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Article

### Impact of Perception of Corporate Social Responsibility and Innovation on Consumer Attitude: Mediation Role of Consumer Brand Identification in Southern Fujian, China

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Abstract: The image shaping and business behavior of enterprises influence their operations. It is helpful for enterprises to promote a virtuous cycle of economic progress and sustainable development based on corporate social responsibility in a healthy and sustainable economic environment. Based on the theories of corporate social responsibility and innovation perception combined with consumer identity, we constructed a model with research hypotheses in multiple dimensions such as economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation, market innovation, consumer brand identity, purchase intention, and word-of-mouth recommendation. Provincial capitals of sub-provincial cities, prefecture- and county-level cities in southern Fujian were explored using the constructed model. The results from the model showed that perception of corporate social responsibility positively affected the purchase intention and word-of-mouth recommendation of consumers while corporate innovation perception positively affected the purchase intention and word-of-mouth recommendation of consumers. Corporate innovation perception and perception of corporate social responsibility also influenced consumer brand identity positively consumer brand identity played a mediating role in the purchase intention and word-of-mouth recommendation as well as in perception of corporate social responsibility and consumer innovation perception.

Keywords: Corporate social responsibility, Corporate innovation perception, Consumer brand identification

#### 1. Introduction

Since its reform and opening up, China has increased its economic freedom, ushering in a large amount of foreign capital injection. In the open economy, enterprises have played an active role in promoting economic and social development. The transformation and upgrading of enterprises have been important to cope with the impact of the international financial crisis and promote the sustainable and stable development of the domestic economy. As foreign-funded enterprises enter increasingly, they have contributed to the economic development of China but with problems such as environmental protection, employee rights and interests, and business credit efficiency. These problems are related to corporate social responsibility (CSR). The problems caused by a lack of social responsibility appear in foreign-funded enterprises. Due to the unique political relationship between China and Taiwan, the importance of the Taiwanese enterprise's CSR is more prominent. The two sides of the Taiwan Strait share the same cultural background and have a unique tacit understanding of exchanges and cooperation in various fields with a solid foundation. At the same time, convenience for cross-strait economic cooperation and commercial activities has been enjoyed. As one of the regions with the largest aggregate of Chinese enterprises and with the closest exchanges with Taiwan, Fujian Province is the best region to study the impact of enterprises on consumer attitudes.

At present, literature is scarce on CSR in China, especially on the effect of CSR on consumer attitudes. If any, they lack modernity and innovation. Based on the current situation, we applied new ideas and directions for the research on the sustainable development of enterprises to provide feasible countermeasures and suggestions for the operation and development of enterprises in China. By constructing a model for case studies, the development path of enterprises was explored considering increasing close cross-strait economic ties. Based on the review of the theoretical concepts of CSR, corporate innovation perception, and consumer identity and the consideration of the situation, we selected enterprises in southern Fujian as research objects. We researched economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation, market innovation, consumer brand identity, purchase intention, and word-of-mouth recommendation in corporate innovation perception with a questionnaire survey for, 832 participants. Data were analyzed using SPSS 26 and the process of econometric

analysis. The perception of social responsibility, prospects, and path of development of Taiwanese enterprises in southern Fujian, China was presented based on the results of the survey and analysis as conclusions.

#### 2. Literature Review

#### 2.1. CSR

In CSR, social attributes, welfare, and value are important being different from the traditional behavior model that was used to pursue profit maximization. Chandler and Werther (2013) pointed out that CSR is strategically important playing an important role in maintaining long-term profit and sustainable development. Sacidi et al. (2015) analyzed the relationship between CSR and financial performance and showed that CSR indirectly promoted corporate performance by improving reputation and competitive advantage, and at the same time, it improved consumer satisfaction and loyalty. Cheng and Ding (2021) studied the social responsibility and decision-making for competitive supply chain management and analyzed the impact of CSR, reputation, and competition in a supply chain on revenue. They found that CSR was effective for the sustainable supply chain. Zhang (2018) proved that CSR positively improved the brand recognition and functional value of an enterprise, and at the same time, generated sufficient innovation incentives with the allocation efficiency and innovation performance in human capital management in China's manufacturing industry. Hou and Xiong (2023) proposed that the fulfillment of CSR promoted corporate reputation, and the higher the degree of CSR fulfillment, the higher the corporate reputation. Stakeholders including employees, consumers, shareholders, and others considered CSR to be beneficial for enterprises and consumers, and when executed well, enterprises benefited from social change and increased profitability. Based on identity theory, Farooq et al. (2016) revealed the impact of CSR on employees with individualistic tendencies established a sense of identity from internal CSR.

Therefore, enterprises need to pay attention to the differences in employee culture, values, and personality when implementing social responsibility initiatives with large impacts. Jin (2006) established an index system to measure CSR from the perspective of consumers, and the system showed that enterprises committed to investment to create profits were more likely to gain the respect and trust of consumers. Xie et al. (2013) explored the impact of CSR on consumer loyalty based on the relationship between consumers and enterprises and showed that CSR enhanced consumer loyalty with a positive moderating effect from product intervention. From the perspective of society, Zheng and Lu (2018) analyzed the impact of the perception of moral risk. Two types of social responsibilities, public welfare charity and sustainable development, were researched based on corporate strategic choice theory. Li (2020) studied the impact of CSR on the financial performance of platform enterprises and showed that the higher the level of CSR, the higher the financial performance, and the social public opinion environment played a negative moderating role between CSR and financial performance. Semenescu and Badarau (2014) demonstrated that CSR was influenced by public enterprises and that their intervention affected investment decisions and project decisions related to CSR. Such results showed that CSR contributes to market equilibrium and presented the various aspects of CSR in financial performance and strategic choices, and its impact on stakeholders such as employees, shareholders, and consumers. CSR activities not only increased corporate profits but also brought social benefits by improving the level of public services.

#### 2.2. Corporate Innovation Perception

Schumpeter (1934) argued that technology- and market-based innovation creates a new productive capacity by introducing science and technology into products and enterprises. Such innovation permeates the design of the product, embodies the value of the product through service and management, and provides the main selling point and reputation of the product. At the same time, it benefits consumers. Therefore, innovation based on technology increases consumer demand. At the same time, such innovation helps to improve the image of products. Gao and Xu (2023) studied the role of CSR in promoting green technological innovation and stated that the level of CSR was positively correlated with the ability of green technology innovation. Li and Xiao (2011) found that CSR originated from voluntary philanthropic behavior, social or consumer expectations of corporate behavior, and corporate response to social pressure. Whether it is subjectively voluntary or forced by social pressure, the main factor for enterprises as product providers to fulfill their social responsibility is the public who are consumers of enterprises. Korschun *et al.* (2014) found that consumer-oriented enterprises were more inclined to meet consumer needs and increase their fulfillment of CSR. Lichtenstein *et al.* (2004) proposed a new view of social responsibility perception, arguing that the perception of CSR improved the performance of front-line employees and increased consumers' recognition of enterprises. For example, when an enterprise is active in fulfilling its social responsibilities, the enterprise image related to morality and charity reflected in consumers becomes more positive, and consumers begin to recognize such enterprises as being supportive of the enterprise.

#### 2.3. Consumer Identity

Consumer identity is the inner value between consumers and enterprises. After the 1950s, the academic community studied identity in the theory of social psychology and used social psychology to explore the reasons for the psychological identity of employees. They acquired the source and method of identity generation to increase employee satisfaction with the enterprise and improve the environment of the enterprise. Scholars mainly focused on how to improve employees's identification with the enterprise and changes in enterprises and employees after the formation of identity. Research has linked such identity to organizational identity. Organizational identity presents the degree to which individuals' perceptions of themselves are consistent with those of enterprises. Scott and Lane (2000) described organizational identity as a complex and varied interaction between the enterprise, its employees, and its stakeholders and visualized the sense of corporate identity as the connection between the employees and their goals.

Research on consumer identity focuses on the employee's satisfaction with the enterprise and with external groups related to the enterprise. Previous research results showed the importance of consumer identity. Enterprises need to show behaviors in their operational activities that attract consumers to lead consumers to unconsciously be loyal to their corporate image and have a continuous cooperative relationship. Further research has been conducted on organizational and consumer identities and their relationship. The results reflected the concept of the people-oriented and irreplaceable role of consumers in the market. Consumers' sense of identity greatly increased their trust in the enterprise, which in turn produced a sense of belonging. This boosted corporate images and their promotion. The relationship between consumers and enterprises is important for enterprises. To improve the economic efficiency of enterprises, enterprises must actively connect to consumers and obtain recognition through marketing activities. The development of consumer identity is inseparable from social and organizational identity theory. A strong consumer-enterprise relationship stems from consumers' identification with the business that meets their needs. With consumer identity, a psychological connection is developed to motivate consumers to voluntarily contribute to the business's goals of enterprises.

Bhattacharya and Sen (2003) claimed that consumer identity is the social relationship between an organization and its consumers. Kang et al. (2015) argued that consumer identity is for the consumer's recognition of the products and services as well as the enterprise. Ahmad et al. (2021) found that today's consumers are more concerned about enterprises' activities not related to their products and services such as contributions and environmental protection. In this context, CSR plays an important role in the organizational identity of the enterprise to prompt consumers to generate a sense of connection with socially responsible enterprises. Consumers develop a perception that the enterprise cares about society and the environment more than profit maximization. Based on Bell's brand image model, Ma (2023) believed that green knowledge has a significant positive moderating effect on the impact of green brand image on brand identity. Lam et al. (2013) explained consumer identity under the social identity theory and believed that brand identity depends on consumers' perceptions, feelings, and sense of belonging to a brand. Cao et al. (2012) analyzed the formation mechanism of consumer identity and demonstrated that CSR played a positive role in consumer recognition. As a key stakeholder, consumers to identify the value of the enterprise. Bagozzi and Bergami (2002) argued that identity is the psychological connection between a consumer and the enterprise, which leads to an emotional attachment to the enterprise and in turn influences consumer behavior.

#### 2.4. Consumer Response (CR)

CR is the outcome of an enterprise's marketing. CR includes consumers' purchase intention, loyalty, cognition, attitude, and evaluation of enterprises (Bhattacharya and Sankar, 2004). Taking consumers' purchase intentions and brand attitudes as response variables, Li and Liu (2017) showed that consumers' brand loyalty and purchase intentions were affected by CSR. Zhu (2014) found that in charity marketing, the functional fit between enterprises and philanthropy was more positive than their images.

#### 2.5. CSR and CR

Tao et al. (2015) divided CSR into three dimensions: economic responsibility, moral-legal responsibility, and charitable responsibility, and analyzed the impact of each dimension on consumers' purchase intention. Their results showed that ethical-legal responsibility showed the greatest impact; When the corporate reputation was high, the impact of philanthropic responsibility became greater, and vice versa, the impact of ethical-legal responsibility was the greatest. Charitable responsibility had the greatest impact when the quality of the product was high. Tang (2017) believed that consumers' perception of CSR positively affected purchase intention, and consumers' response to purchase intention was different in different perception dimensions, and the benefit perception impacted consumers' purchase intention most strongly. Therefore, we proposed the following hypotheses.

H1: Perception of corporate social responsibility has a positive impact on consumer's response to purchase intention.

H2: Perception of corporate social responsibility has a positive impact on consumer's response to word-of-mouth recommendations.

#### 2.6. Perception of Corporate Innovation and CR

Li et al. (2020) explored the impact of corporate innovation on consumer brand evaluation and its internal mechanism and concluded that there was a positive relation between corporate innovation behavior and brand evaluation. Yu (2022) redefined corporate innovation, altruistic motivation, purchase intention, and interactive social responsibility and found that corporates' active innovation significantly mobilized consumers' purchase intentions. Corporate innovative behavior strengthens consumers' perception of altruistic motivation. Thus, we proposed the following hypotheses.

H3: Perception of corporate innovation has a positive impact on consumer's purchase intention.

H4: Perception of corporate innovation has a positive impact on consumer's responses to word-of-mouth recommendations.

#### 2.7. CSR and Consumer Brand Identification (CBI)

Han and Li (2014) combined cognitive psychology to argue that CSR indirectly affected quality perception and brand identity by influencing consumer trust and impacted the two dimensions directly. Liu et al. (2014) proposed that CSR contributed to brand identification with corporate reputation, customer satisfaction, and relationship trust. Thus, we proposed the following hypothesis.

H5: CSR has a positive impact on consumer brand identification.

#### 2.8. Perception of Corporate Innovation and CBI

Li and Liu (2017) proposed a new concept of the perception of corporate innovation and consumer brand and showed the direct effect of CSR on CBI for management. Different impacts of different innovation behaviors on CBI were explored to suggest how to make CSR-related decisions. We proposed the following hypothesis.

H6: Perception of corporate innovation has a positive impact on CBI.

#### 2.9. CBI and CR

Liu and Xu (2013) proposed that CBI had a mediating effect on CR. Corporate innovative behavior strengthened consumers' perception of altruistic motivation. Wei and Wan (2020) observed that consumer identity played a greater mediating role in CR than other variables in the Stimulus-Organism-Response (SOR model). We proposed the following hypotheses.

H7: CBI has a significant mediating effect in consumers' response to purchase intention.

H8: CBI has a significant mediating effect in consumers' response to word-of-mouth recommendations.

#### 2.10. CBI, CSR, and CR

CBI plays a significant mediating effect in CSR, consumers' responses to purchase intention (Chen, 2022). Qi et al. (2016) proposed that CSR and CR mediated word-of-mouth recommendations based on consumer identity. Thus, we proposed the following hypotheses.

H9: CBI has a significant mediating effect on CSR and CR to purchase intention.

H10: CBI has a significant mediating effect on CSR and CR to word-of-mouth recommendations.

#### 2.11. CBI, CR, and Perception of Corporate Innovation

Li (2018) concluded that CBI plays a mediating effect on the perception of corporate innovation and the purchase intention. Based on attribution theory and HSM model, Tian and Yuan (2013) used the Bootstrap method and found that CBI mediated the word-of-mouth recommendations of the perception of corporate innovation and CR. Thus, we proposed the following hypotheses.

H11: CBI has a significant mediating effect in corporate innovation perception and CR to purchase intention.

H12: CBI has a significant mediating effect in corporate innovation perception and CR to word-of-mouth recommendation.



#### 3. Methodology

#### 3.1. Model

We took CSR perception and the perception of corporate innovation as independent variables, CBI as the mediating variable, and CR as the dependent variable to build a structural model for the impact of CSR on CAs as shown in the Fig. 1. The dimensions of the model is presented in Table 1.

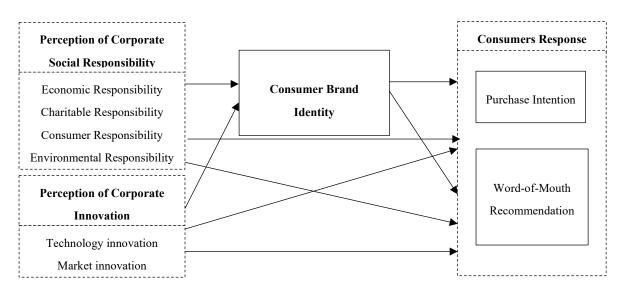


Fig. 1. Model diagram of the impact of CSR on CAs.

Variables	Measurement Issues
1. Perception of CSR	intersuitement issues
	I think Taiwanese enterprises in southern Fujian have raised the income level in southern Fujian
1.1. Economic	I think Taiwanese enterprises in southern Fujian have brought more job opportunities
Responsibility	I believe that Taiwanese enterprises in southern Fujian have promoted the local economic development
	I believe that Taiwanese enterprises in southern Fujian have narrowed the income gap between residents
	I think Taiwanese enterprises in southern Fujian have reduced the pressure of paying taxes
	I think Taiwanese enterprises in southern Fujian are enthusiastic about philanthropy (such as donations, hope projects, etc.)
1.2. Charitable Responsibility	I believe that Taiwanese enterprises in southern Fujian pay attention to the disadvantaged groups in society
	I believe that Taiwanese enterprises in southern Fujian actively participate in social welfare (such as facility construction, urban greening, etc.)
	I think Taiwanese enterprises in southern Fujian use part of their profits to give back to society
1.3. Consumer	I believe that Taiwanese enterprises in southern Fujian have effectively handled customer complaints and return an exchange requests I believe that Taiwanese enterprises in southern Fujian do not disclose or illegally use customers' personal information, and pay attention to privacy protection
Responsibility	I don't think Taiwanese enterprises in southern Fujian provide false advertising information
	I believe that Taiwanese enterprises in southern Fujian should treat every consumer equally
1.4. Environmental	I think Taiwanese enterprises in southern Fujian pay attention to the environmental protection of raw materials and packaging materials I believe that Taiwanese enterprises in southern Fujian are committed to producing environmentally friendly products/providing environmentally friendly services
Responsibility	I think Taiwanese enterprises in southern Fujian should treat and compensate for the pollution that may be caused
	I believe that Taiwanese enterprises in southern Fujian often participate in and sponsor environmental protection projects

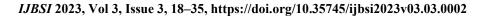




Table 1. Cont.

Variables	Measurement Issues
2. Perception of Corpo	orate Innovation
	I believe that the products of Taiwanese enterprises in southern Fujian are highly innovative and can replace products of poor quality
2.1. Technology	I believe that the product patents of Taiwanese enterprises in southern Fujian are highly technologically innovative
Innovation	I think that the products of Taiwanese enterprises in southern Fujian are similar to those of their main competitors
	I think that the application of the products of Taiwanese enterprises in southern Fujian is completely different from the products of the main competitors
	I think Taiwanese enterprises in southern Fujian are launching new products quickly
2.2. Market	I think the new products launched by Taiwanese enterprises in southern Fujian are very good
Innovation	I think that the new products launched by Taiwanese enterprises in southern Fujian are selling quickly
	I think that the new products of Taiwanese enterprises in southern Fujian can quickly occupy the market
3. CBI	
	I think the value proposition of Taiwanese enterprises in southern Fujian is similar to my view
	I feel very honored when I hear some people praise Taiwanese enterprises in southern Fujian
	When I heard that some people criticized Taiwanese enterprises in southern Fujian, I felt very reproachful
3.1. CBI	I am very concerned about the evaluation and reputation of Taiwanese enterprises in southern Fujian
	I am very concerned about the relevant information and development of Taiwanese enterprises in southern Fujian
	I will convey positive information related to Taiwanese enterprises in southern Fujian to others and resist negative information
4. CR	
4.1. Purchase	I think that when buying products, Taiwanese enterprises in southern Fujian are the first choice for buying such products
Intention	In the future, I will continue to buy the products of Taiwanese enterprises in southern Fujian
	I would recommend Taiwanese enterprises and their products in southern Fujian to people I know
4.2. Word-of-mouth Recommendation	I would recommend Taiwanese enterprises and their products in southern Fujian to those who consulted me
Recommendation	I would recommend Taiwanese enterprises and their products in southern Fujian to my relatives and friends

As proposed in the previous section, we proposed 2 research hypotheses (Table 2) based on the previous research results.

#### Table 2. Research hypothesis.

Code	Research Hypothesis
H1	Perception of CSR has a positive impact on consumer's response to purchase intention
H2	Perception of CSR has a positive impact on consumers' response to word-of-mouth recommendation
Н3	Corporate innovation perception has a positive impact on consumer's purchase intention
H4	Corporate innovation perception has a positive impact on consumer's response to word-of-mouth recommendation
Н5	CSR has a positive impact on CBI
H6	Corporate innovation perception has a positive impact on CBI
H7	CBI has a significant mediating effect in consumers' response to purchase intention
H8	CBI has a significant mediating effect in consumers' response to word-of-mouth recommendation
Н9	CBI has a significant mediating effect in CSR and CR to purchase intention
H10	CBI has a significant mediating effect in CSR and CR to word-of-mouth recommendation
H11	CBI has a significant mediating effect in corporate innovation perception and consumers' response to purchase intention
H12	CBI has a significant mediating effect in corporate innovation perception and consumers' response to word-of-mouth recommendation

#### 3.2. Questionnaire Survey

Nine variables including economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation, market innovation, CBI, purchase intention, and word-of-mouth recommendations were defined for the analysis of the perception of CSR and were used to create a questionnaire. A survey with the questionnaire was carried out online in January 2023. A total of 2,000 questionnaires were distributed in different regions for people with different occupations and ages in southern Fujian. 1,832 valid questionnaires were recovered. SPSS26.0 was used to analyze the data.

#### 4. Results

#### 4.1. Descriptive Statistics

We analyzed the survey for age distribution, occupation, monthly income, education level, and city to understand the characteristics of the participants (Table 3). The respondents included 978 males and 854 females, accounting for 53.3 and 46.7% respectively. The majority were 34–53 years old with a proportion of 51.7%. Due to the influence of the online questionnaire survey, students, professionals, employees, and ordinary workers accounted for 15.2, 15.3, 13.2, and 14.7% respectively. Most respondents had monthly incomes of 1500–8000 RMB (81.2%). 82.1% of the respondents lived in Fuzhou.

Variables	Category	Frequency	Percentage %
Caralan	Male	978	53.3
Gender	Female	854	46.7
	18–23	51	10.4
	24-33	385	21.0
Age	34-43	518	28.3
	44–53	429	23.4
	54–63	291	15.9
	Above 64	18	1.0
	Junior high school and below	266	14.5
Education	Senior high school/Senior middle school	354	19.3
Education	College/Undergraduate	1,044	57.0
	Master's/Graduate or above	169	9.2
	Student	278	15.2
	Government officials/Civil servants	126	6.9
	Enterprise management personnel	79	4.3
	Employee	242	13.2
	Professional	280	15.3
	Ordinary worker	269	14.7
Occupation	Employees in the commercial service industry	194	10.6
orapation	Individual operator/Contractor	82	4.5
	Freelance	130	7.1
	Agricultural/Forestry/Wood/Fishing Workers	22	1.2
	Retiree	123	6.7
	Housewives/Full-time Wives	0	0
	No occupation at present	4	0.2
	500 and below	71	3.9
	500-1500	90	4.9
	1501-3000	544	29.7
Aonthly Income	3001-5000	425	23.2
(RMB)	5001-8000	518	28.3
	8001-10,000	90	4.9
	10,001–20,000	40	2.2
	20,000 and above	53	2.9
	Fuzhou (Provincial Capital)	1504	82.1
	Xiamen (Sub provincial level city)	90	4.9
City	Quanzhou/Zhangzhou/Nanping/Sanming/Longyan/Putian/Ningde (Prefecture-level city)	198	10.8
	Fuqing/Changle/Longhai/Shishi/Jinjiang/ Nan'an/Yong'an/Shaowu/Mount Wuyi/Jianou/Zhangping/Fu'an/Fuding (County-level city)	40	2.2

#### Table 3. Descriptive statistics of respondents.

#### 4.2. Reliability and Validity Test

Cronbach's Alpha coefficient was used to test the reliability of the questionnaire data. Table 4 shows that the reliability coefficients of each variable showed ideal values. The Alpha values of the overall questionnaire, economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation, and market innovation were 0.924, 0.868, 0.838, 0.837, 0.847, 0.859, and 0.891, respectively. The alpha values of CBI, consumers' purchase intention, and consumers' word-of-mouth recommendation were 0.897, 0.770, and 0.875, respectively. In summary, the reliability coefficient higher than 0.7 is the ideal judgment value (Wu, 2010). Therefore, the survey results were reliable and stable for analysis with ideal internal consistency.

Variables	<b>Cronbach's Alpha</b>	Items
Overall questionnaire	0.924	36
Economic responsibility	0.868	5
Charitable responsibility	0.838	4
Consumer responsibility	0.837	4
Environmental responsibility	0.847	4
Technology innovation	0.859	4
Market innovation	0.891	4
CBI	0.897	6
Purchase intention	0.770	2
Word-of-mouth recommendation	0.875	3

Table 4. Reliability analysis results.

The KMO value close to 1 indicates suitability for factor analysis. The KMO value of the survey results reached 0.916, indicating that factor analysis could be applied. The Bartlett spherical test result with a degree of freedom of 630 and a P value of 0.000 showed a significant level of 0.001, indicating that there was a significant correlation between the variables.

Table 5.	Validity	analysis	results.
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KMO and Bartlett Spherical Test						
KMO measure of sampling adequacy		0.916				
	Approximate Chi square	9625.758				
Bartlett spherical test	Degree of freedom	630				
-	p-value	0.000				

N = 1832

#### 4.3. Total Variance

Table 6 shows the cumulative explanatory variables of the independent variables of 30.111%, and there was 1 feature greater than or equal to 1. The cumulative explanation was 70.914 (>60.0), indicating that the questionnaire survey data had constructive validity.



Table 6. Total Variance of survey data.Fotal Variance Explanation (N = 1832)

		Initial Eigenvalue	ariance Explanation		xtracting the Sum of Squa	red Loads
Component	Total	Variance percentage	Cumulated %	Total	Variance percentage	Cumulated %
1	10.840	30.111	30.111	10.840	30.111	30.111
2	3.094	8.596	38.706	3.094	8.596	38.706
3	2.582	7.172	45.878	2.582	7.172	45.878
4	1.947	5.409	51.287	1.947	5.409	51.287
5	1.776	4.933	56.220	1.776	4.933	56.220
6	1.663	4.619	60.839	1.663	4.619	60.839
7	1.500	4.167	65.006	1.500	4.167	65.006
8	1.306	3.627	68.634	1.306	3.627	68.634
9	0.821	2.280	70.914	0.821	2.280	70.914
10	0.626	1.738	72.652			
11	0.613	1.702	74.354			
12	0.562	1.560	75.914			
13	0.550	1.529	77.443			
14	0.513	1.424	78.867			
15	0.494	1.372	80.239			
16	0.486	1.350	81.589			
17	0.470	1.306	82.895			
18	0.456	1.266	84.161			
19	0.436	1.210	85.371			
20	0.403	1.120	86.1832			
21	0.393	1.091	87.582			
22	0.390	1.084	88.666			
23	0.374	1.040	89.706			
24	0.365	1.014	90.720			
25	0.351	0.975	91.694			
26	0.334	0.928	92.623			
27	0.331	0.921	93.544			
28	0.309	0.859	94.402			
29	0.296	0.823	95.225			
30	0.282	0.784	96.009			
31	0.278	0.772	96.781			
32	0.264	0.734	97.515			
33	0.249	0.693	98.208			
34	0.239	0.665	98.873			
35	0.216	0.600	99.473			
36	0.190	0.527	100.000			

#### 4.4. Correlation Analysis

When the coefficient is close to 1 or -1, a significant positive or negative correlation between the variables is expected. The coefficient close to 0 indicates a lack of linear correlation between the variables. In this study, the correlation analysis was conducted to study the aesthetics, pleasure, interactivity, and conceptuality of shopping malls, the pleasure of immersive shopping experience, the concentration of immersive shopping experience, and the correlation between consumer cognitive feedback and consumer behavior feedback. The correlation analysis results are detailed in Table 7.

	<b>Table</b> 7. Correlation analysis results.														
	1#	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1														
2	-0.087	1													
3	0.045	$0.174^{**}$	1												
4	-0.079	$0.577^{**}$	0.145**	1											
5	0.077	-0.536**	-0.196**	$-0.440^{**}$	1										
6	-0.033	$-0.378^{**}$	0.359**	$-0.462^{**}$	0.162**	1									
7	$-0.152^{**}$	-0.023	$-0.095^{*}$	-0.062	0.002	0.086	1								
8	$-0.114^{*}$	0.053	-0.026	0.017	-0.048	0.042	0.393**	1							
9	$-0.207^{**}$	$0.092^{*}$	0.030	0.138**	$-0.130^{**}$	0.051	0.330**	0.443**	1						
10	$-0.149^{**}$	0.119**	0.016	$0.116^{*}$	-0.135**	0.015	0.318**	$0.410^{**}$	0.523**	1					
11	$-0.120^{**}$	0.058	0.015	$0.100^{*}$	-0.132**	0.039	0.316**	$0.370^{**}$	0.424**	$0.428^{**}$	1				
12	$0.179^{**}$	$-0.484^{**}$	$-0.235^{**}$	$-0.367^{**}$	$0.481^{**}$	0.116	$0.010^{*}$	0.032**	$0.010^{*}$	$0.012^{*}$	$0.058^{*}$	1			
13	-0.134**	0.123**	0.055	0.145**	$-0.197^{**}$	0.027	$0.308^{**}$	0.419**	0.469**	$0.446^{**}$	0.472**	$0.008^*$	1		
14	$-0.530^{**}$	-0.033	-0.074	-0.050	0.070	0.064	0.429**	0.431**	0.183**	$0.488^{**}$	0.415**	0.025**	$0.490^{**}$	1	
15	$-0.259^{**}$	-0.035	$-0.114^{*}$	0.011	0.020	0.018	0.375**	0.391**	0.394**	0.416**	0.339**	$0.030^{**}$	$0.408^{**}$	0.556**	1

Table 7 Correlation analysis regults

# Variables: 1: gender; 2: age; 3: income level; 4: occupation; 5: city; 6: education; 7: economic responsibility; 8: charitable responsibility; 9: consumer responsibility; 10: environmental responsibility; 11: technology innovation; 12: market innovation; 13: CBI; 14: purchase intentions; 15: word-of-mouth recommendation.

\* The correlation is significant at the 0.05 scale (two-tailed). \*\* The correlation is significant at the 0.01 scale (two-tailed). N = 1832

#### 4.5. Regression Analysis

Regression analysis was conducted to find out whether the independent variable has a significant effect on the purchase intention of the dependent variable. The F statistic of the model reached a significant level, indicating that the overall regression effect of the model was satisfactory. The regression coefficient of the independent variable of economic responsibility was 0.377 (p < 0.001), indicating that economic responsibility significantly affected purchase intention. The regression coefficient of charitable responsibility was 0.422 (p < 0.001), indicating that charitable responsibility significantly affected purchase intention. The regression coefficient of consumer responsibility was 0.465 (p < 0.001), indicating that consumer responsibility significantly affected purchase intention. The regression coefficient of environmental responsibility was 0.489 (p < 0.001), indicating that environmental responsibility was 0.489 (p < 0.001), indicating that environmental responsibility significantly affected purchase intention.

**Table 8.** Hierarchical regression analysis of economic responsibility, charitable responsibility, consumer responsibility, and environmental responsibility on purchase intention.

	Model 1	Model 2	Model 3	Model 4	Model 5		
Variables	Purchase Intention						
Gender	$-0.502^{***}$	-0.456***	-0.461***	-0.423***	-0.456***		
Age	0.024***	0.020	-0.016	0.039	0.005		
Monthly Income	-0.051	0.004	-0.016	-0.059	-0.052		
Occupation	-0.028	-0.029	-0.036	-0.074	-0.048		
City	0.097*	0.102	0.102*	0.132**	0.145***		
Education	0.048	0.005	-0.008	0.050	0.029		
Economic Responsibility		0.377***					
Charitable Responsibility			0.422***				
Consumer Responsibility				0.465***			
Environmental Responsibility					0.489***		
R <sup>2</sup>	0.263***	$0.400^{***}$	0.436***	0.468***	0.495***		
Adj. R <sup>2</sup>	0.254***	0.391***	0.428***	0.46***	0.487***		
F	27.474***	104.628***	141.203***	177.108***	210.395***		
D-W		2.133	1.892	2.072	2.003		

N = 1832; \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

The regression coefficient of economic responsibility was 0.364 (p < 0.001), indicating that economic responsibility significantly affected word-of-mouth recommendations. The regression coefficient of charitable responsibility was 0.401 (p < 0.001), indicating that charitable responsibility significantly affected word-of-mouth recommendations. The regression coefficient of consumer responsibility was 0.404 (p < 0.001), indicating that consumer responsibility significantly affected word-of-mouth recommendations. The regression coefficient of environmental responsibility was 0.411 (p < 0.001), indicating that environmental responsibility was 0.411 (p < 0.001), indicating that environmental responsibility significantly affected word-of-mouth recommendation. The above results supported H2 (Table 9).

	Model 1	Model 2	Model 3	Model 4	Model 5		
Variables	Word-of-Mouth Recommendation						
Gender	-0.226***	-0.181***	-0.186***	-0.157***	-0.187***		
Age	-0.041	-0.046	-0.08	-0.029	-0.058		
Monthly Income	-0.075	-0.022	-0.041	-0.081	-0.075		
Occupation	0.058	0.057	0.05	0.018	0.042		
City	0.025	0.031	0.03	0.056	0.066		
Education	0.038	-0.004	-0.016	0.04	0.022		
Economic Responsibility		0.364***					
Charitable Responsibility			$0.401^{***}$				
Consumer Responsibility				$0.404^{***}$			
Environmental Responsibility					0.411***		
R <sup>2</sup>	0.06***	0.187***	0.217***	0.215***	0.224***		
Adj. R <sup>2</sup>	$0.048^{***}$	0.175***	0.205***	0.203***	0.212***		
F	4.901***	72.117***	91.958***	90.576***	96.935***		
D-W		2.005	2.031	1.944	2.017		

Table 9. Hierarchical regression analysis of economic responsibility, charitable responsibility, consumer responsibility, and environmental responsibility on word-of-mouth recommendation.

N = 1832; \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

The regression coefficient of technology innovation was  $0.399 \ (p < 0.001)$ , indicating that technology innovation significantly affected purchase intention. The regression coefficient of market innovation was  $0.091 \ (p < 0.001)$ , indicating that market innovation significantly affected purchase intention. Such results supported H3 (Table 10).

Table 10. Hierarchical regression analysis of technology innovation and market innovation on purchase intention.

	Model 1	Model 2	Model 3		
Variables	Purchase Intention				
Gender	$-0.502^{***}$	$-0.457^{***}$	-0.514***		
Age	0.024	0.042	0.047		
Monthly Income	-0.051	-0.059	-0.041		
Occupation	-0.028	-0.054	-0.018		
City	$0.097^{*}$	0.146**	0.072		
Education	0.048	0.053	0.051		
Technology innovation		0.399***			
Market Innovation			0.091**		
$\mathbb{R}^2$	0.263	0.461	0.269		
Adj. R <sup>2</sup>	0.254	0.408	0.258		
F	27.474	120.601	3.425		
D-W		2.175	1.989		

N = 1832; \* *p* < 0.05; \*\* *p* < 0.01; \*\*\* *p* < 0.001

The influence of independent variables on word-of-mouth recommendation was found to be significant. The F statistic of the model reached a significant level, indicating that the overall regression effect of the model was satisfactory. The regression coefficient of the independent variable of technology innovation was 0.335 (p < 0.001), indicating that technology innovation significantly affected word-of-mouth recommendation. The regression coefficient of market innovation was 0.111 (p < 0.001), indicating that market innovation significantly affected word-of-mouth recommendation. The regression coefficient. Thus, H4 was supported.

	Model 1	Model 2	Model 3	
Variables –	Word-of-mouth Recommendation			
Gender	-0.226***	$-0.187^{***}$	-0.24***	
Age	-0.041	-0.026	-0.014	
Monthly Income	-0.075	-0.082	-0.062	
Occupation	0.058	0.036	0.07	
City	0.025	0.067	-0.004	
Education	0.038	0.042	0.041	
Technology innovation		0.335***		
Market Innovation			0.111**	
$\mathbb{R}^2$	$0.06^{***}$	0. 168***	$0.068^{*}$	
Adj. R <sup>2</sup>	$0.048^{***}$	0.156***	$0.054^{*}$	
F	4.901***	59.87***	$4.011^{*}$	
D-W		2.033***	1.96*	

Table 11. Hierarchical regression analysis of technology innovation and market innovation on word-of-mouth recommendation.

N = 1832; \* *p* < 0.05; \*\* *p* < 0.01; \*\*\* *p* < 0.001

Economic responsibility (regression coefficient of 0.362, p < 0.001), charitable responsibility (0.418, p < 0.001), consumer responsibility (0.471, p < 0.001), and environmental responsibility (0.488, p < 0.001) significantly affected CBI, which supported H5 (Table 12).

 Table 12. Hierarchical regression analysis of economic responsibility, charitable responsibility, consumer responsibility, and environmental responsibility on CBI.

	Model 1	Model 2	Model 3	Model 4	Model 5
Variables			CBI		
Gender	-0.1*	-0.058	-0.059	-0.02	-0.054
Age	0.032	0.028	-0.008	0.046	0.012
Monthly Income	0.007	0.057	0.042	0	0.007
Occupation	0.085	0.084	0.076	0.038	0.065
City	-0.148**	-0.143**	-0.143**	-0.112*	-0.1*
Education	0.045	0.006	-0.011	0.048	0.026
Economic Responsibility		0.362***			
Charitable Responsibility			$0.418^{***}$		
Consumer Responsibility				0.471***	
Environmental Responsibility					0.488***
R <sup>2</sup>	0.06***	0.173***	0.23***	0.271***	0.291***
Adj. R <sup>2</sup>	$0.048^{***}$	0.16***	0.219***	0.26***	$0.28^{***}$
F	4.947***	62.535***	101.505***	432.643***	149.699***
D-W		1.887	1.982	1.911	1.769

N = 1832; \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

Technology innovation (0.459, p < 0.001) and market innovation (0.176, p < 0.001) significantly affected CBI supporting H6 (Table 13).

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<b>T</b> 7 <b>+</b> 11	Model 1	Model 2	Model 3			
Variables –	СВІ					
Gender	-0.1	$-0.048^{***}$	-0.122***			
Age	$0.032^{*}$	0.052	0.075			
Monthly Income	0.007	-0.002	0.028			
Occupation	0.085	0.055	0.104			
City	$-0.148^{**}$	-0.091	-0.196***			
Education	0.045	0.051	0.05			
Technology innovation		0.459***				
Market Innovation			0.176**			
$\mathbb{R}^2$	0.06***	0. 263***	$0.081^{***}$			
Adj. R <sup>2</sup>	$0.048^{***}$	0.252***	$0.067^{***}$			
F	4.947***	126.455***	10.344***			
D-W		1.961	1.804			

Table 13. Hierarchical regression analysis of technology innovation and market innovation on CBI.

N = 1832; \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

#### 4.6. Mediating Effect

Table 14 shows that the confidence interval of economic responsibility, philanthropic responsibility, consumer responsibility, environmental responsibility, technology innovation, and environmental innovation did not include 0, indicating that the mediating effect of CBI on purchase intention was significant. The indirect effects of economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation and environmental innovation were significant in the confidence interval (Bias corrected 95% CI: 0.0838, 0.1982,  $p < 0.001^{***}$ ; CI: 0.1257, 0.2476,  $p < 0.001^{***}$ ; CI: 0.1241, 0.2515,  $p < 0.001^{***}$ ; CI: 0.1198, 0.2545, p<0.001<sup>\*\*\*</sup>; CI: 0.1761, 0.3749,  $p < 0.001^{***}$ ; CI: 0.0411, 0.0469,  $p < 0.001^{***}$ ), indicating mediating effect. CBI did not show 0 in economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation with a partial mediating effect. Therefore, H7, H9, and H11 were supported statistically. This part should be listed as the table note under the table content.

Table 14. Results of mediating effect tests (Purchase Intention).

Bootstrapping Biased-correlated 95% CI						
Total Effect						
Economic Responsibility	0.4934	0.4010	0.5580	***		
Charitable Responsibility→Purchase Intention	0.5068	0.4124	0.6012	***		
Consumer Responsibility→Purchase Intention	0.5838	0.1833	0.6757	***		
Environmental Responsibility-Purchase Intention	0.5977	0.5028	0.6926	***		
Technology Innovation→Purchase Intention	0.4836	0.3896	0.5777	***		
Market Innovation→Purchase Intention	0.0243	0.0606	0.1092	***		
Indirect Effect						
Economic Responsibility	0.1395	0.0838	0.1982	***		
Charitable Responsibility→Purchase Intention	0.1852	0.1257	0.2476	***		
Consumer Responsibility→Purchase Intention	0.1856	0.1241	0.2515	***		
Environmental Responsibility-Purchase Intention	0.1856	0.1198	0.2545	***		
Technology Innovation→Purchase Intention	0.2755	0.1761	0.3749	***		
Market Innovation→Purchase Intention	0.0036	0.0411	0.0469	***		

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Direct Effect						
Economic Responsibility→Purchase Intention	0.3538	0.2653	0.4424	***		
Charitable Responsibility→Purchase Intention	0.3216	0.2252	0.4179	***		
Consumer Responsibility→Purchase Intention	0.3982	0.3001	0.4963	***		
Environmental Responsibility-Purchase Intention	0.4121	0.3126	0.5116	***		
Technology Innovation→Purchase Intention	0.2081	0.1365	0.2872	***		
Market Innovation	0.0207	0.0534	0.0948	***		

Economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation, and environmental innovation did not include 0 in the confidence interval, indicating that CBI had a significant mediating effect on word-of-mouth recommendations. The indirect effects of economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation, and environmental innovation were not included in the confidence interval as being significant (Bias corrected 95% CI: 0.2306, 0.4251,  $p < 0.001^{***}$ ; CI: 0.0902, 0.2151,  $p < 0.001^{***}$ ; CI: 0.0960, 0.2397,  $p < 0.001^{***}$ ; CI: 0.0910, 0.2308,  $p < 0.001^{***}$ ; CI: 0.1083, 0.2600,  $p < 0.001^{***}$ ; CI: 0.0361, 0.0428,  $p < 0.001^{***}$ ). This indicated the mediating effect. CBI did not contain 0 in economic responsibility, charitable responsibility, consumer responsibility, environmental responsibility, technology innovation and environmental innovation, so it had a partial mediating effect. Therefore, H8, H10, and H12 were supported (Table 15).

Table 15. Results of mediating effect tests (Word-of-mouth Recommendation).

Bootstrapping						
Biased-correlated 95% CI						
	Effect	LLCI	ULCI	Two-Tailed Significance		
Total Effect						
Economic Responsibility→Word-of-mouth Recommendation	0.4451	0.3473	0.5430	***		
Charitable Responsibility→Word-of-mouth Recommendation	0.4746	0.3754	0.5739	***		
Consumer Responsibility→Word-of-mouth Recommendation	0.4822	0.3821	0.5823	***		
Environmental Responsibility-Word-of-mouth Recommendation	0.5252	0.4231	0.6272	***		
Technology Innovation→Word-of-mouth Recommendation	0.4068	0.3064	0.5072	***		
Market Innovation→Word-of-mouth Recommendation	0.0295	0.0581	0.1170	***		
Indirect Effect						
Economic Responsibility→Word-of-mouth Recommendation	0.3278	0.2306	0.4251	***		
Charitable Responsibility→Word-of-mouth Recommendation	0.1504	0.0902	0.2151	***		
Consumer Responsibility→Word-of-mouth Recommendation	0.1644	0.0960	0.2397	***		
Environmental Responsibility-Word-of-mouth Recommendation	0.1560	0.0910	0.2308	***		
Technology Innovation→Word-of-mouth Recommendation	0.1808	0.1083	0.2600	***		
Market Innovation→Word-of-mouth Recommendation	0.0031	0.0361	0.0428	***		
Direct Effect						
Economic Responsibility→Word-of-mouth Recommendation	0.3278	0.2306	0.4251	***		
Charitable Responsibility→Word-of-mouth Recommendation	03243	0.2196	0.4289	***		
Consumer Responsibility→Word-of-mouth Recommendation	0.3178	0.2088	0.4269	***		
Environmental Responsibility-Word-of-mouth Recommendation	0.3691	0.2594	0.4788	***		
Technology Innovation→Word-of-mouth Recommendation	0.2260	0.1172	0.3348	***		
Market Innovation→Word-of-mouth Recommendation	0.0264	0.0536	0.1065	***		

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#### 4.7. Summar of Hypothesis Test Results

Based on the data analysis, the hypotheses were tested as valid for the impact of CSR on CAs as shown Table 16.

Table 16. Hypothesis test results.

Code	Research Hypothesis	Result
H1	Perception of CSR has a positive impact on consumer's response to purchase intention	valid
H2	Perception of CSR has a positive impact on consumers' response to word-of-mouth recommendation	valid
Н3	Corporate innovation perception has a positive impact on consumer's purchase intention	valid
H4	Corporate innovation perception has a positive impact on consumer's response to word-of-mouth recommendation	valid
Н5	CSR has a positive impact on CBI	valid
H6	Corporate innovation perception has a positive impact on CBI	valid
H7	CBI has a significant mediating effect in consumers' response to purchase intention	valid
H8	CBI has a significant mediating effect in consumers' response to word-of-mouth recommendation	valid
Н9	CBI has a significant mediating effect in CSR and CR to purchase intention	valid
H10	CBI has a significant mediating effect in CSR and CR to word-of-mouth recommendation	valid
H11	CBI has a significant mediating effect in corporate innovation perception and consumers' response to purchase intention	valid
H12	CBI has a significant mediating effect in corporate innovation perception and consumers' response to word-of-mouth recommendation	valid

#### 5. Discussions

#### 5.1. Development Path of Environmental Protection and CSR

The fulfillment of environmental responsibilities is conducive to helping enterprises improve their credibility and popularity. Through positive social publicity, consumers' purchase intentions and word-of-mouth recommendations influence purchase intention. The regression coefficient of environmental responsibility to purchase intention was 0.489, and the regression coefficient of word-of-mouth recommendations was 0.411. Therefore, environmental responsibility was significant for purchase intention and word-of-mouth recommendations. Therefore, enterprises need to pay attention to the impact of environmental responsibility on the CR of their products. Raw materials and packaging are decisive factors for the green development of products. Recyclable, recycled or naturally degradable materials can be selected to reduce the consumption of resources and the pollution of raw materials to the environment in processing. In production, the concept of green development must be applied with local resources for market advantages based on the existing industrial base. The production chain needs to be refined for the advantages of upstream research and development and supply resourcing. This enhances energy-saving and environmental protection for competitive midstream and technical services to ensure the quality of downstream technology applications and market services. Pollution can be reduced in the production process to produce environmentally friendly products and provide environmentally friendly services to consumers. Pollution is inevitable in the process of enterprise development and operation. After production, the enterprise must treat and compensate for the follow-up pollution prevention. Enterprises must set up internal regulatory departments to respond to related problems, and invest money and manpower to control and compensate for the pollution. In recent years, the government has strengthened the policy to reduce wasted resources and pollution of the environment. For better development, enterprises must fulfill their obligations of environmental protection consciously and actively. In addition to pollution prevention and control, enterprises need to establish an excellent corporate image, improve social reputation and stimulate the vitality and potential of the environmental protection market, and make enterprises more profitable.

#### 5.2. Innovation and Product Change

With the rapid development of the economy, consumers are becoming more aware of trends and more inclined to buy new products. When consumers buy products, their purchase intentions and word-of-mouth recommendations are affected by technology innovation. The results of this study showed that the regression coefficient of technology innovation to purchase intention was 0.399 and that of word-of-mouth recommendation was 0.355, indicating that enterprise technology innovation significantly impacted purchase intention and word-of-mouth recommendations. Enterprises need to set up relevant technical departments internally, recruit and train high-tech talents, and regularly carry out social research to understand consumers' attitudes toward products based on consumer perspectives. Market hotspots need to be monitored to create products for consumer preferences. Enterprises also need to

learn and introduce foreign products to broaden the consumer perception as well as regularly innovate products and change products so that products are more in line with consumer preferences.

#### 5.3. Environmental Protection and Consumer Identity

According to Maslow's hierarchy of needs, when consumers are satisfied with food, clothing, housing and transportation, they also pursue spiritual needs. When shopping, consumers pay attention to the meaning of buying the product in addition to paying attention to the quality of the product. The results of this study showed that the regression coefficient of environmental responsibility to consumer recognition was 0.488, indicating that environmental responsibility significantly affected consumer identity. Therefore, enterprises must pay attention to the impact of environmental responsibility on consumer acceptance. Amid the rapid development of the new media era, consumers obtain information mostly online. Enterprises need to publish public welfare news such as participation in environmental protection to online media platforms to increase network traffic, promote corporate culture, improve corporate visibility, and gain consumer goodwill and identity.

#### 5.4. Consumer Aesthetics into Product Innovation

According to the survey data, consumer recognition affected technology innovation, and the consumer perception of technology innovation was significant. Therefore, enterprises must pay more attention to the impact of enterprise technology innovation on consumer identity. The entertainment and trend of online media platforms were also noticed by enterprises to design and develop products that fit the aesthetics of consumers. Enterprises must regularly research consumers' aesthetic preferences to determine the direction of research and development, and efficiently and purposefully design products in line with consumer preferences to improve practicability.

#### 6. Conclusions

Enterprise's recognition and the constraints of its business behavior affect the business of the enterprise. The perceptional tendency and attitude of consumers vary according to CSR. To maintain the prosperity and development of the cross-strait economy, enterprises must operate sustainably in the virtuous cycle of economic progress. Enterprises must consciously establish a sense of social responsibility, take the initiative to assume relevant social responsibilities and adhere to the balanced development concept between economic interests, social interests and green and sustainable development. Governmental or non-governmental enterprises in various industries must bear social responsibilities to create an appropriate social trend and business tendency. Governmental enterprises must pay more attention to the cultural atmosphere using relevant tools. The people on both sides of the strait need to adhere to the one-China principle and work hand in hand for common development to achieve common prosperity and stable development in the two sides of the strait.

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