

## THE EFFECT OF PRODUCT PORTFOLIO ON PURCHASE INTENTION IN E-COMMERCE WEB SITES

Mustafa Emre Civelek  
İstanbul Ticaret Üniversitesi

Adnan Veysel Ertemel  
İstanbul Ticaret Üniversitesi

### ABSTRACT

E-commerce has globally become commonplace in the recent years. In the 21<sup>st</sup> world marketing environment, e-commerce deserves special attention when studying brands and their marketing activities. This study investigates the direct and indirect effects of product portfolio, that is, the range and depth of products, found in B2C e-commerce web sites, on customers' purchase intention through perceived value and loyalty to the web sites. In conducting the research, structural equation modeling method was used to test the hypotheses. It's found that product portfolio in e-commerce web sites doesn't have direct effect on purchase intention. However, product portfolio does influence purchase intention indirectly through perceived value and customer loyalty. Validating the previous studies, this study confirms the mediating role of customer loyalty within the relationship between perceived value and purchase intention. Thus the effect is revealed in the context of e-commerce. Hence, the findings in this study have significant contribution to the related e-commerce literature.

*Keywords: E-Commerce, Product Portfolio, Purchase Intention*

## E-TİCARET WEB SİTELERİNDE ÜRÜN PORTFÖYÜNÜN SATINALMA NİYETİ ÜZERİNDEKİ ETKİSİ

### ÖZET

E-Ticaret son yıllarda küresel olarak yaygınlaşmaktadır. Bu nedenle 21.yy pazarlama ortamında e-ticaret, ayrıca incelenmeyi hak etmektedir. Bu çalışma B2C e-ticaret web sitelerinde ürün portföyünün, sitede yer alan ürünlerin çeşitliliği ve derinliğinin, müşterilerin satınalma niyetleri üzerindeki etkisini, algılanan değer ve müşteri sadakati boyutunda incelemektedir. Çalışmada geliştirilen hipotezler yapısal eşitlik modeli kullanılarak test edilmiştir. Yapılan analizler sonucunda ürün portföyünün satınalma niyeti üzerine doğrudan etkisi olmadığı görülmüştür. Ancak Algılanan değer ve müşteri sadakati üzerinden dolaylı etki tespit edilmiştir. Literatürdeki önceki çalışmaları teyideden bu çalışmada müşteri sadakatinin algılanan değer ve satınalma niyeti arasındaki aracı rolünü saptanmıştır. Böylelikle söz konusu etki e-ticaret bağlamında ortaya konulmuştur. Dolayısıyla, bu çalışmada elde edilen bulgular ilgili e-ticaret literatürüne önemli katkılarda bulunmaktadır.

*Anahtar Sözcükler: E-Ticaret, Ürün Portföyü, Satınalma Niyeti*

## 1. INTRODUCTION

With the advent of Internet, consumers' nature and manner of living have started to change permanently. Thanks to the ever increasing mobile penetration rates and increased adoption of smartphones, this change became more radical in the recent years. As part of this trend, electronic commerce (e-commerce) has started to be a preferred way of conducting business with the brands. In this sense, businesses should take e-commerce into account when formulating their strategies. Therefore, scholars and marketing and brand managers have to tailor their efforts to e-commerce environment.

E-Commerce can be defined as the use of Internet to do business transactions. Business-to-Consumer (B2C) e-commerce has crucial importance by enabling trade at individual level globally, by providing cheaper, faster and more convenient ways to conduct transactions. Previous literature has identified various factors involved in determining the success or failure of a B2C e-commerce web sites. Among those, this paper focuses on the effect of the product portfolio of the e-commerce web site. It's assumed that, as part of one-stop shopping trend, consumers increasingly expect a product for each of their diverse needs from a single e-commerce site with rich product portfolio (Srinivasan et al. 2002). On the other hand, one of the most important factors in assessing performance of a B2C e-commerce web site is its ability to create favorable perceptions in target consumers' minds. Hence, branding strategy and branding loyalty are crucial aspects in B2C e-commerce web sites. A B2C e-commerce web site's performance is measured by its sales revenue. Therefore, customer purchase decision plays a critical role within the process. This study analyzes the direct and indirect effects of product portfolio on customers' purchase intention through customer perceived value and loyalty to the web sites. In conceptual background, product portfolio, perceived value, brand loyalty and purchase intention concepts are discussed. Afterwards, research model and methodology are introduced. Finally, results of the research are analyzed and discussed.

## 2. CONCEPTUAL BACKGROUND

### 2.1. Product Portfolio

Product portfolio refers to the range and depth of products found in e-commerce web sites. Previous literature has pointed out the significance of product portfolio in e-commerce setting (Srinivasan et al. 2002; Yang et al. 2004) "Variety of products" is found to be an important factor in modern e-commerce practices due to the fact that consumers expect to see variety of choices to pick from in a given category according to their diverse needs (Barcia, 2000; Cho and Park, 2001). Another peculiar characteristic of e-commerce is convenience. This involves facilitating one-stop shopping where consumers can fulfill their diverse needs at one site (Jiang et al, 2013). Furthermore, Page et. al (2002) suggest that a large selection of product portfolio is a crucial ingredient for developing perceived value in an e-service setting.

### 2.2. Perceived Value

Perceived value has its roots in equity theory. In this theory, customers assess what is fair and right (deserved benefit). It's based on the ratio of customers' input to the costs and sacrifices made within the process (Oliver et.all, 1988; Bolton and Lemon 1999). These costs and sacrifices include monetary costs, time consumption, consumer stress etc.

Based on this theory, perceived value can be defined as an overall assessment of the risks and rewards associated with a brand and its products and services. Equity theory is especially relevant in the e-commerce context due to the necessity for the brands to maintain an ongoing relationship with their customers. Customers in online medium want to feel equitably treated; that's, the exchange occurred should be believed to be fair and deserved. (Oliver et al., 1988). Furthermore, due to the intense competition in online medium, perceived value is critically important for gaining loyalty of e-commerce customers (Yang et. al, 2004)

### 2.3. Brand Loyalty

Brand loyalty is known as the degree to which consumers are committed to a brand. This commitment can be in the form of inner attitudes shown by biases. It can also be shown by repeat purchase behavior ultimately leading to brand loyalty (Odin et. all, 2001). Brand loyalty can also be measured by inclination to recommend the brand to others (Boulding et al. 1993). Afterall, it's less costly and time consuming to keep existing customers especially when consumers are loyal to a brand. Consequently, brand loyalty is an important phenomenon that enables the brands to cut their marketing costs in e-commerce.

### 2.4. Purchase Intention

Behavioral intention is the most influential predictor of behavior according to the theory of planned behavior (Ajzen 1991). Existing literature used purchase intention to represent the actual behavior (Lin 2006). In order for e-commerce web site brands to reach business profitability, it is more important to know the behavioral consequences, namely; purchase intention of customers than it is for them to understand the customer attitudes. Consequently, we used purchase intention as an dependent variable in predicting actual behavior.

### 3. RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

The conceptual research model is shown in Figure 1. Conceptual research model contains four hypotheses which were put forward to clarify the effect of product portfolio to the purchase intention.

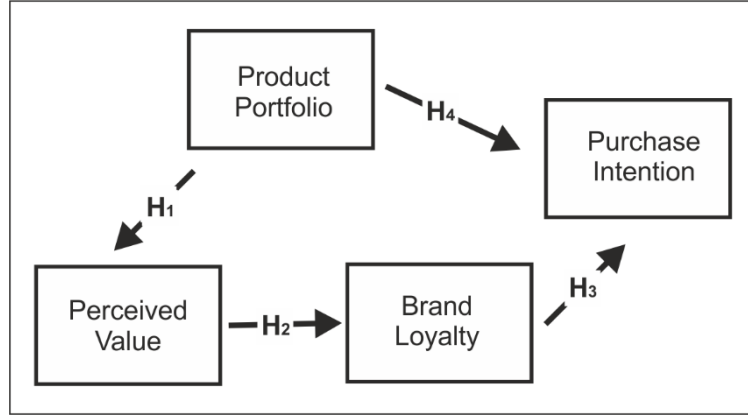


Figure 1. Conceptual Research Model

#### 3.1. The Relationship between Product Portfolio and Perceived Value

Looking from a broader perspective, product portfolio has been shown as part of online service quality dimensions as proposed by Yang et al. (2004). Other dimensions include reliability, responsiveness, ease of use etc.. Parasuraman and Grewal (2000) has proposed quality-value-loyalty chain model where service quality is an antecedent of customer perceived value which ultimately effects customer loyalty. Citing to the stated previous research, Jiang et al. (2016) argue that, as a service quality dimension, product portfolio has an effect on customer perception for e-commerce web sites.

Thus, in the light of the existing literature, we hypothesize that:

**H<sub>1</sub>:** Product Portfolio has a positive effect on Perceived Value.

#### 3.2. The Relationship between Perceived Value and Brand Loyalty

Agustin et al (2005) have pointed out customer perceived value as a major precedent of customer loyalty. In e-commerce context, high-perceived value is one of the main factors for customer patronage (Chen and Dubinsky 2003; Parasuraman and Grewal, 2000). Consumers' perception of significant value leads to sticking with the vendor and being less likely to switch vendors. Oliver et. al (1988) argue that, everything else being equal, high perceived value may increase customer loyalty significantly.

Thus, in the light of the existing literature, we hypothesize that:

**H<sub>2</sub>:** Perceived Value has a positive effect on Brand Loyalty.

#### 3.3. The Relationship between Brand Loyalty and Purchase Intention

Kamariah et. al (2005) and Wang et. al (2006) have pointed out that loyalty to the brand in e-commerce environment is a good predictor of purchase intention on the site. Hence, it can be concluded that consumers with a high loyalty to an e-commerce site is also highly likely to have a strong purchase intention on the site.

Thus, in the light of the existing literature, we hypothesize that:

**H<sub>3</sub>:** Brand Loyalty has a positive effect on Purchase Intention.

#### 3.4. The Relationship between Product Portfolio and Purchase Intention

In consideration of behavioral intention, product portfolio is seen as an important aspect in e-commerce. This is because e-commerce has the unique characteristic to address diverse needs by providing niche products and services that are unavailable in physical stores (Barcia, 2000). Zeng et. all (2009) studied e-commerce product portfolio in the context of e-service customer satisfaction and argued that product portfolio positively effects purchase intention.

Thus, in the light of the existing literature, we hypothesize that:

**H<sub>4</sub>:** Product Portfolio has a positive effect on Purchase Intention.

### 4. RESEARCH METHODOLOGY

This study used quantitative research techniques. Five-point ordinal Likert scale was used ranging from strongly disagree to strongly agree. Firstly, the reliability and validity of the scales were determined. Subsequently, structural equation modeling method was used to test the hypotheses in the conceptual research model. Structural equation modeling is a multi-variable statistical method. This method was

chosen in order to clarify direct and indirect relationships among the constructs in a single model (Civelek, 2018). This method is taking measurement errors into consideration (Byrne, 2010). Therefore it is superior to multiple regression analysis. SPSS and AMOS statistics programs were used for analyses.

#### 4.1 Measures and Sampling

Scale adopted Jiang et al. were used to measure product portfolio, customer loyalty and perceived value (Jiang, Jun, Yang, 2016). And scale adopted from Chen et al. was used to measure purchase intention (Chen, Teng, 2013).

More than 500 distributed, 464 valid questionnaires were gathered from prominent cities throughout Turkey. 240 of the respondents are male and 224 are female.

#### 4.2 Construct Validity and Reliability

After the exploratory factor analysis and data purification process, confirmatory factor analysis was performed for remaining 15 items. This analysis was conducted in order to determine convergent validity of the constructs (Anderson & Gerbing, 1988). CFA model fit indices results have adequate fit:  $\chi^2/DF = 1.843$ , CFI=0.954, IFI=0.955, RMSEA= 0.060.  $\chi^2$  is The Likelihood Ratio Chi-Square Test. The analysis shows the conformity of the initial model and the acquired model. A  $\chi^2/DF$  ratio is under the threshold level of 3 (Bagozzi & Yi, 1990) and shows good fit. Furthermore, other fit indices exceeded their recommended thresholds and show good fit.

**Table 1. Confirmatory Factor Analysis Results**

Variables	Items	Standardized Factor Loads	Unstandardized Factor Loads
Product Portfolio	Ppo0330	0.752	1
	Ppo0229	0.674	0.999
Perceived Value	Pva0434	0.695	1
	Pva0535	0.702	0.998
	Pva0333	0.508	0.839
	Pva0131	0.553	0.819
	Pva0232	0.693	1.052
Brand Loyalty	Bly0641	0.580	1
	Bly0136	0.831	1.544
	Bly0439	0.630	0.225
	Bly0237	0.864	0.512
Purchase Intention	Bly0338	0.717	1.416
	Pin0142	0.727	1
	Pin0344	0.840	1.115
	Pin0243	0.850	1.119

$p < 0.05$  for all items

In Table 1, confirmatory factor analysis results are shown. The standardized factor loads of each item are larger than 0.5 and significant. These results indicate the convergent validity of the scales. So as to assess discriminant validity, the square roots of average variance extracted values were evaluated and compared with correlation values of the constructs in the same column. In Table 2, the diagonals indicate the square root of AVE value of each variable. And as shown in Table 2, the square roots of average variance extracted values are beyond the correlation values in each column (Byrne, 2010). Reliability of each construct was also calculated. Composite reliability and Cronbach  $\alpha$  values are beyond the threshold level (i.e. 0.7) (Fornell & Larcker, 1981). Pearson correlation coefficients, composite reliabilities, average variance extracted values, Cronbach  $\alpha$  values, means and standard deviations of the constructs are shown in Table 2.

**Table 2. Construct Descriptives, Correlation and Reliability**

Variables	1	2	3	4
1.Product Portfolio	(0.714)			
2.Perceived Value	0.493*	(0.635)		
3.Brand Loyalty	0.427*	0.521*	(0.733)	
4.Purchase Intention	0.341*	0.414*	0.590*	(0.807)
Composite reliability	0.675	0.769	0.850	0.848
Average variance ext.	0.510	0.404	0.537	0.652

Cronbach $\alpha$	0.670	0.785	0.846	0.844
Mean	3.98	3.74	3.82	3.98
Standard Deviation	0.77	0.65	0.74	0.75

\*p < 0.01

Note: Diagonals show the square root of AVEs.

### 4.3 Test Of Hypothesis

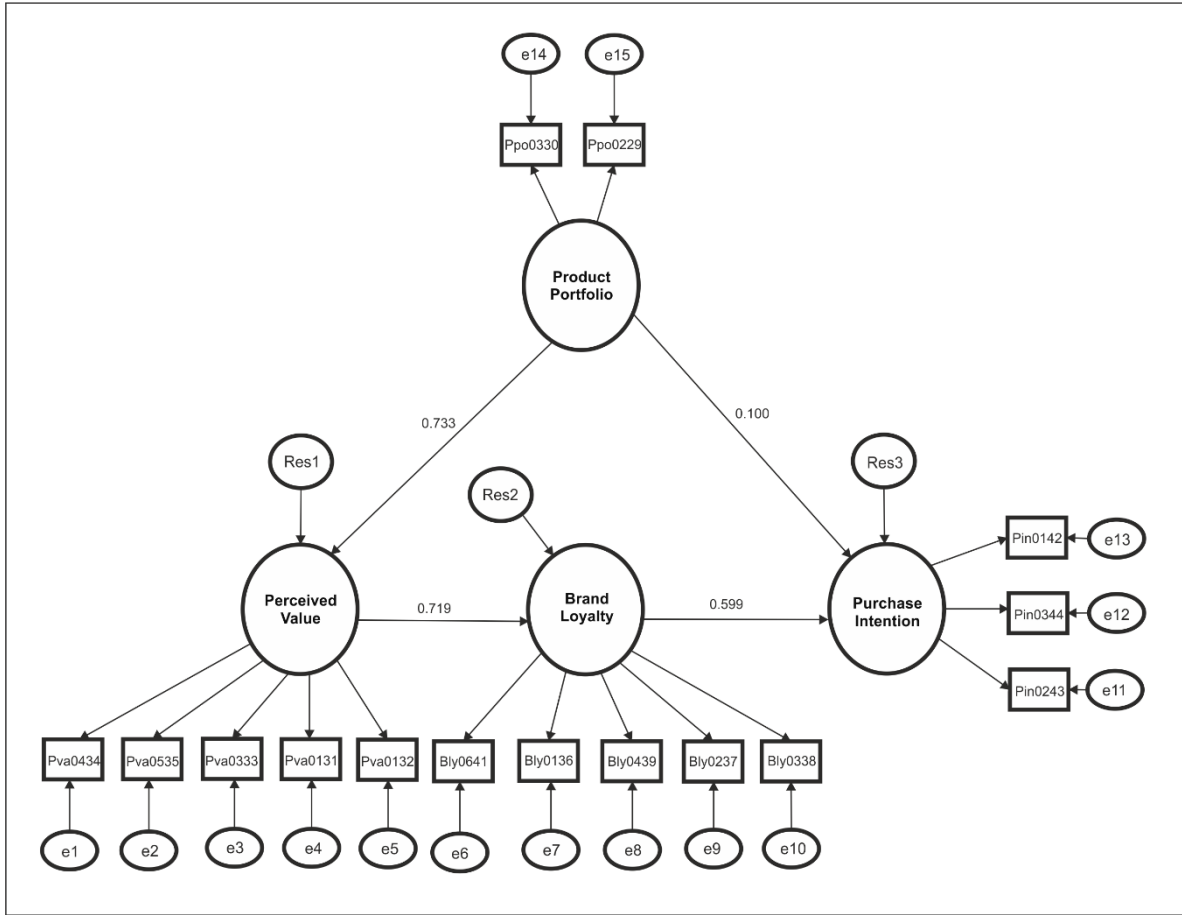
The structural model has been analyzed by using covariance based structural equation modelling (CB-SEM). Maximum likelihood which is the default estimation method of CB-SEM was used to estimate the coefficients. The absolute and relative goodness-of-fit indices of the model were calculated. The absolute goodness of fit indices are the root mean square error of approximation (RMSEA) and the  $\chi^2$  goodness of fit statistic. The relative goodness of fit indices are the comparative fit index (CFI) and the incremental fit index (IFI).

**Table 3. Hypotheses Test Results**

Relationships	Standardized Coefficients	Unstandardized Coefficients
Product Portfolio → Perceived Value	0.733*	0.880*
Perceived Value → Brand Loyalty	0.719*	0.619*
Brand Loyalty → Purchase Intention	0.599*	0.754*
Product Portfolio → Purchase Intention	0.100	0.130

\*p < 0.05

As shown in Figure 2, structural model fit indices adequately indicate model fit.  $\chi^2/DF$  value is 1.849 and within threshold levels (i.e. between 0 and 2). CFI and IFI are 0.948 and 0.949 respectively. RMSEA is 0.061. The results indicated that the model has adequate fit (Civelek, 2018). As shown in Table 3, H<sub>1</sub>, H<sub>2</sub> and H<sub>3</sub> are supported and H<sub>4</sub> is not supported. These results of the tests indicate a positive and significant relationship between product portfolio and perceived value, between perceived value and brand loyalty and between brand loyalty and purchase intention. But there is not significant direct relationship between product portfolio and purchase intention.



**Figure 2. Results of SEM Analysis**

Note:  $\chi^2/DF = 1.849$ , CFI = 0.948, IFI = 0.949, RMSEA= 0.061

## 5. CONCLUSION

This research provides an important contribution to the existing literature by explaining the relationship among product portfolio, perceived value, brand loyalty and purchase intention. The most prominent finding of this study is that, contrary to the previous literature on effect of product portfolio on purchase intention (Zeng et. al., 2009), using structured equation modeling technique, it was found out that product portfolio does not directly effect purchase intention in B2C e-commerce context. Product portfolio does, however, affect purchase intention indirectly through perceived value and brand loyalty.

This finding implies that product portfolio found in B2C e-commerce websites count for improved perceived value of the e-commerce brand ultimately adding to the brand loyalty. Brand loyalty, in turn, paves the way to customers' purchase intention. These findings may help the practitioners take more educated steps in planning and execution of their e-commerce web site strategies and improving their brands. Consequently, rich product portfolio is not enough to create purchase intention on its own. Firstly, perceived value and brand loyalty should consequently be increased to create customer intention to purchase.

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