



A Model to Assess the Impact of the Environment Characteristics on Decision-Making Methods

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ABSTRACT

The decision-making is a complex commitment of manager. This is due the fact that the decision-making is the extreme complexity and difficulty managerial activity. For these reasons, numerous studies have been conducted about managerial decision-making. This paper builds on theoretical treatment for determine the extent to which environment impact on the decision-making methods. Results showed that hostility environment has impact to analytical methods used. However, there are many problems about the impact of environment on decision-making methods. So, remains very important and much more empirical research in the future is required before any definitive conclusion can be reached.

KEYWORDS : decision-making methods, hostility environment, uncertainty environments, confirmatory factor analysis, manager

Introduction

Environment represents a very important perspective to decision-making. Additionally, the environment is complex. In this framework, Simon (1959) acknowledges: "The decision-maker's information about his environment is much less than an approximation to the real environment". Environment is characterized by random or defining characteristics, which affect the method that will be used for decision-making. Given the environmental characteristics, Elbanna and Child (2007) and six years later Elbanna, Child and Dayan (2013) defined that the environment is presented as possessing two different features, namely uncertainty and hostility. So, Elbanna, Child and Dayan (2013) stated: "For reasons of parsimony, as well as that of maintaining continuity with previous work on strategic decision-making, we chose to focus on environmental hostility and environmental uncertainty as the consequence perceived by senior executives of external complexity and dynamism". But Goll and Rasheed (1997) believed that: "Environmental characteristics or properties have major implications for all aspects of management including strategy, structures, process and outcomes. Several theoretical arguments have been advanced suggesting that environmental context is a key determinant of the appropriateness of rational strategic decision processes".

Therefore, the environment can have positive or negative impact. "Hence, we anticipate that intuition is more likely to lead to unexpected negative outcomes in hostile environments than in munificent environments" (Elbanna, Child and Dayan, 2013). Positive environment represents a considerable support for decision-making. Goll and Rash-eed (1997) believe that: "Although empirical research investigating the impact of environmental munificence on organizational strategies, structures and processes is limited, past research clearly points to its importance".

Methodology

The methodology refers the literature review, preparation of questionnaires, elaboration of data and draw the conclusions. For data collection was used a questionnaire adapted to the conditions of the countries in the region (Albania, Macedonia and Montenegro). The data is effectuated via the software SPSS, version 20.0., AMOS, version 18. Thereon 167 businesses were analyzed.

Data analysis

Initially supporting statistics that refer Exploratory Factor Analysis assessment was conducted questionnaire grouping of claims for environmental characteristics according to a correlative relationship between them. Specifically:

Component 1: *The hostility environment* – Under this component representing the environmental features perceived as hostile to the business.

Component 2: *The uncertainty environment* – Under this label are included the environmental features that bring insecurity to the businesses activity operating therein.

The business interrelation to the hostility and uncertainty environment make a tight conjoint of the relationship between the business manager's activity and the method to be used in decision-making.

Multicollinearity measuring

The correlation between the environmental components wherein the business organization operates marks a relatively positive link, indicating that the environmental hostility increase also affects the uncertainty augmentation. The fact can be explained, on a logical perspective, by the intensity dominance of the hostility environment action upon the business activity. To businesses operating in a hostile environment, the environment uncertainty should be considered present, as a fellow-companion of their activity. From the table no. 1, data it turns out that the correlation coefficient consists in .266, which indicates that the coefficient remains within the specified limits ratio. It enables continuing with the analysis.

Table no. 1

Correlations		Uncertainty environment	Hostility Environment
Uncertainty environment	Pearson Correlation	1	.266**
	Sig. (2-tailed)		.001
	N	167	167
Hostility Environment	Pearson Correlation	.266**	1
	Sig. (2-tailed)	.001	
	N	167	167

** . Correlation is significant at the 0.01 level (2-tailed).

Confirmatory Factor Analysis

The environment is of particular importance and in some cases determinant in choosing the method of decision-making by the manager. Figure no.1 depicts the conceptual model diagram evidencing the influence of environment factors (uncertainty environment and hostility) to the decision-making methods (intuitive and analytical). Ullman (2006) states that: "Diagrams are fundamental to SEM because they allow the researcher to diagram the hypothesized set of relations-the model. The diagrams are helpful in clarifying a researcher's ideas about the relations among variables". The diagram presents the questions of the questionnaire through which the respective measurement is intended to be performed. But Kline (2011) suggests: "Hayduk, Cummings, Boadu, Pazderka-Robinson, and Boulianne (2007) remind us that the real goal is to test a theory by specifying a model that represents predictions of that theory among plausible constructs measured with the appropriate indicators". Hair at al (2010) denominates these indicators as: GOF - Goodnes-of-fit. The indicators in this study are selected some of the most useful ones, as: χ^2 , DF, CMIN/DF CFI and RMSEA, which are recommended by other researchers as well.

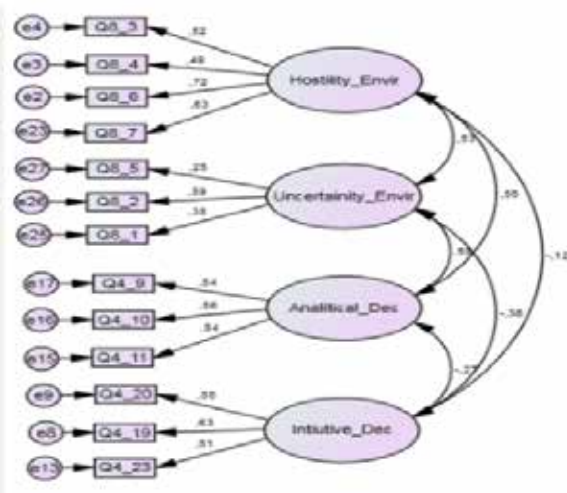


Figure no. 1

The indicators of the above-mentioned model result to be as follows:

Chi-square = 94,968; DF = 59; CMIN/DF = 1,61; P=0.002; CFI = 0.901; RMSEA = 0.061

CMIN/DF = 1,61: evidences a satisfactory compatibility, as supported by Kline (2005), Chan, Lee, Lee Kubota and Allen (2007).

P = 0.002: This level of significance evidences the fact that the indicators possess statistical importance, as is indicated in many other cases.

CFI = 0.901; this indicator is within the acceptable limits, referred to Hair et al (2010) and Hu and Bentler (1999).

RMSEA = 0.061; it is a good level indicator, which is based on the studies of Hair et, al (2006), Hair et, al (2009), Chan, Lee, Lee Kubota and Allen (2007), Jackson, Gillaspay, Jr. and Purc-Stephenson (2009), based on achievements of Hu and Bentler's (1999).

All the indicators show that the model in general has a good compatibility. Therefore, we can proceed with the empirical testing of the relations among the factors. This makes possible to pass to the testing of hypotheses, as indicated in table no. 2. The hypotheses were established:

H₁: *The environmental uncertainty brings a low possibility in the use of intuitive methods in decision-making.*

H₂: *A hostility environment eliminates the possibilities to use intuitive methods in decision-making.*

H₃: *The business activity in an uncertainty environment is an opportunity to use the analytical methods in decision-making.*

H₄: *The more hostility the external environment presents, the more the manager tends to use the analytical methods in decision-making.*

The data analysis regarding the above hypothesis is presented in table no.2.

Table no. 2

			Estimate	S.E.	C.R.	P	Label
Analytical Decision	<---	Uncertainty Environment	,42	3,588	,869	,385	
Intuitive Decision	<---	Hostility Environment	.072	,162	,682	,495	
Analytical Decision	<---	Hostility Environment	,91	,231	4,781	***	
Intuitive Decision	<---	Uncertainty Environment	-.99	10,738	-.884	,377	

In the above table no. 2 it is evidenced the environmental impact on the managerial orientation regarding the method of decision-making through the path coefficient. By processing the collected data, it results that the environmental impact whether uncertainty or hostility, orientates the managerial activity toward the use of analytical or intuitive methods in decision-making, which as indicated in table no. 2 generally result having not a substantial significance. Meanwhile the managerial orientation regarding the use of analytical methods when the business operates in a hostility environment measured by the path coefficient results having a highly substantial significance.

We believe that the problem related to the correct understanding of the managers regarding the environment and the impact of its components on the decision-making method. The some of the problems related to the understanding of the environment turn out to be:

- The environment wherein the businesses operate presents a complex reality. Simon (1959) states: "The decision-maker's information about his environment is much less than an approximation to the real environment". Courtney, Kirkland and Viguerie (1997) recognize that the environment contains "a lot of strategically relevant information". But the environment needs to be analyzed because again the environment represents a remaining uncertainty. So, Courtney, Kirkland and Viguerie (1997) state that: "But often, quite a bit can be known about even those residual uncertainties". Regarding the above the environment is presented in itself as a complex construct that complicates its interpretation by the managers. In this context Simon (1959) states: "The decision-maker's model of the world encompasses only a minute fraction of all the relevant characteristics of the real environment, and his inferences extract only a minute fraction of all the information that is present even in his model". To this Goll and Rasheed (1997) suggest: "The incorporation of environment as a multidimensional construct in research design promises to provide a richer and more comprehensive understanding of environment's role in organizational phenomena". Bocanet (2012) considers the environment as a component of indirect influence on the business and she says: "The effects of environment are indirect, neither the individuals nor the organization experience reality".
- Furthermore, regarding the understanding of the environment characteristics, we believe that it is difficult to make the difference between the uncertainty characteristics of the environment and the hostility characteristics of the environment. This fact because: "With self-report measures/questionnaires we can also assess the degree to which individual items represent the construct being measured, and cover the full range of the construct (content validity)" (Field, 2013).

The complexity of the environment in various countries is different. Thus, Albania was a country having an extreme leftist economic development. While Montenegro and Macedonia were integral parts of the former Yugoslavia Republic. So, the economic policies in Montenegro and Macedonia have been somewhat more liberal. So, understanding the intensity of competition by the Albanian managers perception differs from the concept of managers in Montenegro and Macedonia. These circumstances led to the results that the understanding and afterwards the pronunciation of the managers regarding the environment is presented as having evident distinctions. This is also supported by Goll and Rashed (1997) when referring to Hambrick and Finkelstein (1987) that suggest: "One of the major factors that determine the extent of managerial discretion is the degree to which the environment allows variety and change".

The above situation does not amount to a peculiarity (exception). Button, Ioannidis, Mokrysz, Nosek, Flint, Robinson & Munafò (2013) claim that: "A study with low statistical power has a reduced chance of detecting a true effect, but it is less well appreciated that low power also reduces the likelihood that a statistically significant result reflects a true effect". By not considering as an exclusion-case the low significance, they think: "The first concerns, problems that are mathematically expected to arise even if the research conducted is otherwise perfect: in other words, when there are no biases that tend to create statistically significant (that is, 'positive') results that are spurious" (Button, Ioannidis, Mokrysz, Nosek, Flint, Robinson & Munafò, 2013). Similar cases are covered by other researchers. "Lastly, when the num-

ber of radio was used, the estimated coefficient of the radio variable was negative, which is theoretically inconsistent and statistically significant at the 10 percent level of significance" Chen and Dahlman (2004). This situation constitutes a recognized and applied practice by other researchers in similar conditions, as suggested by Goll and Rasheed (1997).

The empirical estimation of the model

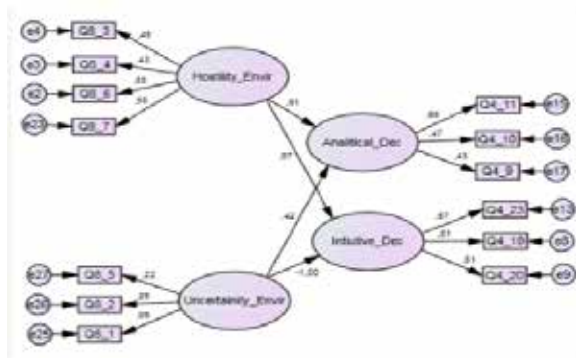


Figure no. 1

Referring to the table no. 2 as to the figures no. 1 and no.2 it results that:

Uncertainty Environment does not affect the analytical decision, because CR or the t-value is smaller than the value +- 1.96 (0.869) and the P value is greater than 0.05 (0.385).

Hostility Environment does not affect the Intuitive decision, because CR or the t-value is smaller than the value +- 1.96 (0.682) and the P value is greater than 0.05 (0.495).

Hostility Environment affects the analytical decision, because the CR or the t-value is greater than the value +- 1.96 (4.781) and the P value is smaller than 0.001 (0.000).

Uncertainty Environment does not affect the Intuitive decision because the CR or the t-value is smaller than the value +- 1.96 (-.884) and the P value is greater than 0.05 (0.377).

Discriminant and convergent validity analysis

In the context of confirmatory factor analysis a particular position is retained by the discriminant validity assessment of the constructs. To this Ghadi, Alwi, Abu Bakar and Talib (2012) highlight: "To test of convergent validity moreover factor loading, AVE and CR should be checked". The respective values are displayed in the table 3.

Composite Reliability - CR

Based on the table no. 3, CR values over .684 predominate. Thus, if we refer to Farrell and Rudd (2009) who based on Tellis, Yin dhe Bell (2009) it results that some researchers and namely Byrne (1998), Diamantopoulos and Siguaw (2000) and Sharma (1996) analyze the CR limits in some levels. According to them the CR environmental constructs generally result in the Openness and Enthusiasm levels. Pursuant to the above, according to Byrne (1998) CR = .5 is considered Openness and .53 Enthusiasm. To Diamantopoulos and Siguaw (2000) Openness refers to CR = .63 and Enthusiasm refers to CR = .68. Meanwhile Sharma (1996) admits that CR = .61 is considered simultaneously Openness and Enthusiasm. Only one constructs results having the CR = .379

Average Variance Extracted - AVE

The results about AVE are generally within the due limits accepted by other researchers as well. Thus Farrell and Rudd (2009) referring to the study of Tellis, Yin dhe Bell (2009) claim that the researchers: Byrne (1998), Diamantopoulos and Siguaw (2000) and Sharma (1996) accept as the lower level AVE = .26. Concretely to Byrne (1998) AVE = .26 is considered Openness and AVE = .29 is considered Enthusiasm. Diamantopoulos and Siguaw (2000) accept the limits respectively .36 as Openness and .42 as Enthusiasm. While Sharma (1996) recognizes that AVE = .36 should be considered concurrently as an Openness and

Enthusiasm level. Only one of the AVE constructs results lower than the above accepted limits.

Table no. 3

	CR	AVE
Analytical Decision	0.692	0.439
Hostility Environment	0.684	0.356
Intuitive Decision	0.721	0.475
Uncertainty Environment	0.379	0.186

The Composite Reliability- CR and the Average Variance Extracted -AVE present some minor differences compared to the defined limits. But it must be admitted that the deviations does not constitute a problem. In this regard is Field (2010) stance in relation to "α", which is recommended to be used in measuring the internal consistency. For Field (2010) : "Unlike the previous subscales, the overall α is quite low and although this is in keeping with what Kline (1999) says we should expect for this kind of social science data, it is well below the other scales". Meanwhile Kline (2000) has emphasized: "Consequently it is hardly surprising that relatively few tests have good evidence for their validity. Indeed perhaps the opposite is true: the fact that any tests have been shown to be valid is surprising".

The results of discriminant validity are presented in the following table no. 4:

Discriminant Validity

Table no. 4

Pairs	Correlation fixed to 1	Correlation estimated freely
Uncertainty Environment Analytical Decision	Chi-square = 85.203 P=0.000	Chi-square = 17.638 P=0.024
Hostility Environment Analytical Decision	Chi-square = 73.361 P=0.000	Chi-square = 12.266 P=0.506
Uncertainty Environment Intuitive Decision	Chi-square = 191.213 P=0.000	Chi-square = 15.200 P=0.055
Hostility Environment Intuitive Decision	Chi-square = 126.262 P=0.000	Chi-square = 24.352 P=0.028

Table no. 4 data support the fact that the characteristics of the environment operate orientate the position of the manager towards the methods of decision-making. In this context the statistics highlight that the indicators have statistical significance.

Conclusion

Based on my literature review on impact of environment on decision-making methods the following conclusions came up.

- Decision-making is one of the most important and difficult managerial job.
- The environment is a complex reality. Despite the literature, our knowledge about impact of environment on business performance in general is limited. In this context the impact of environment factors on decision-making methods is quite unclear.
- The complexity of environment did that its impact in decision-making methods has produced contradictory results. So, much more empirical research in this area are needed.

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