

## Risk Taking in Opportunity Evaluation

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### Abstract

In spite of compelling advances in the notion of entrepreneurial opportunities in the past decade, the construct still undergo serious critics such as being metaphorical and not literal. One paramount reason for this shortfall is due to lack of instruments to evaluate objectively varieties of components of business opportunities such as risk and uncertainty. The process of discovering an opportunity starts from a subjective process of recognition, and it then involves further evaluation such as risk assessment to transmit it to an objective value. However, we know little about how the transformation from subjective to the objective state takes place within opportunity evaluation. Using Risky Framing concept, we contribute to this gap in knowledge. We use survey data of proxy entrepreneurs and examine their responses against a control group of non-entrepreneurs. Results show that the both groups adopt different risk levels when they confront opportunity scenarios. In addition, the risk levels adopted by the entrepreneurs was significantly greater than their non-entrepreneur counterparts. These findings provide new insights in the process of entrepreneurial alertness. The results discussed and implications for the future contributions are provided.

**Keywords:** Alertness, Entrepreneurial Opportunity, Risky Framing

### Introduction

We are not perfect rational information-processing machines. We makes a lot of errors and the way we handle the information, our reasoning, evaluation, judgment and decision making. We can retain a seemingly infinite amount of information in our long term memory, but the problem is that there is a kind of "bottleneck" which limits the amount of information that can pass through from our current mental knowledge structure in the long term memory. That is when the problem errors, or biases start to develop (Baron, 2011).

The way that the elements of a decision problem are manipulated can represent different perspectives of the same problem in decision making (Schoemaker and Russo, 2001). Therefore, it can have an immense effect on mental model and subsequently on alertness. Kirzner (1979) introduces an entrepreneur as the one whose main task is decision making and a pure entrepreneur is a decision maker whose main role arises from their alertness in spotting the gaps. Minkes and Foxall (2000) believe that entrepreneurship in organizations means decision making that involve both in risk and alertness that make entrepreneurial activities different from managing.

The debate “risk” enjoys a rich theoretical background and has been the centre of many discussions in entrepreneurship literature (see Ahmed, 1985; Simon, Houghton, and Aquino, 2000; Masters and Meier, 1988) because it is a characteristic of entrepreneurial opportunities. Therefore, that is the main reason for considering risk view in current study to examine entrepreneurs’ alertness. Scholars have analyzed the risk propensity of entrepreneurs from different views using different measurements, but, to the best of the author’s knowledge, they have not analyzed it by extending risky framing alternatives. Framing manipulation with their inherent biases is able to simulate the real condition of risk, which is the one of the important elements of entrepreneurial actions. Especially, tackling with risky conditions sometimes is critical success factor for the survival of a business (Emami and Talebi, 2011 b). In this study, a new objective risk assessment method taken from risky choice framing, which has not been observed in previous works, is applied. In addition to the comparison capability of this method, intensity of risky propensity can be explained by it. This study is organized in three sections, after reviewing the literature in the domain of framing effects, entrepreneurial alertness, and entrepreneurs and framing Effect, the new objective risk assessment method is introduced. Then, based on the method, the decision of entrepreneurs and non-entrepreneurs is compared in the result section. Finally, in discussion part the finding will be discussed through the lens of entrepreneurial alertness. The section is concluded with implications for the future studies.

## **Literature Review**

### **Risky Choice Framing**

Violation of invariance principle of normative model of expected utility theory when decision maker faces with different manipulation of one single decision problem with the same outcomes, encourages Kahneman and Tversky (1979) to introduce a new descriptive model to justify inconsistency of people’s behavior. This theory is known as prospect theory (PT). One of the implications of PT is that in reality, we do not behave with probability in the way that they appear to us. But we rather distort them. This distortion happens by a subjective weight known as  $\pi$  which is the contribution of prospect theory to normative model of expected utility theory. It means that we also multiple  $\pi$  to the outcome of the expected utility.

That is why in a gamble people preferred a certain gain of 30\$ to 80% probability to gain 45% although based on expected utility theory, the second choice outweighs the first one. On the other hand, the same sample preferred 20% probability to gain 45% over 25% probability to gain \$30 (more risk taking behavior) because they simply reason that by just more 5% risk they can gain \$15 more. Moreover, PT shows that to avoid certain loss (e.g., dying, losing money), people become risk takers and to gain a certain gain (e.g., saving lives, gaining

money), they become risk averse. This shapes the most famous type of framing effects which is called risky choice framing (see Tversky and Kahneman, 1981).

In risky choice framing, the degree of risk seeking in negative domain (e.g., financial loss) is higher than that of risk aversion in positive domain (e.g., a business success). This notable cognitive bias is called loss aversion. That is why we would rather not take a gamble which promises an equal chance of gain and loss. Biases are considered as part of framing manipulation (Soman, 2004). Loss aversion bias itself, has been identified to be related to the number of important biases in framing effect for example, sunk-cost effect, status quo bias, endowment effect and etcetera. Frames are interpretative structures embedded in any human discourse as well as economics, politics and so forth. Frames exist inside our mental models; they are cognitive structures that help people make sense of issues. And when a frame affects a person's frame of thought, it is referred to as framing effect. Most people do not analyze and calculate to come to an objective assessment of the situation before evaluating and making decisions. Several types of framing have been introduced in its literature such as equivalency (i.e., valence) frames and emphasis (i.e., issue or value frames) frames (Druckman, 2011). For example, the Asian disease problem is a kind of equivalency frame because individuals base the evaluation once on gain and then on loss (For more elaboration see, Levin et al., 1998; Druckman, 2011).

### **Entrepreneurial Alertness**

Entrepreneurship is the sum of activities that contain high innovation, risk and prediction. Also, it involves creation of a new business and introduction of new services based on opportunities (Emami, 2017; Emami and Dimov, 2016; Shane, 2003). Whether opportunity is created, discovered, or recognized, alertness has been central in the context of the recently developing area of "opportunity" in entrepreneurship studies (Tang et al., 2012). Kirzner (1973) was the first scholar who raised the concept of alertness. Alertness refers to characteristic of individuals who have the acumen that enables them to recognize gaps with limited signals. These individuals enjoy unique preparedness, high imagination, cognitive capacities (prior knowledge and experience, pattern recognition, information processing skills, and social interactions), and creativity in regularly scanning the environment that contains opportunities for discovery (Baron, 2006; Shane 2003; Kirzner, 1999). Based on McMullen and Shepherd's (2006), argument, alertness has nothing to do with entrepreneurship if it does not involve judgment and decision making plus a movement toward action (Tang et al., 2012). Recently, Tang et al (2012) in their model offered scanning and search, association and connection, and evaluation and judgment as three distinct elements of alertness. They argue that these components complement each other and give the individual a foundation based on which to identify new business ideas. Additionally, they demonstrate that prior knowledge significantly predicts all three dimensions of alertness.

### **Entrepreneur and Framing Effect**

Primary research for trait approach in entrepreneurship did not yield commendable results and most of them failed (Gartner, 1985). Recent research has shown that cognitive process can have a profound effect on the creation of new businesses (Emami and Dimov, 2016). This emphasizes that entrepreneurs' perception of business feasibility and its utility highly affects the business start-up but this view does not justify why entrepreneurs with their attitude (be it positive or negative) face failure. This was the starting point for experimental researches to consider cognitive biases (see, Busenitz and Barney, 1997; Simon et al., 2000).

One of the applications of cognitive biases have been discussed by many entrepreneurship scholars to describe the entrepreneur risk perception (Keh et al., 2002; Simon et al., 2000). In addition, in the domain of the psychology of judgment, research has pointed to the impact of frame biases on managers and entrepreneurs' risk taking behavior. For instance, Burmeister and Schade (2007) compared the effect of status quo bias on entrepreneurs, students and bankers. They found out that entrepreneurs and students had the same tendency to the status quo but fewer tendencies to the bias than bankers did. Barbosa and Fayolle (2007) in an experimental study showed how changes in available information in relation to creating a new venture had a profound effect on entrepreneurs' risk perception when presented with framing manipulation and finally how the framing effects affected the decision to start the venture. They examined anchoring and availability biases and showed how manipulation of an entrepreneurship issue based on framing effects can bias their decision In favor of available information. Furthermore, Emami and Talebi (2011 a) found out that in risky choice framing, experienced entrepreneurs have moderate risk taking behavior whereas nascent entrepreneurs were very risk taker also they had more tendency to avoid lose (Loss aversion).

## **Research Method**

### **Research Instrument**

The research instrument contains a Business scenario, i.e., the question of opportunity, in positive and negative forms with the same outcomes. Instead of using the classic risky frame which has one certain option and one risky option, we manipulate the decision problem with one certain option and four risky options<sup>1</sup> because we believe that two limited options cannot illustrate the variance of risk propensity in answers among subjects.

In manipulation of the decision scenario, the following two important factors are accounted:

- 1- As in a real market, there should be a positive relation between degree of risk and gain in the decision problem (i.e., systematic risk).
- 2- In the classic risky frame by Tversky and Kahneman (1981), the risky option contains "1/3 probability that 600 people will be saved" which according to the expected utility theory is equal to 198 saved. In the present study, 1/3 is equal to 33% and the "198" people is considered as expected value which in our study is approximately "39600" saved dollars. The other 3 risky options have the same expected value in both negative and positive forms.

### **Research Sample and Procedure**

Entrepreneurs in this study are referred to as experienced individuals who have established a business for at least 5 years with 8-15 employees (Hornaday and Bunker, 1970; Hornaday and Aboud, 1971).

Entrepreneurs were selected from different industries in Tehran. Non-entrepreneurs were those who had no or little tendency to business activities. After receiving the list of experienced entrepreneurs (about 350 male), five criteria based on previous studies in the domain of entrepreneurship were applied (Nicolaou et al., 2009) to identify the final samples. The criteria applied to this end are as follows:

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<sup>1</sup> For a copy of the research instrument, please contact the lead author.

1-I usually enjoy thinking about the new ways of doing business activities

2-I usually recognize opportunities to start a new business, although I might not put them in action.

3-I usually discover new ideas that have potentiality to become commercialized, although I might not put them in action.

4- I usually discover ideas that have capability to turn into profitable businesses.

These criteria were ranked in a nominal scale of five (1: never, 2: rarely, 3: sometimes, 4: usually, 5: mostly)

Finally we asked them how many new ideas you had had during the last month. Their answers were ranked in a nominal scale of five (1: no any, 2: one, 3: two, 4: three, 5: more than three). Based on the opinion of six entrepreneurship scholars, the minimum score for choosing a final entrepreneurs' sample was estimated to be 17 according to those 5 criteria (out of a total 25). We started from the highest score down to the candidate number that got 17. Therefore, based on this method, 90 entrepreneurs were chosen. Because the number of entrepreneurs was the cut-off point in our research, we started from the lowest point up to the 90<sup>th</sup> candidate's score to choose our non-entrepreneurs' sample. In addition, non-entrepreneurs got a very lower score based on the criteria<sup>2</sup>. Half of the participants were randomly assigned to a positive frame and the rest were assigned to a negative frame<sup>3</sup>.

## **Statistical Analyses**

### *Research Question*

*Q: Is there a significant difference between the intensity of risk taking behavior of entrepreneurs and non-entrepreneurs in the new form of risky choice framing in negative and positive forms?*

Descriptive statistics (mean, frequency and cross tabulation) and a nonparametric test (Kruskal-Wallis H) were used to analyze the differences between groups. The experiment comprised 2 groups (Entrepreneurs coded 1 vs. Non-entrepreneurs coded 2) \* 5 options in positive and negative forms (4 risky options vs. one certain option). SPSS 16 package was used for analyzing.

## **Results**

### **Entrepreneurs in Positive Form Vs Entrepreneurs in Negative Form**

The results of Kruskal Wallis Test (Table 1) show that there is a difference ( $P < 0.05$ ) between Entrepreneurs' choices in negative and positive forms. Therefore, framing effect is occurred.

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<sup>2</sup> The sum of 90 non-entrepreneur's score was 990 whereas 1710 for entrepreneurs'.

<sup>3</sup> One of the entrepreneurs withdraws from participation in negative form.

Table 1  
*Statistical Test Results for the Entrepreneurs*

	Type	Number of subjects	Kruskal Wallis Test
Entrepreneurs	Positive	45	Chi-Square 5.679*
	Negative	44	Df = 1 P value= 0.034
	Total	89	

\* $P < 0.05$

Although cross tabulation table (Table 2) shows that they are more risk seekers in the negative (choosing option 2) than in the positive form (choosing option 3), Entrepreneurs were found to be risk seekers in both forms.

Table 2  
*Type \* Risk Intensity \* state Cross tabulation-Entrepreneurs.*

		Risk Intensity					Total	
		Option1	Option 2	Option 3	Option 4	Option 5		
Entrepreneur	Positive	No of subjects	7	9	23	2	4	45
		% within type	15.5%	20%	51.1%	4.4%	8.8%	100.0%
	Negative	No of subjects	3	32	6	1	2	44
		% within type	6.8%	72.7%	13.6%	2.2%	4.5%	100.0%

#### **Non-Entrepreneurs in Positive Form Vs Non-Entrepreneurs in Negative Form:**

The results of Kruskal Wallis Test (Table 4) show that there is a significant difference between ( $P < 0.05$ ) non-entrepreneurs' choices in negative and positive forms.

Table 3  
*Statistical test results for the non-entrepreneurs*

	Type	Number of subjects	Kruskal Wallis Test
Non-Entrepreneurs	Positive	45	Chi-Square 15.358*
	Negative	45	Df = 1 P value= 0.000
	Total	90	

\* $P < 0.001$

Table 4

Type \* Risk Intensity \* state Cross tabulation-Non-entrepreneurs

		Risk Intensity						
		Option1	Option 2	Option 3	Option 4	Option 5	Total	
Non- Entrepreneur	Positive	No of subjects	26	9	1	4	5	45
		% within type	57.7%	20.0%	2.2%	8.8%	11.1%	100.0%
	Negative	No of subjects	6	4	6	3	26	45
		% within type	13.3%	8.8%	13.3%	6.6%	57.7%	100.0%

The cross tabulation table shows that non-entrepreneurs were risk tolerant in negative form but risk averse in positive form like in the classic risky frame. But the manipulation of the decision scenario provides some degree of flexibility to diagnose how much the amount of risk seeking behavior is, in fact one of the important contributions of the current study. Entrepreneurs in negative format tend to choose option (2) which involves higher risk than option (5) by non-entrepreneurs (Table 5). However, the expected value of both of them is the same. Therefore, in addition to having framing effect among non-entrepreneurs, we can conclude the risk avoidance of non-entrepreneurs arises from the fact that they have possibility to find their preferred choices. This flexibility in framing the decision problem in present study helps to further support the assumption that entrepreneurs have more consistent decision than non-entrepreneurs.

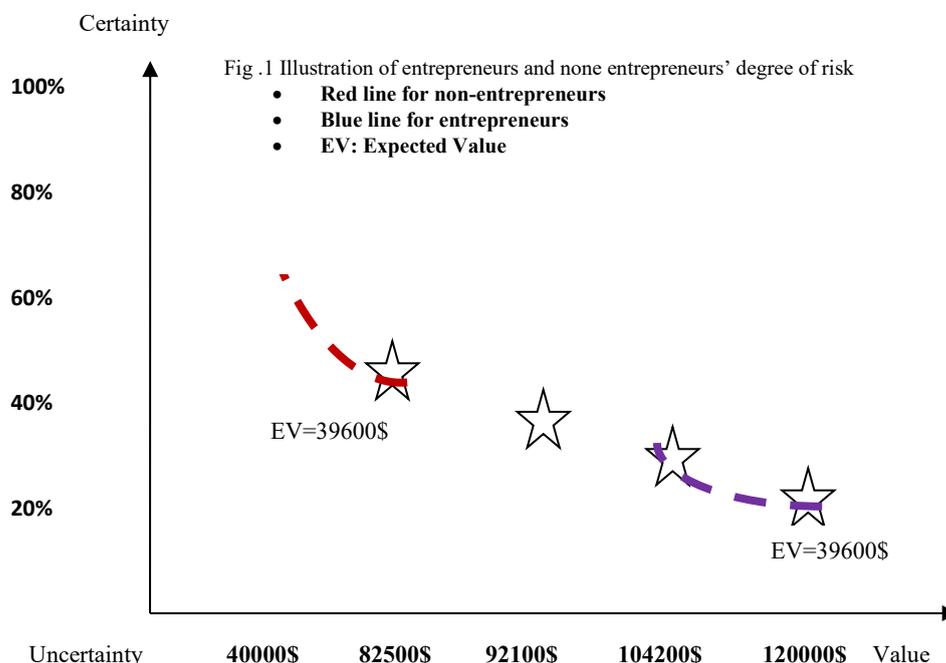


Fig .1 illustrates the degree of risk taking among entrepreneurs and non-entrepreneurs. The red line shows the deviation between non-entrepreneurs' choices and the blue line shows those of entrepreneurs caused by framing effect. The deviation is by far higher for non-entrepreneurs than for entrepreneurs because there is a great shift from certain choice to

risky choice (i.e., red line). It is clear that entrepreneurs prefer to make their decisions somewhere close to uncertainty despite the same expected value. Future researchers are recommended to explain why moderated risk (option 4) is less welcomed by both entrepreneurs and non-entrepreneurs in both negative and positive forms.

## **Discussion**

### *Key Findings and Contribution*

Entrepreneurs' propensity to risk taking behavior has been frequently cited in the entrepreneurship literature. Research in framing field shows that analytical people, as opposed to their holistic counterparts, have fewer tendencies to framing effects (Leboeuf and shafir, 2003; McElroy et al., 2003). Palmer (1971) considers entrepreneurs as individuals who are specialist in risk assessment. An entrepreneur has an analytical mind. They are able to identify the differences in unsatisfied needs which helps them dramatically at recognizing opportunities (Kirzner, 1979). Entrepreneurs can learn to sharpen their analytical capabilities over time in order to be able to envisage and put into perspective other states simultaneously when confronting manipulated issues (for example, when encountering a negative type of framing, they can concurrently think of its positive aspects as well) (Emami and Talebi, 2011a). Although decision making is a kind of behavior, the capability to have an unbiased decision when facing framing problem that provide conditions of risk and uncertainty can be a particular boon and a commendable trait. In the present study, this fact is evidenced by choosing near risky options by entrepreneurs.

Kirzner emphasizes on experience. He considers learning as an unconscious process which discovers opportunities. And it is not always evident on the market. What is more, continued entrepreneurial activity leads to increased knowledge about a situation, reducing the level of uncertainty over time and enhancement in market processes (Cheah, 1990). So, over time and with increased experience of business, they feel less uncertain. Therefore, the time factor causes more informational awareness. This helps them to look at framing issues differently as compared to non-entrepreneurs and even potential entrepreneurs and framing cannot affect them as it does others. Emami and Talebi (2011 b) have shown that experienced entrepreneurs have a very little tendency toward framing effects. In addition, experienced entrepreneurs scrutinize the decision problem differently, with their experience and alertness enabling them to analyze the framing effects. With regard to the above discussion and the results of the current study, it seems that, experience could be assumed as one important factor in reducing framing effect for entrepreneur.

In Austrian school, information asymmetry which is the source opportunity for many entrepreneurial activities is defined as knowledge that is not accounted for by others (Thomsen, 1992). Frames are the sources of information asymmetry. Therefore, awareness about it could immensely reduce transaction cost. Take the case of a person who has recognized a new way of doing a task which could create profits but he/she does not put it in action. Of course, it cannot be simply put down to his/her laziness also the person might have a good social talent for whipping up financial support. Mostly people like this frame the possibility of commercialization of their idea negatively or they are affected by the frame of the opportunity. This is the main reason that they are risk averse. If at the same time an entrepreneur recognizes the same opportunity and goes ahead, it does not mean that he/she has had a positive view, but based on our view he/she could break the manipulation and

envisage the scenario in more than one tangible form and heuristically examine all its aspects. So, we cannot simply just divide people to two groups of risk taker or risk averse Per se. we should also consider the frame of issues when we want to analyze people risk taking behavior. In addition, we do not mean that entrepreneurs are necessary expert at finding the best solution or there is no flaw in their business decisions but we are proposing that their frame of thought is less influenced by frame of the opportunity in business issues and it is the complementary part of entrepreneurial alertness.

Questions like what the nature of alertness is and whether entrepreneurs just have entrepreneurial alertness can be answered here; the nature of alertness is diagnosing framing of decision scenarios and has preconceived mental model for issues. So, to be an entrepreneur immensely depends on the maturity of the preconceived mental model. The answer to the second question is that anyone who has the potential for decoding manipulation (frame) of business problems has the potential to be an entrepreneur. A number of factors can affect alertness which enjoys a rich literature in entrepreneurship some of which were discussed in the literature review. In short, we call it pre- essential part of decoding ability in order to understand the decision frame (Fig .2).

Also, we can look at the relationship between framing and entrepreneurial alertness from the

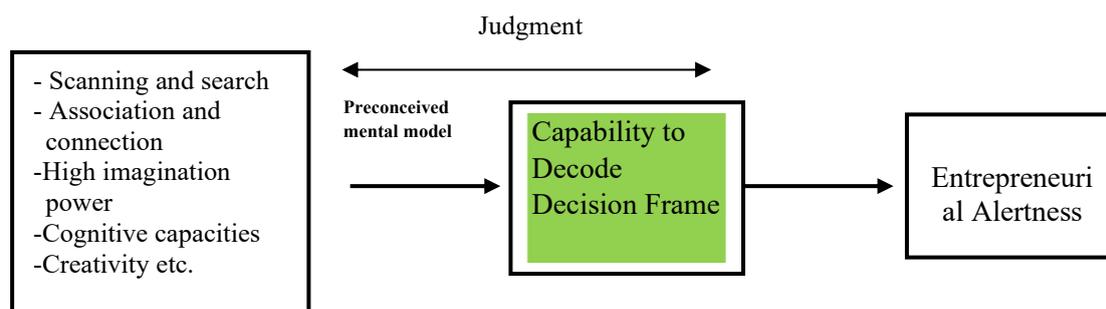


Fig .3 Decoding decision frame as inter-factorial element for entrepreneurial alertness

perspective of the role of biases in framing manipulation. For example, endowment effect is the discrepancy between the willingness to pay (WTP) and willingness to accept (WTA). The reason for this discrepancy is that people usually weigh the value loss related to giving up an object more highly than the value gain associated with getting the same object (Soman, 2004). Research shows that the discrepancy tends to narrow down with experience and learning in market settings (Coursey et al., 1987; Kahneman et al., 1991). Entrepreneurs clearly should be the first agents to decode this bias, otherwise they should keep waiting until to meet their desirable costumers and it inevitably implies a colossal waste of and missing out on opportunities and resources. Another example is status quo bias. People tend to feel more gain to remain at status quo. Burmeister and Schade (2007) in their research tried to elaborate the divergence between status quo bias and Schumpeterian innovation and provided ample evidence that entrepreneurs are generally less affected by status quo bias. They argued that sticking to the status quo suppresses potential benefits to change for entrepreneurs. "Examples comprise no reaction – in terms of strategy adjustments – to changes in competition and demand structure, not adopting a new production technology, not firing an old employee and hiring a new, not starting a business relationship with a new supplier, and

not eliminating an old product and introducing a new one” (Burmeister and Schade, 2007, P 356).

Given the above arguments, tackling biases is a usual function of entrepreneurial alertness. The stronger manipulation of the opportunity -because of several factors such as environmental variables, non-verbal variables (for non-verbal frames see Grabe and Bucy, 2009; Iyengar, 2010) and the more it contains disguised biases-, the more difficulty in decoding the frame and also the more value gaining from opportunities. Entrepreneurs enjoy this identification skill. They have the acumen to recognize the tricky manipulation of decision scenario in business issues. So the primary role of entrepreneurs in this regard is sophisticated decision makers. Therefore, consistent with Kirzner’s work and the role of awareness of gaps when new opportunities present themselves, alert scanning and searching refer to regularly and simultaneously scanning and decoding the frame of decision scenario (opportunity) in the environment and searching for new information, changes that others missed based on the preconceived mental model.

### **Implications for Future Research**

*First:* Although Current paper tried to add the frame of opportunity as one important dimension of entrepreneurial alertness with the aid of risky framing, further research should investigate the effect of frames on opportunity recognition using different types of frames (e.g., message framing, attribute framing etcetera).

*Second:* Research has indicated that entrepreneurs are more susceptible to cognitive biases and heuristic because of the inherent complexity and uncertainty of entrepreneurial environment (Busenitz and Barney, 1997). Business scenarios may inherently contain a variety of cognitive biases that can shape frames to disguise opportunities. Future researchers are warmly recommended to work on the interrelationship between dimensions of entrepreneurial alertness vs. framing cognitive biases in order to gain deeper insight into opportunity recognition.

### **Conclusion**

The application of the new format of risky choice framing makes a unique contribution to the explanation of risky intensity among entrepreneurs and non-entrepreneurs. Results show that although there is a significant difference between entrepreneurs’ choices in negative and positive forms, the amount of distinction (5%) is not noticeable. They were risk tolerant in both states. Therefore, framing effect in the new forms shows that the amount of entrepreneurs’ risk seeking behavior is more than that of non-entrepreneurs’ and we have observed consistency in their behavior. In the discussion part, we referred this consistency in entrepreneurial alertness which does is absent among non-entrepreneurs. Finally, we argued that diagnosing framing effect is an important criterion for entrepreneur to identify opportunities and is a complementary part of alertness.

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