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Exploring direct and non-linear effects of entrepreneurial orientation and its dimensions on firm performance in a small, open, transitional economy

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Abstract
Background: The relationship between entrepreneurial orientation (EO) and small firm performance has been extensively researched over the last couple of decades. However, the scientific community still does not have a unanimous view regarding non-linear relationships between EO and performance, especially when adding separate EO dimensions.
Purpose: This paper explores the non-linear relationship between EO, observed as a unidimensional and multidimensional construct, and small business performance within a small, open, and transitional economy. Moderation effects of environmental turbulence on both direct and non-linear EO-performance relationships have been explored, as well.
Study design/methodology/approach: Hierarchical regression analysis was used to test the research hypothesis on the data collected from 109 Montenegrin SMEs.
Finding/conclusions: Results reveal that EO has a direct and inverted U-shaped non-linear relationship with small firm performance. Innovativeness and proactiveness have a direct positive effect on small firm performance. Risk-taking and autonomy have an inverted U-shaped non-linear relationship with small firm performance. Environmental turbulence does not positively moderate direct nor non-linear relationship between EO and small firm performance.
Limitations/future research: Limitations refer to the relatively small dataset which may affect the strength of the result. Specific national institutional and cultural setting could also influence the findings. Information was gathered from the owners and managers of the observed firms which limited the ability to gather more diverse information from other stakeholders. Research focused on only one moderator explaining the non-linear relationship between EO and small firm performance. Therefore, future research should focus on conducting a multi-country analysis with larger data sets to strengthen the external validity of the present study, and should adopt a multi-level perspective in investigating the role of inter-relations among EO dimensions in explaining performance variations. Future studies should continue testing the effects of other moderators in explaining the non-linear relationship between EO and firm performance, especially within a longitudinal context.

Keywords
entrepreneurial orientation, performance, nonlinearity, transitional economy, SMEs

1. Introduction

In the last couple of decades, the concept of entrepreneurial orientation (EO) has gained significant attention within entrepreneurship and management research. Moreover, many authors consider EO as one of the most relevant concepts in the entrepreneurship literature (Mthanti & Ojah, 2017; Gupta & Wales, 2017; Putniņš & Sauka, 2020; Wales, Kraus, Filser, Stöckmann, & Covin, 2021), where most studies have focused on investigating the relationship between EO and firm performance, and have found that this relationship is of a positive character (Lumpkin & Dess, 2001;

Wiklund & Shepherd, 2005; Kraus, Rigtering, Hughes, & Hosman, 2012). However, few studies have explored the nonlinearity between EO and firm performance. Empirical evidence is unclear since some studies found nonlinearity to exists (Tang, Tang, Marino, Zhang, & Li, 2008; Tang & Tang, 2012; Wales, Patel, Parida, & Kreiser, 2013; Kreiser, Marino, Kuratko, & Weaver, 2013), while others have not (Schepers, Voordeckers, Steijvers, & Laveren, 2014; Gupta & Batra, 2016; Lomberg, Urbig, Stöckmann, Marino, & Dickson, 2017). Furthermore, in their research, Su, Xie and Li (2011) determined the existence of nonlinearity; however, not for established firms, which implies that the non-linear relationship between EO and firm performance might be context-dependent.

Research on EO within transitional economies (Bruton, Ahlstrom, & Obloj, 2008; Luu & Ngo, 2019), especially the ones in South-East European (SEE) countries, have gained significant momentum in recent years (Moric Milovanovic, 2012; Moric Milovanovic & Laktasic, 2013; Palalic & Busatlic, 2015; Grabovac & Moric Milovanovic, 2015; Petković & Sorak, 2019; Slogar & Bezic, 2020; Slogar, 2021). Although many studies focused on investigating the linear effects of EO, observed both as uni-and multidimensional concept, on firm performance (Petrovic, Vukotić, Aničić, & Zakić 2015; Moric Milovanovi, Primorac, & Kozina, 2016; Primorac, Milković, & Kozina, 2018; Veselinovic, Kulenović, Turulja, & Činjarević, 2020; Moric Milovanovic, Wittine, & Bubaš, 2021), there is a considerable lack of research focused on exploring their non-linear relationships, especially in the context of transitional SEE economies. Specifically, in transitional economies, environmental turbulence is pronounced as firms face high levels of instability and underdevelopment of institutional and market environments compared to developed economies (Luu & Ngo, 2019). Therefore, the relationship between EO and firm performance may be more complex in transitional economies than in developed ones (Lumpkin & Dess, 2001; Luu & Ngo, 2019).

Following the research as mentioned above, this paper aims to make the following contributions to current literature. One contribution relates to investigating EO's direct linear effects and non-linear effects. EO dimensions affect small firm performance in a small and transitional economy since most of the previous research has been done in large developed countries' economies. Another contribution is a better understanding of the role environmental turbulence plays in the EO – small firm performance relationship. More precisely, this study aims to clarify how environmental turbulence imposes an important and differential moderating impact on the relationship as mentioned earlier within a context of a small transitional economy of the SEE region.

The paper begins with the literature review on EO, EO dimensions, environmental turbulence, and small firm performance. Four hypotheses are developed to examine the direct, non-linear, and moderating relationships of the previously mentioned variables. Afterward, the research method is discussed, followed by hypotheses testing and a discussion of the results based on data obtained from small and medium-sized enterprises in Montenegro. The paper concludes with the limitations and the implications for future research and management.

2. Literature review and hypotheses

The empirical evidence from earlier academic research investigating the relationship between EO and small firm performance is ambiguous. While many studies have determined their positive relationship (Kraus et al., 2012; Putniņš & Sauka, 2020; Moric Milovanovic et al., 2021), others have found no effect of EO on small firm performance (Moreno & Casillas, 2008; Chaston & Sadler-Smith, 2012; Messersmith & Wales, 2013). Moreover, there is a lack of detailed analysis of the effects of separate EO dimensions on small firm performance. Those who analyzed these effects found that not all EO dimensions have a direct and positive relationship with performance, stressing that a better understanding of their distinct roles is needed (Lumpkin & Dess, 2001; Kreiser et al., 2013; Lomberg et al., 2017; Wales, Covin, & Monsen, 2020; Wales et al., 2021).

Therefore, the following hypothesis and sub-hypotheses are proposed:

- H1: EO has a direct positive effect on small firm performance.
- H1a: Innovativeness, as an EO dimension, has a direct positive effect on small firm performance.
- H1b: Proactiveness, as an EO dimension, has a direct positive effect on small firm performance.
- H1c: Risk-taking, as an EO dimension, has a direct positive effect on small firm performance.

- H1d: Autonomy, as an EO dimension, has a direct positive effect on small firm performance.

- H1e: Competitive aggressiveness, as an EO dimension, has a direct positive effect on small firm performance.

Many authors define environmental turbulence as an environment characterized by high levels of uncertainty and rapid changes in customer needs, market conditions, and technological developments (Davis, Morris, & Allen, 1991; Jaworski, & Kohli, 1993; Wilden & Gudergan, 2015). Lumpkin & Dess (2001) look at it as the level of uncertainty firms face when making decisions in an uncertain environment. Therefore, firms operating in such an environment need to constantly scan to acquire accurate and reliable information to adapt to market changes (Wang & Fang, 2012; Wang, Chen, & Fang, 2020). On the other hand, such environments allow firms to break through traditional industry boundaries and enter new markets by developing new products, services, and technologies (Calantone, Garcia, & Dröge, 2003; Wang et al., 2020). It has been established that the firm environment has a critical role in the strategic decision-making process as firms look for ways to gain market share and compete successfully (Rauch, Wiklund, Lumpkin, & Frese, 2009; Dai, Maksimov, Gilbert, & Fernhaber, 2014). Moreover, Putniņš & Sauka (2020) made a specific call to test further the moderating impact of the turbulence of external environments on the EO-performance relationship.

Therefore, the following hypothesis and sub-hypotheses are proposed:

- H2: Environmental turbulence has a positive moderating effect on the direct relationship between EO and small firm performance.
- H2a: Environmental turbulence has a positive moderating effect on the direct relationship between innovativeness and small firm performance.
- H2b: Environmental turbulence has a positive moderating effect on the direct relationship between proactiveness and small firm performance.
- H2c: Environmental turbulence has a positive moderating effect on the direct relationship between risk-taking and small firm performance.
- H2d: Environmental turbulence has a positive moderating effect on the direct relationship between autonomy and small firm performance.

- H2e: Environmental turbulence has a positive moderating effect on the direct relationship between competitive aggressiveness and small firm performance.

Literature provides empirical evidence that the EO-performance relationship does not necessarily have to be linear. Therefore, a firm being too entrepreneurial has intrigued many scholars (Tang, Tang, Marino, Zhang, & Li, 2008; Su et al., 2011; Wales et al., 2013; Kreiser et al., 2013; Lomberg et al., 2017; Wales et al., 2021). However, not many studies have focused on investigating this notion. Zahra & Garvis (2000) were among the first scholars to notice some nonlinearity while investigating the effects of EO on a firm's profitability (ROA). They determined that with the increase of EO, the levels of profitability (ROA) diminished. Bhuian, Menguc, amd Bell (2005) also observed the presence of nonlinearity in a specific market and structural conditions. Tang (2008) showed the nonlinearity between EO and firm performance in a Chinese context, i.e., firms were achieving reduced gains from higher investments in EO. Furthermore, Su et al. (2011), in the context of young Chinese firms, have determined diminishing returns within EO - performance relationship.

Therefore, based on the arguments of prior research, which suggest that it is very likely high levels of EO might have negative effects on small firm performance, it is proposed to study which of the different dimensions of EO are predictive of such effects:

- H3: EO has an inverted U-shaped non-linear effect on small firm performance.
- H3a: Innovativeness, as an EO dimension, has an inverted U-shaped non-linear effect on small firm performance.
- H3b: Proactiveness, as an EO dimension, has an inverted U-shaped non-linear effect on small firm performance.
- H3c: Risk-taking, as an EO dimension, has an inverted U-shaped non-linear effect on small firm performance.
- H3d: Autonomy, as an EO dimension, has an inverted U-shaped non-linear effect on small firm performance.

- H3e: Competitive aggressiveness, as an EO dimension, has an inverted U-shaped non-linear effect on small firm performance.

Besides the exhaustive literature on the EO – performance relationship, there is a substantial body of knowledge focused on examining the role of environmental turbulence in this relationship (Engelen, Kube, Schmidt, & Flatten, 2014; Zarei & Shaabani, 2016; Wang et al., 2020). Most scholars observed moderating (Balodi, 2019; Zaidi & Zaidi, 2021; Hina, Hassan, Parveen, & Arooj, 2021) and mediating (Vij & Bedi, 2012; Abiodun & Rosli, 2014) effects environmental turbulence has on the relationship between EO and firm performance. However, some fewer scholars tested the possible nonlinearities of these effects. Zahra & Garvis (2000) were among the first scholars who observed that the relationship between EO and profitability exhibits nonlinearity in excessively hostile environments. Following their findings, Rauch et al. (2009) call for a detailed examination of potential moderators specifically in the non-linear relations between EO and firm performance, especially within various contextual settings. Moreover, Wales (2016), Gonzalez & de Melo (2018) and Wales et al., 2021 note that context might be an influential factor in determining non-linear effects and should be further investigated.

Therefore, based on the calls made by prior research, the following hypothesis and sub-hypotheses are proposed:

- H4: Environmental turbulence has a positive moderating effect on the non-linear relationship between EO and small firm performance.
- H4a: Environmental turbulence has a positive moderating effect on the non-linear relationship between innovativeness and small firm performance.
- H4b: Environmental turbulence has a positive moderating effect on the non-linear relationship between proactiveness and small firm performance.
- H4c: Environmental turbulence has a positive moderating effect on the non-linear relationship between risk-taking and small firm performance.
- H4d: Environmental turbulence has a positive moderating effect on the non-linear relationship between autonomy and small firm performance.
- H4e: Environmental turbulence has a positive moderating effect on the non-linear relationship between competitive aggressiveness and small firm performance.

3. Research method

3.1. Sample

The Statistical Office of Montenegro classifies small firms as those with less than 50 employees, while medium-sized firms have between 50 and 250 employees. The sample database was taken from the database of a private consulting firm, where a total of 1,000 small and medium-sized firms were contacted in February and March of 2020, of which 109 responded and correctly filled out an e-mail questionnaire with a response rate of 10,9%. Sample demographics reveal that 63% of respondents were male, while 37% were female; 62% of the respondents were firm owners, 9% directors, and 29% managers. When looking at the industry sector, most of the respondents operated in tourism and hospitality (29%), retail and wholesale (18%), and financial services (9%). Regarding the firm's work experience, 6% of respondents were less than a year with the firm, 18% worked between 1 and 4 years, 12% between 5 and 7 years, and 64% were more than 7 years with the firm. Among the respondents, 12% have only a high school diploma, 51% university diploma, 24% hold a master's or MBA, and 13% have a doctorate or Ph.D. equivalent diploma.

3.2. Dependent variable

Small firm performance was measured using Gupta and Govindarajan's (1984) six-item, seven-point Likert scale for assessing importance and satisfaction with the following performance criteria: sales growth rate, market share, operating profit, profit/sales ratio, market development, and new product development. Following Naman and Slevin's (1993) approach weighted average performance index was computed. The firm performance index has a mean of 4.79, a standard deviation of 1.23, and a Cronbach's α value of 0.94.

3.3. Independent variables

Entrepreneurial orientation (EO) was measured using Covin and Slevin's (1989) nine-item, seven-point Likert scale for assessing innovativeness (Cronbach's $\alpha = 0.71$), proactiveness (Cronbach's $\alpha = 0.78$), and risk-taking (Cronbach's $\alpha = 0.82$); Lumpkin, Cogliser and Schneider's (2009) three-item, seven-point Likert scale for assessing

autonomy (Cronbach's α = 0.69), and Aktan and Bulut's (2008) three-item, seven-point Likert scale for assessing competitive aggressiveness (Cronbach's α = 0.81). The EO index has a mean of 4.22, a standard deviation of 0.95, and a Cronbach's α value of 0.68.

3.4. Moderating variable

Environmental turbulence was measured using Miller and Friesen's (1982) eight-item, seven-point Likert scale of environmental dynamism (Cronbach's α = 0.58) and environmental hostility (Cronbach's α = 0.70), where environmental turbulence index has a mean of 4.18, a standard deviation of 1.08, and a Cronbach's α value of 0.65. Previous research has found Miller and Friesen (1982) scale to be significantly positively correlated with firm performance (Covin & Slevin, 1989).

3.5. Control variables

Firm size and industry were utilized as control variables in the analysis. Firm size was controlled by classifying the firm as 'small' or 'medium-sized' by the number of employees working there. Therefore, small firms have less than 49 employees, while medium-sized firms have between 50 and 250 employees. Industry was controlled by classifying the firm in one of eight industry categories according to the Statistical Office of Montenegro.

3.6. Analysis

Table 1 reports the means, standard deviations, and correlations for the first-order variables used in the analysis. In contrast, Table 2 reports the means, standard deviations, and correlations for the dimensions of EO, control, moderating, and dependent variables. To be more exact, Table 1 reports that both EO and EO² have significantly positive correlation coefficients of 0.301 and 0.272 with firm performance. On the other hand, table 2 reveals that only innovativeness (0.458), proactiveness (0.339), and competitive aggressiveness (0.220), as dimensions of EO, have significantly positive correlation coefficients with firm performance

A nonresponse analysis was performed by comparing pertinent variables for all firms, and the analysis showed no significant difference between respondents and nonrespondents. Stated differently between early and late respondents. Harman's one-factor test analysis was performed to test for potential common method variance bias. The analysis showed that none of the factors accounted for most of the covariance. Therefore, we can conclude that there is a minimal possibility of nonresponse or common method bias in this research.

Table 1 Means, SDs, and correlations (first-order variables, n = 109)

	Mean	SD	1	2	3	4	5	6	7	8
1. Firm size	1.45	0.63	1.00							
2. Industry	5.88	1.88	-.144	1.00						
3. EO	4.22	0.95	.074	-.099	1.00					
4. Turbulence	4.18	1.08	.057	-.074	.142	1.00				
5. EO²	18.73	7.93	.078	-.130	.989**	.161	1.00			
6. EO x Turbulence	17.81	6.54	.105	-.101	.734**	.757**	.735**	1.00		
7. EO² x Turbulence	79.77	42.33	.115	-.119	.866**	.568**	.878**	961.**	1.00	
8. Performance	4.79	1.23	.082	-.113	.301**	-.315**	.272**	-.015	.080	1.00

Note: *P < 0.05; **P < 0.01

Source: the author's work

Table 2 Means, SDs, and correlations (EO dimensions, n = 109)

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Firm size	1.45	0.63	1.00								
2. Industry	5.88	1.88	-.144	1.00							
3. Turbulence	4.18	1.08	.057	-.074	1.00						
4. Innovativeness	4.44	1.41	.028	-.191*	-.049	1.00					
5. Proactiveness	4.60	1.50	.113	-.119	.259**	.564**	1.00				
6. Risk-taking	3.61	1.46	.014	.045	.146	.172	.437**	1.00			
7. Autonomy	4.67	1.33	-.137	.010	-.021	.036	.077	.182	1.00		
8. Comp. agrees.	3.77	1.50	.203*	-.070	.116	.260**	.621**	.414**	.132	1.00	
9. Performance	4.79	1.23	.082	-.113	-.315**	.458**	.339**	.049	-.088	.220*	1.00

Note: *P < 0.05; **P < 0.01

Source: the author's work

4. Empirical results

Hierarchical regression analysis was used to test the research hypothesis, where independent variables were mean-centered before testing for moderation effects to reduce the potential for multicollinearity. Variance inflation factor (VIF) analysis was conducted in all regression models showing that none of the VIF values were higher than three, thus confirming that multicollinearity does not have an effect on the obtained results. Tests for the absence of heteroscedasticity and autocorrelation have been conducted, where Durbin-Watson statistic and maximum Cook's distance were well below critical values.

Table 3 Results of hierarchical regression analysis for small firm performance (first-order variables, n = 109)

Variables	Model 1: Control variables	Model 2: Direct effects	Model 3: Non-linear effects	Model 4: Moderation effects
Controls				
Firm size	.130	.125	.124	.151
Industry	-.068	-.064	-.085	-.069
Direct effects				
EO		.438***	.390***	.378
Turbulence		-.424***	-.401***	-.309
Non-linear effects				
EO²			-.165*	-.118
Moderation effects				
EO x Turbulence				-.055
EO² x Turbulence				-.103
Model stats				
R-squared	.017	.236***	.259***	.274***
Adj.R-squared	-.001	.207***	.223***	.223***
ΔR-squared	.017	.219***	.023***	.015***

Note: *P < 0.10; **P < 0.05; ***P < 0.01

Source: the author's work

Table 3 reports the hierarchical regression analysis results for the first-order variables as independent variables and small firm performance as the dependent variable, where only control variables were included in model 1. Model 2 added direct linear terms for EO and environmental turbulence, and the quadratic term of EO was included in model 3 to test the non-linear relationship with small firm performance. Model 4 added moderation terms of environmental turbulence on EO and EO² with the small firm performance relationship. Results from table 3 provide support for hypothesis 1 and hypothesis 3, while there is no evidence to support hypothesis 2 and hypothesis 4. Stated differently, there is enough statistically significant evidence to confirm that EO ($\beta = 0.438$, $P < 0.01$) has a direct positive effect on small firm performance (H1) and that EO ($\beta = -0.165$, $P < 0.1$) has an inverted U-shaped non-linear relationship with small firm performance (H3). On the other hand, there is no statistically significant evidence to support hypothesis 2 and hypothesis 4 that environmental turbulence positively moderates a direct relationship ($\beta = -0.055$, $P > 0.1$) and non-linear relationship ($\beta = -0.103$, $P > 0.1$) between EO and small firm performance. Moreover, figure 3 further supports hypothesis 4 as environmental turbulence does not have a positive moderating effect on the non-linear relationship between EO and small firm performance.

Table 4 reports results of hierarchical regression analysis for separate dimensions of EO as independent variables and small firm performance as the dependent variable. Model 1, in Table 4, shows the effects of only control variables on small firm performance. In model 2 direct linear effects of environmental turbulence and dimensions of EO were added. Model 3 included the square terms to test the relationships between five EO dimensions and small firm performance. To test the moderation effects of environmental turbulence in models 4 – 8 linear and quadratic interaction terms were added, while model 9 reports the full model results. As stated in table 4, when looking at the relationships between EO dimensions and small firm performance, only sub-hypotheses 1a, 1b, 2b, 3c, and 3d can be supported. More specifically, model 2 reports that only innovativeness ($\beta = 0.241$, $P < 0.01$) and proactiveness ($\beta = 0.226$, $P < 0.05$) have a statistically significant direct linear relationship with small firm performance, therefore supporting H1a and H1b. As shown in model 3, the quadratic

risk-taking (β = -0.078, P < 0.1) and quadratic autonomy (β = -0.114, P < 0.05) terms were significantly negatively correlated to small firm performance, meaning that only risk-taking and autonomy as EO dimensions have an inverted U-shaped non-linear relationship with small firm performance, thus supporting H3c and H3d.

Models 4 to 8 in table 4 display results of the moderation regression analysis, and provide results supporting only sub-hypothesis 2b. To be more precise, as shown in model 4, both linear (β = 0.038, P > 0.1) and quadratic (β = 0.003, P > 0.1) innovativeness-turbulence interaction terms were not significantly related to small firm performance. In model 5, linear interaction term of proactiveness-turbulence (β = 0.114, P < 0.1) has a significant and positive effect on small firm performance, while quadratic interaction term does not (β = -0.044, P > 0.1), therefore, providing support for sub-hypothesis 2b. Furthermore, Figure 2 provides further graphical support for accepting sub-hypothesis 2b. As shown in model 6, both linear (β = -0.006, P > 0.1) and quadratic (β = -0.009, P > 0.1) risk-taking-turbulence interaction terms were not significantly related to small firm performance. As shown in model 7, both linear (β = -0.125, P < 0.1) and quadratic (β = -0.058, P > 0.1) interaction terms of autonomy-turbulence do not have a positive effect on small firm performance. In model 8, both linear (β = 0.084, P > 0.1) and quadratic (β = -0.001, P > 0.1) competitive aggressiveness-turbulence interaction terms were not significantly related to small firm performance. Since model 9 (full model) only found linear risk-taking-turbulence (β = -0.118, P < 0.1) interaction term to be significantly and negatively related to small firm performance, thus further confirming rejection of sub-hypothesis H2c.

Table 4 Results of hierarchical regression analysis for small firm performance (EO dimensions, n = 109)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Controls									
Firm size	.130	.063	-.028	-.021	-.064	-.030	-.017	-.086	-.066
Industry	-.068	-.028	-.035	-.037	-.026	-.031	-.026	-.036	-.011
Direct effects									
Turbulence		-.427***	-.357***	-.367**	-.235*	-.333**	-.247*	-.319**	.195
Innovativeness		.241***	.235**	.234**	.230**	.228**	.231**	.206**	.255**
Proactiveness		.226**	.237**	.240**	.244**	.247**	.235**	.243**	-.008**
Risk-taking		-.053	-.030	-.025	-.034	-.026	-.029	-.006	-.188
Autonomy		-.109	-.163**	-.164**	-.198**	-.162**	-.142*	-.188**	.005**
Comp. agress.		.043	-.002	-.015	.015	-.010	.011	-.014	-.108
Non-linear effects									
(Innovativeness)²			-.002	.001	.017	-.003	.002	.004	.031
(Proactiveness)²			.010	.003	-.026	.014	.002	.003	-.033
(Risk-taking)²			-.078*	-.069	-.081*	-.076*	-.066	-.081*	-.077
(Autonomy)²			-.114**	-.115**	-.099**	-.113**	-.092*	-.112**	-.085
(Comp. agress.)²			.024	.025	.035	.020	.023	.019	.021
Moderation effects									
Inn x Turbul				.038					-.112
Inn² x Turbul				.003					.028
Proa x Turbul					.114*				.193
Proa² x Turbul					-.044				-.057
Risk x Turbul						-.006			-.118*
Risk² x Turbul						-.009			-.004
Auto x Turbul							-.125*		-.054
Auto² x Turbul							-.058		-.047
Comp. x Turbul								.084	.064
Comp.² x Turbul								-.001	-.012
Model stats									
R-squared	.017	.365***	.425***	.427***	.462***	.425***	.446***	.435***	.499***
Adj. R-squared	-.001	.314***	.346***	.334***	.376***	.333***	.357***	.344***	.364***
ΔR-squared	.017	.348***	.060***	.002***	.038***	.001***	.021***	.011***	.075***

Notes: *P < 0.10; **P < 0.05; ***P < 0.01

Source: the author's work

The non-linear relationships between EO, risk-taking, autonomy, and small firm performance are illustrated in Figures 1a, 1b, and 1c, confirming hypotheses 3 and sub-hypothesis 3c and 3d. Stated differently, Figures 1a, 1b, and 1c provided additional evidence that EO, risk-taking, and autonomy have an inverted U-shaped non-linear relationship with small firm performance.

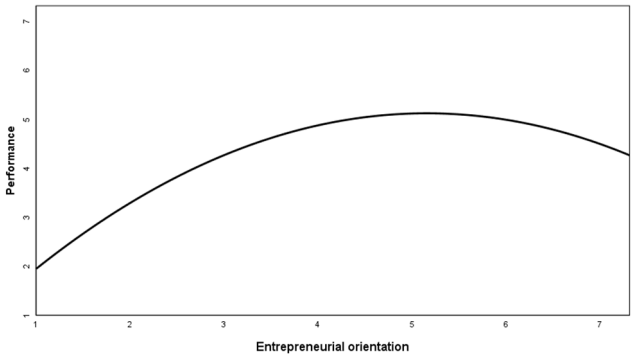

Figure 1a Non-linear effect of EO on small firm performance
Source: the author's work

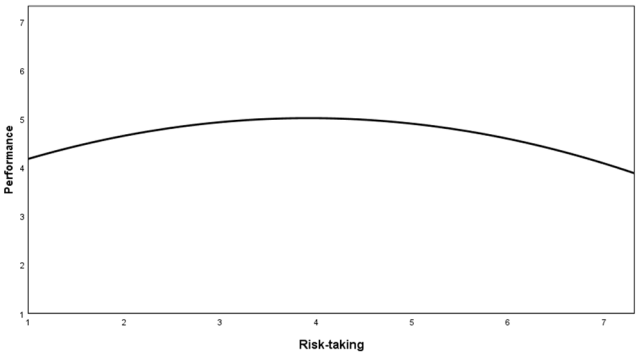

Figure 1b Non-linear effect of risk-taking on small firm performance
Source: the author's work

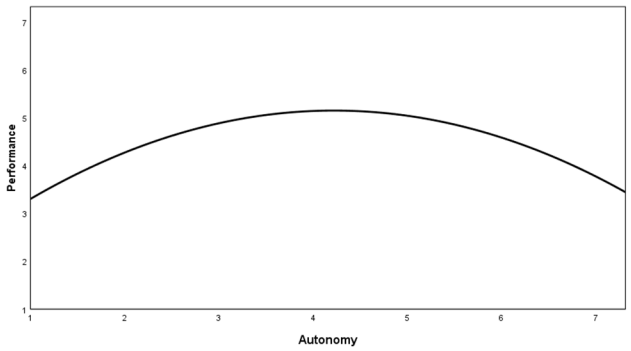

Figure 1c Non-linear effect of autonomy on small firm performance
Source: the author's work

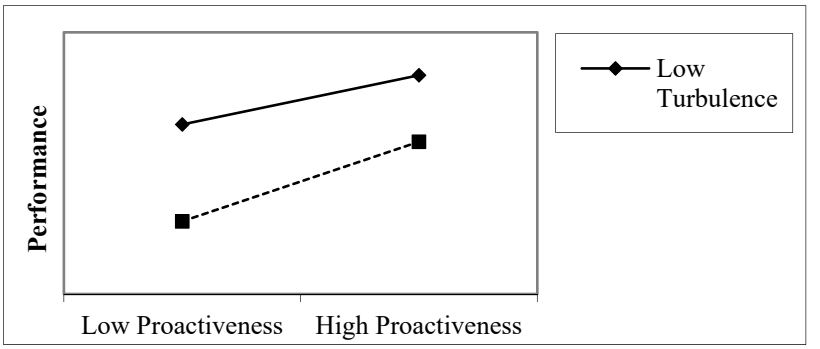

Figure 2 Moderation effect of environmental turbulence on the proactiveness – small firm performance relationship
Source: the author's work

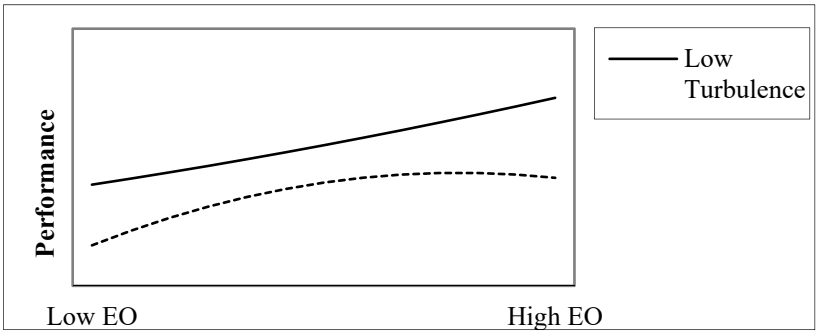

Figure 3 Quadratic moderation effect of environmental turbulence on EO – small firm performance relationship
Source: the author's work

5. Discussion

This study investigated the contingency effects of the relationships between EO, EO dimensions, environmental turbulence, and firm performance. The use of contingency theory provided a framework in which we explored different conditions of how firms that adopt entrepreneurial strategies can enhance performance. The significant role of environmental turbulence as a moderating variable indicated that the positive relationship between EO and firm performance is often conditional. This paper aimed to explore direct and non-linear relationships between EO, observed as unidimensional and a multidimensional construct, and small business performance. By examining 109 small and medium-sized firms in a small, open, and transitional economy such as Montenegro, the hypotheses and sub-hypotheses reveal the following findings: (1) EO has a direct positive effect on small firm performance, (2) out of all five EO dimensions only innovativeness and proactiveness have a direct positive effect on small firm performance, (3) environmental turbulence does not positively moderate a direct relationship between EO and small firm performance. Out of all five EO dimensions, it was shown that environmental turbulence positively moderates a direct relationship with small firm performance (4), (5) EO has an inverted U-shaped non-linear relationship with small firm performance, (6) out of all five EO dimensions, only risk-taking and autonomy have an inverted U-shaped non-linear relationship with small firm performance, and (7) environmental turbulence does not moderate the non-linear relationship between EO and small firm performance, nor between any of EO dimensions and small firm performance.

5.1. Theoretical contribution

This study provides several contributions to academic literature. Firstly, this study reinforces the current understanding of the EO – performance relationship in the context of a small, open and transitional economy, where empirical results support the observation of a positive influence of EO on small firm performance (Putniņš & Sauka, 2020; Moric Milovanovic et al., 2021). Secondly, the study offers a better understanding of the small firm's EO, viewed both as a uni- and multidimensional concept, by analyzing effects of the environmental turbulence (Wang et al., 2020; Wales et al., 2020). Thirdly, the study confirmed

the nonlinearity of effects between EO and small firm performance, thereby extending the empirical evidence within a small transitional economic context (Lomberg et al., 2017; Luu & Ngo, 2019). Finally, this study adds to the existing literature by exploring environmental turbulence as the moderator of the inverted U-shaped relationship between EO, EO dimensions, and small firm performance (Wales, 2016; Gonzalez & de Melo, 2018). The findings suggest that such interactions are more complex and convoluted and may even be nonmonotonic (Lomberg et al., 2017).

5.2. Implications for management

For small firm decision-makers, i.e., owners and management, this study provides several interesting implications for their decision-making framework. Results of this study highlight that EO helps small firms successfully reach their intended performance, where innovativeness and proactiveness have an especially important role in this process (Gupta & Batra, 2016; Putniņš & Sauka, 2020; Moric Milovanovic et al., 2021). Moreover, the positive moderating effect of environmental turbulence on EO – performance relationship shows that investing in EO-related strategies in uncertain environments brings affirmative effects to the firms' overall performance (Zaidi & Zaidi, 2021; Hina et al., 2021). Thus, firms should pay particular attention to the changes in their environment, i.e., to invest in environmental scanning activities, set up risk controls emerging from potentially too high levels of EO, focus on and engage in an only limited number of opportunities, as not to waste or deplete their limited and scarce resources (Wales et al., 2021). Furthermore, this study confirmed the relationship between EO and small firm performance to be non-linear (Lomberg et al., 2017). Therefore, small firm decision-makers pay attention not to engage in overly aggressive EO strategies while pursuing their business goals. Although small firms benefit from an entrepreneurial mindset, it needs to be appropriate by focusing on adequate investments in environmental scanning and putting in place controls for not overdoing with EO activities (Luu & Ngo, 2019). Small firm management should also be aware of the non-linear nature of risk-taking and autonomy and small firm performance (Yang & Ju, 2018). Firms need to be very careful not to over-focus on risk-taking activities or allow too much autonomy to their employees in developing tactical and operational plans.

6. Conclusion

This analysis performed on 109 small and medium-sized firms demonstrated that EO positively influences small firm performance, even when moderating effect of environmental turbulence has been added. Moreover, the analysis provided empirical evidence for the existence of nonlinearity between EO and small firm performance within a small, open, and transitional economy such as Montenegro. However, no evidence was found to support the moderation effect environmental turbulence would play on the non-linear relationship between EO and small firm performance. When decomposing EO to its dimensions, this study provides empirical evidence that only innovativeness and proactiveness have a direct positive effect on small firm performance, that only for proactiveness environmental turbulence positively moderates direct relationship with small firm performance, and that only risk-taking and autonomy have an inverted U-shaped non-linear relationship with small firm performance.

As in any academic research study, this study suffers from certain limitations. These limitations can be summarized in the following categories: the data set, subjective perceptions of the respondents, having only one firm representative as a respondent, focusing on one point in time, providing only a 'snapshot' of the complex interrelationships between the observed variables, and contextual nuances related to a single small and transitional economy.

The first limitation refers to the relatively small dataset of only 109 SMEs which may affect the strength of the results. Moreover, since the data in this research considered only Montenegrin SMEs, their national institutional and cultural setting could influence the findings. Therefore, future research should focus on conducting a multi-country analysis with larger data sets to strengthen the external validity of the present study. While the influence of the environment is a core finding of the study, it may be necessary to explain further that the EO-performance relationship may differ depending on the context. Another limitation concerns the empirical approach based on gathering the responses from owners and managers, which limited the ability to gather more information from other employees and stakeholders, adding different layers to the analysis of the observed concepts and reducing the common method bias. Although this study focused on examining the effect that each EO dimension has

on small firm performance, it has not addressed particularities related to the inter-relations between these dimensions. Therefore, future research could adopt a multi-level perspective and investigate the role of these inter-relations in explaining performance variations. Another limitation is focusing on only one moderator explaining the non-linear relationship between EO and small firm performance. Future studies could continue testing the effects of other moderators such as other environmental factors, institutional environments, strategic networking capabilities, market orientation, internalization capabilities, etc. Lastly, future research should address EO implementation strategies within a longitudinal context.SM

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