

BUILDING A RESEARCH MODEL ON CUSTOMER PERCEIVED VALUE FOR CIRCLE K CONVENIENCE STORE CHAIN IN VIETNAM

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Abstract: This article aims to study the factors that create customer value in general and customer perceived value in particular when shopping at Circle K convenience store chain in Vietnam. This study presents a model and scales based on theory, results from other studies, and customer interviews at the Circle K convenience store chain. The study constructed a model consisting of one dependent variable: Perceived Customer Value (PVC) with 3 observed variables and 21 observed variables to measure six factors: Product Quality (QL), Product Structure (PR), Customer Perception of Retail Prices - Selling Price (RP), Customer Service (CS), Store Location and Premises (LP), and Marketing and Retail Promotion Mix (MC). The research results indicate that all six factors influence perceived customer value.

Keywords: perceived customer value, Circle K.

1. Introduction

The Vietnamese retail market has great potential and attracts many domestic and foreign investors. Supermarkets and convenience stores employ numerous methods to attract customers and compete, such as promotions, advertising, and attractive customer services. According to Doyle (1998), the success or failure of a business in competition depends on its ability to provide and create value for its target customers. The concept of perceived customer value has been discussed by many authors, but it is still relatively new to many Vietnamese businesses in general and convenience store chains in particular. This article is based on several theories and published results to present a clearer understanding of perceived customer value in the retail market in general and in the group of convenience stores in particular across Vietnam, combined with in-depth interviews with 30 customers to identify some factors influencing perceived customer value and propose a research model.

2. Overview of research, theoretical basis and research model

2.1. Overview of Research Situation and Theoretical Basis

Christopher (1996) argues that customer value is created when the benefits received by the customer in a transaction exceed the costs. Woodruff (1997) argues that value is customer value, understood as the customer's preference, perception, and evaluation of the product's characteristics. Moller (2006) and Wahyuningsih (2005) argue that customer value is the trade-off between benefits and costs; it is the difference between the benefits and costs perceived by the customer when purchasing goods or services. Kotler and Keller (2008) equate the two concepts of value and perceived value, which is the difference between the total benefits to the customer and the total costs or expenses incurred by the customer. When discussing customer costs, Sharma & Dhanda (2007) identified the following components: monetary cost, effort cost, time cost, and mental cost. Regarding benefits, Sheth et al. (1991) argued that the value or benefits received by customers include: functional value, conditional value, social value, emotional value, and knowledge value.

In this article, the authors agree to use only the concept of perceived customer value and refer to it generally as perceived customer value (Y).

Tai's (2011) research suggests that perceived customer value should be considered from two aspects: perceived functional value and perceived relational value. Perceived functional value is considered the customer's perception of the manifestations or usefulness of the supplier's product or service, while perceived relational value is considered the customer's perceived trust and confidence.

Sanchez et al. (2006) argued that perceived customer value always changes over time due to changes in the customer themselves and other factors of the business environment. When studying this change, Setijono & Dahlgaard (2008) proposed a model and used the term "perceived customer value" to describe the change in perceived customer value over time:

$$PVC_{i+1} = PVC_i * R_{PVC}$$

Where:

PVC_i : Perceived customer value at time i.

R_{PVC} : The relative change in perceived customer value from time i to time i+1.

Phạm, X. L., & Huỳnh, M. T. (2012) built a model of perceived customer value based on 5 influencing factors: product range, service capability, supermarket display, perceived price, and supermarket safety, with a total of 20 observed variables.

Perceived value of customers in the retail environment:

According to Zeithaml (1988), the definition of perceived value of customers in the retail environment is: the overall assessment by customers of the benefits of a product (quality) that customers perceive as something they have to pay or spend to obtain the product.

2.2. Research Model and Hypotheses

Based on Naumann's theoretical model, customer perceived value is based on four main factors: product quality, service quality, image, and price. Through in-depth interviews with 30 customers shopping at Circle K convenience stores in Vietnamese cities, combined with the reference scales of Tho. N.D & Trang. N. T. M (service quality), the authors developed a research model consisting of a dependent variable and a group of six independent variables.

* Dependent variable PVC: Customer perceived value.

* Independent variables: - QL: Product quality.

- PR: Product range.
- RP: Retail price.
- CS: Customer service.
- LP: Location and premises.
- MC: Marketing communications and retail promotion mix.

The research hypotheses are as follows:

Hypothesis H1: Product quality influences consumer perceived value.

Hypothesis H2: Product structure influences consumer perceived value.

Hypothesis H3: Retail price influences consumer perceived value.

Hypothesis H4: Customer service influences consumer perceived value.

Hypothesis H5: Location and premises influence consumer perceived value.

Hypothesis H6: Marketing communications and the retail promotion mix influence consumer perceived value.

3. Research Methodology

To conduct research on perceived customer value at Circle K convenience stores, the author conducted qualitative research through in-depth interviews with customers shopping at Circle K stores in several provinces and cities of Vietnam, followed by quantitative research/scale validation, developing a research model and checking for model defects.

3.1. Data Collection Methods

The author conducted in-depth direct interviews with customers to obtain preliminary data, then created a survey questionnaire and distributed survey forms to collect quantitative data.

3.2. Data Processing Method

The survey data will be aggregated, grouped, and then updated into Excel to clean the data, remove inappropriate values, and use SPSS 22.0 and EVIEWS 12 software to perform descriptive statistics on the variables, assess the reliability of the scale, then check the correlation between variables, examine the dependence between variables, and identify deficiencies in the research model.

3.3. Survey Questionnaire

In multiple regression analysis, according to Hair et al. (2006), the minimum sample size is: $n = m*5$ (m is the number of measurement questions – observed variables), while according to Tabachnick & Fidell (2007), $n = 8*m + 50$ (m is the number of independent variables). This study has 6 independent research variables with 21 observed variables, the minimum sample size is 140. The author inherited the scoring method of Nguyễn, D. T, & Nguyễn, T. M. T. (2011), using a 5-point Likert scale. According to the research objective, the author used a significance level $\alpha < 0.05$ with a sample size $n=228$, which is appropriate.

4. Research Results

4.1 Sample Characteristics

300 questionnaires were distributed to 300 customers shopping at Circle K convenience stores in provinces and cities across Vietnam. 252 questionnaires were returned, with 24 invalid. The sample size was $n = 228$, with a female ratio of 65% and a male ratio of 35%, of which nearly 72% were students aged 16 to 23. After using descriptive statistics, the perceived value of consumers, ranging from 3.72 to 4.61, averaged 4.179.

4.2. Results of Scale Validation

4.2.1. Scale Validation

To assess the internal consistency of the research concepts, exploratory factor analysis (EFA) and Cronbach's alpha reliability coefficient were applied. The calculated Cronbach's alpha of the four separate components of Perceived Customer Value (PVC) developed as a whole yielded the following:

Firstly, the four observed variables of Perceived Customer Value (PVC) of the Circle K convenience store chain have a Cronbach's alpha reliability coefficient greater than 0.7672, meeting the validation standard (> 0.70).

Secondly, the scales of the components: QL - Product Quality (3 observed variables); PR - Product Structure (4 variables); RP - Retail Price (3 variables) all have a Cronbach's alpha reliability coefficient > 0.70; The item-total correlation coefficient is > 0.5, thus meeting the test criterion and being included in the subsequent EFA analysis.

Thirdly, with the scales of the two independent variables: CS - Customer Service (5 variables); LP - Location and Premises (4 variables); MC - Marketing Communications and Retail Promotion Mix (5 variables), most of the scales of these three components achieved a Cronbach's alpha reliability level > 0.70 and item-total correlation > 0.4; however, three observed variables corresponding to the three independent variables CS, LP, and MC had Cronbach's alpha coefficients < 0.70 (0.5132, 0.6441, and 0.6048 respectively), and they all had item-total correlations < 0.3 (0.2656, 0.2853, and 0.2524 respectively), so they were excluded from the subsequent EFA analysis.

After conducting exploratory factor analysis (EFA) on the independent variables twice, two observed variables, XH4 and VH4, were found to be unsatisfactory and were removed. The remaining 19 variables, after being analyzed using the rotated factor matrix, converged and were differentiated into six factors: QL, PR, RP, CS, LP, MC.

– The total percentage of extracted variance is 68.725% > 50%, meaning that 5 factors explain 68.725% of the dataset. The total variance extracted value of 1.036 > 1 meets the research requirements.

– The total percentage of extracted variance is 78.816% > 50%, meaning that 5 factors explain 78.816% of the dataset. The total variance extracted value of 1.388 > 1 meets the research requirements.

The results of the factor rotation are shown in Table 1, revealing 6 factors that influence consumers' perceived value of the Circle K convenience store chain.

Table 1: Rotated Component Matrix

Rotated Component Matrix^a

	Component					
	1	2	3	4	5	6
CS1	.850					
CS2	.868					
CS3	.830					
CS4	.804					
PR1		.843				
PR2		.847				
PR3		.845				
PR4		.713				
MC1			.792			
MC2			.732			
MC3			.812			
MC4			.840			
LP1				.728		
LP2				.712		
LP3				.884		
QL1					.759	
QL2					.796	
QL3					.767	
RP1						.810
RP2						.644
RP3						.814

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 5 iterations.
 (Source: Data processing using SPSS 22.0)

All observed variables have loading coefficients greater than 0.5, so no further variables are removed. Thus, the scale measuring factors influencing consumers' perceived value of the Circle K convenience store chain has met the requirements for discriminant validity and convergent properties.

Similarly, EFA analysis for the dependent variable showed that the KMO coefficient was 0.659, Sig = 0.000 < 0.05, and the total variance extracted was 60.88%. Therefore, the observed variables are correlated with each other, making the factor analysis entirely appropriate. Thus, the scale used for the subsequent analyses is appropriate.

4.2.2. Correlation Analysis.

A common method for assessing discriminant validity is to test the correlation matrix for the independent and dependent variables. If the result shows a correlation coefficient < 0.8, it indicates that the component variables are independent of each other. Table 2 summarizes the Pearson correlation between the explained variables.

Correlations

Table 2. Correlation analysis between research variables.

		PVC	QL	PR	RP	CS	LP	MC
PVC	Pearson Correlation	1	.436**	.208**	.473**	.708**	.788**	.332**
	Sig. (2-tailed)		.000	.002	.000	.000	.000	.000
	N	228	228	228	228	228	228	228
QL	Pearson Correlation	.436**	1	.080	.048	.074	.045	.018
	Sig. (2-tailed)	.000		.232	.446	.274	.466	.765
	N	228	228	228	228	228	228	228
PR	Pearson Correlation	.208**	.080	1	.030	.073	.021	.096
	Sig. (2-tailed)	.002	.232		.653	.274	.698	.148
	N	228	228	228	228	228	228	228
RP	Pearson Correlation	.473**	.048	.030	1	.106	.040	.020
	Sig. (2-tailed)	.000	.446	.653		.109	.412	.748
	N	228	228	228	228	228	228	228
CS	Pearson Correlation	.708**	.074	.073	.106	1	.061	.119
	Sig. (2-tailed)	.000	.274	.274	.109		.358	.072
	N	228	228	228	228	228	228	228
LP	Pearson Correlation	.788**	.045	.021	.040	.061	1	.029
	Sig. (2-tailed)	.000	.466	.698	.412	.358		.654
	N	228	228	228	228	228	228	228
MC	Pearson Correlation	.332**	.018	.096	.020	.119	.029	1
	Sig. (2-tailed)	.000	.765	.148	.748	.072	.654	
	N	228	228	228	228	228	228	228

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

(Source: Data processing using SPSS 22.0)

From Table 2, several observations can be made:

Firstly, the correlation coefficient between the dependent variable (Perceived Customer Value PVC) and the explanatory variables all have a statistical significance level of $p < 0.05$, therefore these explanatory variables can all be included in the model to explain customer value.

Secondly, all absolute pairwise correlation coefficients range from [0.018-0.119], meaning they do not exceed the condition coefficient of 0.8 - this proves that the component variables do not have a collinear relationship. In other words, the scales in this study have measured different research concepts.

4.3. Building a Regression Model and Testing Hypotheses.

Multiple linear regression is often used to test and explain causality theory. Besides its function as a descriptive tool, multiple linear regression is also used as a concluding tool to test hypotheses and predict values of the research population. Thus, for this study, multiple linear regression is a suitable method to test the research hypotheses.

4.3.1. Multiple Linear Regression Model

The multiple regression model has been developed as follows:

$$PVC = \beta_0 + \beta_1QL + \beta_2PR + \beta_3RP + \beta_4CS + \beta_5LP + \beta_6MC + U \quad (1)$$

Where: β_0 is the intercept coefficient

$\beta_j; j = \overline{1, 6}$ are the regression coefficients of the regression equation

U is the random error.

By performing linear regression using SPSS software, we obtain:

Table 3: Regression results

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.003	.178		.016	.987		
QL	.355	.034	.381	10.441	.000	.676	1.480
PR	.275	.023	.328	11.957	.000	.945	1.058
RP	.762	.035	.784	21.751	.000	.692	1.444
CS	.108	.031	.124	3.489	.001	.715	1.399
LP	-.041	.020	-.051	-2.048	.042	.956	1.046
MC	.062	.025	.079	2.485	.014	.896	1.116

a. Dependent Variable: PVC

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.997	6	7.833	148.519	.000 ^b
	Residual	11.656	221	.053		
	Total	58.653	227			

- a. Dependent Variable: PVC
- b. Predictors: (Constant), MC, PR, CS, RP, LP, QL

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.895 ^a	.801	.796	.22965	1.825

- a. Predictors: (Constant), MC, PR, CS, RP, LP, QL
- b. Dependent Variable: PVC

(Source: Data processing using SPSS 22.0)

Table 3 shows that the P-value for each independent variable ranges from 0.000 to a maximum of 0.042 < 0.05, indicating that all independent variables are statistically significant. This proves that all six hypotheses are correct. Furthermore, the model's significance is approximately 0.000 < 5%, demonstrating that the independent variables influence the dependent variable, and the model constructed above is appropriate.

Based on these results, the study proposes the following standardized regression model:

$$PVC = 0.381QL + 0.328PR + 0.784RP + 0.124CS - 0.051LP + 0.079MC + e$$

According to the regression equation, the weighted factors affecting consumers' perceived value of the Circle K convenience store chain are ranked from strongest to weakest as follows: Retail price (RP), Product quality (QL), Product range (PR), Customer service (CS), Marketing communications and retail promotion mix (MC), Location and premises (LP).

4.3.2 Model Fit Testing

The Fisher-Snedecor (F) test used in the analysis of variance is a hypothesis test regarding the fit of the overall linear regression model. ANOVA analysis shows that F = 148.519 with a significance level of approximately 0.000, indicating that the constructed regression model is appropriate, and all included variables are statistically significant at the 5% significance level.

Student's t-test (T) shows that all regression coefficients have a significance level < 0.05, indicating that all six factors influence consumers' perceived value of the Circle K convenience store chain.

4.3.3. Defect Testing in the Model

a. Multicollinearity.

From Table 2, all absolute pairwise correlation coefficients range from [0.018-0.119], meaning they do not exceed the condition coefficient of 0.8; in addition, all significance values are less than 0.05 and all VIF values are less than 5, indicating that the model does not suffer from multicollinearity between the independent variables.

b. Heteroskedasticity.

With the White test with cross-product, the heteroskedasticity of the research model (1) is detected as follows:

Table 4: Heteroskedasticity – White test

Heteroskedasticity Test: White
 Null hypothesis: Homoskedasticity

F-statistic	0.705131	Prob. F(27,200)	0.8588
Obs*R-squared	19.81745	Prob. Chi-Square(27)	0.8383
Scaled explained SS	14.35006	Prob. Chi-Square(27)	0.9776

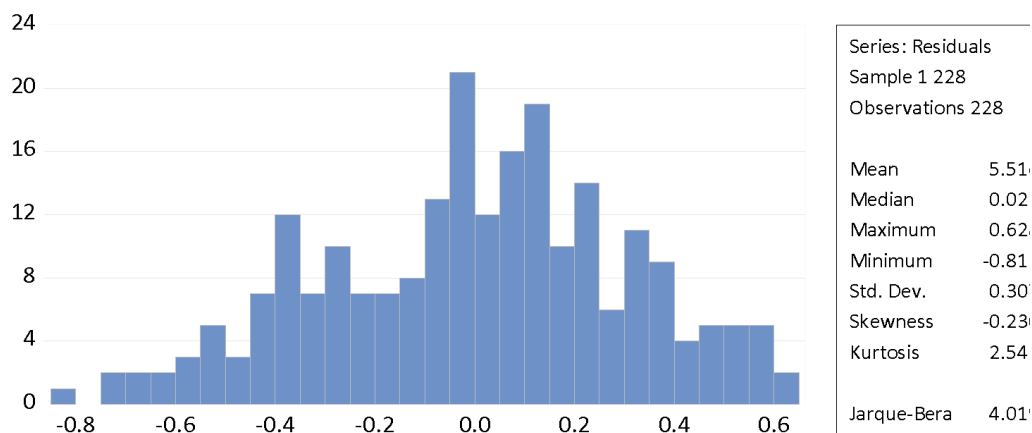
(Source: Data processing using Eviews 12)

From Table 4, we observe that $Prob(F) = 0.8588 > 0.05$, so we accept the hypothesis that model (1) has constant and uniform error variance.

c. Testing the normality of the random error distribution.

To check if the random errors follow a normal distribution, we have the following results table:

Table 5: Normality test



(Source: Data processing using Eviews 12)

Using the Jarque-Bera test, we have $JB = 4.0193 < \chi^2_{0.05}(2) = 5.9914$ and the $Prob(JB) = 0.134 > 0.05$. Thus, the random error of the model has a normal distribution.

5. Conclusion and Recommendations

Based on the above results, the study constructs the following regression model:

$$PVC = 0.381QL + 0.328PR + 0.784RP + 0.124CS - 0.051LP + 0.079MC + e \quad (2)$$

The above test results show that:

Firstly, the factors affecting consumers' perceived value of Circle K convenience stores include: product quality; product range; retail price; location and premises; customer service; and marketing and retail promotion mix.

Secondly, Group 1 includes the following factors: Customer's perceived price of retail items - Retail Price (RP), Product Quality (QL), and Product Structure (PR) have the most significant influence on Customer Perceived Value. Therefore, the Circle K convenience store chain should regularly organize appropriate promotional programs regarding price and ensure product quality to enhance its competitiveness. At the same time, the products in the supermarket need to be diverse and abundant in types and designs to meet customer needs.

Thirdly, the Customer Service (CS) and Marketing Communications and Retail Promotion mix factors have a weak positive impact on perceived customer value. Therefore, it is necessary to strengthen and improve communication channels, diversify sales promotion channels, and enhance the quality of customer service to reach and expand the customer base beyond students.

Fourth, Circle K stores offer dine-in services, seating areas, free Wi-Fi, and a diverse menu of hot meals and snacks, allowing customers to relax and work. This also contributes to attracting a large number of young customers, particularly students. However, research results indicate that location and store layout have an inverse impact on perceived customer value. This suggests that while young customers are satisfied with the amenities Circle K provides, they also desire a better space. Therefore, Circle K stores need to optimize their space to improve service quality.

The research results have established a model and identified the relationship, impact, and influence of six factors: Product Quality (PQ), Product Structure (PR), Customer Perception of Price - Price (RP), Customer Service (CS), Store Location and Premises (LP), and Marketing Communications and Retail Marketing Mix (MC) on perceived customer value. We can expand this research to include different customer segments, age groups, and customer characteristics, occupations, and professions. This will allow for improved service quality to meet customer needs, enhance competitiveness, and solidify the business's position.

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