



Product Harm Crisis and Brand Equity: Moderating Role of Public Opinion and Consumers' Choice

Qing Ping, Zhu Jinbo, Zahoor ul Haq and Muhammad Ishaq

¹College of Economics and Management, Huazhong Agricultural University, Wuhan, China

²Department of Economics, Abdul Wali Khan University Mardan, Khyber Pakhtunkhwa, Pakistan

³Social Sciences Division, Pakistan Agricultural Research Council, Islamabad, Pakistan

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ABSTRACT

This study explores how product harm crisis spillovers affect brand equity. Results show that with the onset of crisis brand association has increased while brand trust and brand awareness have decreased. Further, spillover effect of representative cluster event has caused greater damage to brand equity than single representative, single non-representative and cluster non-representative events. Hence, event type and both the moderating variables (consumer' choices possibility and negative public opinion) have significantly affected brand equity.

KEY WORDS: Product harm crisis; consumer choice; brand equity; brand trust; brand equity.

1 INTRODUCTION

The repeated product harm crises in recent years [1] have seriously damaged the brand equity of Chinese agricultural products [2]. These crises have not only shaken consumers' confidence in domestic products and market but also globally damaged the reputation of Chinese farm products. For instance, United States enacted policies to protect US consumers against such products and Europe banned infected powdered milk entering their markets. These events also distorted customer-brand relationships as brands lost consumers' trust and consumers' perceptions towards brands have negatively change [3]. Such events also tarnished firms credibility [4], changed consumers' purchase intentions, leading to losses in market share and brand equity [5], [6]. The negative effects also spill over to other brands as it is hard to find a single brand operating company and enterprise [7] as companies prefer multiple brands (sub-brands, endorsed brands, and co-brands) to capture market [8]. In such situations, information (either positive or negative) about a brand, spillover to other related brands in portfolio [9], [10], affecting brand equity of whole industry [11], [12].

The issue of product harm crisis and its spillover effect has received attention of researchers, but this research is still in its infancy stage [13]. Review of literature delineates that research on product harm crisis has mainly focused on consumer point of view and very few studies have been conducted from enterprise and firm's perspective. This is particularly true for spillover effects. In addition, studies have ignored the role of consumer groups, industry associations and other stakeholders while investigating product harm crisis and its spillover effects. Therefore, this study examines single/cluster, representative/non-reprehensive crisis and its spillover effects on brand equity. The study also investigates how negative public opinion and consumer choice play a regulating role in the spillover effects?

* **Corresponding Author:** Qing Ping, College of Economics and Management, Huazhong Agricultural University, Wuhan, China

The next section of the article presents research hypotheses, followed by the materials and methods presented in Section 2. Results are discussed in Section 3 and conclusions are made in Section 4.

1.1 Research Hypotheses

An enterprises prefers multiple brands [8],[7]. Product harm crisis affects the main brand, other brands in the portfolio and also similar brands in the industry[13],[9],[10],[15],[16]. All these effects are collectively exhibited in the collective brand equity of industry [11],[12].The spillover effect of product harm crises depends on severity of the crisis, causes of the crisis [17]strength of brand association[17],[18]consumer commitment to a brand [19] and representation of the product in the product category [15]. In such situations, most of the consumers adopt conservative measures like minimizing or canceling purchase plans that affect collective brand equity of respective industry. Therefore, it is assumed that:

H₁: The spillover effects of product harm crisis significantly affect collective brand equity of industry.

H₂: In the four types of incidents (cluster representative and cluster non-representative and single representative and single non-representative), the spillover effect of cluster representative event is greater than spillover effect of non-representative single event.

Spillover effects is more likely to happen when consumers think that crisis brand has a strong connection with other brands [20],[21]. When product harm crisis occurs, consumers may give up purchasing other brands of same industry that results greater loss to collective brand assets of industry [22]. Instead, when consumers have no choice to buy an alternative product, they seek for authenticity of information and buy the safest product. So, the choice of consumers has an impact on product harm crisis and its spillover effects that affect collective brand equity of industry. It is therefore assumed that:

H₃: Consumers choice possibility significantly regulates the relation between spillover effects and collective brand equity. The bigger the possibility set, the greater the spillover effects of agricultural crisis and industrial collective brand equity.

According to[23] consumers are under the influence of information from different sources and develop perception on word of mouth. Positive information about a brand receives more attention from familiar customers than unfamiliar customers who weigh negative information more[24]. This familiarity increases consumers' confidence [25] and in turn they perceive the popular brands less responsible for product harm crisis [26]. However, when access to negative information about a brand (or brand family) is high than positive information, then negative spillover effect occur and is likely to spread and affect entire brand family even the industry [19], [20],[27].

During the event of product harm crisis, media occupies a leading role in developing opinion of consumers [15].Negative publicity about a product receives more attention in media and plays a persistent and instructive role [19].Therefore[24]term brand equity is fragile, as it is based on consumers' belief which is vulnerable to information. In other words, consumers believe in media that affect collective brand equity of industry. Therefore it is assumed that:

H₄: Negative public opinion about the spillover effect of products harm crisis significantly affects industrial collective brand equity.

2 Conceptual Framework

The conceptual model employed in the study is given as figure 1. The framework is developed in the light of review of relevant literature and discussion with business owners. The

model shows that product harm crisis spills over affecting brand equity of industry. This effect depends on the intensity of crisis and its magnitude i.e., cluster representative and cluster non-representative and single representative and single non-representative. However, consumers' choice in the presence/absence of alternative products moderates the effects of spillover effect of products harm crisis on collective brand equity. Similarly, spread of information (both positive and negative) about a brand in the event of crisis builds the opinion of consumers by moderating the spillover effects of crisis on collective brand equity.

To show the possible spillover effects of product harm crisis on corporate brand equity, the following research model is developed and tested.

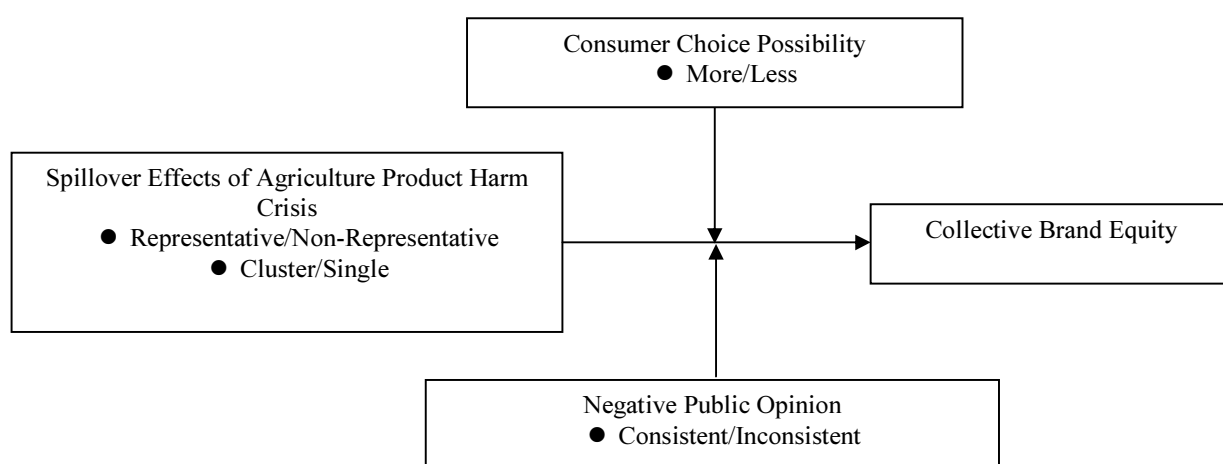


Figure 1 Conceptual Framework

2.1 Experimental Design

[28] proposed ten dimensions of brand equity i.e., premium, brand loyalty, popularity, quality, brand value, brand personality, enterprise organization association, brand awareness, market prices and sales area, market share. These dimensions consider brand equity of a product and not sector or industry. This research defines the industry brand equity using three dimensions namely, brand trust, brand awareness and brand association. Data were collected on these three dimensions using seven points Likert Scale, varying from strongly disagree, to strongly agree. Quasi-experimental method was used which controls manipulation of the independent variables, and observe the behavior of different independent variables towards dependent variable.

To get the required information, data were collected from 560 respondents. After screening and excluding the illogical responses, the number reduced to 471, i.e. an effective recovery rate of 84.1%. The participants were aged around 30 years, including 68% female, and 58.4% were married. In order to empirically test the hypotheses, a 2 X 2 X 2 design was used.

3 RESULTS AND DISCUSSION

Results show that measurement items automatically aggregated into three factors such as, brand trust, brand awareness, and brand association, respectively. Cronbach's Alpha coefficients

for all the variables are greater than 0.8 showing consistency of measurement result. Bartlett value for all factors are significant ($p < 0.001$) and KMO value is greater than 0.8 (Table 2). The entries in each dimension of factor loading are greater than 0.5, there is no significant cross load (scale discrimination validity is good), and the variance contribution rate of various factors is greater than 70%, showing good structure validity of the scale.

Table 1. Reliability Analysis of the Experimental Scale

Factor	Number	Cronbach's Alpha Value	
		Experiment-I	Experiment II
Questionnaires overall	64	0.950	0.969
Industrial collective brand asset scale (a)	12	0.886	0.893
Industry collective brand assets scale (b)	12	0.910	0.890
Industry collective brand assets scale (c)	12	0.915	0.901

Table2. Scale Reliability and Validation of the Results

Factor	Entries	Factor loading	Variance
Brand Trust	I trust the brand	0.870	32.42%
	I think the dairy industry's products are great value	0.841	
	I think the dairy industry product quality	0.781	
	I'm satisfied with products of the dairy industry	0.779	
	Brands in the dairy industry has a high reputation in the market	0.683	
Brand Awareness	The dairy industry is an indispensable part of our life	0.838	20.81%
	Brands in the dairy industry in the market a high profile	0.739	
	Dairy industry sales are always good	0.657	
	I am willing to buy dairy products industry	0.586	
Brand Association	When it comes to food brand, my first thought was dairy brand	0.895	17.23%
	When it comes to food, my first thought was to buy dairy products	0.840	
Bartlett's Test	Approx. Chi-Square	1318.17	
	Significance	0.000	
KMO Measure of Sampling Adequacy		0.859	
Overall Variance (%)		70.45	

Estimated results of the model show (Table 3) that brand trust and brand awareness have decreased significantly but brand association increased with the onset of spillover effect of product harm crisis. The direction of the association is beyond the scope of this research but possible causes for this increase may be when product harm crisis occurs, consumers are very much concerned with the brand and try to get information, this might have increased brand association. The results also show great influence of representative cluster event on industrial collective brand equity while low influence of single representative, single non-representative and cluster non-representative events verifying hypotheses H_1 and H_2 .

Table 3. Paired Sample t-test

Independent variables	Dependent variable	Paired-difference					T	Sig.
		Mean Difference	Standard Deviation	Standard Error	Confidence Interval			
					Lower Limit	Upper Limit		
Single representative	Trust1-Trust 2	0.126	0.462	0.060	0.005	0.245	2.078	0.042
	Awareness1- Awareness 2	0.284	0.671	0.087	0.109	0.459	3.253	0.002
	Association1- Association 2	-0.135	1.059	0.138	-0.511	0.041	-1.707	0.039
Single non-representative	Trust1-Trust 2	0.031	0.543	0.069	-0.007	0.269	1.898	0.026
	Awareness 1- Awareness 2	0.003	0.568	0.072	0.159	0.447	4.199	0.000
	Association1- Association 2	-0.028	0.878	0.112	-0.195	0.251	-0.247	0.006
Cluster representative	Trust1-Trust 2	0.266	0.463	0.059	0.046	0.286	2.773	0.007
	Awareness 1- Awareness 2	0.38,9	0.599	0.078	0.132	0.446	3.716	0.000
	Association1- Association 2	-0.224	0.613	0.079	-0.284	0.036	-1.556	0.015
Cluster non-representative	Trust1-Trust 2	0.112	0.541	0.072	0.168	0.456	4.352	0.000
	Awareness 1- Awareness 2	0.279	0.587	0.078	0.124	0.436	3.600	0.001
	Association1- Association 2	-0.038	0.995	0.132	-0.302	0.226	-0.292	0.027

Results of factor analysis (Table 4) show that both the independent variable (the event type) and the moderating variable (consumers choices possibility) have significantly affected industrial collective brand equity. This suggests that events type that causes spillover effect and the possibility of consumer choice have a significant interaction effect on the industrial collective brand equity (H_3 is empirically tested and verified).

Table4. Factor Analysis of Variance: Consumers Choices Possibility

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Brand Trust	Corrected Model	1.841	7	0.263	0.537	0.006
	Intercept	6.763	1	6.763	13.814	0.000
	Independent variables	0.766	3	0.255	0.522	0.018
	Moderator	0.037	1	0.037	0.076	0.037
	Independent variables* Moderator	1.012	3	0.337	0.689	0.050
	Error	102.809	210	0.490		
	Total	111.235	218			
	Corrected Total	104.65	217			
Brand Awareness	Corrected Model	4.344	7	0.621	0.899	0.008
	Intercept	48.576	1	48.576	70.386	0.000
	Independent variables	1.165	3	0.388	0.563	0.040
	Moderator	2.777	1	2.777	4.024	0.046
	Independent variables* Moderator	0.211	3	0.070	0.102	0.049
	Error	144.93	210	0.690		
	Total	196.952	218			
	Corrected Total	149.274	217			
Brand Association	Corrected Model	3.827	7	0.547	0.544	0.000
	Intercept	4.058	1	4.058	4.037	0.046
	Independent variable	1.651	3	0.550	0.547	0.040
	Moderator	0.298	1	0.298	0.297	0.037
	Independent variables* Moderator	1.976	3	0.659	0.655	0.010
	Error	211.09	210	1.005		
	Total	219.131	218			
	Corrected Total	214.917	217			

Similarly, results (Table 5) show significant effect of both the independent variable and the moderating variable (negative public opinion) on industrial collective brand equity. It means that both the event type and negative public opinion have affected the three dimensions of brand equity. In other words, the event type that causes spillover effect and negative public opinion have a significant interaction effect on the industrial collective brand equity. These findings are in accordance to Holmes and Rempel (1989) and Skowronski and Carlston (1989). These results empirically verify hypotheses H₃ and H₄.

Table 5. Factor Analysis of Variance (Moderator: Negative Public Opinion)

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Brand Trust	Corrected Model	3.105	7	0.444	0.955	0.046
	Intercept	5.423	1	5.423	11.68	0.001
	Independent variables	1.098	3	0.366	0.788	0.015
	Moderator	1.526	1	1.526	3.286	0.017
	Independent variables* Moderator	0.433	3	0.144	0.311	0.010
	Error	104.005	224	0.464		
	Total	112.606	232			
	Corrected Total	107.11	231			
Brand Awareness	Corrected Model	6.137a	7	0.877	1.898	0.000
	Intercept	23.809	1	23.809	51.545	0.000
	Independent variables	1.192	3	0.397	0.860	0.042
	Moderator	4.519	1	4.519	9.784	0.002
	Independent variables* Moderator	0.360	3	0.120	0.260	0.048
	Error	103.467	224	0.462		
	Total	133.342	232			
	Corrected Total	109.605	231			
Brand Association	Corrected Model	4.298a	7	0.614	0.739	0.039
	Intercept	2.833	1	2.833	3.408	0.016
	Independent variables	2.069	3	0.690	0.830	0.047
	Moderator	1.436	1	1.436	1.727	0.019
	Independent variables* Moderator	0.690	3	0.230	0.277	0.024
	Error	186.186	224	0.831		
	Total	193.333	232			
	Corrected Total	190.484	231			

4 Conclusion

This research mainly aims to explore how the spillover effect of agricultural product harm crisis affects industrial collective brand equity. Based on the findings of the study, it is concluded that the spillover effect has significantly affected the industrial collective brand equity with varying degrees of influence based on the type of spillover effect. The consumer brand association has increased with the onset of spillover effect of product harm crisis while the brand trust and brand awareness decreased. As for four types of product harm crisis spillover effect in three dimensions, the agricultural product harm crisis spillover effect of the representative cluster event has caused the biggest damage to collective industrial brand equity than that of single representative, single non-representative and cluster non-representative events. The results also show that the event type that causes agricultural product harm crises spillover effect and the consumers choices possibility (moderating variable) have significantly affected the industrial collective brand equity. The results have also verified significant effect of the event type that causes agricultural product harm crises spillover effect and the consistency of negative public opinion (moderating variable) on industrial collective brand equity.

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