COMPARISON OF PERCEIVED VALUE STRUCTURAL MODELS

USPOREDBA STRUKTURNIH MODELA PERCIPIRANE VRIJEDNOSTI

UDK 658.89:658.8.013
Prethodno priopćenje
Preliminary communication

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Ključne riječi:
percipirana kvaliteta, percipirani trošak, percipirani rizik, percipirana vrijednost

Key words:
perceived quality, perceived cost, perceived risk, perceived value

SAŽETAK

Percipirana vrijednost kao važna odrednica kupovnog ponašanja već se dugi niz godina proučava u okviru marketinške znanosti. Rezultat toga su brojni teorijski i istraživački radovi koji opisuju kako potrošač percipira vrijednost u procesu kupovine. Dosadašnja istraživanja percipiranu vrijednost promatraju ili kao varijablu koja se formira pod utjecajem percepcije kvalitete proizvoda i percepcije (novčanog) troška ili kao varijablu na koju utječe potrošačeva percepcija rizika. Riječ je o dvama donekle nezavisnim smjerovima istraživanja. Povezuju ih radovi u okviru kojih se objedinjuju i istražuju utjecaji percepcije kvalitete, troška i rizika na formiranje potrošačeve percepcije vrijednosti. U ovom su radu prikazana tri pristupa formiranja percepcije vrijednosti koji se temelje na prethodno opisanim pravcima

ABSTRACT

Perceived value has been considered an important determinant of consumer shopping behavior and studied as such for a long period of time. According to one research stream, perceived value is a variable determined by perceived quality and perceived sacrifice. Another research stream suggests that the perception of value is a result of the consumer risk perception. This implies the presence of two somewhat independent research streams that are integrated by a third research stream – the one suggesting that perceived value is a result of perceived quality and perceived sacrifices while perceived (performance and financial) risk mediates the relationship between perceived quality and perceived sacrifices on the one hand, and perceived value on the other. This paper describes the three ap-

istraživanja. Cilj rada je utvrditi koji od navedenih pristupa ima bolje uporište u empirijskim podacima. Istraživanje je provedeno metodom ankete na uzroku hrvatskih potrošača. U istraživanju su uključene tri kategorije proizvoda. Prikupljeni podaci analizirani su metodom modeliranja strukturnih jednadžbi (SEM). Iako i ostala dva modela imaju uporište u empirijskim podacima, istraživanje je pokazalo da model utjecaja percipiranog funkcionalnog i financijskog rizika na percipiranu vrijednost najbolje odgovara empirijskim podacima. Drugim riječima, varijacije u percipiranom funkcionalnom i percipiranom financijskom riziku najbolje opisuju varijacije u percipiranoj vrijednosti.

proaches (models) that have been mentioned. The aim of the paper is to determine which of the observed models show the most acceptable level of fit to the empirical data. Using the survey method, research involving three product categories has been conducted on a sample of Croatian consumers. Collected data was analyzed by the structural equation modeling (SEM) method. Research has shown an appropriate level of fit of each observed model to the empirical data. However, the model measuring the effect of perceived risk on perceived value indicates the best level of fit, which implies that perceived performance risk and perceived financial risk are the best predictors of perceived value.

1. INTRODUCTION

Perceived quality, cost, risk and value have been studied in the scientific marketing literature for a number of years, since the 1970s.[1] Perceived quality, cost, risk and value are considered the determinants of purchase behavior and of the consumer willingness to purchase. Agarwal and Teas[2] point to the two streams of research in marketing literature that are mutually independent to a certain degree and seek to explain the manner in which consumers form their value perceptions in the purchase process. According to the research work of the scientists who follow the first stream,[3] consumers buy the product of the highest perceived value to them, where the perceived value is based on the consumer assessment of product quality on the one hand, and perceived costs on the other hand.[4] The other line of research is based on the work of Bauer[5] (as the first to have introduced the concept of perceived risk[6] into the research of consumer behavior) and that of his collaborators.[7] These works[8] show that consumers choose the products representing the lowest level of perceived risk to them. Also, there are some studies uniting the two streams of research.[9] In those studies, perceived quality and perceived cost do not affect perceived value directly but indirectly, through the variable of perceived risk. The reason for including an additional variable of perceived risk in the current model, which measures a direct impact of perceived quality and perceived costs on perceived value, was justified by Agarwal and Teas.[10] They pointed to the findings from the existing literature suggesting that, in creating value perceptions, consumers need not necessarily rely solely on perceived quality and perceived cost on the one hand, or solely on perceived risk on the other hand; in other words, perceived value is not only a simple relationship between perceived quality and perceived cost, nor does it result merely from the consumer perception of risk. This implies that the formation of perceived value in the purchase process is influenced by a combination of all three variables to be observed under an integrated model.

Following the above, three models measuring the effects of perceived quality, cost and risk on perceived value are observed in this paper for the purpose of determining which of these models has the strongest foundation in empirical data. The models being tested for their fit to the empirical data in this paper are as follows: (1) model of direct perceived quality and perceived cost effect on perceived value, (2) model of direct perceived risk effect on perceived value, and (3) model measuring the effect of perceived quality and perceived cost on perceived value, through the intermediate variable of perceived risk. Two model dimensions of perceived risk variables are examined: perceived performance risk and perceived financial risk, since lower product quality implies a higher potential risk of poor product performance (performance risk) while higher cash costs imply a greater monetary loss (financial risk) if the product does not prove to perform its intended function adequately.[11] Departing from the above, the following research question arises: Which of the theoretical models has the strongest foundation in the empirical data?

The paper is organized into five sections. After the introduction, section two gives an overview of current scientific notions of the effect of perceived quality, perceived cost and perceived risk on perceived value, resulting in a presentation and description of the three models and their elements. The next section describes the research methodology, and a summary of research results in section four. The paper wraps up with the conclusion, followed by a list of the literature used in it.

2. THEORETICAL FRAMEWORK AND MODELS

2.1. Model of direct perceived quality and perceived cost effect on perceived value

Perceived value has an important role in predicting purchase behavior.[12] It is a factor that

consumer willingness to purchase products[13] as well as repeat purchase behavior and brand loyalty depend on.[14] Improving and enhancing perceived value so as to attract and retain consumers is considered essential in the global competitive environment,[15] so this is another reason for making this variable the subject of numerous scientific marketing research studies.

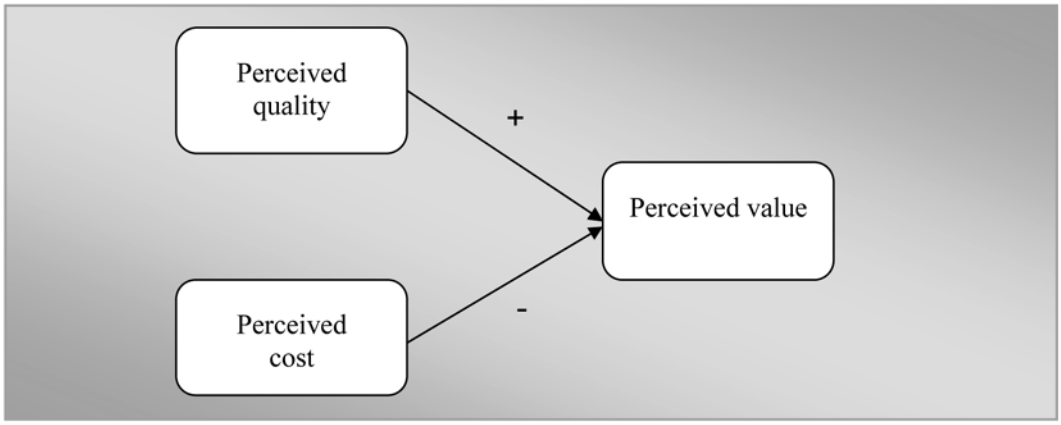
Some of previous research papers dealing with the perception of value formation[16] proceeded from the assumption that the consumer buys the product which has the highest perceived value to him. Perceived value is based on the consumer evaluation of product quality on the one hand, and perceived costs on the other.[17] While definitions of this concept are numerous,[18] perceived value is most often defined as a "general consumer evaluation of the utility derived from the product, based on the perception of what is received in return in the exchange process".[19] To put it more simply, perceived value may be regarded as a ratio of perceived quality to perceived cost.[20]

According to Zeithaml,[21] perceived quality is a consumer judgment about the overall excellence or superiority of the product. As such, perceived quality is a subjective category,[22] related to the consumer and the specific consumption situation; it differs from objective quality, as the term used to describe the technological superiority of the product[23] which can be checked and measured.[24] Despite the fact that consumers do not possess the required equipment, expertise and skills, and that they can not measure the objective quality of products, most scientists[25] believe that quality can be defined only by consumers or that the end consumer as the precise person who uses certain product attributes[26] is the one to make the final judgment on its quality. Therefore, scientific research pays far more attention to the concept of perceived rather than objective product quality.

In addition to perceived quality, the consumer's value perceptions are also affected by perceived cost,[27] as derived from the definition of perceived value. Generally, the term 'perceived costs' refers to a combination of product prices and other costs associated with its acquisition and use.[28] Price is considered the primary monetary component of perceived cost while other monetary and non-monetary costs are of secondary importance (e.g. parking in front of the store, payment for delivery and assembly of products, interest payment if the product is purchased by a loan; then, waiting time for the product, the time spent on travel to the point of sale or on search for the products as well as the consumer's psychological state, affected by the physical and social environment in the purchase process in terms of the consumer's internal conflicts, frustration, depression, anxiety, tension, nervousness etc.).[29] The research[30] in this area to date has dealt mostly with the perceived monetary cost, as supported by the assumption put forward by Bender,[31] according to which consumers give greater importance to price than to other costs that they are also exposed to in the purchase process. Therefore, the term perceived cost in this paper also implies the perceived monetary cost.

Previous studies have shown a positive correlation between perceived quality and perceived value, and a negative correlation between the perceived monetary cost and perceived value.[32] This means that to increase perceived value, one may use different combinations although the most desirable one assumes an increase in perceived benefits at the lowest possible level of perceived costs.[33] This is corroborated by the studies showing that the consumer's value perceptions can be enhanced either by an increase in perceived quality (by increasing the perceived benefits, as the surest way of creating superior value for the consumer[34]) or by reducing the perceived cost. The model of direct effect of perceived quality and perceived cost on perceived value is shown in Figure 1.

Figure 1: Model of direct perceived quality and perceived cost effect on perceived value

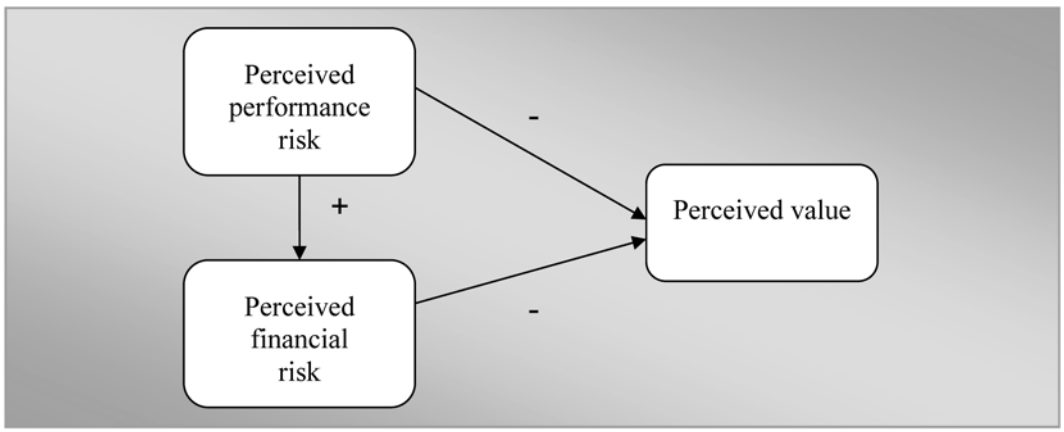


2.2. Model of direct perceived performance and financial risk effect on perceived value

Perceived risk occupies an important place in consumer behavior, as shown by numerous studies.[35] According to Taylor,[36] risk is an inevitable component of consumer purchase decision as the outcome of purchase may be known to the consumer only in the future. Even though more than half a century has passed since the occurrence of the concept of perceived risk, it still attracts the attention of scientists who believe that consumer behavior can better be explained by perceived risk since, during the purchase process, consumers are more frequently motivated to avoid possible mistakes than to maximize benefits;[37] the more so because perceived risk represents a variable in consumer behavior that explains potential and exclusively adverse effects of purchase decisions.[38]

Perceived risk is defined as a subjective expectation of loss.[39] While perceived risk is a multidimensional variable,[40] for the purpose of this pa-

Figure 2: Model of direct perceived performance and financial risk effect on perceived value



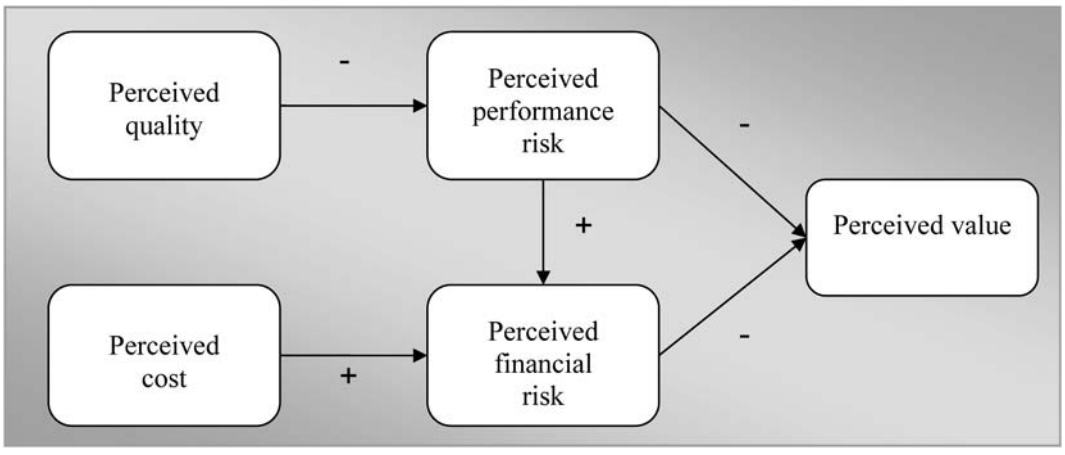
per only two of its dimensions were examined: perceived performance risk and perceived financial risk. Performance risk is associated with performance or functional attributes of products, and refers to consumer concerns that the product will not work as expected, and thus the consumer will not realize the anticipated benefits of the product.[41] In other words, performance risk represents a risk to the consumer that might arise in case the product does not perform as expected.[42] Financial risk refers to the economic expenditure which might be wasted if the product fails to meet its performance expectations.[43] The reason for choosing these two dimensions of risk is justified by the findings of previous studies[44] which confirm that the perceived product quality has a negative effect on the perceived performance risk while the perceived monetary cost has a positive effect on the perceived financial risk. Finally, studies have tested and confirmed a negative correlation between perceived risk and perceived value but, in doing so, they have also tested and confirmed a positive correlation between the perceived performance and the perceived financial risk.[45] Based on the foregoing, the model measuring a direct effect of the perceived performance and the perceived financial risk on perceived value is shown in Figure 2.

2.3. Integrated model measuring the effects of perceived quality and perceived cost on perceived value, with perceived risk as the intermediate variable

The structural model that combines the two previous models and assumes an indirect effect of perceived quality and perceived cost on perceived value through the variables of perceived performance risk and perceived financial risk is shown in Figure 3.

It is, therefore, an integrated model that incorporates the intermediate variable of the perceived (performance and financial) risk in the current model, measuring the effects of perceived quality and perceived cost on perceived value. Scientists[46] justify the inclusion of the intermediate variable of perceived risk in the current model that measures a direct effect of perceived quality and perceived costs on perceived value by the findings in the existing literature, suggesting that consumers do not necessarily base their value perceptions solely on the relationship between quality and cost, or on risk only. This further points

Figure 3: Model of perceived quality and perceived cost effect on perceived value, through the intermediate variables of perceived performance and financial risk



to the necessity of studying a combination of the variables affecting the value formation in the consumer's mind in the purchase process.

3. RESEARCH METHODOLOGY

3.1. Measuring instrument

Empirical research was conducted by the survey method, using a highly structured questionnaire as a measuring instrument. Before the main research was conducted, the questionnaire was pretested on a convenient sample of 75 university-level students of the Faculty of Economic and Business-Zagreb. The purpose of pretesting was to determine the intelligibility of individual statements and possible problems with responses to them, with the reliability of measurement scales also being pretested. Students filled out the questionnaires that were prepared as for the main research. Pretesting of the survey questionnaire did not indicate the existence of any problems related to the intelligibility of or to the responses to individual statements.

Table 1: Measurement scales - items in individual measurement scales used in the research[47]

Measurement scale	Items
Perceived quality	*This is a very poor quality brand (r) (pq1)*
	This brand will perform well (pq2)
	This is a very good quality brand (pq3)
	The quality of this brand is probably very high (pq4)
	This is a reliable quality brand (pq5)
Perceived cost	*If I were to buy this brand at its price, I would not be able to buy some other products that I would like to buy right now (pc1)*
	If I were to buy this brand at its price, I would have to reduce the amount of money spent on other things (pt2)
	The purchase of this brand at its price would reduce the amount of money at my disposal for the purchase of other products (pt3)
Perceived performance risk	*I am sure this brand will perform well (r) (pper1)*
	I believe there is a risk that this brand may not perform well (pper2)
	This brand is unlikely to perform well (pper3)
	I am not sure this brand will perform as it should (pper4)
	I think there is a risk that this brand does not possess the characteristics it should possess (pper5)
	I am sure this brand will not perform well (pper6)
Perceived financial risk	*Given the amount of money I have to pay, I consider the purchase of this brand risky (pfir1)*
	Considering its price, I run a risk by buying this brand (pfir2)
	By buying this brand, I am being exposed to the financial risk (pfir3)
	Given its price, the purchase of this brand represents a considerable financial risk for me (pfir4)
Perceived value	*This brand is very good value for money (pv1)*
	Given its price, this brand is economical (pv2)
	This brand can be considered a favorable purchase (pv3)
	The price of this brand is acceptable with regard to its quality (pv4)
	The price of this brand corresponds to its value (pv5)

Note: "r" denotes negative statements which had to be recoded before the analysis.

The instrument used for measuring the variables of the defined models consisted of a set of statements to which respondents expressed their (dis)agreement using a five-point Likert scale, where 1 indicated complete disagreement and 5 complete agreement with the statement. Individual measurement scales consisted of the set of statement listed in Table 1.

3.2. Researched product categories and brands

The research covered three product categories (chocolate, washing powder, TV sets), each with three product brands so a total of nine brands were included, as follows: within the "chocolate" product category – Dorina, Milka and Toblerone; within the "washing powder" product category – Ariel, Persil and Faks Helizim; within the "TV set" product category – Sony, Gorenje and Grundig. The selection of individual product categories and associated brands was based on an effort to increase the possibility of generalizing research results. Therefore, the selection of product categories took account of the differences between the categories with regard to a number of criteria which are crucial to consumer decision-making. Among other things, it took into account the price level differences among individual product categories, frequency of purchase, method of use, duration of use, situations of use and the risk to which consumers are exposed by buying a particular product category. Also, various criteria relevant to the decisions taken by consumers were taken into account in the selection of individual brands so as to introduce as much brand variety with respect to these criteria as possible. Thus, for example, brands were selected on the basis of their price differences within the same product category as well as their quality, share of the Croatian market, brand image, country of origin etc.

3.3. Research sample

Research was conducted on a sample of 1013 consumers living in the four largest Croatian cities – Zagreb, Split, Rijeka and Osijek. In order to be included in the sample, respondents had to be actual consumers of the examined product categories. The sample applied is by its nature a quota sample, with city, gender and age as control variables. Table 2 shows the structure of the sample:

Table 2: Sample structure

Sample characteristics	
City	**%**
Zagreb	41.8
Split	19.7
Rijeka	18.9
Osijek	19.6
Gender	
Female	50.9
Male	49.1
Age	
18-25	25.0
26-35	21.9
36-45	19.4
46-55	18.4
56+	15.3
Education	
Unfinished and finished primary school	3.1
Secondary or grammar school	51.1
Higher education or university	42.0
Master or doctoral degree	3.8
Occupation	
Senior manager, professional (doctor, teacher, lawyer...), free professions	12.9
Lower, middle manager, line manager	9.7
Clerk	17.3
Skilled worker	9.9
Other paid employment	10.7
Pensioner	8.1
Housewife	3.8
School / university student	22.2
Unemployed	4.2
None	1.2
Average monthly household income	
Up to 2,500.00 kuna	9.9
2,501.00 to 5,000.00 kuna	32.6
5,001.00 to 10,000.00 kuna	39.4
More than 10,000.00 kuna	16.1
None	2.0

Since each respondent answered the questions about three different brands (one brand from each examined category), the total number of cases to be analyzed should have been 3039. However, some respondents refused to provide their responses on more than one or two product categories so the actual number of cases analyzed was 2979.

4. DATA ANALYSIS AND RESEARCH RESULTS

The reliability of measurement scales was tested by using Cronbach's alpha coefficient. Exploratory and confirmatory factor analysis were applied to test convergent and discriminant validity of measurement scales. The unidimensionality of measurement scales was tested by using the confirmatory factor analysis.

The first stage of reliability testing identified the items that reduce Cronbach's alpha coefficient of the respective measurement scale so these items were dropped from further analysis. They are the following: *I am sure this brand will perform well (r) (pper1); This brand is unlikely to perform well (pper3)*; I think there is a risk that this brand does not possess the characteristics it should possess (pper5).*

Exploratory factor analysis identified the items with a low factor loading on the corresponding factor and/or ahigh factor loading on another factor. They are the following: *This is a very poor quality brand (r) (pq1); This brand will perform well (pq2); Given the amount of money I have to pay, I consider the purchase of this brand risky (pfir1); Given its price, the purchase of this brand represents a considerable financial risk for me (pfir4); This brand is very good value for money (pv1).* The said items were dropped from further analysis.

Table 3 shows the values of Cronbach's alpha coefficients for each measurement scale applied after the above items were excluded.

Table 3: Cronbach's alpha coefficients

Measurement scale	Cronbach's alpha coefficient
Perceived quality	0.75
Perceived cost	0.85
Perceived performance risk	0.75
Perceived financial risk	0.81
Perceived value	0.77

The Cronbach alpha coefficients presented above suggest that the applied measurement scales are of acceptable reliability levels.

After analyzing the reliability of measurement scales, their convergent and discriminant validity was tested. To this end, the exploratory factor analysis was conducted first. Table 4 shows the resulting factor structure after excluding the items described above, where the principal components analysis was applied as the factor extraction method with Varimax raw used as the rotation method.

Table 4: Factor structure, varimax raw rotation

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
pq3				**0.72**	
pq4				**0.84**	
pq5				**0.64**	
pc1		**0.80**			
pc2		**0.85**			
pc3		**0.88**			
pper2	**0.78**				
pper4	**0.76**				
pper6	**0.72**				
pfir2					**0.78**
pfir3					**0.80**
pv2			**0.80**		
pv3			**0.68**		
pv4			**0.64**		
pv5			**0.65**		

A total of 5 factors were extracted by applying the Kaiser-Guttman rule as the criterion to deter-

mine the number of factors by the number of eigenvalues. All the factors whose eigenvalue is greater than 1 were retained. The extracted factors explain 70.6% of the total variance.

The displayed factor structure suggests that the tested measurement scales possess sufficient discriminant and convergent validity.

Additional verification of convergent and discriminant validity was conducted by means of the confirmatory factor analysis. It tested the measurement model assuming that each manifest variable (item) loads on only one latent variable (factor). In order to test the discriminant validity of measurement scales, the measurement model also assumed a correlation among latent variables. It further assumed an independence of measurement errors to test the unidimensionality of individual measurement scales.

Table 5 shows the values of standard indices measuring the model fit to the empirical data.

Table 5: Indices of model fit to data

Index	Value
GFI	0.978
AGFI	0.967
NFI	0.975
NNFI	0.972
RMSEA	0.042

Presented indices suggest that the defined measurement model fits the empirical data.[48]

The absolute values of correlation coefficients among the factors range between 0.01 and 0.69, with the average extraction variance (AVE) above 0.85. The analyzed measurement scales may therefore be concluded to possess discriminant validity since the absolute values of correlation coefficients among the factors do not exceed 0.85, with the AVE index values greater than the respective correlation coefficients. Also, all the AVE parameter values are greater than 0.5, indicating that the measurement scales possess convergent validity. This provides additional confirmation of the findings of the exploratory factor analysis.

In view of the assumption that each manifest variable (items) loads on no more than one latent variable (factor) in the measurement model, and of independence of measurement errors where the model fit indices indicate an excellent model fit to the empirical data, the tested measurement scales may be concluded to possess unidimensionality.

Based on the analyses described above, one can conclude that the applied measurement scales possess reliability, convergent and discriminant validity as well as unidimensionality properties.

Following the measurement scale testing, theoretical models were compared on the basis of empirical data (Table 6) for the purpose of finding the answer to the research question.

Table 6: Comparison of all three models using structural equation modeling (SEM)

Index	Model 1	Model 2	Model 3
GFI	0.984	0.993	0.961
AGFI	0.972	0.988	0.945
NFI	0.978	0.990	0.954
NNFI	0.974	0.989	0.948
RMSEA	0.047	0.030	0.057

Note: Model 1 - Model of direct perceived quality and perceived cost effect on perceived value; Model 2 - Model of direct perceived performance and financial risk effect on perceived value; Model 3 - Model of perceived quality and perceived cost effect on perceived value, through the intermediate variables of perceived performance and financial risk

It is evident from Table 6 that all the three analyzed models possess a satisfactory level of fit to the empirical data. Nevertheless, index values indicate that Model 2 is the best fit to the empirical data while Model 3 shows the lowest level of fit. Therefore, it can be concluded that the variations in perceived value are best described by the vari-

ations in perceived performance and perceived financial risk.

5. CONCLUSION

This paper examined the three models of the consumer's perceived value formation. The paper was aimed at determining which of these approaches has a better foundation in empirical data. Research results showed that while all the three models are characterized by a satisfactory level of fit to the empirical data, the model measuring direct effects of perceived performance and perceived financial risk on perceived value has the strongest foundation in the empirical data; it means that the consumer risk perception in the purchase process is the best indication of the consumer value perception. This confirmed once again that perceived value should not be viewed solely as a simple ratio of the costs to the benefits that the consumer perceives as likely to be realized in the purchase process. Since the research has shown value perceptions to be affected by changes in the perceived (performance and financial) risk to the greatest extent, companies should undertake adequate marketing activities in the pre-purchase period (e.g. by distributing free product samples, guaranteeing a refund in case of consumer dissatisfaction with the product etc.) in an attempt at reducing the consumer perception of potential losses (non-monetary and monetary). Undoubtedly, companies need to continually improve the quality of their products and communicate it to consumers, pointing to the benefits that might be achieved through the use of the specific product, in order to help enhance perceived quality and thereby reduce perceived performance risks. Meanwhile, product quality ought to justify its price in a bid to help reduce the perceived monetary cost as well as the perceived financial risk in the purchase process.

It should be noted that this research has some limitations, and attempts at overcoming those may be considered a guideline for future research. The first limitation is based on the fact that the survey was conducted on a sample of consumers living in large cities; in order to further generalize its findings, an identical survey should be conducted on a nationally representative sample of consumers to encompass the settlements of various sizes. The second limitation consists in that the research, as tends to be the case with most marketing research, took place in a certain moment in time. It means that repeat surveys over a longer period of time might enable a better insight into the topic under examination. The third limitation is related to the researched product categories and the brands selected within individual categories; future research should, therefore, include some other product categories and the associated brands. Despite the said limitations, results of this research provide a theoretical contribution to an explanation of the variations in perceived value under the analyzed models. In addition to the theoretical implication, the paper also points to the practical implications of the findings obtained through this research.

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