



# Entrepreneurial decision-making perspectives in transition economies – tendencies towards risky/rational decision-making

Boban Melović<sup>1</sup> · Slavica Mitrović Veljković<sup>2</sup> · Dragana Ćirović<sup>1</sup> ·  
Tamara Backović Vulčić<sup>1</sup> · Marina Dabić<sup>3,4</sup> 

Accepted: 14 September 2021 / Published online: 15 June 2022  
© The Author(s) 2022

## Abstract

This paper assesses the ways in which the characteristics of entrepreneurs from transition economies, and the extent to which they participate in making business decisions, affect their propensity to make rational/risky decisions in a work environment. A multicontextual analysis of entrepreneurial decision-making is provided, facilitating a better understanding and the further advancement of entrepreneurship in the transition countries of Montenegro and Serbia. Logistic regression and a Structural Equation Model (SEM) were used to assess data collected from a stratified random sample of 260 entrepreneurs. The results reveal that the demographic characteristics of entrepreneurs have a significant impact on their propensity to make rational/risky decisions. Elderly entrepreneurs with more years of service are more prone to make rational decisions in comparison to younger entrepreneurs, who lack business experience and thus rely on intuition, leading to risky decision-making. Additionally, the results show that the more involved entrepreneurs are in the decision-making process, the more risky decisions will be made; while more employee inclusion leads to business decisions based on rational thinking. The results also reveal that entrepreneurs in transition economies have formed attitudes towards the nature of entrepreneurial activity. Finally, these results reveal that entrepreneurs who consider levels of economic development, national culture, and intuition to be important when making business decisions are more prone to implement risky decisions. Considering the obtained results, this paper provides guidelines for the future research of this issue in transition countries and other developing economies.

**Keywords** Entrepreneurship · Transition economy · Decision-making · Risk · Risky decision · Rational decision

---

✉ Marina Dabić  
mdabic@net.efzg.hr

Extended author information available on the last page of the article

## Introduction

Intensive market changes and increasing competition have placed more focus on innovation, both in existing companies and when establishing innovative start-ups. These changes affect the economic environment of firms, their competitiveness, and their action capacity. Hence, these changes signify a certain level of risk, whether or not entrepreneurs will succeed in achieving their planned goals, and what the effects will be on their business (Cooper, 1988). Times of crisis and unstable economic conditions are inevitable and a reality. Entrepreneurs should minimize the influence of adverse impacts and look for solutions that will help them create a competitive advantage and establish a more stable position in the marketplace. Entrepreneurs must anticipate the changes of the business atmosphere and respond to them (Malecki, 2018). Given these changes, both entrepreneurs and their businesses need to adapt and achieve situational harmony (Shaikh & Shaikh, 2019, Richard et al., 2006). That is why entrepreneurial activity is recognized as a basis for creating and maintaining a competitive advantage in modern business conditions in developed and developing countries.

Entrepreneurial activity as a basis of future economic development in transition countries has been debated in recent decades (Mugler, 2017). Small and medium sized enterprises are fundamental to economic activity in these countries. However, these firms have mostly emerged in a spirit of inherited formal practices and economic institutional constraints (DeBerry-Spence et al., 2008), which often limits their flexibility and their ability to take on new market opportunities in a competitive way. Thus, the context of a transition economy strongly affects established entrepreneurial activities (Dabić et al., 2012), facilitating better understandings and the improvement of the nature of entrepreneurial activity in these countries. This instigates further research into the main determinants that shape entrepreneurs' decision-making processes, laying the foundations for future economic policies seeking to foster entrepreneurship ventures (Alexandrova, 2004; George et al., 2016; Roundy & Fayard, 2019).

The entrepreneurship implies decision-making in times of great uncertainty, which makes risk taking an integral part of entrepreneurial activity (Shepherd et al., 2015). However, successful entrepreneurs take only calculated risks (Palanivelu & Manikandan, 2015), considering all available information from reliable sources, as well as relying on knowledge and previous experience when making business decisions. Experienced entrepreneurs usually rely on causal reasoning if “the stakes [are] high” i.e. if the decision might have a strong impact on the future existence of a company (Vershina et al., 2017). They tend to analyze all potential consequences of available options and often look for additional information and advice from trusted ‘others’ before and after making their final decision (Sadler-Smith, 2016; Vershinina et al., 2017). Thus, risky decision-making is not always justified and does not always lead to the best possible outcome. That is why rational decision-making can be the key to the successful management of entrepreneurial companies.

Entrepreneurial decision-making can be defined as choice that entrepreneurs make when seeking to exploit identified chances for market success. Attempts to

conceptualize decision-making try to identify different styles of cognitive processes stemming from entrepreneurs' tendencies towards certain ways of collecting, processing, and responding to information when making business decisions (Davidsson, 2015). This is based on an individual's cognitive style, personal characteristics, perception patterns, and the characteristics of their decision-making processes (Spicer & Sadler-Smith, 2005). Currently, a growing number of researchers is trying to explore the cognitive patterns of this phenomena (Boukamcha, 2015; Nicolás et al., 2018) in order to gain insights into the micromentality of perceptual mechanisms underpinning entrepreneurial behavior.

Unlike in developed countries, the entrepreneurial activity in transition countries is strongly driven by institutional changes that shift from a planned economy to a freer market. At the same time, this is slowed down by weak regulatory institutions, turbulent environments, lack of experience, and certain cognitive biases (Ahlstrom & Bruton, 2010). Thus, innovative and risk taking behavior, which is necessary for small firms do survive and develop, is often blocked or restricted (Alexandrova, 2004). Additionally, political instability and changes to legal frameworks increase uncertainty, making entrepreneurs avoid risk and assume a waiting position, anticipating more convenient conditions for larger investments that might generate a higher level of risk but a potentially bigger financial gain (Alexandrova, 2004; Estrin & Mickiewicz, 2011; Krasniqi & Desai, 2016). Besides the institutional support to entrepreneurship development that distinguishes these countries from developed ones, transition economies are also characterized by different attitudes regarding the nature and the scope of entrepreneurial activity. Considering the specific environment of transition countries, previous studies in the field have mostly investigated how the environmental factors of transition economies affect entrepreneurship development and growth, but it is still unclear how personal characteristics and perceptions of environmental factors affects entrepreneurial decision-making. In other words, research has sought to explain the main reasons behind commencing entrepreneurial activities depending on external factors (such as unemployment due to transition processes) and internal factors (such as autonomy and self-achievement) (Ratten et al., 2017; Borozan et al., 2017; Estrin & Mickiewicz, 2011; Chelariu et al., 2008; DeBerry-Spence et al., 2008). Based on the obtained results, further research has focused on examining the determinants of growth and the internationalization of entrepreneurial firms from transition economies (Alexandrova, 2004; Earle & Sakova, 2000; Ngo et al., 2016; Rialti et al., 2017; Tyszka et al., 2011), with few researchers investigating the importance of personal characteristics when starting and expanding entrepreneurial activities (Anna & Jolanta, 2020; Krasniqi, 2009) However, previous studies have failed to identify the most important determinants that shape the perception of entrepreneurs' regarding business environments in transition economies, consequently affecting the decision-making process. These countries are deficient in scientific research, which is an integral way of examining the impact that the personal characteristics of entrepreneurs and organizational processes have on peoples tendencies to make risky/rational decisions within a company, despite numerous governmental programs seeking to foster entrepreneurial activity in these countries (Ministry of Foreign Affairs of Montenegro, 2019; Ministry of Economy of Montenegro, 2017; UHY Serbia, 2020).

Taking into account the identified literature gap, this study investigates entrepreneurial decision-making perspectives in transition countries. The main focus is on the tendency towards risky and/or rational decision-making when examined with regards to the perceptions and personal characteristics of entrepreneurs and their attitudes, as well as the participation of entrepreneurs and other employees in the decision-making process. The tendency towards risk taking leads to business strategies that are significantly different compared to those obtained through rational thinking (Certo et al., 2008; Maani & Maharaj, 2004; Teece et al., 2016). Hence, the results of this study can provide significant insight into specificities of entrepreneurial decision-making process in transition countries, as turbulent and fast-changing environment of these countries affects risk perception and cognitive patterns of entrepreneurs, which makes it a very important factor that strongly shapes entrepreneurial activity in terms of starting and conducting a business in transition economy (Mathias & Williams, 2017; Stringa et al., 2009).

This paper is broken down into six parts. After the introductory considerations, the key findings and conclusions of previous studies regarding entrepreneurial decision-making, which provided motivation for this research, are presented in the second section. Research questions regarding the development and the description of the contextual model of the research are also provided. The third part of the paper describes the research methodology applied, including questionnaire design, sampling procedure, and tools used for data analysis. Research results are presented in the fourth section, while the main implications are discussed in the fifth part of the paper. The sixth section contains concluding remarks, highlighting the theoretical and practical contributions of the study.

## Literature review

### Theoretical background

In ambiguous business conditions, there are no standard procedures and rules. Previous patterns of entrepreneurial behavior cannot be applied and so it is necessary to conceptualize new models and ways of making decisions in companies in line with new business requirements in the modern world (Kraus et al., 2018; Schaper, 2016). The success and survival of the company (especially small and medium sized enterprises) strongly depends on the individual's decision-making effectiveness. This highlights the firm's need to establish proper entrepreneurial decision-making procedures within a company in order to maintain its market position in a turbulent business environment with strong competition (Caputo & Pellegrini, 2019; Rialti et al., 2017).

Entrepreneurs are either intuitive or rational when making these decisions (Chaiken & Trope, 1999; Hammond, 1996; Lieberman, 2007; Mitchell et al., 2004; Vershinina et al., 2017). This conclusion has led to a large number of discussions between the authors, who have explained the intuitive way of thinking and making decisions as: “*automatic, low effort, experiential, heuristic, implicit, holistic, unconscious, domain specific, slow-learning/fast-operating*” (Lieberman, 2007; Sadler-Smith, 2016) and

affective (Epstein et al., 1996). Conversely, rational decision-making is described as “*controlled, high effort, rational, systematic, explicit, analytic, conscious, domain general, fast-learning/slow-operating*” (Lieberman, 2007; Vershinina et al., 2017) and logical (Epstein et al., 1996). Although risky decision-making somewhat relies on intuition, it is predominantly related to perceived levels of uncertainty and whether the decisions made will result in positive or negative consequences. This includes conscious and unconscious patterns of thinking, as well as automatic and selective collection and the interpretation of available information (Kahneman, 2011; Lieberman, 2000; Stanovich & West, 2000). Thus, in an ambiguous situation, entrepreneurs prone to risky decision-making perceive the levels of risk to be lower in comparison to rational entrepreneurs, which is why they frame the given business problem in a faster and less detailed manner (Markowska, 2019). Intuition and intuitive reasoning in decision-making strongly affects the collection and organization of information, as well as the resulting drawing of conclusions. This works without cognitive control (Fatma & Ezzeddine, 2019; Fatma et al., 2020). Thus, intuitive entrepreneurs are often driven by preferences, which increases their degrees of risk acceptance (Betsch & Glöckner, 2010; Sjöberg, 2003). However, although intuition affects the way entrepreneurs receive and analyze external incentives, there is no evidence that they ignore available information when making business decisions due to strong intuition (La Pira, 2011).

Previous research in this field has tried to identify the main motives underpinning the propensity to make risky or rational decisions, but very few studies have been conducted in transition economies. Earlier studies have focused on examining whether the key demographic characteristics of decision-makers affecting their attitudes towards risky or rational behavior were mostly conducted in business environments within non-transition or developed countries (Giernik et al., 2018; Fisher & Yao, 2017; Baù et al., 2017; Dawson & Henly, 2015; Farrell, 2014; Rolison et al. 2020; Dohmen et al., 2011). Previous studies investigating the importance of gender in decision-making have revealed that this process is more time-consuming for women, as they carefully analyze the environment and tend to collect a larger amount of data compared to men (Alsos & Ljunggren, 2017; Malmström et al., 2017). On the other hand, men tend to be dominant, self-confident, and realistic (de Acedo Lizarraga et al., 2009). Additionally, most previous studies have confirmed that the decision-making processes of women are affected by emotions, while men tend to make decisions based on reliable and objective information. The significance of gender in decision-making is also confirmed in the research of Rana et al. (2011), Nelson (2016), Dawson and Henly (2015), Emami (2017) and Farrell (2014), which revealed that women usually evaluate the same business circumstances as riskier than men do, which makes them more prone to risk avoidance. Thus, behavioral factors, such as self-confidence, optimism, and hopefulness to a greater extent influences more firms established by women than those launched by men (Fatma et al., 2020).

Previous studies identified age as an important determinant of strategic decision-making (Giernik et al., 2018). It is expected that, with age, individuals tend to be less flexible and less prone to take risks, while their aversion to change increases as they get older (Baù et al., 2017; Giernik et al., 2018). Additionally, Riaz et al. (2010) revealed that older managers make decisions in a fairly established manner due to their

extensive previous experience in decision-making. Similarly, Chen and Sun (2003) confirmed this finding and pointed out that older managers are more likely to adopt intuitive decision-making styles compared to young ones. However, Rolison et al. (2012) and Goll and Rasheed (2006) obtained the opposite results, revealing that older managers tend to avoid risk in order to assure stable finances and protect their career and the position they hold within a company. Some of the authors who support the statement that elderly managers tend to avoid risk also claim that the link between age and risk taking is not linear (Farrell, 2014; Jianakoplos & Bernasek, 1998). They believe that, at first, risk taking increases with age and that it then reduces when managers reach a certain time of life.

Goll and Rasheed (2006) showed that rational decision-making is positively influenced by the educational level of the decision-maker. Similarly, Hambrick and Mason (1984) consider levels of education to be good predictors of individuals' skills and their breadth of knowledge. Wiersema and Bantel (1992) further explained that levels of education can also be considered indicative of person's ability to effectively process a large amount of information, fostering managers' propensity to innovate, take risks, and implement significant changes within the overall business strategy of a company. These conclusions were also supported by a study of Radas et al. (2009), and Goll and Rasheed (2006). The influence of education is usually considered linear (Farrell, 2014). However, it should be noted that educational levels are mostly measured using the formal degrees, which do not necessarily reflect the real education of an entrepreneur. In addition to the given studies, the research of Gloss et al. (2017) revealed that the socioeconomic factors of an entrepreneur affect not only their psychological approach to risk taking, but also their ability to innovate and exhibit proactive behavior.

The results emerging from earlier studies regarding the influence of demographic characteristics on making business decisions were shown to be in contrast to a significant extent. Additionally, most of these studies did not consider the potential differences that existed between managers and entrepreneurs who, although they had the ability to do so, did not always manage their businesses. The research of Zeng and Ouyang (2020) revealed that tenacity, as a personal characteristic, is very important when it comes to predicting an individual's propensity to take risks, significantly affecting their commitment and resilience to a stress in ambiguous business circumstances. This study also highlighted the relationships that exist between risk perception and business performance, in that the worst performing entrepreneurs are those with low levels of risk perception and high risk propensity (Boermans, & Willebrands, 2017). The study of Alam et al. (2020) revealed that risk perception drives the speed of internationalization behavior. Similarly, the study demonstrates that innovative entrepreneurs are very optimistic and assertive, and that these characteristics enable them to make high-risk investments, impacting their propensity to make risky decisions.

Unlike in developed countries, most of the research regarding entrepreneurial decision-making conducted in transition economies has focused on the influence of specific business environment that transition process implies on entrepreneurial activity. (Van Doorn, 2017; Krasniqi & Desai, 2016; Tyzcka et al., 2011; DeBeryy-Spence et al., 2008; Earle & Sakova, 2000; Alexandrova, 2004). Those research

pointed out that entrepreneurial activity in transition countries was predominantly influenced by environmental factors, such as fast institutional changes, higher business risk, start-up costs etc. (Alexandrova, 2004; Estrin & Mickiewicz, 2011). This is why starting a business due to unemployment is characteristic of transition countries, while those entrepreneurs have different motivation and decision-making patterns compared to entrepreneurs who already had stable income when started running their own business (Karasniqi & Desai, 2016). This emphasizes higher level of heterogeneity of types of entrepreneurs from transition countries compared to non-transition ones (Karasniqi and Desai 2016; Earle & Sakova, 2000). Besides of that, due to pronounced market dynamism, factors such as perceived level of risk, control locus and organizational culture have more important role in shaping entrepreneurial activity in transition compared to developed economies (Karasniqi & Desai, 2016; Chelariu et al., 2008; Alexandrova, 2004; Earle & Sakova, 2000). This is why further investigation on decision-making process of entrepreneurs from transition countries becomes important question, which contributes to the significance of this study. At the same time, this arouses doubt with regards to results from developed countries examining the influence of the demographic characteristics of entrepreneurs and the ways personality impacts upon a person's tendency towards rational/risky decision-making, as well as whether these conclusions could apply to transition economies.

### **Entrepreneurial decision-making in transition economies**

Transition countries are characterized by significantly lower levels of entrepreneurship development in comparison to most non-transition countries, especially in the countries of the former Soviet Union (Estrin & Mickiewicz, 2011). Additionally, in transition economies, members of the older generation are far less entrepreneurial than their counterparts in other regions of the world. Due to the specific national culture and the very turbulent environment of some of the transition countries, many entrepreneurs are likely to be risk averters, which is why they tend to identify dynamism as the most influencing external factor of their business environment (Van Doorn, 2017; Alexandrova, 2004). These countries characterize starting a business as more risky compared to developed countries. Fast institutional changes, often combined with political instability and legal framework adjustments, increases risk aversion (Ahlstrom & Bruton, 2010; Alexandrova, 2004; Krasniqi & Desai, 2016). This is why entrepreneurs from these countries start their businesses in sectors where sunk costs are low (Krasniqi, 2009). Additionally, these entrepreneurs are less prone to take risks, even when this might bring about significant financial benefits, significantly slowing the growth of entrepreneurial firms (Alexandrova, 2004; DeBerry-Spence et al., 2008). However, the proactive orientation of entrepreneurs from transition countries enables them to use ad-hoc emerging opportunities to generate benefits in the short term (Ahlstrom & Bruton, 2010; Alexandrova, 2004; Krasniqi, 2009).

What separates transition economies from developed ones is their far greater percentage of entrepreneurs who have launched their own business due to unemployment



(Tyzska et al., 2011; Ahlstrom & Bruton, 2010; Krasniqi & Desai, 2016; DeBery-Spence et al., 2008; Alexandrova, 2004). Unlike regular entrepreneurs that are motivated by independency, strong self-confidence, proactiveness, and prosperity (personal and prosperity of the company), those driven by unemployment are primarily motivated with regards to job security and their desire for more time for themselves and their family (Tyzska et al., 2011; DeBerry-Spence et al., 2008; Earle & Sakova, 2000). For them, self-prosperity through business is not of great importance (Tyzska et al., 2011). These entrepreneurs have lower levels of self-reliance and are more averse to risk (Earle & Sakova, 2000; Krasniqi, 2009).

Although research on the primary drivers of entrepreneurship in transition economies exists, to the best of the authors' knowledge, there are no studies investigating the propensity for risky/rational decision-making (Anna & Jolanta, 2020; Borozan et al., 2017; Krasniqi, 2009; Chelariu et al., 2008; DeBerry-Spence et al., 2008). It is unclear what the role of the national culture is and whether entrepreneurs in these countries have formed attitudes towards the character and complexity of entrepreneurship. This research stresses the importance of understanding what drives a person's propensity to make risky or rational decisions, as the external factors and unpredictable market changes that characterize these countries require the ability to act quickly but in an innovative and carefully chosen way.

## Conceptual framework and hypotheses development

Strengthening the entrepreneurial culture in countries in transition is one of the goals for the further economic development of these countries (OECD, 2018; Ministry of Foreign Affairs of Montenegro, 2019; Ministry of Economy of Montenegro, 2017; UHY Serbia, 2020). Hence, higher levels of knowledge regarding entrepreneurial decision-making is one of the most important factors when it comes to creating a more successful entrepreneurial environment. The authors reviewed the key findings of previous studies on the given issue, seeking to identify the most relevant determinants of entrepreneurial decision-making, especially in transition countries. Due to the scarce basis of research investigating entrepreneurial decision-making processes in transition economies, the authors also consulted studies on the topic that had been conducted in non-transition developing and developed countries. This facilitated the identification of the main factors that affect the behavior of entrepreneurs, which could form a basis for a more in-depth exploration of the given issue in light of the specificities of transition countries. Furthermore, risk perception and proactive behavior might change depending on previous experiences regarding starting and managing businesses. As such, the authors also consulted previous studies that included not only entrepreneurs, but students as well. This enabled them to understand the personal factors that determine individuals' tendencies towards engagement in entrepreneurial activities and whether the importance of personal factors changes depending on previous experience. Some of the most important research studies in this area are listed in 31, which is presented below.

A conceptual model based on three research questions was created. Previous research initially sought to uncover whether there was a relationship between the



**Table 1** Previous studies supporting the conceptual model of the research

References	Sample	Methodology	Object of research
Alam et al. (2020)	101 software and IT-enabled services firms in Bangladesh	Hypothetico-deductive methodology	Whether the decision-making approach of the entrepreneur, vis-à-vis effectuation, can moderate the relationship between risk perception and rapidity in internationalization
Shepherd et al. (2015)	156 articles in a refined search	Criterion sampling	Inductively categorization the articles into decision-making topics arranged along the primary activities associated with entrepreneurship in a decision-making context
Miao et al. (2010)	327 entrepreneurs, collected from 158 enterprises in the United Kingdom and China	Structural equation modeling	The individual psychological factors that are the antecedents of entrepreneurial opportunity recognition and that influence entrepreneurial decision-making criteria
Chaudhary et al. (2017)	A sample of 274 students from uprising Universities in India	Descriptive statistics, frequency distribution, t-test and stepwise logistic regression	Characteristics that distinguish entrepreneurs from non-entrepreneurs
Alexandrova et al. (2004)	382 active Bulgarian micro-enterprises	Canonical correlation model	Impact of business environment on entrepreneurial orientation in a transition economy
Markowska et al. (2019)	A sample of 262 nascent entrepreneurs from Germany	Factor analysis and regression analysis	The impact of prior experience and the environmental context on the risk/prediction orientation
Boermans et al. (2017)	A sample of 611 entrepreneurs from Tanzania	A psychometric scale and regression analysis	The impact of risk perception on firm's performance
Vershinina et al., (2017)	20 expert entrepreneurs who fitted the criteria of managing a crisis within their own business and acting as mentors to local enterprises dealing with a crisis	Qualitative data analysis and cross-case comparison	A typology of decision-making logics

Table 1 (continued)

References	Sample	Methodology	Object of research
Roersen et al. (2008)	25 firms at Technopark, Twente region in the Netherlands	Deductive study, cross-case analysis	Multidimensional decision-making model for internationalization of high-tech SMEs in transition economies
DeBerry-Spence et al. (2008)	157 business students and 397 retail sales-people in Romania	Regression analysis	Analysis of an antecedents of entrepreneurship propensity in two separate studies, at individual and organizational levels
Williams et al. (2017)	311 entrepreneurs and 15 in-depth interviews with entrepreneurs across Montenegro	Descriptive statistics	Examination how the institutional environment impacts the nature of corruption affecting entrepreneurship in transition economies
Gabrielsson et al. (2011)	291 individuals who started a new independent firm registered during 1998–2002 in Sweden	Descriptive statistics and regression analysis of causation and effectuation	Examination of the influence of entrepreneurs' career motives on their preferred mode of decision-making
Simon et al. (2000)	191 students pursuing a Masters of Business Administration	Regression analyses	Explores how individuals cope with the risks inherent in their decisions, and suggests that entrepreneurs may not perceive the riskiness of starting ventures
Dew et al. (2009)	27 expert entrepreneurs and 37 MBA students	Variable descriptions and analyses and descriptive statistics	Entrepreneurial framing of the business problem in the decision-making process
Busenitz (1999)	176 entrepreneurs and 95 managers	Multivariate analyses, ANOVA	Examination of the entrepreneurial perception of risk through the lens of cognitive psychology and decision making
Gibcus et al. (2009)	646 entrepreneurs in Netherlands	Cluster analysis and descriptive statistics	Classification of decision-makers types in small companies

demographic characteristics of entrepreneurs and their rational/risky decision-making. The research of Rebellow and Suri (2019), as well as a study by Nelson (2016), pointed out the impact of gender on a person's propensity to take a risk, stating that men have a stronger tendency to make risky decisions than women do. Similarly, the research of Farrell (2014) and Hallahan et al. (2003) revealed that the age of an individual changes their perception of risk, which is why elderly entrepreneurs are less inclined to make risky decisions. In contrast, Kim and Hasher (2005) revealed that older entrepreneurs are more prone to rely on intuition when making business decisions, while younger ones prefer rational decision-making. The importance of demographic factors in the decision-making process was also discussed by other authors, such as Sajilan et al. (2015), Chaudhary (2017), and Gedik et al. (2015). Therefore, our first research question is:

**RQ1:** To what extent do the demographic characteristics of the entrepreneurs in transition economies influence their tendency to make rational or risky decisions?

Previous academic literature suggests that rational and risky decision-making depends on the involvement of entrepreneurs in the process (Deligianni et al., 2016; Shepherd et al., 2015). It is well known that entrepreneurs may act as owners, but also as managers (Velu & Jacob, 2016) and that there are a large number of cases in which these roles are separated or combined. The research of Newman et al. (2018), Breugst et al. (2012), and Covin et al. (2006) revealed that the extent to which entrepreneurs are involved in decision-making processes strongly affects the company's orientation to innovation and its use of new market opportunities. Unlike the different forms of participative management, the greater involvement of an entrepreneur as a leader encourages employees to assume a more active role in identifying and using new market opportunities. This motivates employees to behave innovatively and strengthens their willingness to take responsibility when making independent business decisions, fostering their orientation towards innovative behaviour (Liao et al., 2017; Park et al., 2016). Contrary to this, participative decision-making lowers the creative self-efficacy of employees and their innovative behaviour, as evidenced by a study by Newman et al. (2018) and Szczepańska-Woszczyzna (2015). Similar conclusions have been drawn from a study by Forbes (2005), suggesting that higher levels of decentralization positively affect entrepreneurial self-efficacy within a company. These findings identify the effects of decision-making procedures, as well as the level of involvement of entrepreneurs and their employees in their company's proactivity and orientation towards innovation. However, it is still unclear whether and how these factors affect tendencies toward risky or rational decision-making (Chittoor et al., 2019; De Winnaar & Scholtz, 2019). Additionally, previous research has demonstrated the importance of risk taking in order to run a business in a turbulent environment, such as a transition economy (Ahlstrom & Bruton, 2010; Krasniqi & Desai, 2016). Hence, considering the conclusions of these aforementioned studies, our second research question is:

**RQ2:** Does the degree of participation of entrepreneurs in the decision-making process have a significant impact on the tendency to make rational or risky decisions?

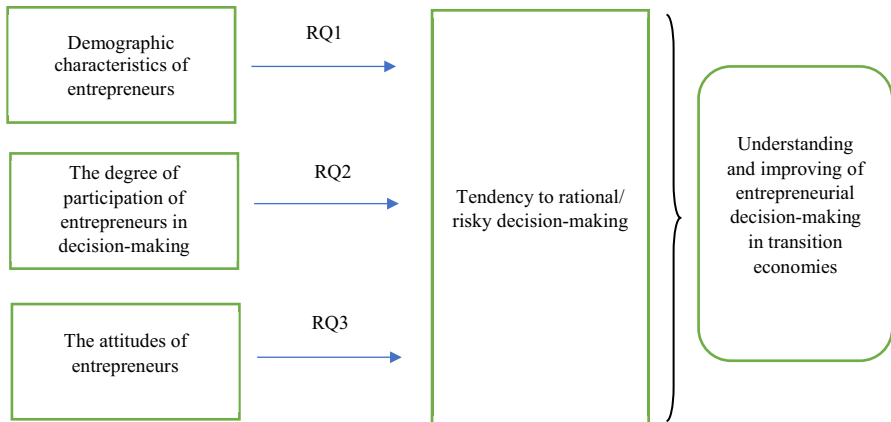
The studies of Taştan and Davoudi (2017) and Kreiser et al. (2010) pointed out the influence that national culture has on the proactiveness of a company and its ability to identify and use new market opportunities. On the other hand, Szczepańska-Woszczyna (2015) and Awang et al. (2009) emphasized the role that organizational culture has in fostering entrepreneurial orientation, innovativeness, and the proactive behaviour of employees. The core of entrepreneurial organizational culture is reflected in leaders' attitudes and their ability to motivate employees to innovate and adopt entrepreneurial practices when completing their tasks, which further positively reflects on the company's growth (Gürbüz, & Aykol, 2009). On the other hand, Kock and Georg Gemünden (2016), Rossberger et al. (2015), and Awang et al. (2009) claimed that managerial practices and entrepreneurial orientations are significantly influenced by environmental factors, such as turbulence, market dynamism, competition, and public policies, which are especially expressed in transition countries. However, previous research has still not revealed whether the entrepreneurs are aware of the importance of these given factors or whether they believe that these factors have an influence on their tendency towards making risky or rational business decisions. Answering these questions is of great importance when it comes to understanding how entrepreneurs make decisions in transition economies and whether they are able to handle these factors in an appropriate way in order to minimize the potentially negative effects of risk taking and the entrepreneurial orientation of their companies, which operate in turbulent environments with strong competition. Hence, the third research question is:

**RQ3:** What are the attitudes of entrepreneurs in transition economies regarding rational and risky decision-making?

The conceptual model developed for the purposes of this study is presented in Fig. 1.

Based on our research questions, the given conceptual model forges links between the demographic characteristics of entrepreneurs (age, gender, profession, level of education, years of service, position in the company, the company's activity, and the country in which it operates), the extent to which they are involved in the decision-making process, and their attitudes towards decision-making on the one hand, and their propensity towards risky or rational decision-making on the other hand. Risky decisions are related to the entrepreneurs that link risk with possibilities and financial risk, viewing both as a chance for significant financial success. They are very likely to explore new opportunities and business challenges and they are able to give quick responses to obstacles. Rational decision-making is related to the entrepreneurs that are precise, are willing to invest much time in order to analyze a given problem, and tend to inspect issues from different points of view.

Seeking to provide reliable answers to our research questions, a multivariate analysis was used for data processing. For each of these factors, using logistic regression



Source: Authors

Fig. 1 Conceptual model of the research

and the Structural Equation Model (SEM), the significance and degree of influence on rational/risky decision-making were analyzed.

## Materials and methods

Empirical research refers to the analysis of characteristics that determine the tendency towards rational/risky decision-making. This is based on data collected through online surveys of entrepreneurial companies operating in Montenegro and Serbia. The reasons behind these choices are multiple. First of all, these countries have not yet completed their transition processes, which poses a number of challenges for entrepreneurs and determines their decisions. Furthermore, these are open economies, which emphasizes the need to strengthen the competitiveness of domestic companies – entrepreneurs. This is especially important when we consider the fact that there is an insufficient number of export-oriented companies. Thus, the strengthening of competitiveness is imposed as a necessary condition for the further survival and development of the entrepreneurial companies in the analyzed markets (European Commission, 2020; Government of Montenegro, 2019; World Bank Group, 2014).

The authors have developed a questionnaire for the purpose of this study. Its initial form was tested through a pilot survey. It included a sample of 22 managers (10 from Montenegro and 12 from Serbia). The questionnaire was modified according to their comments and its final form was created. It comprised 30 questions divided into four groups. The first group included multiple choice questions related to the demographic characteristics of entrepreneurs and their country of origin. These questions were used to test the first hypothesis (H1). The second set included questions used to describe the tendency towards risky or rational decision-making. It consisted of questions related to the entrepreneur's perception of risk taking and

challenging business issues and his ability to react quickly and assess the problem from different points of view. It also included questions related to an entrepreneur's tendency to collect and analyze a wide range of data and carefully evaluate all of the potential outcomes of different business decisions. The third set included questions related to the decision-making procedures within a company, such as the level of decentralization, the participation of employees, and sharing and taking responsibility and consequences for decisions that have been made. These were included in the questionnaire in order to test the second hypothesis (H2). Finally, the last group of questions was used to reveal entrepreneurs' perceptions of the importance of national culture, countries of origin, the stage in a firm's growth, and intuition in decision-making process. It was used to test the third hypothesis (H3). All of the questions from the second, third, and fourth groups were evaluated using 5-point Likert scale, where grade 1 meant that the respondent completely disagreed, while grade 5 meant that the respondent completely agreed with the given statement. The questionnaire was prepared in Montenegrin, Serbian, and English. It was pilot-tested and standard translation/back-translation procedures for each country's survey questionnaire were used (Brislin, 1970). Thanks to the cooperation of the Chambers of Commerce in both countries, the sample is a stratified random sample. The questionnaire was sent to 711 corporate e-mail addresses of entrepreneurial companies in Montenegro and Serbia. The sample involved companies operating in all three regions in both countries (the North, the Centre, and the South). The survey was undertaken in the second quarter of 2020 and lasted 30 days. Respondents returned 260 fully-completed polls (106 from Montenegro and 154 from Serbia), giving an answer rate of 36.57%, which reflects the high levels of interest in this research topic. Detailed information regarding the characteristics of the companies within the sample are presented in Table 2.

Data analysis was conducted using Structural Equation Modeling (SEM) and logistic regression. Research questions were answered using SEM analysis. SEM is a multivariate analysis tool used to identify and measure complex and interdependent relationships among various dependent and independent variables. It includes measurement and structural model calculation. The measurement model is a part of SEM, facilitating the measuring of the level of influence of latent, i.e. independent variables, on dependent ones. The structural model is used to identify and measure complex interrelations that exist between latent variables, enabling them to be grouped into main factors, i.e. constructs of research (Hooper et al., 2008). On the other hand, the existence of interrelations between certain demographic characteristics of entrepreneurs and the ways in which they make business decisions was examined through the application of logistic regression. This paper evaluates only the logistic regression, which defines risky business decision-making, because evaluation of the additional logistic regression for rational business decision-making would generate the same conclusions. Before the data analysis was conducted, the reliability of the research was examined using Cronbach's alpha. The obtained value of this coefficient was 0.893, which is above its minimum acceptable value (0.6), confirming the reliability of the survey (Tabachnick et al., 2007; Hair et al., 1998). The data was further processed using the SPSS program (Statistics 20). When conducting the

**Table 2** Characteristics of the respondents that constitute the sample of the research

	N	Weighted %		N	Weighted %
<b>Country of origin</b>			<b>Gender</b>		
Serbia	154	59.2	Male	173	66.5
Montenegro	106	40.8	Female	87	33.5
<b>Age</b>			<b>Length of service</b>		
20 to 29	31	11.9	Up to 10 years	71	27.3
30 to 39	71	27.3	10 to 19 years	87	33.5
40 to 49	87	33.5	20 to 29 years	63	24.2
50 to 59	60	23.1	30 to 40 years	39	15.0
More than 60	11	4.2			
<b>Type of company</b>			<b>Occupation</b>		
Production	137	52.7	Technical sciences	173	66.5
Services	123	47.3	Natural sciences	17	6.5
Other	0	0	Social sciences	70	27.0
<b>Level of education</b>					
High school	67	25.8	Faculty	158	60.8
Higher school/College	28	10.8	Specialist, Master, PhD studies	7	2.7

SEM, the IBM AMOS program was applied. The results obtained are presented in the following section.

## Results and discussion

### Tendency towards risk taking, measured by means of logistic regression

The analysis of data collected through the research in the first step was conducted by applying logistic regression. This analysis enabled us to determine if the demographic characteristics of the respondents significantly influenced their tendency to make risky or rational business decisions. Logistic regression was applied to test for a potential link between a given characteristic of the respondent and their way of making a decision. It is the “*most commonly used method to rank the relative importance of independent variables and to quantify the effect of their interaction*” (David et al., 2015). In order to examine which groups of entrepreneurs have a pronounced tendency to make risky business decisions, an item that best represents such business decision-making was singled out from the questionnaire: whether the respondent was willing to take significant financial risks if they might lead to significant income. A positive answer to this question indicated a tendency to make risky business decisions, while a negative answer would indicate entrepreneurs with an aversion to risk. Gender, age, and length of service were selected from the group of demographic characteristics as independent variables in logistic regression. However, further analysis of the model was preceded by examining its reliability, i.e. by testing the null hypothesis, which claimed that the dependent and independent



variables in the model were not connected. This was examined by comparing the results of the logarithm without independent variables (whose obtained value is 234.419) with the model in which independent variable was included (and whose result was 167.748). With 32 degrees of freedom, the value of  $\chi^2$  is 66,670. This is significant at a level of 0.000. These results suggested that the null hypothesis should be rejected—that the logistic regression model could be considered reliable. The results of the logistic regression model with regards to risky decision-making are presented in Table 3.

The results show that the chance that the entrepreneur was not ready to take a significant financial risk for the sake of higher income, under condition that he is male, was 38% lower compared to female entrepreneurs. In other words, if the entrepreneur is male, he has a 62% higher chance of taking a bigger financial risk compared to female entrepreneurs.

The claim that the length of service has an influence on a person's tendency to make risky or rational decisions is also supported by the conclusions stemming from this analysis. Namely, if an entrepreneur had up to 10 years' worth of experience in service, there was a 94.5% higher chance that they would make a risky business decision, observed in relation to an entrepreneur with 30 to 40 years' worth of service. Also, the entrepreneurs who had between 10 and 20 years' worth of service had a 93% higher chance of making a risky business decision, compared to those with the longest length of service (30–40 years). Finally, the entrepreneurs with between 20 and 30 years' worth of service will, in 46.5% of cases, more often choose a risky decision compared to respondents with between 30 and 40 years' worth of service.

**Table 3** Ordinal logistic regression of risky business decision making as a function of gender, age and length of service

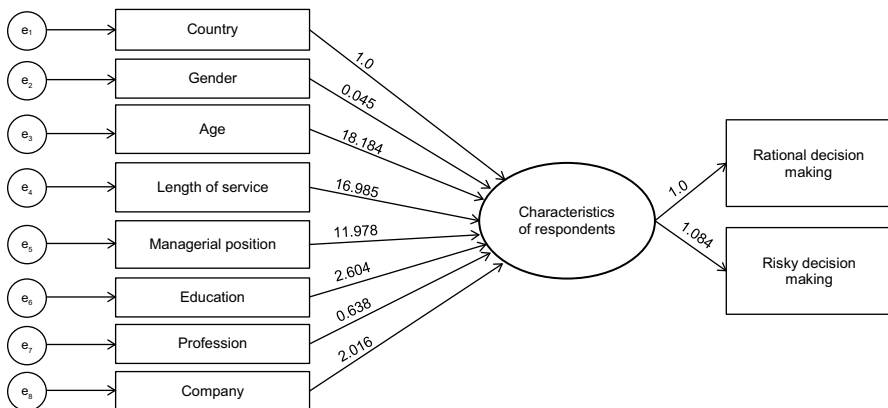
I am willing to take significant financial risk if it can bring significant income		B	Std Error	Wald	Df	Sig	Exp (B)
I do not agree at all	Intercept	18.397	1.998	84.78188	1	0	
	[Gender: Male]	-0.479	0.067	51.111829	1	0.002	0.6194
	[Gender: Female]	0 <sup>b</sup>			0		
	[Age= up to 20]	-3.685	0.885	17.337579	1	0.026	0.0251
	[Age=20-30]	-2.527	0.667	14.35353	1	0.056	0.0799
	[Age=30-40]	-1.801	0.1986	82.237318	1	0.001	0.16513
	[Age=40-50]	-1.174	0.0287	48.023554	1	0.008	0.309128
	[Age=50-60]	0 <sup>b</sup>			0		
	[Length of service=0-10]	-3.073	0.897	11.736544	1	0.063	0.04628
	[Length of service=10-20]	-2.671	0.564	22.427949	1	0.01	0.06918
	[Length of service=20-30]	-0.624	0.098	40.54310	1	0.005	0.5358
	[Length of service=30-40]	0 <sup>b</sup>			0		

## Factors determining tendencies towards risky/rational decision-making calculated by SEM estimation

In order to further examine the relative intensity of the impact of the observed characteristics of entrepreneurs on the process of making risky/rational business decisions, and to identify the most important ones, the obtained data was analyzed using SEM. SEM is a multivariate analysis method used to identify and measure the relationships between the main constructs of research. In the first step, we examined whether the identified latent, i.e. independent variables, statistically fit into the hypothesized factors using confirmatory factor analysis (CFA). After that, in the second step, structural paths between the main constructs of the research were drawn in order to measure the influence that the hypothesized factors, i.e. independent variables, had on the dependent variables. The obtained results of SEM calculated the impact of the demographic characteristics of entrepreneurs on their tendency to make risky/rational business decisions. These are presented in Fig. 2.

The path diagram of Fig. 2 presents the relationship between the variables that describe the factor of the characteristics of the respondents and the factors that represent their tendency towards risky or rational decision-making. All of the factors are presented in an ellipsoidal shape. The rectangular shapes denote the latent variables, whose influence on the formation of dependent variables is measured. If the value of the standardized regression coefficients for the independent variables is high, i.e. statistically significant, these can be considered good indicators of a certain factor. The SEM analysis also involves a random error, marked with "e", and this error shows the variance of dependent factors that cannot be explained by the latent variables covered in the research. The obtained values of standardized coefficients and random error, as well as the reliability indicators of the evaluated SEM model, are given in Table 4, which can be found in Appendix A of this paper.

The obtained value of the regression parameters in SEM reveal that the variable (factor) Age has the biggest influence on the formation of factor "Characteristics



**Fig. 2** Path diagram of the relationship between the characteristics of the respondents and the rational/risky decision making

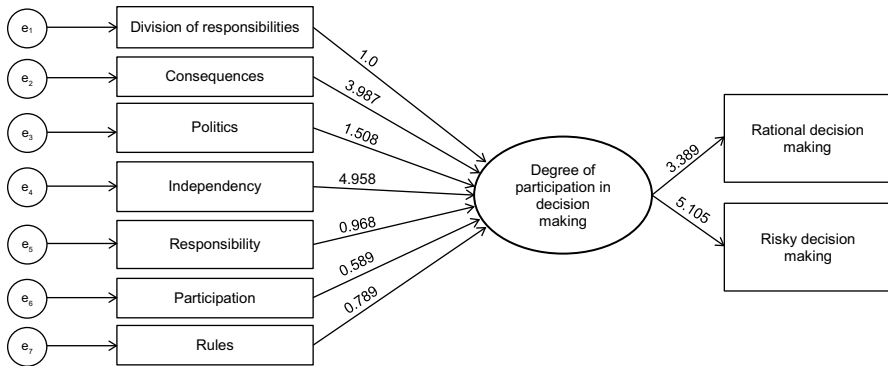
of respondents" (18.184). This also indicates that the age of the respondent has the strongest influence on their propensity for risky/rational decision-making. The variable that has the smallest influence is the gender of respondents, with a regression coefficient value of 0.045. Here, it is worth noting that the results of the logistic regression indicate which group of respondents within the gender characteristic has a higher chance of making a risky business decision. Unlike logistic regression, the SEM analyzes the influence of the gender of respondents in comparison with their other characteristics. Hence, the results of SEM indicate that gender does not have a decisive influence on the formation of the factor "Characteristics of respondents" in cases when the characteristics are intended to examine a respondent's propensity for risky/rational decision-making. More precisely, in terms of making business decisions, from the viewpoint of taking business risk, the age of the entrepreneur has a greater influence than the gender of the entrepreneur. Thus, there is a greater difference in making risky compared to rational business decisions in entrepreneurs of different ages compared to the difference that occurs in entrepreneurs of different gender.

The results of SEM estimation also indicate that the characteristics of respondents, as a factor, have a greater impact on the decision-making of entrepreneurs who have more of a tendency to take risks, compared to entrepreneurs who make rational decisions. Namely, the value of the regression coefficient that measures the effects of the demographic characteristics of entrepreneurs on risky decision-making (1.084) is higher than the value of the regression coefficient that reveals the impact of the demographic characteristics of entrepreneurs on rational decision-making (Value 1). These results lead to the conclusion that a greater difference is evident among entrepreneurs who are prone to making risky decisions depending on their demographic characteristics compared to entrepreneurs who are prone to rational decision-making.

The validity of the specified SEM model may be tested in many ways. The most frequently used testing methods are related to the model validity indices. The results of these indices for the specified SEM model are shown in Table 5, given in Appendix B of this paper. The obtained value for these indices are within the referent limits, which reveals that the results of SEM evaluation may be considered reliable.

Considering the results of previous research, which reveals that the decision-making process in a firm depends on whether or not the entrepreneurs are included in that process, further analysis was conducted in order to test the influence of the participation of entrepreneurs in the decision-making process in terms of risky/rational decision-making. The given influence is measured using SEM. The obtained results are presented in Table 6, which can be found in Appendix C. Table 6 also reveals that all regression parameters are statistically significant, which is evidenced by their corresponding probability values. The obtained values of the regression coefficients are also graphically presented in the path diagram, given below in Fig. 3.

The diagram of the path in Fig. 3 presents the relationship between three factors—the factor that represents the degree of participation of entrepreneurs in making business decisions and the factors that describe the tendency to make risky or rational business decisions. On the side of the factor that describes the degree of participation of entrepreneurs in decision-making, there are seven independent variables forming

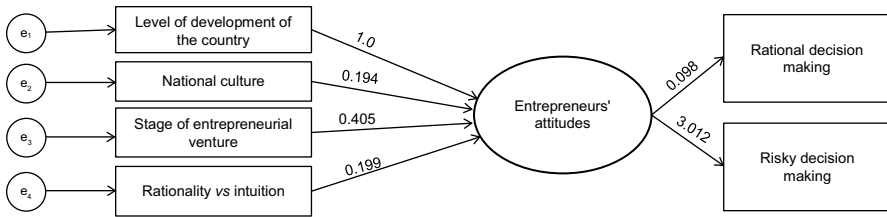


**Fig. 3** Path diagram of the relationship between the degree of participation of entrepreneurs in making business decisions and the rational/risky decision making

the given factor. Independent variables with a greater influence on the formation of this factor also have a greater influence on a person's propensity to make risky/rational decisions. The highest value of the regression coefficient for the factor 'Degree of participation' have the variables 'Independence in making business decisions' (4.985), 'Consequences for the decision being made' (3.987), and the variable that shows whether political situations affect business decision-making (1.508). The least significant variable is the one that shows whether all employees in the company participate in business decision-making (0.589). Thus, when the factor 'Degree of participation' of entrepreneurs in making business decisions is formed, in order to examine their influence on the way of making business decisions. Additionally, significant differences were noticed among entrepreneurs who could make decisions independently, and where they were certain consequences for the decisions being made, as well as in companies where there was a different political environment. On the other hand, there is not much difference in the way business decisions are made by entrepreneurs employed in companies where the degree of participation of all employees in business decision-making is different. In addition, the results of the evaluated SEM model show that the factor 'Degree of participation' has a stronger impact on the factor representing risky decision-making (5.105) than on the factor representing propensity to make rational decisions (3.389). This means that entrepreneurs who have a higher degree of participation in business decision-making are expected to make risky decisions more often in comparison to those with lower degrees of participation in business decision-making, which tend to apply rational decision-making styles.

The validity of the second specified SEM model is also tested using model validity indices. These results are given in Table 7, which can be found in Appendix D of this paper. The obtained values of these indices are within referent range, which leads to the conclusion that the results of the SEM model designed to answer the second research question can be taken as valid.

Finally, based on the third research question, this paper tried to assess the attitudes of entrepreneurs in transition countries towards risky/rational decision-making. In



**Fig. 4** Path diagram of the relationship between the attitudes of entrepreneurs about business decisions making and the rational/risky decision making

this sense, a third Structural Equation Model examines whether the entrepreneurs' attitudes have a stronger impact on their propensity for risky or rational decision-making. The obtained results can be found in Table 8, which is placed in Appendix E of this paper. The values of the regression coefficients are also graphically presented in the path diagram, given below in Fig. 4.

As presented in Fig. 3, the factor "Entrepreneurs attitudes" towards risky/rational decision-making is formed through the joint effects of four variables: The 'Level of development of the country', 'National culture', 'Stage in the entrepreneurial venture development', and the importance of rationality and intuition when making decisions. The obtained values of the regression coefficient in the SEM (1.0) indicate that variable 'Level of the development of the country' has the strongest impact on forming entrepreneurs' attitudes towards risky/rational decision-making processes. The smallest value of regression coefficient is obtained for the variables 'Rationality and intuition' (0.199) and 'National culture' (0.194) which revealed that entrepreneurs consider these factors of less importance for the propensity to risky/rational decision-making. The obtained value of the regression coefficient that measures the impact of entrepreneurs' attitudes to risky decision-making is bigger compared to the value of the regression factor that measures the impact of the entrepreneurs' attitudes towards rational decision-making. These results reveal that entrepreneurs who consider the given four variables of greater importance have more of a tendency to make risky business decisions than those who do not consider the given variables to be of great importance.

The validity of the third specified SEM model is tested using model validity indices. These results are given in Table 9, which can be found in Appendix F. Considering the fact that the obtained values of the model validity indices belong to the referent range of values, the results of specified SEM are considered valid.

## Discussion

Previous results have provided some important implications in relation to the establishment of new entrepreneurial start-ups in transition countries and the way they are managed. The logistic regression analysis revealed that there is a difference in tendencies towards risky or rational decision-making, depending on the gender of an entrepreneur, indicating that in transition economies women have a lower propensity

to risk compared to men. These results are quite expected, as previous research in the field confirmed that, under the same circumstances, women tend to perceive given business situation riskier compared to men (Malmström et al., 2017; Alsos & Ljunggren, 2017; Rana et al., 2011). Women tend to pay more attention to the analysis of available information, time that implementation of decision takes, as well as consequences it might have for themselves and for other people (de Acedo Lizárraga et al. 2007). The results of this study were also supported by a research of Emami (2017), Nelson (2016) and Dawson and Henly (2015). The obtained findings are quite understandable in light of different social roles that men and women have, which puts greater social pressure on women and imposes greater need for them to make balance between family and business life (Malmström et al., 2017; Alsos & Ljunggren, 2017; de Acedo Lizárraga et al., 2007). However, these findings are of great importance for creating programs aimed at fostering entrepreneurship, which are a current practice in many transition economies, including Montenegro and Serbia. As women entrepreneurship is at a low level of development, even in developed countries (Birkner et al., 2018; Faisal et al., 2017), special attention should be paid to reducing perceived risks in order to encourage women entrepreneurs. In this sense, reducing financial risks (through loans under favourable terms) is especially important. Perceived risks can also be reduced through training and courses aimed at strengthening women's self-confidence in their own business skills. However, as transition economies are often characterized as very dynamic environments with strong foreign competition, it is very important to inform potential entrepreneurs about all the changes planned that might be tangled with the economic or legal framework of a country in order to make the business environment as stable as possible.

The availability of this information could also be of great importance for elderly entrepreneurs with many years of service, as logistic regression analysis and SEM confirmed that age and more years of service leverage the tendency towards rational decision-making. The same conclusions were also obtained in the research of Berger et al. (2014), Riaz et al., 2010 and Goll and Rasheed (2006), suggesting that elderly managers with longer years of service tend to make decisions on a fairly established manner relying on their previous experience and knowledge accumulated over the years. However, this can lead to a wrong decisions, as pronounced market dynamism of transition countries can cause previously good business decisions provide negative consequences in fast changing environment. Besides of that, the obtained results are also understandable in light of usually higher position that elderly managers with longer years of service cover in the hierarchy of the organization. This position puts greater level of responsibility and pressure, which foster managers to be more cautious and rational when making decisions, as wrong business decisions might have very negative consequences for the company as a whole, as well as for personal position and reputation of managers itself (Goll & Rasheed, 2006; Rolison et al., 2012). On the other hand, younger managers are often pursued by their personal ambitions, which fosters them to take riskier decisions if it can potentially results in higher yields (Berger et al., 2014; Farrell, 2014; Jianakoplos & Bernasek, 1998). These findings confirm that the same instruments of support will not have the same influence on all entrepreneurs. While more experienced ones need a stable market

and available information regarding expected changes to the economic and legal framework of the country, the young ones, who are considering starting their own company, rely more on intuition and beliefs about entrepreneurship and business that are rooted in national culture. These entrepreneurs believe that the high level of economic development is a consequence of intensive entrepreneurial activity, which is non-breakable and linked to risk taking (Alam et al., 2020). Thus, they are more willing to search for new business ideas and might benefit more from training and seminars regarding new business opportunities, innovation, the ways in which technology and know-how can be transferred and shared, and events that might enable them to make new business contacts and expand their business network.

Another important implication of this research is related to authority for decision-making in existing companies. The results of the SEM model revealed that the strengthening of entrepreneurship and innovation development in existing firms is significantly influenced by the extent to which entrepreneurs are included in decision-making, as this leads to more risky—but potentially more cost-efficient—decisions. This finding is especially relevant for developing intrapreneurship in medium and large companies. They suggest that proactive people require assistance and the possibility to make certain important decisions independently in order to be motivated for development of new business ideas within a company. This conclusion is not surprising, considering that, in giving them a greater degree of independency in decision-making, entrepreneurs are encouraged to actually achieve better business results by taking greater risks, leading the company towards new business opportunities. On the other hand, in a situation where entrepreneurs have limited decision-making power and where other employees have strong impact on decisions being made, intrapreneurs are forced not to lose their position in the company by taking risks in making decisions whose consequences cannot be seen or measured immediately, despite the possibility for taking new and profitable opportunities (Goll & Rasheed, 2006; Rolison et al., 2012). In addition, previous studies in this area confirm that a higher degree of participation of all employees usually results in more rational decisions, which was also supported in this research (Bratteteig & Wagner, 2014).

## Concluding remarks

### Theoretical and practical implications of the research

Although entrepreneurial activity is linked to risk taking, decision-making based on relevant information, knowledge, and previous experience, i.e. rational thinking, might sometimes be the key to the successful management of entrepreneurial businesses (Deligianni et al., 2016; La Pira, 2011). Fostering entrepreneurial activity can be viewed as one of the cornerstones of the future economic development of transition countries. However, there are very few scientific studies conducted in these countries that investigate the nature and process of the decision-making of



entrepreneurs. Hence, this research sought to identify the key determinants of the propensity of entrepreneurs to make risky or rational decisions. The data obtained through a survey of 260 entrepreneurs from Serbia and Montenegro (as two transition economies) was analyzed using logistic regression and SEM. The obtained results of the logistic regression revealed that elderly entrepreneurs with more experience and many years of service are more prone to make rational decisions compared to young entrepreneurs that lack business knowledge and working experience. These conclusions were also confirmed by the results of the SEM, which identified the age of entrepreneurs and the length of their service as the variables that have the largest effect on their propensity to make rational or risky decisions. Additionally, the SEM estimation also pointed out that entrepreneurs included in the decision-making process that have large level of independency and are responsible for the consequences of their decisions are more prone to risky decision-making. Hence, decision-making practices that include the participation of other employees can be viewed as a certain barrier to uncalculated risk taking, which fosters rational decision-making based on relevant information and previous business experience. Finally, the results also revealed that entrepreneurs who consider the level of national economy development, the national culture, and intuition as important factors to take into account are more prone to risky decision-making compared to entrepreneurs that do not consider these variables to be of great importance.

This paper offers a comprehensive framework for understanding various factors that affect entrepreneurial decision-making through inclusion of personal characteristics of entrepreneurs', as well as characteristics of decision-making policies incorporated into the managerial style of the company. Hence, it provides a basis for understanding which factors are supposed to be effectively managed in order to foster risk taking and increase entrepreneurial activity within the dynamic markets of transition economies, highlighting the indirect theoretical contributions of this study. Through analysis of demographic characteristics and the attitudes of entrepreneurs, this study offers more precise insights as to how these factors affect the cognitive process of decision-making. Additionally, through investigating how the propensity to make risky or rational decisions changes depending on the level of participation of entrepreneurs and other employees, it contributes to the existing base of knowledge regarding different organizational processes and their influences on strengthening entrepreneurial orientation and risk taking within a company. Finally, to the best of authors' knowledge, this is the first scientific study carried out in Serbia and Montenegro, which is an integral way to examine the impact that the personal characteristics of entrepreneurs and organizational processes have on tendencies towards risky-rational decision-making within a company.

Besides its theoretical contributions, this study provides significant practical recommendations for managers and other decision-makers at state level. Namely, fostering risk taking is very important when strengthening entrepreneurial activity in transition economies. Younger entrepreneurs are more prone to take risks, which is why policy-makers should focus their attention on organizing different training sessions and seminars regarding new business opportunities, innovation, the ways in which technology and know-how can be transferred and shared, as well as organizing events that might enable younger entrepreneurs to make new business contacts

and expand their business networks. Older, more experienced entrepreneurs and women entrepreneurs tend to make rational decisions, which is the reason why policy makers should pay attention to organizing different training sessions aiming to strengthen the skills needed for the successful running of a business. Also, they should make all of the important information regarding expected changes to the economic and legal framework of the country available, as this might contribute to reducing the perceived risk of doing business in a dynamic market, such as a transition economy. Managers, as policy makers within the company, should strengthen decentralization, provide employees with greater degrees of independence in decision-making, and nurture the culture of taking consequences for decisions that are made. This way, employees will be encouraged to actually achieve better business results by taking on greater risks, leading the company towards new business opportunities. Implementation of all of the previously mentioned guidelines can indirectly contribute to the prosperity and growth of entrepreneurial companies in transition economies, which can be viewed as one of the key conditions for the further development of transition countries. Although the research was conducted in transition economies, the conclusions provided by this research can be used to design future research in non-transition economies as well. Namely economies that lack a competitive advantage in domestic firms in the globalized market.

### **Limitations of the research**

This research was conducted in only two transition countries, which is its main limitation. Hence, future research should investigate the existence of differences related to the propensity for rational/risky decision-making based on entrepreneurs' characteristics in other transition economies. Additionally, this study only considers the impact of the characteristics of entrepreneurs on decision-making. It would be useful to make a comparison between decision-making processes in developed and transition countries in order to transfer useful business practices from developed countries to economies in which entrepreneurs still lack the experience and knowledge to face all of the challenges that modern business conditions impose.

## Appendix

**Table 4** The results of estimation of SEM using maximum likelihood method for first research question

Factors/Independent variables	Factors/Dependent variables	Estimate	Standard error	Critical ratio	Probability
Risky decision making	<← Characteristics of respondents	1.084	0.218	4.972	***
Rational decision making	<← Characteristics of respondents	1			
Country	<← Characteristics of respondents	1			
Gender	<← Characteristics of respondents	0.045	0.087	0.517	***
Age	<← Characteristics of respondents	18.184	4.554	3.993	***
Length of service	<← Characteristics of respondents	16.985	4.215	4.030	***
Managerial position	<← Characteristics of respondents	11.978	3.012	3.977	***
Education	<← Characteristics of respondents	2.604	0.548	4.752	***
Profession	<← Characteristics of respondents	0.638	0.125	5.104	***
Company	<← Characteristics of respondents	2.016	0.321	6.280	***
Precise person	<← Rational DM	1			
Detailed problem analysis	<← Rational DM	1.078	0.203	5.310	***
Problem analysis from different aspects	<← Rational DM	3.012	0.452	6.664	***
Time investment	<← Rational DM	2.025	0.465	4.355	***
Careful assessment of consequences and outcomes	<← Rational DM	0.287	0.065	4.415	***
New trends	<← Rational DM	3.029	0.502	6.034	***
“Looking forward”	<← Rational DM	4.227	0.706	5.987	***
Risk = Possibility	<← Risky DM	1			
Financial risk = Significant income	<← Risky DM	0.987	0.221	4.466	***
Business challenges	<← Risky DM	1.512	0.298	5.074	***
Quick reaction to obstacles	<← Risky DM	0.789	0.165	4.782	***

\*means that the parameters are statistically significant with a risk of error of 10%. DM – decision-making

\*\*means that the parameters are statistically significant with a risk of error of 5%

\*\*\*means that the parameters are statistically significant with a risk of error of 1%

**Table 5** Goodness of Fit Indices of the estimated SEM model for the first research question

GOF INDICES	CRITERION GUIDELINES	SEM RESULTS
<b>Chi-square</b>		
Chi-square		179.70123
Degrees of freedom		153
Probability level	$p > 0.05$	0.069
<b>Absolutes fit measures</b>		
Root Mean Square Error Approximation (RMSEA)	$< 0.1$	0.0501
<b>Incremental fit measures</b>		
Normed Fit Index (NFI)	$> 0.9$	0.912
Comparative Fit Index (CFI)	$> 0.9$	0.903
<b>Parsimony fit measurement</b>		
Parsimony-adjusted Normal Fit Index (PNFI)	$> 0.5$	0.578

**Table 6** The results of estimation of SEM using maximum likelihood method for the second research question

Factors/Independent variables		Factors/Dependent variables	Estimate	Standard error	Critical ratio	Probability
Risky DM	<—	The degree of participation	5.105	1.256	4.064	***
Rational DM	<—	The degree of participation	3.389	1.368	2.477	**
Division of responsibilities	<—	The degree of participation	1			
Consequences	<—	The degree of participation	3.987	1.023	3.897	***
Politics	<—	The degree of participation	1.508	0.524	2.878	**
Independency	<—	The degree of participation	4.958	1.302	3.808	***
Responsibility	<—	The degree of participation	0.968	0.389	2.488	**
Participation	<—	The degree of participation	0.589	0.203	2.901	**
Rules	<—	The degree of participation	0.789	0.358	2.204	**
Precise person	<—	Rational DM	0.658	0.102	6.451	***
Detailed problem analysis	<—	Rational DM	0.389	0.205	1.898	**

**Table 6** (continued)

Factors/Independent variables		Factors/Dependent variables	Estimate	Standard error	Critical ratio	Probability
Problem analysis from different aspects	<—	Rational DM	0.823	0.208	3.957	***
Time investment	<—	Rational DM	0.458	0.106	4.321	***
Careful assessment of consequences and outcomes	<—	Rational DM	0.126	0.023	5.478	***
New trends	<—	Rational DM	0.894	0.467	1.914	**
“Looking forward”	<—	Rational DM	1			
Risk = Possibility	<—	Risky DM	1			
Financial risk = Significant income	<—	Risky DM	0.289	0.103	2.806	**
Business challenges	<—	Risky DM	0.902	0.285	3.165	**
Quick reaction to obstacles	<—	Risky DM	0.405	0.202	2.005	*

\*means that the parameters are statistically significant with a risk of error of 10%, DM – decision-making

\*\*means that the parameters are statistically significant with a risk of error of 5%

\*\*\*means that the parameters are statistically significant with a risk of error of 1%

**Table 7** Goodness of Fit Indices of the estimated SEM model for the second research question

GOF INDICES	CRITERION GUIDELINES	SEM RESULTS
<b>Chi-square</b>		
Chi-square		158.93771
Degrees of freedom		135
Probability level	$p > 0.05$	0.078
<b>Absolutes fit measures</b>		
Root Mean Square Error Approximation (RMSEA)	$< 0.1$	0.069
<b>Incremental fit measures</b>		
Normed Fit Index (NFI)	$> 0.9$	0.904
Comparative Fit Index (CFI)	$> 0.9$	0.904
<b>Parsimony fit measurement</b>		
Parsimony-adjusted Normal Fit Index (PNFI)	$> 0.5$	0.658

**Table 8** The results of estimation of SEM using maximum likelihood method for the third research question

Factors/Independent variables	Factors/Dependent variables	Estimate	Standard error	Critical ratio	Probability
Risky DM	<-- Entrepreneur's attitudes	3.012	1.025	2.939	**
Rational DM	<-- Entrepreneur's attitudes	0.098	0.025	3.920	***
Level of development of the country	<-- Entrepreneur's attitudes	1			
National culture	<-- Entrepreneur's attitudes	0.194	0.098	1.980	*
Stage in the entrepreneurial venture development	<-- Entrepreneur's attitudes	0.405	0.102	3.971	***
Rationality and intuition	<-- Entrepreneur's attitudes	0.199	0.023	8.652	***
Precise person	<-- Rational DM	1			
Detailed problem analysis	<-- Rational DM	3.386	1.589	2.131	*
Problem analysis from different aspects	<-- Rational DM	1.687	0.357	4.725	***
Time investment	<-- Rational DM	2.569	0.958	2.682	**
Careful assessment of consequences and outcomes	<-- Rational DM	3.405	0.876	3.887	***
New trends	<-- Rational DM	1.408	0.632	2.228	*
"Looking forward"	<-- Rational DM	4.489	1.023	4.388	***
Risk = Possibility	<-- Risky DM	1			
Financial risk = Significant income	<-- Risky DM	0.226	0.096	2.354	*
Business challenges	<-- Risky DM	0.768	0.203	3.783	***
Quick reaction to obstacles	<-- Risky DM	0.434	0.076	5.711	***

\*means that the parameters are statistically significant with a risk of error of 10%. DM – decision-making

\*\*means that the parameters are statistically significant with a risk of error of 5%

\*\*\* means that the parameters are statistically significant with a risk of error of 1%

**Table 9** Goodness of Fit Indices of the estimated SEM model for the third research question

GOF INDICES	CRITERION GUIDELINES	SEM RESULTS
<b>Chi-square</b>		
Chi-square		112.14280
Degrees of freedom		90
Probability level	$p > 0.05$	0.057
<b>Absolutes fit measures</b>		
Root Mean Square Error Approximation (RMSEA)	$< 0.1$	0.098
<b>Incremental fit measures</b>		
Normed Fit Index (NFI)	$> 0.9$	0.907
Comparative Fit Index (CFI)	$> 0.9$	0.914
<b>Parsimony fit measurement</b>		
Parsimony-adjusted Normal Fit Index (PNFI)	$> 0.5$	0.514

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

- Ahlstrom, D., & Bruton, G. D. (2010). Rapid institutional shifts and the co-evolution of entrepreneurial firms in transition economies. *Entrepreneurship Theory and Practice*, 34(3), 531–554.
- Alam, M. N., Masroor, I., & Nabi, M. N. U. (2020). Does entrepreneurs' risk perception influence firm's rapidity in foreign market entry through moderation of entrepreneurial decision-making approach? *Review of International Business and Strategy*, 30(2), 225–243.
- Alexandrova, M. (2004). Entrepreneurship in a transition economy: The impact of environment on entrepreneurial orientation. *Problems and Perspectives in Management*, 2, 140–148.
- Alsos, G. A., & Ljunggren, E. (2017). The role of gender in entrepreneur–investor relationships: A signaling theory approach. *Entrepreneurship Theory and Practice*, 41(4), 567–590.
- Anna, J. B., & Jolanta, K. (2020). Innovation Capability Development in Regional Entrepreneurship: The Case of Economies in Transition. *European Research Studies*, 23(4), 6–32.
- Awang, A., Khalid, S. A., Yusof, A. A., Kassim, K. M., Ismail, M., Zain, R. S., & Madar, A. R. S. (2009). Entrepreneurial orientation and performance relations of Malaysian Bumiputera SMEs: The impact of some perceived environmental factors. *International Journal of Business and Management*, 4(9), 84–96.
- Baù, M., Sieger, P., Eddleston, K. A., & Chirico, F. (2017). Fail but Try Again? The Effects of Age, Gender, and Multiple-Owner Experience on Failed Entrepreneurs' Reentry. *Entrepreneurship Theory and Practice*, 41(6), 909–941.
- Berger, A. N., Kick, T., & Schaeck, K. (2014). Executive board composition and bank risk taking. *Journal of Corporate Finance*, 28, 48–65.
- Betsch, T., & Glöckner, A. (2010). Intuition in judgment and decision making: Extensive thinking without effort. *Psychological Inquiry*, 21(4), 279–294.



- Birkner, S., Ettl, K., Welter, F., & Ebbers, I. (2018). Women's Entrepreneurship in Europe: Research Facets and Educational Foci. In: Birkner S., Ettl K., Welter F., Ebbers I. (eds) *Women's Entrepreneurship in Europe*. FGF Studies in Small Business and Entrepreneurship. Springer, Cham. [https://doi.org/10.1007/978-3-319-96373-0\\_1](https://doi.org/10.1007/978-3-319-96373-0_1)
- Boermans, M. A., & Willebrands, D. (2017). Entrepreneurship, risk perception and firm performance. *International Journal of Entrepreneurship and Small Business*, 31(4), 557–569.
- Borozan, D., Arneric, J., & Coric, I. (2017). A comparative study of net entrepreneurial productivity in developed and post-transition economies. *International Entrepreneurship and Management Journal*, 13(3), 855–880.
- Boukamcha, F. (2015). Impact of training on entrepreneurial intention: An interactive cognitive perspective. *European Business Review*, 27(6), 593–616.
- Bratteteig, T., & Wagner, I. (2014). *Disentangling participation: Power and decision-making in participatory design*. Springer.
- Breugst, N., Domurath, A., Patzelt, H., & Klaukien, A. (2012). Perceptions of entrepreneurial passion and employees' commitment to entrepreneurial ventures. *Entrepreneurship Theory and Practice*, 36(1), 171–192.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 92, 185–216.
- Busenitz, L. W. (1999). Entrepreneurial risk and strategic decision making: It's a matter of perspective. *The Journal of Applied Behavioral Science*, 35(3), 325–340.
- Caputo, A., & Pellegrini, M. M. (2019). An Overview of The Anatomy of Entrepreneurial Decisions. In *The Anatomy of Entrepreneurial Decisions* (Eds.) (pp. 1–6). Springer, Cham.
- Certo, S. T., Connelly, B. L., & Tihanyi, L. (2008). Managers and their not-so rational decisions. *Business Horizons*, 51(2), 113–119.
- Chaiken, S., & Trope, Y. (1999). *Dual Process Theories in Social Psychology*. Guildford Press.
- Chaudhary, R. (2017). Demographic factors, personality and entrepreneurial inclination. *Education+ Training*, 59(2), 171–187.
- Chelariu, C., Brashear, T. G., Osmonbekov, T., & Zait, A. (2008). Entrepreneurial propensity in a transition economy: exploring micro-level and meso-level cultural antecedents. *Journal of Business & Industrial Marketing*, 23(6), 405–415. <https://doi.org/10.1108/08858620810894454>
- Chen, Y., & Sun, Y. (2003). Age differences in financial decision-making: Using simple heuristics. *Educational Gerontology*, 29(7), 627–635.
- Chittoor, R., Aulakh, P. S., & Ray, S. (2019). Microfoundations of firm internationalization: The owner CEO effect. *Global Strategy Journal*, 9(1), 42–65.
- Cooper, A. C., Woo, C. Y., & Dunkelberg, W. C. (1988). Entrepreneurs' perceived chances for success. *Journal of Business Venturing*, 3(2), 97–108.
- Covin, J. G., Green, K. M., & Slevin, D. P. (2006). Strategic process effects on the entrepreneurial orientation–sales growth rate relationship. *Entrepreneurship Theory and Practice*, 30(1), 57–81.
- Dabić, M., Daim, T., Bayraktaroglu, E., Novak, I., & Basic, M. (2012). Exploring gender differences in attitudes of university students towards entrepreneurship. *International Journal of Gender and Entrepreneurship*, 4(3), 316–336. <https://doi.org/10.1108/17566261211264172>
- Davidsson, P. (2015). Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing*, 30(5), 674–695.
- Dawson, C., & Henley, A. (2015). Gender, risk, and venture creation intentions. *Journal of Small Business Management*, 53(2), 501–515. <https://doi.org/10.1111/jsbm.12080>
- de Acedo Lizárraga, M. L. S., de Acedo Baquedano, M. T. S., & Cardelle-Elawar, M. (2007). Factors that affect decision making: gender and age differences. *International Journal of Psychology and Psychological Therapy*, 7(3), 381–391.
- de Acedo Lizárraga, M. L. S., de Acedo Baquedano, M. T. S., Soria Oliver, M., & Closas, A. H. (2009). Development and validation of a decision-making questionnaire. *British Journal of Guidance and Counselling*, 37(3), 357–373.
- De Winnaar, K., & Scholtz, F. (2019). Entrepreneurial decision-making: New conceptual perspectives. *Management Decision*, 58(7), 1283–1300.
- DeBerry-Spence, B., Dadzie, K. Q., Chelariu, C., Brashear, T. G., Osmonbekov, T., & Zait, A. (2008). Entrepreneurial propensity in a transition economy: Exploring micro-level and meso-level cultural antecedents. *Journal of Business & Industrial Marketing*, 23(6), 405–415.

- Deligianni, I., Dimitratos, P., Petrou, A., & Aharoni, Y. (2016). Entrepreneurial orientation and international performance: The moderating effect of decision-making rationality. *Journal of Small Business Management*, 54(2), 462–480.
- Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287–309.
- Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., & Wagner, G. G. (2011). Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association*, 9(3), 522–550.
- Earle, J. S., & Sakova, Z. (2000). Business start-ups or disguised unemployment? Evidence on the character of self-employment from transition economies. *Labour Economics*, 7(5), 575–601.
- Emami, A. (2017). Gender risk preference in entrepreneurial opportunity: Evidence from Iran. *International Journal of Entrepreneurship and Small Business*, 30(2), 147–169.
- Epstein, S., Pacini, R., Denes-Raj, V., & Heier, H. (1996). Individual differences in intuitive-experiential and analytical-rational thinking styles. *Journal of Personality and Social Psychology*, 71, 390–405.
- Estrin, S., & Mickiewicz, T. (2011). Entrepreneurship in transition economies: The role of institutions and generational change. *The dynamics of entrepreneurship: Evidence from the global entrepreneurship monitor data*, 181–208.
- European Commission. (2020). Specific support for Montenegro: towards entrepreneurial innovation ecosystem. Available online: [https://rio.jrc.ec.europa.eu/sites/default/files/report/SS%20Montenegro\\_Final%20Report.pdf](https://rio.jrc.ec.europa.eu/sites/default/files/report/SS%20Montenegro_Final%20Report.pdf) (accessed on: 21.03.2021).
- Faisal, M. N., Jabeen, F., & Katsioloudes, M. I. (2017). Strategic interventions to improve women entrepreneurship in GCC countries. *Journal of Entrepreneurship in Emerging Economies*, 9(2), 161–180.
- Farrell, J. (2014). Demographic and Socioeconomic Factors of Investors. In: Baker, H. K. & Ricciardi, V., *Investor Behavior: The Psychology of Financial Planning and Investing*. New Jersey: John Wiley: 117–134
- Fatma, E. B., & Ezzeddine, B. M. (2019). Behavioral entrepreneurship theory: A survey and future directions. *Academy of Entrepreneurship Journal*, 25(4), 1–22.
- Fatma, E. B., Mohamed, E. B., Dana, L. P., & Boudabbous, S. (2020). Does entrepreneurs' psychology affect their business venture success? Empirical findings from North Africa. *International Entrepreneurship and Management Journal*, 1–42.
- Fisher, P. J., & Yao, R. (2017). Gender differences in financial risk tolerance. *Journal of Economic Psychology*, 61, 191–202.
- Forbes, D. P. (2005). The effects of strategic decision making on entrepreneurial self-efficacy. *Entrepreneurship Theory and Practice*, 29(5), 599–626.
- Gabrielsson, J., & Politis, D. (2011). Career motives and entrepreneurial decision-making: Examining preferences for causal and effectual logics in the early stage of new ventures. *Small Business Economics*, 36(3), 281–298.
- Gedik, Ş, Miman, M., & Kesici, M. S. (2015). Characteristics and attitudes of entrepreneurs towards entrepreneurship. *Procedia-Social and Behavioral Sciences*, 195, 1087–1096.
- George, N. M., Parida, V., Lahti, T., & Wincent, J. (2016). A systematic literature review of entrepreneurial opportunity recognition: Insights on influencing factors. *International Entrepreneurship and Management Journal*, 12(2), 309–350.
- Gibcus, P., Vermeulen, P. A., & De Jong, J. P. (2009). Strategic decision making in small firms: A taxonomy of small business owners. *International Journal of Entrepreneurship and Small Business*, 7(1), 74–91.
- Gielnik, M. M., Zacher, H., & Wang, M. (2018). Age in the entrepreneurial process: The role of future time perspective and prior entrepreneurial experience. *Journal of Applied Psychology*, 103(10), 1067.
- Gloss, A., Pollack, J. M., & Ward, M. K. (2017). A risky shift? An exploration of the measurement equivalence of entrepreneurial attitudes and entrepreneurial orientation across socioeconomic gradients. *Journal of Business Venturing Insights*, 7, 32–37.
- Goll, I., & Rasheed, A. (2006). Rational Decision-Making and Firm Performance: The Moderating Role of Environment. *Strategic Management Journal*, 18(7), 583–591.
- Government of Montenegro. (2019). Montenegro economic reform programme 2019–2021. Available online: [https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/montenegro\\_erp\\_2019-2021.pdf](https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/montenegro_erp_2019-2021.pdf) (accessed on: 21.03.2021).

- Gürbüz, G., & Aykol, S. (2009). Entrepreneurial management, entrepreneurial orientation and Turkish small firm growth. *Management Research News*, 32(4), 321–336.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate Data Analysis*. Prentice hall, Upper Saddle River.
- Hallahan, T., Faff, R., & McKenzie, M. (2003). An exploratory investigation of the relation between risk tolerance scores and demographic characteristics. *Journal of Multinational Financial Management*, 13(4), 483–502.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *The Academy of Management Review*, 9(2), 193–206. <https://doi.org/10.2307/258434>
- Hammond, K. R. (1996). *Human Judgement and Social Policy*. Oxford University Press.
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model. *Electron. J. Bus. Res. Methods*, 6, 53–60.
- Jianakoplos, N. A., & Bernasek, A. (1998). Are women more risk averse? *Economic Inquiry*, 36(4), 620–630.
- Kahneman, D. (2011). *Thinking, Fast and Slow*. New York, Macmillan.
- Kim, S., & Hasher, L. (2005). The attraction effect in decision making: Superior performance by older adults. *Quarterly Journal of Experimental Psychology*, 58A(1), 120–133.
- Kock, A., & Georg Gemünden, H. (2016). Antecedents to decision-making quality and agility in innovation portfolio management. *Journal of Product Innovation Management*, 33(6), 670–686.
- Krasniqi, B. A. (2009). Personal, household and business environmental determinants of entrepreneurship. *Journal of Small Business and Enterprise Development*, 16(1), 146–166.
- Krasniqi, B. A., & Desai, S. (2016). Institutional drivers of high-growth firms: Country-level evidence from 26 transition economies. *Small Business Economics*, 47(4), 1075–1094.
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J. (2018). Digital entrepreneurship: A research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*. <https://doi.org/10.1108/IJEBR-06-2018-0425>
- Kreiser, P. M., Marino, L. D., Dickson, P., & Weaver, K. M. (2010). Cultural influences on entrepreneurial orientation: The impact of national culture on risk taking and proactiveness in SMEs. *Entrepreneurship Theory and Practice*, 34(5), 959–984.
- La Pira, F. (2011). Entrepreneurial intuition, an empirical approach. *Journal of Management and Marketing Research*, 6, 1.
- Liao, S. H., Chen, C. C., Hu, D. C., Chung, Y. C., & Liu, C. L. (2017). Assessing the influence of leadership style, organizational learning and organizational innovation. *Leadership & Organization Development Journal*, 38(5), 590–609.
- Lieberman, M. D. (2000). Intuition: A social cognitive neuroscience approach. *Psychological Bulletin*, 126(1), 109.
- Lieberman, M. D. (2007). Social cognitive neuroscience: A review of core processes. *Annual Review of Psychology*, 58, 259–289.
- Maani, K. E., & Maharaj, V. (2004). Links between systems thinking and complex decision making. *System Dynamics Review: The Journal of the System Dynamics Society*, 20(1), 21–48.
- Malecki, E. J. (2018). Entrepreneurship and entrepreneurial ecosystems. *Geography Compass*, 12(3), e12359.
- Malmström, M., Johansson, J., & Wincent, J. (2017). Gender stereotypes and venture support decisions: How governmental venture capitalists socially construct entrepreneurs' potential. *Entrepreneurship Theory and Practice*, 41(5), 833–860.
- Markowska, M., Grichnik, D., Brinckmann, J., & Kapsa, D. (2019). Strategic orientations of nascent entrepreneurs: Antecedents of prediction and risk orientation. *Small Business Economics*, 53(4), 859–878.
- Mathias, B. D., & Williams, D. W. (2017). The impact of role identities on entrepreneurs' evaluation and selection of opportunities. *Journal of Management*, 43(3), 892–918.
- Miao, Q., & Liu, L. (2010). A psychological model of entrepreneurial decision making. *Social Behavior and Personality: An International Journal*, 38(3), 357–363.
- Ministry of Economy of Montenegro. (2017). *Business stimulating programs*. Available online: [http://www.bizniszona.me/wp-content/uploads/2017/06/Business-Stimulating-Programs\\_brochure.pdf](http://www.bizniszona.me/wp-content/uploads/2017/06/Business-Stimulating-Programs_brochure.pdf) (accessed on 20. January 2021).
- Ministry of Foreign Affairs of Montenegro. (2019). *Montenegro investment and business opportunities*. Available online: <https://www.flandersinvestmentandtrade.com/export/sites/trade/files/attachments/>

- [4th%20Montenegro%20Investment%20and%20Business%20Opportunities%20%28MIBO%29.pdf](#) (accessed on 20. January 2021).
- Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E., & Brock Smith, J. (2004). The distinctive and inclusive domain of entrepreneurial cognition research. *Entrepreneurship Theory and Practice Winter*, 505–518.
- Mugler, J. (2017). *The climate for entrepreneurship in European countries in transition*. The Blackwell Handbook of entrepreneurship, pp. 150–175.
- Nelson, J. A. (2016). Not-so-strong evidence for gender differences in risk taking. *Feminist Economics*, 22(2), 114–142.
- Newman, A., Herman, H. M., Schwarz, G., & Nielsen, I. (2018). The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership. *Journal of Business Research*, 89, 1–9.
- Ngo, V. D., Janssen, F., & Falize, M. (2016). An incentive-based model of international entrepreneurship in emerging and transition economies. *Journal of International Entrepreneurship*, 14(1), 52–74.
- Nicolás, C., Rubio, A., & Fernández-Laviada, A. (2018). Cognitive determinants of social entrepreneurship: Variations according to the degree of economic development. *Journal of Social Entrepreneurship*, 9(2), 154–168.
- OECD. (2018). *Strengthening SMEs and entrepreneurship for productivity and inclusive growth*. Available online: <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=12471> (accessed on: 14.03.2021).
- Palanivelu, V. R., & Manikandan, D. (2015). Concept of Entrepreneurship. Cognitive Discourse. *International Multidisciplinary Journal NAS Publication*, 3(3), 8–13.
- Park, J., Lee, K. H., & Kim, P. S. (2016). Participative management and perceived organizational performance: The moderating effects of innovative organizational culture. *Public Performance & Management Review*, 39(2), 316–336.
- Radas, S., Dabić, M., & Andrijevic Matovac, V. (2009). Destiny or decision: Competitive performance and its relationship to innovation. *International Journal of Business Performance Management*, 11(4), 292–312.
- Rana, H. M., Murtaza, S., Noor, F., & Rehman, K. (2011). Effects of Demographic Factors on Risky Decision-Making Behavior. *European Journal of Social Sciences*, 26(1), 69–76.
- Ratten, V., Dana, L. P., & Ramadani, V. (2017). Internationalisation of family business groups in transition economies. *International Journal of Entrepreneurship and Small Business*, 30(4), 509–525.
- Rebellow, A. M., & Suri, P. (2019). Role of demographic factors on decision-making styles of Indian corporate executives-public and private sectors. *Journal of Management Information and Decision Sciences*, 22(3), 308–321.
- Rialti, R., Pellegrini, M. M., Caputo, A., & Dabić, M. (2017). Entrepreneurial education and internationalisation of firms in transition economies: A conceptual framework from the case of Croatia. *World Review of Entrepreneurship, Management and Sustainable Development*, 13(2–3), 290–313.
- Riaz, M. N., Anis-ul-Haque, M., & Hassan, B. (2010). Role of individual and organizational factors in decision making. *Pakistan Journal of Psychology*, 41(1), 41–62.
- Richard, O. C., Ford, D., & Ismail, K. (2006). Exploring the performance effects of visible attribute diversity: the moderating role of span of control and organizational life cycle. *The International Journal of Human Resource Management*, 17(12), 2091–2109.
- Roersen, M. J., Groen, A. J., & Kraaijenbrink, J. (2008). A multidimensional decision-making model for internationalization of high-tech SMEs in transition economies. In: The 16th Annual High Technology Small Firms Conference : May 22-23, 2008 + May 21 Doctoral Workshop, University of Twente, Enschede, The Netherlands., 22 May 2008 - 23 May 2008, Enschede, The Netherlands. <https://proceedings.utwente.nl/101/>. Accessed 26 May 2021.
- Rolison, J. J., Hanooh, Y., & Wood, S. (2012). Risky decision making in younger and older adults: The role of learning. *Psychology and Aging*, 27(1), 129–140. <https://doi.org/10.1037/a0024689>
- Rolison, J. J., Morsanyi, K., & Peters, E. (2020). Understanding health risk comprehension: The role of math anxiety, subjective numeracy, and objective numeracy. *Medical Decision Making*, 40(2), 222–234.
- Rossberger, R. J., & Krause, D. E. (2015). Participative and team-oriented leadership styles, countries' education level, and national innovation: The mediating role of economic factors and national cultural practices. *Cross-Cultural Research*, 49(1), 20–56.
- Roundy, P. T., & Fayard, D. (2019). Dynamic capabilities and entrepreneurial ecosystems: The micro-foundations of regional entrepreneurship. *The Journal of Entrepreneurship*, 28(1), 94–120.

- Sadler-Smith, E. (2016). The role of intuition in entrepreneurship and business venturing decisions. *European Journal of Work and Organizational Psychology, 25*(2), 212–225.
- Sajilan, S., Hadi, N. U., & Tehseen, S. (2015). Impact of entrepreneur's demographic characteristics and personal characteristics on firm's performance under the mediating role of entrepreneur orientation. *Review of Integrative Business and Economics Research, 4*(2), 36.
- Schaper, M. (2016). *Making Ecopreneurs: Developing Sustainable Entrepreneurship*. CRC Press
- Shaikh, S., & Shaikh, R. (2019). Modeling of dynamic/situational leadership for effective entrepreneurship development. *Journal of Model Based Research, 1*(1), 1.
- Shepherd, D. A., Williams, T. A., & Patzelt, H. (2015). Thinking about entrepreneurial decision making: Review and research agenda. *Journal of Management, 41*(1), 11–46.
- Simon, M., Houghton, S. M., & Aquino, K. (2000). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal of Business Venturing, 15*(2), 113–134.
- Sjöberg, L. (2003). Intuitive vs. analytical decision making: which is preferred?. *Scandinavian Journal of Management, 19*(1), 17–29.
- Spicer, D., & Sadler-Smith, E. (2005). An examination of the general decision making style questionnaire in two UK samples. *Journal of Managerial Psychology, 20*(2), 137–149.
- Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate? *Behavioral and Brain Sciences, 23*(5), 645–665.
- Stringa, A., Sallaku, S., & Tabaku, J. (2009). Individual characteristics of entrepreneurs in transition countries: The Albanian case. *Contemporary Economics, 3*(2), 91–101.
- Szczepańska-Woszczyzna, K. (2015). Leadership and organizational culture as the normative influence of top management on employee's behaviour in the innovation process. *Procedia Economics and Finance, 34*, 396–402.
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using Multivariate Statistics*. Pearson.
- Taştan, S. B., & Davoudi, S. M. M. (2017). The relationship between organisational climate and organisational innovativeness: Testing the moderating effect of individual values of power and achievement. *International Journal of Business Innovation and Research, 12*(4), 465–483.
- Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review, 58*(4), 13–35.
- Tyszka, T., Cieślak, J., Domurat, A., & Macko, A. (2011). Motivation, self-efficacy, and risk attitudes among entrepreneurs during transition to a market economy. *The Journal of Socio-Economics, 40*(2), 124–131.
- UHY Serbia. (2020). *Doing business in Serbia*. Available online: <https://www.uhy.com/wp-content/uploads/Doing-Business-in-Serbia.pdf> (accessed on 20. January 2021).
- Van Doorn, S., Heyden, M. L., & Volberda, H. W. (2017). Enhancing entrepreneurial orientation in dynamic environments: The interplay between top management team advice-seeking and absorptive capacity. *Long Range Planning, 50*(2), 134–144.
- Velu, C., & Jacob, A. (2016). Business model innovation and owner-managers: The moderating role of competition. *R&D Management, 46*(3), 451–463.
- Vershinina, N., Barrett, R., & McHardy, P. (2017). Logics and rationalisations underpinning entrepreneurial decision-making. *Journal of Small Business and Enterprise Development, 24*(1), 158–175.
- Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management journal, 35*(1), 91–121.
- Williams, N., Radevic, D., Gherhes, C., & Vorley, T. (2017). The nature of corruption affecting entrepreneurship in transition economies: Some lessons from Montenegro. *South East European Journal of Economics and Business, 12*(2), 20–34.
- World Bank Group. (2014). Rebalancing Serbia's economy: improving competitiveness, strengthening the private sector and creating jobs. Available online: <https://www.worldbank.org/content/dam/Worldbank/document/eca/Serbia/rs-competitiveness-rebalancing-serbian-economy.pdf> (accessed on: 21.03.2021).
- Zeng, X., & Ouyang, Y. (2020). Entrepreneurship: Tenacity, Future Self-Continuity, and Inter-Temporal Risky Choice. *Frontiers in Psychology, 11*, 1647.

## Authors and Affiliations

**Boban Melović<sup>1</sup> · Slavica Mitrović Veljković<sup>2</sup> · Dragana Ćirović<sup>1</sup> · Tamara Backović Vulić<sup>1</sup> · Marina Dabić<sup>3,4</sup> **

Boban Melović  
bobanm@ucg.ac.me

Slavica Mitrović Veljković  
mslavica@uns.ac.rs

Dragana Ćirović  
dcirovic@ucg.ac.me

Tamara Backović Vulić  
tassabacc@ucg.ac.me

<sup>1</sup> Faculty of Economics Podgorica, University of Montenegro, Jovana Tomaševića, 37, Podgorica, 81000, Montenegro

<sup>2</sup> Faculty of Tehnical Sciences, University of Novi Sad, Trg Dositeja Obradovića 6, 21000 Novi Sad, Serbia

<sup>3</sup> Department of International Economics, Faculty of Economics and Business, University of Zagreb, Zagreb, Croatia

<sup>4</sup> Department of Management, Nottingham Business School, Nottingham Trent University, Nottingham, UK