

Testing Prospect Theory Parameters and the Impact of Human Capital in the Business Domain¹

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Abstract

This paper contributes to the current body of knowledge regarding prospect theory parameter testing in the business domain. The aim of this research was threefold. First, the methodology of Tversky and Kahneman (1992) was used to extract parameters for risk aversion, loss aversion and weighting function from a sample of entrepreneurs. Second, differences in the prospect theory parameters dependent on the business performance were examined. Third, differences in risk preferences based on human capital investments, thus education and parental entrepreneurial background, were tested. Findings showed that entrepreneurs are risk-seeking, have quite low loss aversion and an average ability to estimate probabilities. It was shown that entrepreneurs with a university degree have higher ability to estimate probabilities than entrepreneurs without university education. Regarding business performance, it was shown that entrepreneurs in the stabilization phase were the most risk-seeking, which is contradictory to the reflection effect proposed by Fiegenbaum and Thomas (1988). Results of this research suggest that entrepreneurs differ from other high-achieving individuals in their attitude toward loss rather than risk-seeking attitude.

Keywords: *risk aversion, loss aversion, weighting function parameter, human capital*

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Introduction

The literature states that approximately half of new businesses fail within five years (Cooper, Woo and Dunkelberg, 1988). Reports by the Slovak Business Agency (2018a) state that almost 60% fail within five years. A cognitive perspective suggests that business failure may be caused by lower risk perception (Keh, Foo and Lim, 2002; Simon, Houghton and Aquino, 1999). Entrepreneurship involves elements of risk as well as uncertainties and calls for frequent financing decisions (Forlani and Mullins, 2000). A decision under risk is characterised by individuals having at their disposal data and using it for prediction (Baláž, Fifeková and Nemcová, 2009). A sample of entrepreneurs may have specific risk preferences while it was proposed that even the single decision to create a business in comparison to employment may be an indicator of lower risk perception (Hsu, Wiklund and Cotton, 2017). Stewart and Roth (2001) in their metaanalysis introduced two competing theoretical streams describing risk taking of entrepreneurs (Stewart and Roth, 2001). The first stream posits that entrepreneurs have a higher risk propensity than managers. Stewart and Roth (2001) claim that even though managers are also taking risk, it is not under such risky circumstances as entrepreneurs. Consistent with this theoretical stream, Stewart and Roth (2001) assert that entrepreneurs „self-select“ themselves into entrepreneurial careers in comparison to more risk-averse individuals who prefer contractual employment. The second theoretical stream stems from motivation theory and emphasizes fear of failure and desire for success. Since entrepreneurs and managers are both high in achievement motivation, entrepreneurs should not differ from managers, according to achievement motivation theory, however the meta-analytical review of Stewart and Roth (2001) supported differences in risk propensity between entrepreneurs and managers. Effect sizes supported a higher risk propensity of the more profit and growth oriented entrepreneurs rather than the income – oriented managers. The origins of the negative effect of risk aversion on self-employment were also clarified by Ekelund et al. (2005), who consider risk aversion as a strong predictor of the self-employment decision.

Stewart and Roth (2001) emphasized the role of proper methodology for measuring risk-taking behavior of entrepreneurs and the contribution of prospect theory to the current body of knowledge in the area of entrepreneurial risk-taking. Decisions under risk are usually measured by choices between risky and less risky option (Dohmen et al., 2011) and even though self-assessment methods and actual risky behavior in investment are used to measure risky behavior according to Baláž (2009), hypothetical choices can also measure risk taking of individuals thoroughly (Baláž, 2009). One methodology that is based on hypothetical choices and provides detailed information about decisions under risk

among individuals is prospect theory (Kahneman and Tversky, 1979; Tversky and Kahneman, 1992).

Furthermore, parameters of prospect theory outline certain differences between risk averse and risk tolerant individuals without a specific comparison group. The prospect theory method enables the elicitation of the risk aversion parameter (risk tolerance), loss aversion and weighting function parameters. Decisions under risk in prospect theory were predominantly tested on a sample of students of social sciences and economics (Dudeková, 2014; Baláž, Fifeková and Nemcová, 2009), that restrict comprehensive understanding of the risk preferences of individuals coping with extremely high uncertainty, risk, time pressure and emotional intensity, like entrepreneurs (Forlani and Mullins, 2000). Prospect theory is an appropriate framework not only for eliciting risk aversion, loss aversion and weighting function parameters using a sample of entrepreneurs, but also for displaying decisions in the weighting and the value function.

As suggested by Booij, Praag and Kuilen (2010), other background information for risk difference examination can be collected. A literature search concerning risk preferences showed that prospect theory parameters were mostly linked to experience and performance in the business domain. Whereas prospect theory and performance are well established in the literature (e.g. Fiegenbaum and Thomas, 1988; Hsu, Wiklund and Cotton, 2017), experience and prospect theory parameters are less frequently examined by scholars (e.g. Alessandri, Mammen and Eddleston, 2018; Chua, Chrisman and De Massis, 2015). Therefore, the second purpose of this study is to further scrutinize if risk preferences differ among entrepreneurs in the gain domain, thus in the domain of financial prosperity, and entrepreneurs experiencing lower performance. The third purpose of this paper is to test differences in risk preferences among individuals with different education and parental entrepreneurial background. Examination of experience may clarify the link between experience, financial performance and risk-taking of entrepreneurs suggested by Hsu, Wiklund and Cotton (2017). The same link was made by Unger et al., (2011), who proposed a framework for the effect of experience examination by making a link between human capital investments (education, parental entrepreneurial background) and human capital outcomes (e.g. knowledge, skills) as predictors of business performance.

1. Enhancement of Testing Prospect Theory Principles

Although the original paper on prospect theory was published in 1979, it cannot be claimed that forty years later the theory is significantly widespread in the economic domain (Barberis, 2013). Holmes et al. (2011) concluded that the

greatest limitation of prospect theory application lies in examining merely some of the prospect theory elements. Another limitation is the application of the theory in ways that put a limit on comparison of studies (Holmes et al., 2011). Moreover, Lewandowski (2017) proposes that prospect theory in the business domain needs closer scrutiny on the effect of familiarity with the domain in which the choice is made.

The primary aim of the studies applying prospect theory was prospect theory parameters elicitation, displaying and commenting on the value and weighting function (Wu and Gonzalez, 1996), testing the principle of diminishing sensitivity (Wu and Gonzalez, 1999) and subadditivity testing (Abdellaoui, 2000; Kilka and Weber, 2001; Bleichrodt and Pinto, 2000). The principle of bounded subadditivity means a higher impact of an event changing a possibility to certainty or an impossibility to a possibility, in comparison to changes in the middle of the scale (Tversky and Fox, 1995). It was tested by several authors that commented on rejecting or confirming subadditivity (Tversky and Fox, 1995; Abdellaoui, 2000; Kilka and Weber, 2001).

Since the publication of cumulative prospect theory, prospects have been modified and extended to uncertain prospects. Prospects can be divided into two main groups, namely prospects based on uncertain events (Tversky and Fox, 1995; Kilka and Weber, 2001) and risky prospects (Wu and Gonzalez, 1996; Abdellaoui, 2000). The extension of the methodology consisted of prospects based on uncertain events allowed to examine other effects such as the competence hypothesis (Tversky and Fox, 1995). The competence hypothesis posits that individuals (e.g. sports fans) prefer bets on a gamble in their domain of competence and not on random prospects. The study from Tversky and Fox (1995) has shown that participants in all the studies preferred bets on uncertain beliefs (without known probabilities) in their domain of competence relative to known chance events. Baláž, Fifeková and Nemcová (2009) tested risk aversion in economics students through hypothetical bets. Findings resulted in the fact that individuals were willing to bet more money on events they really or supposedly knew. It turned out that the students who thought they had knowledge of some issues were willing to bet higher sums. Based on the above findings it can be posited that experience from a domain may have an effect on the decisions of individuals.

2. Testing Prospect Theory Parameters and Experience

Experience belongs to human capital according to Unger et al. (2011), which is defined as knowledge and skills that an individual gained through investments in education, on-the-job training and other kinds of experience (Becker, 1964).

Human capital, like parental entrepreneurial background, is positively associated with performance measured by profitability, growth and stock market performance (Combs, Crook and Shook, 2005). Wennberg et al. (2010) used prospect theory and human capital theory to explain the link between experience and performance, specifically exit routes. They found out that failure avoidance strategies differ at various exit stages (Wennberg et al., 2010).

According to the literature reviewed, prospect theory parameters are linked to the parental entrepreneurial background. It turns out that family entrepreneurial experience has implications for the magnitude of the prospect theory parameters, since not only purely economic values but also socioemotional values have an impact upon decision-making (Alessandri, Mammen and Eddleston, 2018; Chua, Chrisman and De Massis, 2015). Gómez-Mejía et al. (2007, p. 1) defines socioemotional wealth as “*non-financial aspects of the firm that saturate a family’s affective needs, such as identity, the ability to exercise family influence and the perpetuation of a family dynasty*”. Another risk preference implication may stem from the fact that family businesses are more attractive for investors. It was suggested that they may be perceived as more trustworthy (Lude and Prügl, 2019). Alessandri, Mammen, and Eddleston (2018) found that family involvement has a positive effect on corporate risk acceptance. The findings show that family businesses have a higher risk tolerance because of their long-term orientation and lower myopic loss aversion (Alessandri, Mammen and Eddleston, 2018). The long-term orientation of family businesses and less frequent investment evaluation may cause temporary losses to be tolerated as a trade-off for potential gains. Therefore, it may be assumed that parental entrepreneurial background may lead to higher risk tolerance. Another factor that is not extensively studied is the difference in the parameters of prospect theory as related to education.

Davidsson and Honig (2003) assumes that educated individuals may have higher performance, since they have access to financial and social capital (Davidsson and Honig, 2003). Booij, Praag and Kuilen (2010) used a representative sample to test prospect theory parameters, albeit not in the entrepreneurial domain. It was shown that individuals without education are more risk averse. Education matters not just as a binary variable, but also the character of education may have a role. Testing prospect theory parameters in Slovakia suggested that students of social sciences are risk averse (Dudeková, 2014), while students of economics are risk-seeking. Other studies supported risk aversion of university students (Abdellaoui, L’Haridon and Paraschiv, 2011; Abdellaoui, L’Haridon and Bleichrodt, 2008; Bleichrodt and Pinto, 2000) and high loss aversion (Abdellaoui, L’Haridon and Paraschiv, 2011; Abdellaoui, L’Haridon and Bleichrodt, 2008) of university students.

3. Testing Prospect Theory Parameters and Business Performance

Besides entrepreneurship was prospect theory applied in various domains, like weather forecasting, betting on horse races or financial investments (Baláž et al., 2013). Edwards (1996) and Holmes et al. (2011) conducted a review of prospect theory principles in finance and management and came to the conclusion that the prospect theory principles cannot be considered sufficiently explained and applied in the entrepreneurial environment. Edwards (1996) notes that the findings of research based on the prospect theory in the domain of finance rested in measuring risky attitudes of various groups of individuals, perception of gains and losses of individuals, testing of the reflection effect, the certainty effect and the elicitation of the value function (Edwards, 1996).

Links between prospect theory and business performance may be traced back to a study of Fiegenbaum and Thomas (1988). Edwards (1996) notes that the findings from Fiegenbaum and Thomas (1988), which have shown that most companies are risk-averse when they experience performance gains (above the target level) and risk-taking when they experience performance losses (below the target level), can be considered one of the initial applications of prospect theory in business. Risk was measured on the corporate level by variance in returns, which may be considered as a limit of application of prospect theory in business, while prospect theory present risk preferences on the individual level.

Hsu, Wiklund and Cotton (2017) assert that prospect theory was applied in few articles (e.g. Lee and Venkataraman, 2006; Simon, Houghton and Savelli, 2003; Wennberg et al., 2010), however search of recent literature does not provide greater evidence of the application of prospect theory in the entrepreneurial domain (e.g. Zichella and Reichstein, 2016). Hsu, Wiklund and Cotton (2017) posed a question about risk-taking manifested in entering a business among individuals who experienced loss or gain, albeit the research sample consisted of students, rather than a sample of entrepreneurs. Thus, the loss and gain domain was manipulated. Lee and Venkataraman (2006) examined the impact of the decision-maker's aspirations satisfaction on risk aversion. Lee and Venkataraman (2006) assumed that if non-entrepreneurial options satisfy the aspirations of the individual, that individual is more risk averse and will not act on an entrepreneurial opportunity, but they did not test their assumptions empirically. One principle of prospect theory was discovered by Simon, Houghton and Savelli (2003) in their study, who found that managers who are less satisfied entered less familiar markets with their products.

The relationship between business performance and risk aversion was also pointed out by Li, Yi and Cui (2017) who used prospect theory to describe the relations among external and internal corporate activities for executive directors

of various sectors. The results showed that an internal gain caused an executive director to become risk-averse and less involved in external risky activities. Sun (2017) found that risk aversion negatively influences gross profit. Bouteska and Regaieg (2018) investigated loss aversion and the economic performance of US companies. The results showed that loss aversion negatively affects revenues. Cheng and Chen (2011) found that loss aversion is reflected in the investment decisions of individuals and experience with losses leads to reduced risk taking in the investment domain.

This research is aimed at following up on the critique of application of the prospect theory principles in the business domain in using various modifications of Tversky and Kahneman's (1992) method, inconsistent with the theory. Firstly, all parameters of prospect theory – risk aversion, loss aversion, weighting function parameter will be elicited on the aggregate level. Parameters of prospect theory will be expressed in the value and weighting function of entrepreneurs. Secondly, differences in risk preferences dependent on business performance will be examined. Thirdly, the differences in risk preferences based on human capital investments (parental entrepreneurial background, education) will be examined.

Since the literature does not allow clear prediction, several research questions are posed:

1. *What values of risk aversion, weighting function parameter and loss aversion characterize entrepreneurs?*
2. *Do risk preferences differ among individuals with high and lower performing businesses?*
3. *Do risk preferences differ among individuals with different human capital investments (parental entrepreneurial background, education)?*

4. Method

4.1. Participants

Data was collected by a professional agency that offered financial compensation for participation in the research. The study was approved by an ethics committee. The requirement for data collection was a business older than one year and only male gender data was collected because of availability. The research sample consisted of 132 male business owners aged 19 to 63 years ($M = 40.6$, $SD = 10.8$). Research sample include all three types of enterprises according to the size criterion of the number of employees (small enterprises $n = 119$, medium enterprises $n = 10$, large enterprises $n = 3$). A detailed description of the sample is shown in Table 1.

Table 1
Descriptive Statistics of Experience and Performance Indicators

	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
	High school		University			
Education	51	38.6	81	51.4		
	Low (2 – 9)		Medium (10 – 15)		High (16 – 80)	
Age of the business	43	32.6	45	34.1	44	33.3
	Growth		Stabilisation		Crisis	
Business life cycle phase	82	62.1	31	23.5	19	14.4
	Parent – entrepreneur		Parent non-entrepreneur			
Parent entrepreneur	51	38.6	81	51.4		

Notes: $n = 132$. Average age was 40.6 ($SD = 10.8$). Age of the business was divided by 33rd percentile (33, 66, 100).

Source: Outcomes from author's own research.

4.2. Materials

Risk Preferences

(Risk aversion, loss aversion and weighting function parameters)

To estimate parameters, the methodology of Tversky and Kahneman (1992) was applied that has been adapted to Slovak conditions by Dudeková (2014). The only difference between the methodology used and the original version of Tversky and Kahneman (1992) consists in using positive prospects and lower winning sums in this research. The first section of the instrument comprises 28 games. The participant can hypothetically win sums ranging from 20 Euro to 160 Euro in the respective tasks. The participant is asked to select between a risky game and a guaranteed sum. First, the respondent should choose an option between a risky game (e.g. 90% of winning 0 Euro and 10% of winning 20 Euro) and a guaranteed amount of money from the broad interval of preferences (e.g. 0 – 20 Euro) and then the specific interval appeared based on the first choice (e.g. 16 – 19 Euro). From the first 28 tasks the risk aversion is elicited ($\alpha < 1 =$ risk aversion, $\alpha > 1 =$ risk seeking) and the weighting function parameter. The weighting function parameter and parameter of risk aversion were calculated from median cash equivalents of respondents on an aggregate level via non-linear regression.

The second section of the methodology comprises eight tasks that are based on the respondent being expected to state at what value one alternative with 50% probability would be equally attractive as the other with the same probability. Respondents were instructed to state what amount of money would compensate them for a risky game (e.g. state the amount of money – X , we should give you to compensate for the loss of 10 Euro with 50%). The loss aversion parameter is elicited from these eight tasks and is calculated for all eight tasks via following equation:

$$\theta = (x - b)/(c - a)$$

Entrepreneurial Experience

In the beginning of the questionnaire the respondent was asked about age. Based on the review from Unger et al. (2011), education (high school/university) and parental entrepreneurial experience (yes/no) were chosen as measurement variables.

Performance

Two measures of performance, were adopted, namely business life cycle phase and age of the business (Unger et al., 2011). The age of the business reflects potential sales volume (Chandler and Hanks, 1994). It is expected that older businesses will have a higher sales volume (Chandler and Hanks, 1994). Age of the business was divided into 33rd percentiles. Groups created from age of the business were used in previous studies (Yazdanfar and Ohman, 2014; Slovak Business Agency, 2018b). Since the age of the business does not need to directly indicate performance of the business, assuming that there may not be a linear relationship between experience and performance (Toft-Kehler, Wennberg and Kim, 2014), performance was measured directly by the entrepreneur's statement of their business life cycle phase. Business life cycle phase is considered to be a reliable indicator predicting performance (Yazdanfar and Ohman, 2014). The business life cycle indicator was a question about what stage of the entrepreneurial cycle the entrepreneur was at. The respondent made a choice between three options of growth, stabilization and crisis <euroekonom.sk>.

4.3. Results

The mean value of risk aversion parameter on the individual level showed that entrepreneurs belong to a risk tolerant group. This finding is supported by the frequency of 78% of risk tolerant parameter values in the sample.

Parameters of Prospect Theory Elicited on the Aggregate Level

First, values of parameters of loss aversion, parameters of value and weighting function on entrepreneurial aggregate level are introduced. Based on the value function parameter, it was shown that the sample of entrepreneurs is risk seeking ($\alpha = 1.011$). The parameter of weighting function ($\gamma = 0.599$) reached similar values as presented in the original paper of Tversky and Kahneman (1992). The parameter of loss aversion ($\lambda = 2.09$) showed entrepreneurs are loss averse. It means that risky gambles are acceptable for them, if the financial compensation for loss is more than two times higher than the loss.

Subsequently the decision under risk profile of entrepreneurs was displayed in the value function and the weighting function. The original value function in the domain of gain is displayed below the diagonal of linear shape, representing

neutral attitude toward risk, and in the domain of loss function has a more steady shape (Baláž, 2009). The value function on the aggregate level confirmed the principles of value function in the domain of loss. Loss was perceived more intensively and the parameter λ , specifically loss was perceived more than two times intensively.

Table 2

Values of Parameters of Prospect Theory Elicited on the Aggregate Level

α	1.011
γ	0.599
λ mean	2.09
λ median	2.00

Source: Outcomes from author's own research.

The function was more steady for losses (Figure 1). In the domain of gain the value function violated the original principles of the value function. The value function of entrepreneurs represented a more tolerant attitude toward risk, which is displayed above the (red) line representing neutral attitude toward risk (Figure 1).

Figure 1
Value Function of Entrepreneurs
on the Aggregate Level

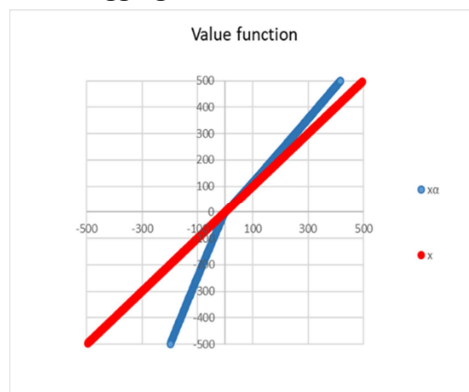
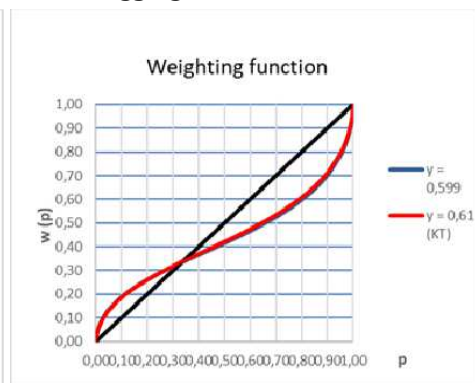


Figure 2
Weighting Function of Entrepreneurs
on the Aggregate Level



Source: Tversky and Kahneman (1992) and outcomes from author's own research.

The weighting function parameter reached a value $\gamma = 0.599$ (Figure 2), that reflected a similar value as was elicited in the typical value function by Tversky and Kahneman (1992). The function supported the form of a reversed S-shape. In the shape of the weighting function the overweighting of low probabilities and underweighting of moderated and large ones was manifested. It is concluded that the function is in line with the findings of Tversky and Kahneman (1992). Decision weights are deflected from the objective probabilities, specifically,

the decision weight of low probabilities are higher than probability $w(p) > p$ and for the higher probabilities the decision weights have the opposite tendency $0 < p < 1$.

4.4. Differences in Risk Preferences among Individuals with High and Lower Performing Businesses

Distribution was tested using the Shapiro-Wilk test. The distribution of data did not support normal distribution. Since parental entrepreneurial background and education are categories, differences in parameters dependent on education and parental entrepreneurial background, as well as performance measures were conducted via the Mann-Whitney U test and Kruskal-Wallis test. Size effect was measured by η^2 (Tomczak and Tomczak, 2014). Parameter η^2 and Dunn post hoc test were generated from JASP 0.11.1.0.

Table 3

Differences in Risk Preferences Based on Business Performance

Differences in risk preferences based on age of the business (low = 43, medium = 45, high = 44)			
Risk preference	χ^2	p	η^2
Risk aversion	10.306	0.006	0.02
Weighting function	6.772	0.034	0.009
Loss aversion	0.318	0.853	–
Differences in risk preferences based on business life cycle (growth = 82, stabilisation = 31, crisis = 19)			
Risk aversion	6.658	0.036	0.007
Weighting function	0.485	0.785	–
Loss aversion	10.080	0.006	0.072

Notes: χ^2 = the Kruskal-Wallis test, p = the statistical significance, η^2 , Cohen's d = size effect.

Source: Outcomes from author's own research.

The Kruskal-Wallis test showed, that statistically significant differences exist between risk aversion based on the age of the business, (low, moderate, high), $\chi^2(2) = 10.306$, $p = 0.006$, $\eta^2 = 0.02$ with mean rank score for low age = 81.70, moderate age of business = 57.21, and high age of business = 61.15. The Dunn post hoc test showed that a significant difference exists between low and moderate level of age of the business ($p = 0.05$), but no significant difference was found between low and high age of the business and between moderate and high age of the business. The results showed that the risk aversion parameter is higher for a lower age of the business in comparison to a moderate age of the business. Therefore, individuals who have a business younger than 9 years (low age of the business) in comparison to older businesses are more risk tolerant, since a higher risk aversion parameter signifies risk tolerance. The Kruskal-Wallis test showed that significant differences exist in the weighting function parameter based on

the age of the business (low, moderate, high), $\chi^2(2) = 6.772$, $p = 0.034$, $\eta^2 = 0.009$ with mean rank score for low age of the business = 55.22, moderate age of the business = 76.39, and high age of the business = 67.41, albeit the Dunn post hoc test showed, that there is no statistically significant difference in the weighting function parameter based on the age of the business. The Kruskal-Wallis test showed, that there is no difference in loss aversion based on the age of the business (low, moderate, high), $\chi^2(2) = 0.318$, $p = 0.853$.

The Kruskal-Wallis test showed that there exists a difference in risk aversion based on the business life cycle, $\chi^2(2) = 6.658$, $p = 0.036$, $\eta^2 = 0.007$ with mean rank score for growth = 59.95, for stabilization of business = 79.56, for crisis = 73.47. The Dunn post hoc test showed that there is a difference in risk aversion between the phase of growth and stabilization ($p = 0.002$), differences between other phases were not statistically significant. The Kruskal-Wallis test did not show significant differences in the weighting function parameter based on the business life cycle phase, $\chi^2(2) = 0.485$, $p = 0.785$, $\eta^2 = 0.016$ with mean rank score for growth = 68.26, for stabilisation of business = 62.94, for crisis = 64.71. The Kruskal-Wallis test showed that significant differences exist in loss aversion based on business life cycle phase, $\chi^2(2) = 10.080$, $p = 0.006$, $\eta^2 = 0.072$ with mean rank score for phase of growth = 74.71, for stabilization = 54.45, for crisis = 50.74. The Dunn post hoc test showed a significant difference in loss aversion parameter between growth and stabilization phase ($p = 0.006$) and between growth and crisis ($p = 0.007$). The results showed that in the growth phase loss aversion parameter is the highest, significantly different from the stabilization and crisis phases.

4.5. Differences in Risk Preferences among Individuals with Different Human Capital Investments (parental entrepreneurial background, education)

Differences in risk preferences between individuals with and without parental entrepreneurial background were tested and between individuals with and without university education.

The Mann-Whitney U test showed, that there is no significant difference in risk aversion between individuals with a parental entrepreneurial background and without a parental entrepreneurial background, $U = 1999$, $p = 0.401$. There was also an insignificant impact of family entrepreneurial background on the weighting parameter function, $U = 2024$, $p = 0.846$. The Mann-Whitney U test showed no significant difference in loss aversion caused by entrepreneurial family background, $U = 1753.5$, $p = 0.145$.

Mann-Whitney U test confirmed a significant difference in the weighting function parameter based on education. It showed differences in the weighting function parameter based on education, $U = 1531.500$, $p = 0.013$, $\eta^2 = 0.047$, Cohen's $d = 0.445$ with mean rank score for individuals with high school education = 56.03 and university education = 73.09. Effect size is considered medium (Tomczak and Tomczak, 2014). The results indicated, that individuals with university education had a higher ability to estimate probabilities. Differences in risk aversion $U = 1837.500$, $p = 0.287$, and loss aversion $U = 1999$, $p = 0.756$ dependent on education were not found.

Table 4

Differences in Risk Preferences Based on Human Capital Investments

Differences in risk preferences between individuals with parental entrepreneurial background ($n = 51$) and without parental entrepreneurial background ($n = 81$)				
<i>Risk preference</i>	<i>U</i>	<i>p</i>	η^2	<i>Cohen's d</i>
Risk aversion	1999	0.401	–	–
Weighting parameter function	2024	0.846	–	–
Loss aversion	1753.5	0.145	–	–
Differences in risk preferences between individuals with high school ($n = 51$) and university education ($n = 81$)				
Risk aversion	1837.500	0.287		
Weighting parameter function	1531.500	0.013	0.047	0.445
Loss aversion	1999	0.756	–	–

Notes: U = Mann-Whitney U test, p = the statistical significance, η^2 , Cohen's d = size effect.

Source: Outcomes from author's own research.

5. Discussion and Conclusions

In this paper, prospect theory was used to answer the following research questions:

1. *What values of risk aversion, weighting function parameter and loss aversion characterize entrepreneurs?*
2. *Do risk preferences differ among individuals with high and lower performing businesses?*
3. *Do risk preferences differ among individuals with different human capital investments (parental entrepreneurial background, education)?*

Regarding the first research question, parameters on the aggregate level showed that entrepreneurs belong to a risk tolerant group ($\alpha = 1.011$). Entrepreneurs were loss averse $\lambda = 2.09$ (median $\lambda = 2.00$), which means that the risky game was accepted if the gain was more than twice as high as the possible loss. The weighting function parameter reached average values ($\gamma = 0.599$), which were also detected in the sample of students in the original paper of Tversky and Kahneman

$\gamma = 0.61$ (1992). It means that entrepreneurs had a similar ability to estimate probabilities to students. Differences were found in loss aversion and risk aversion compared to the findings in the original paper of Tversky and Kahneman (1992). The median exponent of the value function was 0.88 in the original paper which signifies a risk averse attitude, whereas in the sample of entrepreneurs risk seeking was detected. Another difference is in the parameter of loss aversion that was $\lambda = 2.25$ in the original paper of Tversky and Kahneman (1992). Based on the parameter of loss aversion it is possible to conclude that entrepreneurs were less sensitive to loss. Even though the results of Tversky and Kahneman (1992) may provide a certain threshold for prospect theory values comparison, the results of this study may be also comparable with the results of Dudeková (2014), since the same method and estimation technique was used in this study. It was shown that entrepreneurs on the aggregate level were less loss averse than slovak students of economics and students of social sciences (Dudeková, 2014). The last difference between entrepreneurs, who have experience in the financial markets and slovak students was that while students of social sciences were risk averse, entrepreneurs were risk seeking and so were students of economics (social sciences $\alpha = 0.977$, economic sciences $\alpha = 1.013$) (Dudeková, 2014).

However differences in the results may be caused by the fact that the sample of entrepreneurs and students of economics consisted mostly of men and it is shown that men have lower risk aversion (Croson and Gneezy, 2009). Another explanation of these results may be specialisation or occupation. Since universities teaching economics subjects are directly focused on business and management of business, students of economics may be more likely to start their own business versus students of social science. Then the similar risk seeking tendency of students of economics and entrepreneurs as opposed to students of social sciences may provide evidence for higher risk seeking as a prerequisite for self-employment. Origins of the negative effect of risk aversion in the self-employed were clarified by Ekelund et al. (2005), who considers risk aversion as a psychological predisposition with causative power concerning the self-employment decision.

However, the comparison of prospect theory values between entrepreneurs and construction managers in the study of Baláž et al. (2013) showed that both sets of high-achieving individuals have similar risk-seeking tendencies. The research findings do not clearly support the evidence of Stewart and Roth (2001) on the higher risk taking of entrepreneurs in comparison to managers or individuals preferring standard employment. Entrepreneurs in this study were similar in their risk-seeking to construction managers in the study of Baláž et al. (2013) using the same methodology. Many authors (Kahneman and Riepe, 1998; Hirshleifer and Luo, 2001) have confirmed that the business domain is entered primarily by

individuals who are less risk averse and more risk seeking, although based on our results entrepreneurs are similar in risk seeking to construction managers. Whereas construction managers were similarly risk seeking ($\alpha = 1.02$) and reached similar values of weighting function parameter ($\gamma = 0.58$) as entrepreneurs, the highest difference was showed in the loss aversion parameter. The parameter of loss aversion in rather high-paid construction managers was higher ($\lambda = 2.50$) in comparison to entrepreneurs ($\lambda = 2.09$, median $\lambda = 2.00$). It means that construction managers needed higher financial compensation for accepting risk in comparison to entrepreneurs. Since entrepreneurs were also less loss averse than students, these results suggest that entrepreneurs are not differing from the other high-achieving individuals in the risk-seeking tendency, but predominantly in their perception of loss. Decisions of entrepreneurs were displayed in the value and weighting functions. The value function was displayed above the diagonal of linear shape, that signifies risk seeking. The function of loss aversion was linear in the domain of losses. The weighting function supported overweighting of low probabilities and underweighting of moderate and high probabilities.

The second research question was aimed at prospect theory parameter differences dependent on business performance. Business performance was measured by two indicators. The first indicator was age of the business, because it is expected that older businesses have higher sales volume (Chandler and Hanks, 1994). Since age of the business does not need to directly indicate financial prosperity of the business, assuming that there may not be a linear relationship between experience and performance (Toft-Kehler, Wennberg and Kim, 2014), performance was measured directly by the entrepreneur's statement of business life cycle phase. The results showed there was a difference in risk aversion based on the age of the business. The Dunn post hoc test showed a statistically significant difference in risk aversion between individuals with young businesses and medium age businesses in the sample ($p = 0.05$). Individuals who have a young business have a higher parameter of risk aversion, which signifies higher risk tolerance. It can also be interpreted as higher risk-seeking for young businesses, which may not be characterized by high performance represented by, for example, sales volume. Risk aversion also differed for individuals in different business life cycle phase. The Dunn post hoc test showed that there are significant differences in risk aversion between the growth phase and stabilization phase ($p = 0.002$). Individuals in the stabilization phase had a higher score than individuals in the phase of growth.

Moreover, individuals in the stabilization phase had the highest value of the parameter, so they were the most risk seeking, thus tolerant. These results may have been caused by their relative wealth. This is an opposite situation to that

described by Baláž (2009) asserting that irregular income may lead to higher risk aversion (Baláž, 2009). The results of this paper, in fact, suggest that higher risk seeking may be affected by competence, enhanced by financial prosperity as proposed by Demir (2017). The results support the conclusion that in a state of better financial condition, reflected by a stabilization phase, individuals are more risk tolerant. Therefore, the principle called a reflection effect, which implies risk aversion in the domain of gains and risk seeking in the domain of losses was not detected in this sample of Slovak entrepreneurs (Fiegenbaum and Thomas, 1988). Even though these findings seem contradictory to the previous results that showed highest risk tolerance of individuals with young businesses, discrepancies may be caused by the fact that some young businesses are already in the stabilization phase.

In addition to the lower loss aversion of entrepreneurs in comparison to other high-achieving individuals (e.g. students, construction managers), differences in loss aversion dependent on the business life cycle phase were found. The highest value of loss aversion was detected in the sample of growth and the lowest values were detected in the crisis phase. Significant differences were found between the growth and stabilization phase ($p = 0,006$) and between the growth and crisis phase ($p = 0,007$). It means that for the acceptability of risky games individuals in the growth phase needed significantly higher financial compensation than individuals in the crisis and stabilization phase. So another contribution of this study lies in examination of risk preferences among individuals with high performing and less performing businesses, since it was shown that the lowest loss aversion and lowest compensation was needed by entrepreneurs in crisis phase. Hsu, Wiklund and Cotton (2017) claim that based on prospect theory, entrepreneurs in a loss situation are risk seeking, since they want to earn money to offset their previous losses. Entrepreneurs with this risky attitude in a loss situation have a very high chance of failure, so investing in the businesses of these entrepreneurs is risky from an investing perspective, according to Hsu, Wiklund and Cotton (2017).

The third purpose of the paper was to examine differences in risk preferences based on human capital investments and experience. According to Unger et al. (2011) human capital investments encompasses education and parental entrepreneurial background. Therefore, the third research question focused on differences in risk preferences between individuals with and without parental entrepreneurial background and with and without university education. Risk preferences did not differ between individuals with and without parental entrepreneurial background. The results did not support the findings of Alessandri, Mammen and Eddleston (2018) and Chua, Chrisman and De Massis (2015), which assumed an impact of family business on risk aversion and loss aversion. In this study data regarding

parental self-employment were required, but not the origins of the businesses as in the previous studies (Alessandri, Mammen and Eddleston, 2018; Cheng and Chen, 2011), thus, impact of family business may be tested further. Regarding human capital investment in education, a difference was found in the weighting function parameter between individuals with university and high school education ($p = 0.011$). Individuals with university education had higher values of the weighting function parameter, which means that they had a higher ability to evaluate probabilities. The results are aligned with the results of Baláž et al. (2013), who found that university students have a higher ability to estimate probabilities than construction managers. Differences in other parameters dependent on education were not found.

This study has several limitations. The first limitation may be that the sample consisted of men, which undermines a generalization of the findings to the sample of Slovak entrepreneurs. The robustness of these findings should be confirmed by collecting data on a representative sample and including women. Further research may consider controlling for the responses of individuals, because this study did not control for the answers of respondents concerning the phase of the business cycle and so they may have been positively biased. An interpretation of decision-making under risk is also possible using the two-parameter weighting function of Wu and Gonzalez (1999), but the purpose of this study was to test the original principles proposed by Kahneman and Tversky (1979), Tversky and Kahneman (1992) in a sample of entrepreneurs. Another promising area for future research is to test the impact of human capital outcomes (Unger et al., 2011), thus real competence (e.g. knowledge, skills), on the values of the loss aversion, risk aversion and weighting probability functions.

References

- ABDELLAOUI, M. (2000): Parameter-free Elicitation of Utility and Probability Weighting Functions. *Management Science*, 46, No. 11, pp. 1497 – 1512. Available at: <<https://doi.org/10.1287/mnsc.46.11.1497.12080>>.
- ABDELLAOUI, M. – L'HARIDON, O. – BLEICHRODT, H. (2008): A Tractable Method to Measure Utility and Loss Aversion under Prospect Theory. *Journal of Risk and Uncertainty*, 36, No. 3, pp. 245 – 266. Available at: <<https://doi.org/10.1007/s11166-008-9039-8>>.
- ABDELLAOUI, M. – L'HARIDON, O. – PARASCHIV, C. (2011): Experienced vs. Described Uncertainty: Do We Need Two Prospect Theory Specifications? *Management Science*, 57, No. 10, pp. 1879 – 1895. Available at: <<https://doi.org/10.1287/mnsc.1110.1368>>.
- ALESSANDRI, T. M. – MAMMEN, J. – EDDLESTON, K. (2018): Managerial Incentives, Myopic Loss Aversion, and Firm Risk: A Comparison of Family and Non-family Firms. *Journal of Business Research*, 91, pp. 19 – 27. Available at: <<https://doi.org/10.1016/j.jbusres.2018.05.030>>.

- BOUTESKA, A. – REGAIEG, B. (2018): Loss Aversion, Overconfidence of Investors and Their Impact on Market Performance Evidence from the US Stock Markets. *Journal of Economics, Finance and Administrative Science*, 25, No. 50, pp. 451 – 478. Available at: <<https://doi.org/10.1108/JEFAS-07-2017-0081>>.
- BALÁŽ, V. (2009): Riziko a neistota. Bratislava: VEDA, vydavateľstvo SAV.
- BALÁŽ, V. – BAČOVÁ, V. – DROBNÁ, E. – DUDEKOVÁ, K. – ADAMÍK, K. (2013): Testing Prospect Theory Parameters. *Ekonomický časopis/Journal of Economics*, 61, No. 7, pp. 655 – 671. Available at: <<https://doi.org/10.1016/j.cognition.2011.12.002>>.
- BALÁŽ, V. – FIFEFOVÁ, E. – NEMCOVÁ, E. (2009): Ellsbergov paradox: rozhodovanie za podmienok rizika a neistoty. *Ekonomický časopis/Journal of Economics*, 57, No. 3, pp. 213 – 229.
- BARBERIS, N. C. (2013): Thirty Years of Prospect Theory in Economics: A Review and Assessment. *Journal of Economic Perspectives*, 27, No. 1, pp. 173 – 96. Available at: <<https://doi.org/10.1257/jep.27.1.173>>.
- BECKER, G. S. (1964): *Human Capital*. New York: Columbia University Press.
- BLEICHRODT, H. – PINTO, J. (2000): A Parameter-free Elicitation of the Probability Weighting Function in Medical Decision Analysis. *Management Science*, 46, No. 11, pp. 1485 – 1496. Available at: <<https://doi.org/10.1287/mnsc.46.11.1485.12086>>.
- BOOIJ, A. S. – Van PRAAG, B. M. – Van De KUILEN, G. (2010): A Parametric Analysis of Prospect Theory's Functionals for the General Population. *Theory and Decision*, 68, No. 1 – 2, pp. 115 – 148.
- COOPER, A. C. – WOO, C. Y. – DUNKELBERG, W. C. (1988): Entrepreneurs' Perceived Chance of Success. *Journal of Business Venturing*, 3, No. 3, pp. 97 – 108.
- COMBS, J. G. – CROOK, T. R. – SHOOK, C. L. (2005): The Dimensionality of Organizational Performance and Its Implications for Strategic Management Research. In: KITCHEN, D. J. and BERGH, D. D. (eds): *Research Methodology in Strategic Management*. San Diego, CA: Elsevier, pp. 259 – 286.
- CROSON, R. – GNEEZY, U. (2009): Gender Differences in Preferences. *Journal of Economic Literature*, 47, No. 2, pp. 448 – 474.
- CHANDLER, G. N. – HANKS, S. H. (1994): Founder Competence, the Environment, and Venture Performance. *Entrepreneurship Theory and Practice*, 18, No. 3, pp. 77 – 89. Available at: <<https://doi.org/10.1177/104225879401800306>>.
- CHUA, J. H. – CHRISMAN, J. J. – DE MASSIS, A. (2015): A Closer Look at Socioemotional Wealth: Its Flows, Stocks, and Prospects for Moving Forward. *Entrepreneurship Theory and Practice*, 39, No. 2, pp. 173 – 182. Available at: <<https://doi.org/10.1111/etap.12155>>.
- CHENG, K. C. – CHEN, K. K. (2011): The Impact of Myopic Loss Aversion on Continuing a Troubled Research and Development Expenditure. *African Journal of Business Management*, 5, No. 6, pp. 2048 – 2054. Available at: <<https://doi.org/10.5897/AJBM09.093>>.
- DAVIDSSON, P. – HONIG, B. (2003): The Role of Social and Human Capital among Nascent Entrepreneurs. *Journal of Business Venturing*, 18, No. 3, pp. 301 – 331.
- DEMIR, İ. (2017): The Red-Bull Effect: Causes and Consequences of Overconfidence in Foreign Policy Decision Making, 5, pp. 123 – 140.
- 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, No. 3, pp. 522 – 550.
- DUDEKOVÁ, K. (2014): *Psychologické aspekty parametrov rozhodovania v prospektovej teórii* [Doctoral Dissertation.] Available at: <www.crzp.sk>.
- EDWARDS, K. D. (1996): Prospect Theory: A Literature Review. *International Review of Financial Analysis*, 5, No. 1, pp. 19 – 38. Available at: <[https://doi.org/10.1016/S1057-5219\(96\)90004-6](https://doi.org/10.1016/S1057-5219(96)90004-6)>.
- EKELUND, J. – JOHANSSON, E. – JAERVELIN, M. R. – LICHTERMAN, D. (2005): Self-employment and Risk Aversion: Evidence from Psychological Test Data. *Labour Economics*, 12, pp. 649 – 659. Available at: <<https://doi.org/10.1016/j.labeco.2004.02.009>>.

- FIEGENBAUM, A. – THOMAS, H. (1988): Attitudes toward Risk and the Risk-return Paradox: Prospect Theory Explanations. *Academy of Management Journal*, 31, No. 1, pp. 85 – 106. Available at: <<https://doi.org/10.5465/256499>>.
- FORLANI, J. – MULLINS, D. (2000): Perceived Risks and Choices in Entrepreneurs' New Venture Decisions. *Journal of Business Venturing*, 15, No. 4, pp. 305 – 322. Available at: <[https://doi.org/10.1016/S0883-9026\(98\)00017-2](https://doi.org/10.1016/S0883-9026(98)00017-2)>.
- HIRSHLEIFER, D. – LUO, G. Y. (2001): On the Survival of Overconfident Traders in a Competitive Securities Market. *Journal of Financial Markets*, 4, No. 1, pp. 73 – 84. Available at: <<https://ssrn.com/abstract=173229>>.
- HOLMES JR, R. M. – BROMILEY, P. – DEVERS, C. E. – HOLCOMB, T. R. – MCGUIRE, J. B. (2011): Management Theory Applications of Prospect Theory: Accomplishments, Challenges, and Opportunities. *Journal of Management*, 37, No. 4, pp. 1069 – 1107. Available at: <<https://doi.org/10.1177/0149206310394863>>.
- HSU, D. K. – WIKLUND, J. – COTTON, R. D. (2017): Success, Failure, and Entrepreneurial Reentry: An Experimental Assessment of the Veracity of Self-efficacy and Prospect Theory. *Entrepreneurship Theory and Practice*, 41, No. 1, pp. 19 – 47. Available at: <<https://doi.org/10.1111/etap.12166>>.
- GÓMEZ-MEJÍA, L. R. – HAYNES, K. T. – NÚÑEZ-NICKEL, M. – JACOBSON, K. J. – MOYANO-FUENTES, J. (2007): Socioemotional Wealth and Business Risks in Family-controlled Firms: Evidence from Spanish Olive Oil Mills. *Administrative Science Quarterly*, 52, No. 1, pp. 106 – 137.
- KAHNEMAN, D. – TVERSKY, A. (1979): Prospect Theory: An analysis of Decision under Risk, *Econometrica*, 47, No. 2, pp. 263 – 292. Available at: <[https://doi.org/0012-9682\(197903\)47:2<263:PTAAOD>2.0.CO;2-3](https://doi.org/0012-9682(197903)47:2<263:PTAAOD>2.0.CO;2-3)>.
- KAHNEMAN, D. – RIEPE, M. W. (1998): Aspects of Investor Psychology. *Journal of Portfolio Management*, 24, No. 4, pp. 52 – 65. Available at: <<https://doi.org/10.3905/jpm.1998.409643>>.
- KEH, H. T. – FOO, M. – LIM, B. C. (2002): Opportunity Evaluation under Risky Conditions: The Cognitive Processes of Entrepreneurs. *Entrepreneurship Theory and Practice*, 27, No. 2, pp. 125 – 148.
- KILKA, M. – WEBER, M. (2001): What Determines the Shape of the Probability Weighting Function under Uncertainty? *Management Science*, 47, No. 12, pp. 1712 – 1726. Available at: <<https://doi.org/10.1287/mnsc.47.12.1712.10239>>.
- LEE, J. H. – VENKATARAMAN, S. (2006): Aspirations, Market Offerings, and the Pursuit of Entrepreneurial Opportunities. *Journal of Business Venturing*, 2, No. 1, pp. 107 – 123.
- LEWANDOWSKI, M. (2017): Prospect Theory versus Expected Utility Theory: Assumptions, Predictions, Intuition and Modelling of Risk Attitudes. *Central European Journal of Economic Modelling and Econometrics*, 9, No. 4, pp. 275 – 321. Available at: <<https://doi.org/10.24425/cejeme.2017.122213>>.
- LI, H. – YI, X. – CUI, G. (2017): Emerging Market Firms' Internationalization: How Do Firms' Inward Activities Affect Their Outward Activities? *Strategic Management Journal*, 38, No. 13, pp. 2704 – 2725. Available at: <<https://doi.org/10.1002/smj.2679>>.
- LUDE, M. – PRÜGL, R. (2019): Risky Decisions and the Family Firm Bias: An Experimental Study Based on Prospect Theory. *Entrepreneurship Theory and Practice*, 43, No. 2, pp. 386 – 408. Available at: <<https://doi.org/10.1177/1042258718796078>>.
- SIMON, M. – HOUGHTON, S. M. – AQUINO, K. (1999): Cognitive Biases, Risk Perception, and Venture Formation: How Individuals Decide to Start Companies. *Journal of Business Venturing*, 15, No. 2, pp. 113 – 134.
- SIMON, M. – HOUGHTON, S. M. – SAVELLI, S. (2003). Out of the Frying Pan...?: Why Small Business Managers Introduce High-risk Products. *Journal of Business Venturing*, 18, No. 3, pp. 419 – 440.
- SLOVAK BUSINESS AGENCY (2018a): Vznik a zánik malých a stredných podnikov na Slovensku. Bratislava: Slovak Business Agency.

- SLOVAK BUSINESS AGENCY (2018b): Štúdiá rodinného podnikania na Slovensku. Bratislava: Slovak Business Agency.
- STEWART JR, W. H. – ROTH, P. L. (2001): Risk Propensity Differences between Entrepreneurs and Managers: A Meta-analytic Review. *Journal of Applied Psychology*, 86, No. 1, pp. 145. Available at: <<https://doi.org/10.1037/0021-9010.86.1.145>>.
- SUN, Z. (2017): Differentiating the Effects of Risk-Aversion and Overconfidence among Agricultural Enterprises. [Doctoral Dissertation.] Available at: <www.atrium.lib.uoguelph.ca>.
- TOFT-KEHLER, R. – WENNBERG, K. – KIM, P. H. (2014): Practice Makes Perfect: Entrepreneurial-experience Curves and Venture Performance. *Journal of Business Venturing*, 29, No. 4, pp. 453 – 470. Available at: <<https://doi.org/10.1016/j.jbusvent.2013.07.001>>.
- TOMCZAK, M. – TOMCZAK, E. (2014): The Need to Report Effect Size Estimates Revisited. An Overview of Some Recommended Measures of Effect Size. *Trends in Sports Sciences*, 21, No. 1, pp. 19 – 25.
- TVERSKY, A. – KAHNEMAN, D. (1992): Advances in Prospect Theory: Cumulative Representation of Uncertainty. *Journal of Risk and Uncertainty*, 5, No. 4, pp. 297 – 323. Available at: <<https://doi.org/10.1007/BF00122574>>.
- TVERSKY, A. – FOX, C. (1995): Weighing Risk and Uncertainty. *Psychological Review*, 102, No. 2, pp. 269 – 283. Available at: <<https://doi.org/10.1037/0033-295X.102.2.269>>.
- UNGER, J. M. – RAUCH, A. – FRESE, M. – ROSENBUSCH, N. (2011): Human Capital and Entrepreneurial Success: A Meta-analytical Review. *Journal of Business Venturing*, 26, No. 3, pp. 341 – 358. Available at: <<https://doi.org/10.1016/j.jbusvent.2009.09.004>>.
- WENNBERG, K. – WIKLUND, J. – DeTIENNE, D. R. – CARDON, M. S. (2010): Reconceptualizing Entrepreneurial Exit: Divergent Exit Routes and Their Drivers. *Journal of Business Venturing*, 25, No. 4, pp. 361 – 375.
- WU, G. – GONZALEZ, R. (1996): Curvature of the Probability Weighting Function. *Management Science*, 42, No. 12, pp. 1676 – 1690. Available at: <<https://doi.org/10.1287/mnsc.42.12.1676>>.
- WU, G. – GONZALEZ, R. (1999): Nonlinear Decision Weights in Choice under Uncertainty. *Management Science*, 45, No. 1, pp. 74 – 85. Available at: <<https://doi.org/10.1287/mnsc.45.1.74>>.
- YAZDANFAR, D. – ÖHMAN, P. (2014): Life Cycle and Performance among Smes: Swedish Empirical Evidence. *The Journal of Risk Finance*, 15, No. 5, pp. 555 – 571. Available at: <<https://doi.org/10.1108/JRF-04-2014-0043>>.