



Effect of Consumers' Perceived Financial Constraint on Online New Product Purchase Intention

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Abstract. The study reported here examined the relationship between online consumers' perceived financial constraint and online new product purchase intention by focusing on the mediating effect of online consumers' risk-taking tendency and moderating effect of online consumers' online shopping impulsivity. Data from a survey of 209 students in three undergraduate classes and one professional master student class was used to conduct empirical study. Results found that the perceived financial constraint was negatively related to consumers' online new product purchase intention while risk-taking tendency mediated this relationship significantly. In addition, consumers' online shopping impulsivity was negatively moderating the relationship between online consumers' perceived financial constraint and risk-taking tendency. Moreover, consumers' online shopping impulsivity had a significant negative impact on perceived financial constraint. Finally, implications of the findings were discussed for preventing or reducing the perceived financial constraint from the perspective of online merchants and online consumers.

Keywords: Perceived Financial Constraint · Risk-taking Tendency · Online Shopping Impulsivity · Online New Product Purchase Intention

1 Introduction

As production and manufacturing capabilities continue to progress, a multitude of new products are being generated daily, while the evolution of network technology has led to a considerable number of these new products being offered for sale online. Nevertheless, it is prudent to consider whether these fresh online offerings are able to elicit purchase intentions from online consumers. The acceptance of new products by consumers is a multifaceted process, encompassing five key stages: awareness, interest, evaluation, trial, and adoption (Rogers et al., 2014) [1]. Consequently, it is essential to address how to enhance online consumers' inclination to buy new products online, the factors influencing this online purchase process, and the elucidation of the motives and mechanisms guiding online consumers' purchasing decisions.

The impact of an individual's financial status is not solely derived from their objective wealth, but also extends to their subjective perception. A growing number of consumers

believe that their economic circumstance no longer satisfies their consumption requirements, leading to a perceived financial constraint which, in turn, influences their intention to purchase new products online. In previous research on factors influencing the online new product purchase intention, the characteristics of the online product itself will affect the online new product purchase intention (Huang and Sengupta, 2020) [2]. In addition, consumption context is also one of the factors that influence the online new product purchase intention (Jiang, 2021) [3]. However, there is currently a scarcity of specific and systematic analyses on the influence of online consumers' perceived financial constraints on their intention to purchase new products online. Thus, further research in this area is imperative.

In organizational behavior, scholars refer to risk-taking tendency by the concept that individuals tend to evaluate their own likelihood of success when faced with risky behavior. The level of an individual's risk-taking tendency affects their risk preferences, and subsequently the decisions and behaviors they will take (Llewellyn and Sanchez, 2008) [4]. Therefore, this study includes risk-taking tendency as a mediating variable to explore its mediating role between the perceived financial constraint and the intention to purchase new products online.

Considering the rise of the online shopping model, Jiang et al. (2014) [5] believed that online consumers' impulse purchases in online shopping were not utilitarian purchases, but experiential purchases that pursue hedonism. The online shopping impulsivity makes online consumers not think too much about internal and external negative impacts, as well as the consequences of their purchasing behavior, but instead make them more adventurous in purchasing online products. Therefore, this study intends to further analyze the role of online shopping impulsivity on online consumers' perceived financial constraint, and its moderating role between the perceived financial constraint and online consumers' risk-taking tendencies.

Therefore, this study aims to study the relationship between online consumers' perceived financial constraint and online new product purchase intention by focusing on the mediating effect of online consumers' risk-taking tendency and moderating effect of online consumers' online shopping impulsivity, so as to find out the way to help new products sale online.

2 Literatures Review and Research Hypotheses

The perceived financial constraint refers to a subjective psychological feeling that individuals believe that their financial situation limits their consumption desires, emphasizing the limitations and constraints of existing financial conditions on expected consumption (Tully et al., 2015) [6]. Hamilton et al. (2019) [7] pointed out that when consumers feel a sense of financial constraints, they will adopt a three-stage response model. The first stage is that consumers' thinking and decision-making are disturbed, and they will react. The second stage is that consumers begin to change their thinking and actions in response to financial resource constraints. In the third stage, if the perceived financial constraint persists for a long time, consumers will gradually adapt to this constraint and take its impact into future decisions and behaviors.

The purchase intention of new product refers to the subjective willingness of consumers in the process of purchasing products or services, and is a subjective probability

(Fishbein et al., 1975) [8]. There are two factors that affect the online new product purchase intention. Internal factors include individual differences among consumers, consumer perceived value, and consumer satisfaction. External factors include corporate image, socioeconomic factors, situational factors, and the influence of others. Based on this, this paper argues that the perceived financial constraint will cause online consumers to limit and restrict their expected consumption and reduce their desire to purchase new products online. Therefore, we propose the following assumption:

H1: Online consumers' perceived financial constraint has a significant negative impact on online new product purchase intention.

Risk-taking tendency refers to the behavioral pattern of an individual in a certain risk situation, which reflects the degree to which an individual judge various factors in the risk situation, thereby predicting future events and making risky decisions (Brochhaus, 1980) [9]. Individuals with high risk-taking tendencies will adopt a positive attitude towards risk and like to get involved in new areas, and they will pay more attention to the benefits brought by risky activities. This attitude will subtly affect the subsequent behavioral tendencies (Ronay and Kim, 2006) [10]. Based on this, this paper argues that high risk-taking tendency may have a positive impact on online new product purchase intention. Therefore, we propose the following assumption:

H2: Online consumers' risk-taking tendency has a significant positive impact on online new product purchase intention.

The reason why the perceived financial constraint will have a negative impact on online consumers' online new product purchase intention is mainly because a strong perceived financial constraint will make online consumers less aggressive in consumption and afraid of trying online products with a high risk, thereby reducing the online new product purchase intention. Based on this, this paper argues that the negative impact of the perceived financial constraint on online new product purchase intention is likely to be through reducing the risk-taking tendency of online consumers. Hence, we propose the following hypothesis:

H3: Risk-taking tendency plays a mediating role between perceived financial constraint and online new product purchase intention.

Impulse buying is a complex purchasing behavior that is characterized by suddenness, convincingness, and hedonic, and the rapid purchase decisions made by consumers prevent them from considering various information and alternatives carefully. Therefore, impulsive buying can be regarded as an irrational behavior of consumers (Chung et al., 2017) [11]. To determine whether a purchase decision is impulsive, we can consider it with the following three criteria. The first criterion is that the purchase decision is spontaneous and unplanned. The second criterion is that consumers rarely consider the consequences of their purchasing decisions. The third criterion is that this purchase decision is triggered by some irresistible factors or uncontrollable personality, situation and other temptation factors. These temptations will prompt consumers to gain immediate satisfaction and develop a strong emotional attachment to the product, thus causing consumers to have a strong, sudden and irresistible urge to buy immediately (Spiteri, 2020) [12].

Online shopping impulsivity is defined as an individual's strong desire to purchase after being stimulated by some external environment, and under the control of this

desire to purchase, the emotional response is much higher than the individual's rational judgment of online shopping behavior. Yang and Lu (2013) [13] pointed out that the reason for the high incidence of impulse buying behavior on the Internet is that there are various stimulating factors in the online shopping environment (such as product characteristics, consumer characteristics, advertising promotions, website characteristics). Based on this, this paper argues that consumers with high online shopping impulsivity will become more aggressive and more courageous to purchase new online products that exceed their financial affordability. They will not carefully consider the possible adverse consequences of their purchase. Therefore, we propose the following hypotheses:

H4: Online shopping impulsivity has a significant negative impact on online consumers' perceived financial constraint.

H5: Online shopping impulsivity plays a moderating role in the relationship between online consumers' perceived financial constraint and risk-taking tendency.

3 Method and Design

3.1 Research Framework

According to the previous literature review, this paper's research framework and hypotheses are presented in Fig. 1.

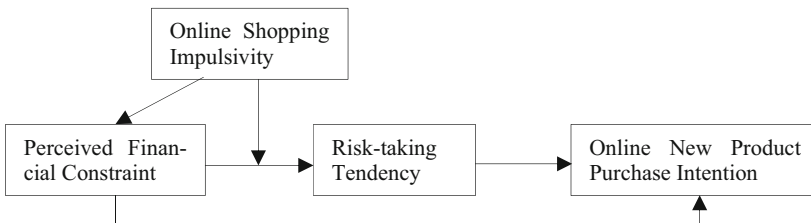


Fig. 1. The research framework

3.2 Research Samples

The research data in this paper was collected from students in three undergraduate classes and one professional master student class in colleges. Relevant data collection received strong support and cooperation from the leaders and students of the colleges. In the survey, we collected the data of student background information (i.e. age, sex, education, expenses, frequency), financial situation, online shopping impulsivity level, risk-taking tendency level and the willingness to purchase new products online. It took us one month to send out a total of 250 coded questionnaires and returned 223 with 209 were completed and valid, which represents a response rate of 83.6%.

By matching the survey data, questionnaires with obvious logical errors were eliminated, and a total of 209 student questionnaires were used for hypothesis verification. Of these 209 students, 88 people were males (accounting for 42%), and 121 people were

females (accounting for 58%); the average age was 20.59 years old (standard deviation = 1.01); in terms of education background, 150 people were undergraduates (accounting for 71.8%), 59 people were master students (accounting for 28.2%); in terms of monthly expenses, 43 people had a monthly expenses of less than 1,000 Yuan, 126 people had a monthly expenses of 1,001–2,000 Yuan, 27 people had a monthly expenses of 2001–3000 Yuan, and 13 people had a monthly expenses of more than 3000 Yuan; in terms of the frequency of purchasing new online products every month, 60 people purchased new online products once or less (accounting for 28.7%), 124 people purchased new online products 2–5 times (accounting for 59.3%), 17 People purchased new online products 5–9 times (accounting for 8.1%), and 8 people purchased new online products 10 times or more (accounting for 3.8%). The characteristics of the samples were basically in line with the characteristics of online consumers.

3.3 Measurements

In order to ensure the validity and reliability of the measuring scales of the perceived financial constraint, online shopping impulsivity, risk-taking tendency, and online new product purchase intention, this research used five-point Likert scales that frequently cited in academic literature and revised partially according to the research purpose and the suggestions of business people and experts in related fields. SPSS 26.0 was used for testing the reliability with Cronbach's α and AMOS 22.0 was used for testing the convergent validity with Average Variance Extracted (AVE) and Composite Reliability (CR).

Perceived Financial Constraint. The measuring scale of perceived financial constraint was development by Paley (2019) [14] which comprised 4 items. Cronbach's α was 0.85 (higher than 0.70), while AVE was 0.59 (higher than 0.50) and CR was 0.85 (higher than 0.70) for perceived financial constraint, indicating that the construct of perceived financial constraint has good reliability and convergent validity.

Online Shopping Impulsivity. The measuring scale of online shopping impulsivity was development by Li and Guo (2015) [15] which comprised 5 items. Cronbach's α was 0.88 (higher than 0.70), while AVE was 0.59 (higher than 0.50) and CR was 0.88 (higher than 0.70) for online shopping impulsivity, indicating that the construct of online shopping impulsivity has good reliability and convergent validity.

Risk-Taking Tendency. The risk-taking tendency scale was mainly measured using the International Personality Inventory Library (IPIP) developed by Goldberg (1998) [16]. The IPIP contained a 10-item scale. This paper selected 6 positive items among them. Cronbach's α was 0.89 (higher than 0.70), while AVE was 0.57 (higher than 0.50) and CR was 0.89 (higher than 0.70) for risk-taking tendency, indicating that the construct of risk-taking tendency has good reliability and convergent validity.

Online New Product Purchase Intention. The measuring scale of online new product purchase intention was development by Pavlou (2003) [17] which comprised 4 items. Cronbach's α was 0.87 (higher than 0.70), while AVE was 0.63 (higher than 0.50) and CR was 0.87 (higher than 0.70) for online new product purchase intention, indicating

that the construct of online new product purchase intention has good reliability and convergent validity.

4 Results

4.1 Confirmatory Factor Analysis (CFAs)

Confirmatory factor analysis (CFAs) with AMOS 22.0 was used to examine the discriminant validity of Perceived financial constraint (PFC), Online shopping impulsivity (OSI), Risk-taking tendency (RT) and Online new product purchase intention (ONPPI) with χ^2/df , RMSEA, RFI, and GFI. The results in Table 1 showed that by the comparison between the four-factor model, the three-factor model and the single-factor model, the four-factor model had the best fit indexes ($\chi^2/df = 133.457/146 = 0.914$; RMSEA = 0.001 was less than 0.08, TLI = 1.007 was greater than 0.9, CFI = 1.000 was greater than 0.9), indicating that the measuring scales used in this study has good discriminant validity.

Table 1. Results of CFAs for the measures of the variables

Model	Factors	χ^2/df	RMSEA	RFI	GFI
Four-factor	PFC, OSI, RT, ONPPI	0.914	0.001	0.933	0.937
Three-factor -1	PFC+OSI, RT, ONPPI	2.585	0.087	0.811	0.802
Three-factor -2	PFC+RT, OSI, ONPPI	2.655	0.089	0.806	0.793
Three-factor -3	PFC+ONPPI, OSI, RT	2.509	0.085	0.816	0.800
Three-factor -4	PFC, OSI+RT, ONPPI	1.482	0.048	0.892	0.881
Three-factor -5	PFC, OSI+ONPPI, RT	1.821	0.063	0.867	0.851
Three-factor -6	PFC, OSI, RT+ONPPI	2.519	0.085	0.816	0.784
One-factor	PFC+OSI+RT+ONPPI	4.586	0.131	0.664	0.684

Notes: RMSEA is the root-mean-square error of approximation; RFI is the robust fitting index; and GFI is the goodness-of-fit index

4.2 Descriptive Statistics

Table 2 presents the means, standard deviations, and zero-order Pearson correlations of all main variables and controlled variables. Results in Table 2 showed that the perceived financial constraint was negatively correlated with the risk-taking tendency ($r = -0.42$, $p < 0.01$) and the online new product purchase intention ($r = -0.44$, $p < 0.01$), and the perceived financial constraint was also negatively correlated with the online shopping impulsivity ($r = -0.41$, $p < 0.01$). Risk-taking tendency was positively correlated with the online new product purchase intention ($r = 0.51$, $p < 0.01$) and online shopping impulsivity ($r = 0.75$, $p < 0.01$). In addition, the online new product purchase intention

had no significant correlations with age ($r = -0.04, p > 0.05$), sex ($r = 0.10, p > 0.05$), education ($r = -0.01, p > 0.05$), monthly expenses ($r = -0.01, p > 0.05$) and online shopping frequency ($r = -0.11, p > 0.05$). These results provide initial support for the further hypotheses test in this study.

Table 2. Mean, variance and correlation coefficient of main variables

Variables	1	2	3	4	5	6	7	8	9
1. Age	1.00								
2. Sex	0.00	1.00							
3. Education	0.94**	-0.00	1.00						
4. Expenses	0.03	0.09	0.00	1.00					
5. Frequency	0.00	0.06	0.02	0.57**	1.00				
6. PFC	-0.07	0.04	-0.04	0.02	0.05	1.00			
7. OSI	-0.02	0.08	-0.03	0.07	-0.05	-0.41**	1.00		
8. RT	-0.00	0.10	0.02	0.04	-0.03	-0.42**	0.75**	1.00	
9. ONPPI	-0.04	0.10	-0.01	-0.01	-0.11	-0.44**	0.67**	0.51**	1.00
Mean	20.59	0.58	2.28	2.05	1.87	3.29	3.40	3.37	3.34
SD	1.01	0.49	0.45	0.76	0.71	0.98	0.90	0.88	0.89

Notes: N = 209, * Significant at $P < 0.05$; ** Significant at $P < 0.01$. Sex is coded "0" = male, "1" = female. Education is coded "0" = holding no degree, "1" = holding Bachelor's degree, "2" = holding Master's degree

4.3 Hypothesis Test

Hierarchical multiple regression analysis with SPSS 26.0 was used to test hypotheses by entering in control variables (i.e., students' age, sex, education, monthly expenses and online shopping frequency), independent variable (i.e., perceived financial constraint), mediator variable (i.e., risk-taking tendency), and moderator variable (i.e., online shopping impulsivity, perceived financial constraint \times online shopping impulsivity) on separate steps. Table 3 presents the results.

H1 proposed that perceived financial constraint had a significant negative impact on online new product purchase intention. As shown in Table 3, perceived financial constraint was negatively associated with online new product purchase intention ($M2, \beta = -0.46, p < 0.01$). Thus, H1 was supported.

H2 proposed that risk-taking tendency had a significant positive impact on online new product purchase intention. As shown in Table 3, risk-taking tendency was positively associated with online new product purchase intention ($M3, \beta = 0.50, p < 0.01$). Thus, H2 was supported.

H3 proposed that risk-taking tendency mediated the relationship between perceived financial constraint and online new product purchase intention. As shown in Table 3, the

results indicated that perceived financial constraint had a significant negative impact on risk-taking tendency (M6, $\beta = -0.14, p < 0.01$), and the influence coefficient of the perceived financial constraint on online new product purchase intention (M2, $\beta = -0.46, p < 0.01$) is significantly weakened (M4, $\beta = -0.30, p < 0.01$) after entering risk-taking to M2. Thus, H3 was supported.

Table 3. Hierarchical regression hypothesis test results

	PFC	ONPPI			RT		
	M1	M2	M3	M4	M5	M6	M7
Control Variables							
Sex	0.07	0.12*	0.06	0.08	0.12	0.05	0.06
Age	-0.36	-0.45*	-0.20	-0.33	-0.34	-0.20	-0.13
Education	0.29	0.40*	0.18	0.29	0.32	0.21	0.15
Expense	0.06	0.09	0.04	0.05	0.09	-0.00	-0.01
Frequency	-0.02	-0.16*	-0.13	-0.13	-0.08	0.00	0.02
Independent Variable							
PFC		-0.46**		-0.30**	-0.43**	-0.14**	-0.23**
Mediating Variable							
RT			0.50**	0.37**			
Moderator							
OSIP	-0.42**					0.69**	0.57**
Interaction							
PFC × OSIP							0.20**
R ²	0.19**	0.25**	0.28**	0.35**	0.20**	0.58**	0.61**
ΔR ²	0.19	0.06	0.09	0.10	-0.05	0.38	0.03
F	7.92**	10.91**	13.06**	15.61**	8.56**	40.35**	39.05**
ΔF	43.36**	55.44**	67.85**	33.32**	46.12**	184.48**	13.03**

Notes: N = 209, * Significant at P < 0.05; ** Significant at P < 0.01

Since the mediating effect analysis recommended by Baron and Kenny (1986) [18] has the disadvantage that the significance of the mediating effect cannot be tested, bootstrap method recommended by Hayes (2013) [19] was also used for the mediating effect test. Results of bootstrapping test with 5000 times repeated sampling showed that there was a significant mediating effect of risk-taking tendency on the relationship between perceived financial constraint and online new product purchase intention (mediating effect value = 0.10, 95% confidence interval was [0.04, 0.18] included no zero). Hence, H3 got further supported.

H4 proposed that online shopping impulsivity had a significant negative impact on perceived financial constraint. As shown in Table 3, online shopping impulsivity was negatively associated with perceived financial constraint ($M1, \beta = -0.42, p < 0.01$). Thus, H4 was supported.

H5 proposed that online shopping impulsivity moderated the relationship between perceived financial constraint and risk-taking tendency. Results in Table 3 showed that the interaction of perceived financial constraint \times online shopping impulsivity was positively related to risk-taking tendency ($M7, \beta = 0.20, p < 0.01$), and the interaction effect accounted for 61% of the explained variance in risk-taking tendency ($\Delta R^2 = 0.03, \Delta F = 13.03, P < 0.01$). Moreover, to determine the nature of the moderating effect, we plotted the interaction using Aiken and West's (1991) [20] procedure of computing slopes one standard deviation above and below the mean of online shopping impulsivity. Figure 2 illustrated the pattern of this interaction. Hence, H5 was supported.

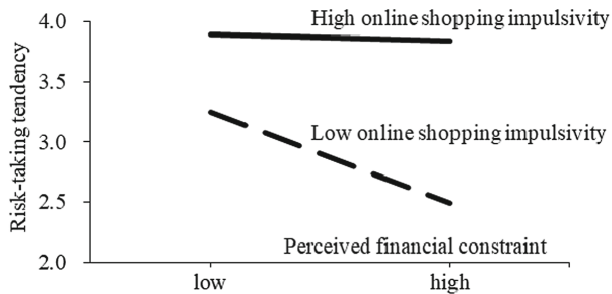


Fig. 2. The moderating effect of online shopping impulsivity on the relationship between perceived financial constraint and risk-taking tendency

5 Discussion and Conclusion

Taking 209 students from three undergraduate classes and one professional master student class in colleges as study samples, this study empirically explored the effect and impacting mechanism of online consumers' perceived financial constraint on online new product purchase intention. Through the hierarchical multiple regression analysis of the data collected by the questionnaire, it was found that: (1) Perceived financial constraint was negatively related to online new product purchase intention. (2) Risk-taking tendency was positively related to online new product purchase intention, and mediated the relationship between perceived financial constraint and online new product purchase intention significantly. (3) Online shopping impulsivity moderated the relationship between perceived financial constraint and risk-taking tendency. Moreover, online shopping impulsivity had a significant negative impact on perceived financial constraint. The results have theoretical and practical significance.

Firstly, this study confirmed that the perceived financial constraint was a negative predictive variable that affected the online new product purchase intention. It can significantly reduce consumers' online new product purchase intention. Therefore, online

merchants should conduct sufficient market research to identify the reasons for the decline in online consumers' purchase intention, and then make adjustments to their online products, including improving product functions, enhancing product quality, and increasing product value to meet the actual needs of consumers. In addition, online merchants should also reconsider pricing strategies and increase promotion efforts and advertising investment for online products to stimulate the online consumers' online new product purchase intention, thereby effectively weakening the negative impact of the perceived financial constraint.

Secondly, this study confirmed that risk-taking tendency played a significant mediating role between perceived financial constraint and online new product purchase intention. This research result uncovered the "black box" between perceived financial constraint and online new product purchase intention, suggesting that the perceived financial constraint can reduce consumers' online new product purchase intention by inhibiting online consumers' risk-taking tendency. Therefore, online merchants can help online consumers understand the usage of new online products by providing fully transparent product information to reduce consumers' fear of the unknowns of online products. They can also provide free trials of products and hold product demonstrations and experience activities to allow consumers experience products with lower risks, thereby effectively weakening the negative impact of being afraid to experience new online products due to financial constraints. In addition, online merchants can reduce the perceived risks of online consumers by providing risk-free return policies or satisfaction guarantees, thereby effectively improving online consumers' risk-taking tendency to purchase the online products.

Finally, this study confirmed that online shopping impulsivity not only directly had a significant negative impact on online consumers' perceived financial constraint, but also moderated the relationship between perceived financial constraint and risk-taking tendency. This conclusion is an important extension of the research on the impact of online consumers' perceived financial constraint on online new product purchase intention. It is the first time to explore the moderating influence of individual online shopping impulsivity on the process of financial constraints from the perspective of individual traits, and helps to reveal the transmission mechanism and boundary conditions between the perceived financial constraint and online new product purchase intention. Therefore, various measures should be taken to enhance customers' shopping impulsivity, thereby decrease the negative impact of perceived financial constraint on online consumers' risk-taking tendency.

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