepreneurial orientation components on Russian companies' performance. This result may be explained by the general conditions in which business is conducted in Russia. In particular, taking into account the state of institutions that are in some way related to the opportunities to implement entrepreneurial initiatives, the Russian business environment may not come across as sufficiently developed. The main indices characterizing the institutional features of the Russian economy are shown in Table 6.

According to the Global Competitiveness Report, Russia occupies 121st place, out of 148 countries, in terms of the level of institutional development [*Schwab, Sala-i-Martin*, 2013–2014]. With regard to parameters reflecting national culture, which traditionally go hand-in-hand with entrepreneurial spirit — avoiding uncertainty, individualism, power distance — there is low inclination for entrepreneurship in Russia [Hofstede Centre, 2012]. The perceived business opportunities index in Russia is also low, according to data from the Global Entrepreneurship Monitor [*Singer et al.*, 2014]. The state of affairs for parameters such as ease of doing business [World Bank Group, 2014], economic freedom [Heritage Foundation, 2015], corruption [Transparency International, 2014] and property rights protection [Property Rights Alliance, 2014] also point to certain institutional challenges. These challenges, which are related to legislative and judicial systems, patent and copyright protection, the tax system, the degree of market openness, and investment climate, are problems that with which Russian entrepreneurs and managers have to come to terms with. Such an

Table 5. **Impact of external environment on the relationship between EO and performance at Russian firms**

Assumed effects	Coefficients	
	Model 1	Model 2
Innovativeness / proactiveness → Growth in sales	–0.29	-0.31†
Dynamism → Growth in sales	–0.45*	
Innovativeness / proactiveness x Dynamism → Growth in sales	0.56†	
Hostility → Growth in sales		–0.45†
Innovativeness / proactiveness x Hostility → Growth in sales		0.46*
Control variables		
Firm age natural logarithm → Growth in sales	–0.29**	–0.33***
Firm size natural logarithm → Growth in sales	–0.12	–0.06
Production → Growth in sales	0.13	0.11
Services → Growth in sales	0.21*	0.22**
Model fit indices		
χ^2/df	1.54	1.74
RMSEA	0.07	0.08
GFI	0.94	0.94
CFI	0.98	0.96
TLI	0.96	0.93

†p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

Source: calculated by the authors.

institutional environment suppresses the development of an entrepreneurial orientation and profiting from such an orientation, a claim that is to a certain degree reflected in our findings.

The problems identified are related more to the regulatory and normative aspects of the institutional environment. However, we cannot disregard the cognitive aspect, reflecting the inward perception that individuals hold of external events and phenomena [*Scott*, 2001]. One of the main findings of our study is the specific structure of the entrepreneurial orientation construct in the Russian context, measured using Covin and Slevin's scale. For example, the measurement model with the two-dimensional entrepreneurial orientation structure, where innovativeness and proactiveness were combined into one component and risk-taking constituted a separate dimension, proved to be the best fit for this data. This scale has been used successfully and consistently in empirical studies [*Covin, Slevin*, 1989; *Covin, Wales*, 2011; *George, Marino*, 2011; *Kreiser et al.*, 2002; *Kreiser, Davis*, 2010; *Miller*, 1983], although exceptions were found to exist [*Anderson et al.*, 2014; *Runyan et al.*, 2012; *Soininen et al.*, 2012; *Tang et al.*, 2008].

Table 6. **Institutional and cultural features indices for Russia**

Institutional and cultural indices	Value
Overall institutional development (rank out of 148 countries)	121
Uncertainty avoidance (max 100)	95
Individualism (max 100)	39
Power distance (max 100)	93
Ease of doing business (rank out of 189 countries)	92
Economic freedom (max 100 points)	54.1
Level of corruption (rank out of 175 countries)	136
Property rights protection (rank out of 97 countries)	66
Perceived business opportunities	26.5

Source: compiled by the authors basing on [World Bank Group, 2014; *Schwab, Sala-i-Martín*, 2013–2014; *Singer et al.*, 2014; Heritage Foundation, 2015; Hofstede Centre, 2012; Property Rights Alliance, 2014; Transparency International, 2014].

The problems that we have identified with using Covin and Slevin's scale is attributable to the fact that, in practice, it is relatively difficult to clearly distinguish the notions of innovativeness and proactiveness (in particular, is it possible to implement innovative projects without being proactive?) We also noted the differing perceptions of the very notions of 'innovation' and 'innovativeness' amongst individuals working in different institutional contexts. It is noteworthy, however, that this scale was developed and tested in the context of a developed market. It has received criticism regarding the possibility of using several items comprising this scale to analyse the activities of firms operating in Asian countries [*Tan, Litschert*, 1994] and other emerging markets. According to *Hansen et al* [2011, p. 76], 'particular attention should be paid to the innovativeness and proactiveness dimensions, as these exhibited the lowest levels of cross-national invariance'. In a recent study [*Anderson et al.*, 2014], it was suggested that innovativeness and proactiveness should be viewed as a single dimension of entrepreneurial orientation, linked to entrepreneurial behaviour, while risk-taking was posited as a component that defined 'entrepreneurial attitude'. Our observations highlight the need to reconsider this widely used measurement scale for entrepreneurial orientation and its possible adaptation to the corresponding context. The call to consider not only the aggregate effects of entrepreneurial orientation, but also the role of its individual components in a firm based on a multidimensional approach is an important outcome of this study.

This research into the relationship between entrepreneurial orientation and a firm's performance in the Russian market has revealed that entrepreneurial orientation (including the innovativeness/proactiveness component) has a positive effect solely in a hostile or dynamic external environment. This suggests that in the short-term, in an emerging market context, this relationship would be largely dependent on the conditions in which a firm is competing. As a rule, less favourable business conditions characterize emerging markets compared to developed ones, and firms with a high level of entrepreneurial orientation are more capable of adapting to the conditions of a hostile external environment [*Covin, Slevin*, 1989; *Martins, Rialp*, 2013]. This requires a high degree of proactiveness and innovativeness, and these qualities enable organizations to identify and implement the limited set of profitable business opportunities that are available in such an environment [*Kreiser et al.*, 2002]. According to Shaker Zahra and Jeffrey Covin [*Zahra, Covin,* 1995, p. 15], 'hostile environments afford fewer opportunities for achieving growth and profitability, and that in these settings corporate entrepreneurship is a logical means for creating and exploiting new opportunities that result in competitive superiority'. In a dynamic environment renowned for constant changes and the unpredictability of market developments, innovative and proactive behaviour helps entrepreneurial firms to better adapt to the challenges posed by the external environment by changing existing and developing new products and services [*Ruiz-Ortega et al.,* 2013]. So the intensification of entrepreneurial orientation in the dynamic and hostile environment of an emerging market can be seen, in the short-term, as a response to unfavourable conditions.

Conclusion

This research has sought to study the specific structure and nature of the relationship between entrepreneurial orientation and a firm's performance, taking into account the different characteristics of the external environment in the context of the Russian market. The empirical analysis has

shown that in the Russian context, the innovativeness and proactiveness components, viewed separately, do not exert the expected effects. This issue could be related to the specific perception of the terms 'innovation' and 'innovativeness' amongst individuals operating in certain institutional frameworks.

Of course, the results of our study should be considered alongside current limitations. The first limitation is the fact that the data on entrepreneurial orientation and a firm's performance come from the same point in time. While it would be extremely interesting to evaluate the impact of entrepreneurial orientation on a firm's performance over a longer interval, various special longitudinal studies are devoted to this topic (cf. for example, [*Grande et al.,* 2011; *Madsen*, 2007; *Wiklund*, 1999; *Yamada, Eshima*, 2009]). In particular, cross-country comparative longitudinal studies are promising.

The use of the 'convenience sampling' method for data collection is another limitation, as it does not allow for a random selection of companies for analysis. This approach is fairly often used not only in Russia, but also in other emerging markets due to objective difficulties in data collection. Thus, the findings should be viewed from the perspective of analytical generalization, which surmises general conclusions about theoretical concepts and models in similar situations and differs from statistical generalization, which extends the results to a general population. The results of this study may be tested in subsequent studies in the context of other countries, which will make for a fuller study of entrepreneurial orientation in developed and emerging markets. We consider dynamism, hostility, and heterogeneity in the external environment to moderate the relationship between entrepreneurial orientation and a firm's performance. In future, it will be worth studying the impact that certain contextual variables (external and/or internal) have on the relationship between entrepreneurial orientation and a firm's performance in the context of emerging markets as well as testing the proposed models in terms of their reliability when applied to different external environmental conditions. F

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