

Article

Motives for Corporate Social Responsibility in Chinese Food Companies

Dongyong Zhang ¹, Qiaoyun Ma ^{1,*} and Stephen Morse ²

¹ College of Information and Management Science, Henan Agricultural University, 15 Longzi Lake Campus, Zhengzhou East New District, Zhengzhou 450046, China; dongyong.zhang@henau.edu.cn

² Centre for Environment and Sustainability, University of Surrey, Guildford, Surrey GU2 7XH, UK; s.morse@surrey.ac.uk

* Correspondence: maqiaoyun@henau.edu.cn; Tel.: +86-371-5699-0030

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Abstract: This paper explores the connection between corporate social responsibility (CSR) and food safety and how best to promote CSR in Chinese food companies by comparing two groups of food companies, one which had food safety incidents in the previous three years and one which had no food safety incidents during the same period. Managers of 498 food companies in 17 regions of China were surveyed. It was found that companies where the senior management gave higher levels of support and commitment to CSR and companies that had higher levels of CSR engagement had lower food safety incident rates. Motives for CSR engagement by food companies are the expected benefits that might accrue to the company including helping to achieve strategic objectives, improving daily management, ensuring food safety, improving internal cooperation, enhancing food quality, improving employees' skills at work, increasing employee benefit and improving their morale, and maintaining business integrity. It was also found that the external factors for CSR engagement are consumer demand, as well as pressures from the government and from other companies in the supply chain. Finally, the paper makes a number of suggestions for improvements in policy.

Keywords: corporate social responsibility (CSR); food safety; food company; motives; comparative analysis; China

1. Introduction

In recent years, a series of food safety scandals reported by the national and international mass media have brought food safety problems in China into the spotlight. The most notorious was the contaminated baby formula in 2008, which resulted in the death of six babies and the illness of 54,000 other babies. Since then the European Union and other countries around the world have banned imports of Chinese milk products [1]. In 2009, businesses in Qingdao, Shandong were caught marinating duck meat in goat or sheep urine to give the meat the smell and taste of lamb, and then selling the duck as lamb to customers. In 2010, swill-cooked “gutter” oil was first found to be sold as a cheaper alternative to normal cooking oil in the market. In 2011, 17 noodle producers in Dongguan, Guangdong were found to have included ink, industrial dyes, and paraffin in the manufacturing of noodles (which are normally made from sweet potatoes) to lower costs. In 2013, some pork dealers in Zhejiang were found to sell dead pig meat that was unfit for sale in the legal market, and the crack-down on illicit pig-trade resulted in over 15,000 dead pigs being dumped by the illegal pork dealers, drifting down the Huangpu River. In 2014, a large amount of so-called “New Zealand lamb rolls” served in popular hot pot restaurants were labeled as Yuxuanzhai in Xin Pin wholesale market in Shanghai and there was no production date or a list of ingredients, nor manufacturing information for these products. A recent survey released by Xiaokang magazine and Tsinghua University found that food safety still ranked at the top of a list of 10 safety issues that are most worrisome for Chinese

consumers [2] with increasing awareness of food safety problems, such as swill-cooked “gutter” oil (89.7%), food hygiene problem (79%), pesticide residues in fruits and vegetables exceeding standard amount (71.3%), harmful food additives (such as melamine, clenbuterol, etc.) (60.5%) [3].

Facing increasing pressure from home and overseas to improve food safety and to close the gap between Chinese and international food safety standards, the Chinese government has tried to develop a food safety management system through regulations and law enforcement. As a result, the focus has shifted from an emphasis on hygiene to a broader concept of safety [4,5]. The most important action taken by the state was the instigation of a new Food Safety Law on 1 June 2009. Four government agencies including the Ministry of Health, Ministry of Agriculture, General Administration of Quality Supervision, Inspection and Quarantine and the State Administration for Industry and Commerce now share responsibility for food quality and safety from farm to fork [5]. The 2009 Food Safety Law was further modified into a new Food Safety Law which took effect in October 2015. The 2015 Food Safety Law contains 154 articles and reflects an overall trend toward strengthening food safety regulation in China by further defining the scope of regulators and by introducing many new regulatory requirements.

Given the seriousness of the problem and a high demand for change, various studies have tried to explore food safety issues in China. Some studies focused on consumer concerns over food safety issues. Xu and Wu [6] investigated consumer perception of food safety and their willingness to pay for certified traceable food in Jiangsu Province, China, and found that 36% of consumers are strongly dissatisfied with the food safety conditions in China and 32% of those who choose to buy certified traceable food are unwilling to pay for the extra cost. On the other hand, Zhang et al. [7] surveyed consumers in Nanjing City, China, and found that Nanjing consumers are willing to pay a significant price premium for food traceability, especially regarding pork, milk and cooking oil. Huang and Peng [8] explored urban Chinese’s changing attitude towards Genetically Modified (GM) food and found that most people have considered GM food as unsafe since 2010 mainly because of the negative media coverage regarding GM technology. They also found that gender, educational level, food allergy experience of the consumers and areas of residence, are all factors that affect people’s perceptions on GM food safety. Similarly, Liu and Niyongira [9] surveyed 1015 consumers in Nanjing and Beijing and found most Chinese consumers are very much concerned about food safety in China, and educational level and gender are also found to be affecting factors of people’s food safety concerns.

Another focus of studies on food safety issues in China is the Chinese food safety regulations and how they could be improved. Broughton and Walker [10] examined the policies and practices designed to ensure the safety of Chinese aquaculture food, and found that the food safety system has many parts that are administered by different government organizations with poor coordination among them. Although there is only one food safety system in China, it operates as two entities: one for export products which is based on the requirements of importing countries; one for domestic products which operates with lower standards and lower levels of enforcement. Broughton and Walker [10] also found that the Chinese system takes top-down approach which focuses more on the inspection of end products instead of the monitoring of the whole production process. This is confirmed by Pei et al. [4] after they compared the European Union and the Chinese system of food safety. Chung and Wong [11] discussed that China has been relying on its national monitoring network to ensure food safety since 2002. This network includes 1196 monitoring sites covering all provinces, 73% of the cities and 25% of the counties as of March 2012. Chung and Wong [11] further stated that a new China Food Net is set up to monitor and track pathogens causing food-borne diseases, as well as connecting food markets, supermarkets, hospitals and restaurants so as to further monitor domestic food safety. However, although the Chinese central government acts positively towards addressing the deficiencies of the system, due to the large number of small production points which are more likely to practice sub-standard operation, the central government has to work closely with the local authorities to improve the infrastructure for food inspection and tracking [10]. Furthermore, the Chinese food industry has to come to a realization that even though the government is responsible for the legislative

environment, the Chinese food companies are ultimately responsible for the assurance of food safety in China [12].

The third group of scholars focus on the motivation and drivers for Chinese food companies to be responsible for food safety problems. Bai et al. [13], United Nations [14], Kong [15] and Zhang et al. [1,16] argued that due to the large geographical area of China, the size of its population, the number of food companies and the shortfall of current government legislation, China's food safety problems can only be solved by encouraging voluntary enforcement of legislation. Some authors have attempted to uncover what drives food companies to voluntarily implement food safety legislations so as to ensure food safety. Jin et al. [17] tried to find motives for Chinese food companies to adopt hazard analysis and critical control points (HACCP; an internationally recognized system for reducing the risk of safety hazards in food) management system by looking at Chinese food companies in Zhejiang Province, China and found that the motives for HACCP adoption were to lower food safety risks, to expand foreign markets and to improve profit margin, and the external factors were consumer pressure and support from the government. Connections were also found by Jin et al. [17] between the implementation of HACCP and the company size (measured by the number of employees), company market orientation, the manager's educational level and whether or not the company had adopted other international management systems. The larger the company, the more it is likely to have an orientation towards foreign markets, and the higher the manager's educational level then the more likely the company will adopt HACCP. Zhou et al. [18] studied the voluntary adoption of routine self-inspection tools in the aquatic industry in the same region and found that motives for implementing self-inspection included expected benefits that self-inspection might bring such as an increase in product quality, customer satisfaction, profit, and that the barriers included the uncertainty of the export market and peer competition. Zhou et al. [18] also found that the firm's size (measured by annual sales), whether or not an international quality system was being implemented and their orientation towards export affected the implementation of self-inspection systems in the aquatic industry in Zhejiang. Zhang et al. [19] found that not only the company size, but also the level of corporate social responsibility (CSR) engagement of the food company, is related to its willingness to effectively implement food safety measures and minimize food safety risks.

In fact, CSR, as a voluntary initiative, has increasingly been suggested by academia as a way for food companies to voluntarily take responsibility for their final products. CSR, as defined by the European Commission [20], is:

"A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis".

This definition of CSR stresses what many refer to as a "triple bottom line" (an economic, social and environmental performance target) approach as distinct from the "single bottom line" with a sole focus on financial performance.

Hence, CSR implies that corporate performance is judged not just by the services, products and profits that businesses make but also by the impacts they have on social well-being and on the local and global environment. In other words, companies should be responsible not just to their shareholders but also to other stakeholders in society including suppliers, retailers, and most importantly the consumer and indeed the communities within which they are based. Although the concept of CSR originated in the West, it actually has a deep resonance within Chinese history. In modern China this concept has been increasingly embraced by both corporations and policy-makers [21].

Food safety directly links the food company and society, and producing safe food has increasingly been regarded as an integral part of a food company's CSR [22]. Hence encouraging food companies to be socially responsible so as to put a stop to food safety incidents has become an obvious choice for policy makers and academics. A few studies have tried to explore the link between food company CSR and their food safety. For example, Zhang et al. [1] investigated food risk incidents in China from the angle of CSR by studying a group of food companies located in Henan Province and Wuhan

City in China, and found that a food company's attitude to CSR positively affects its attitude to food safety risks and in turn this influences the frequency of food risks it experiences. Kong [15] found that investors' concerns for CSR of food companies are significantly influenced by the mounting attention given to CSR-related events, suggesting food companies should strengthen their CSR engagement as it is good for their long-term development. Jiang and Zhu [22] did a qualitative study of 20 Chinese food companies in Shanghai and suggested they revitalize their CSR so as to curtail the food safety crisis.

The research hypothesis of this paper is that the perspective of food company managers on CSR is crucial to encouraging CSR engagement in their companies. Perspectives can be expected to be formed by a variety of influence, including awareness of CSR and balance between cost and benefit. However research regarding this assumed relationship between food safety and CSR is still very scarce in China, as indeed are the factors that help motivate CSR adoption by food companies. This paper intends to help cover this gap by surveying 498 food company managers in 17 regions across China, with majority of which located in the economically more developed eastern China i.e., Shanghai and Shandong. The aim of this paper is twofold. First, by looking at food companies that are reported to have had food safety incidents in the previous three years and those that had no incidents in the same period, the authors will explore the differences between the two groups of companies regarding their demographic information, the companies' attitudes to CSR, senior management's actual support and commitment to CSR, and the current state of CSR engagement. Second, by comparing the expected benefits of CSR perceived by companies that had included CSR in their company strategy and those that had not, the authors will identify the motives and external factors for food companies to engage in CSR. Finally, suggestions are made to further research and policy-making in this field.

2. Methodology

A questionnaire survey was employed in the study, and this was developed using input from a focus group comprising members of the food industry. The questionnaire comprised three parts. In part one, demographic information of the surveyed companies was collected. Part two included questions about food safety incidents that had happened in the previous three years (2009 to 2012), and the type and frequency of these incidents. Part three contained CSR related questions, including companies' attitude to CSR, senior management's actual support and commitment to CSR in the 2009 to 2012 period, current CSR engagement, and motives for engaging in CSR. In part three, respondents were asked to measure statements given in the questionnaire using a 5-point Likert scale: strongly agree, agree, not sure, disagree, and strongly disagree with 5 being strongly agree and 1 being strongly disagree. The reason we chose the previous three years as a time frame for measuring the type and frequency of food safety incidents and whether or not senior management actually give support and commitment to CSR, is that the time taken from the first production of a food product to when its production ceases is relatively short. Hence, three years is long enough for a food company to experience various food safety incidents. In addition, at the time of data collection many food companies were recently established. For example, 15.4% of companies in this study were established in the previous three years (2009–2012), and of these some 21.5% had food safety incidents. A convenience sampling method was employed, and a total of 600 food companies were included in the survey because they had business connections with the authors' institutions. 510 questionnaires returned (a response rate of 85%). The target respondents were General Managers and Deputy General Managers. The survey started in May 2012 and ended at the end of August 2012.

3. Results and Discussions

A total of 498 of the 510 returned questionnaires were deemed to be valid and were included in the subsequent analysis. Of these, 348 companies reported having no food safety incidents in the period spanning 2009 to 2012 while 150 reported that they had between 1 and 12 food safety incidents during the same period. These groups became the basis for the analysis, although it should be noted that the two categories are somewhat subjective. After all, the difference between a company having

just one incident and those having none is arguably very slight. Also, the categorization does not take into account the severity of the food safety incident. Hence one company may have had just one incident but that could have been a major one in terms of the number of consumers involved. While these are acknowledged it was nonetheless necessary to define the categories and “absence” and “presence” were inevitably a compromise distinction.

3.1. Reliability Test

Questionnaire results were coded and SPSS 19.0 was employed to store and analyse data. A reliability analysis is conducted, and a Cronbach’s alpha of 0.764 is reached, which indicates an acceptable level of internal consistency for the scale with this sample (Table 1).

Table 1. Reliability analysis.

Reliability Statistics		
Cronbach’s Alpha	Cronbachs Alpha based on standardized items	No. of items
0.764	0.817	32
Item-Total Statistics		
Items (variables)	Cronbach’s Alpha if item deleted	
1. CSR helps achieve strategic objectives	0.751	
2. CSR helps ensure food safety	0.761	
3. CSR helps improve daily management	0.757	
4. CSR helps improve internal cooperation	0.756	
5. CSR helps ensure customer satisfaction	0.759	
6. CSR helps enhance product quality	0.760	
7. CSR helps encourage employees to improve their skills at work	0.750	
8. CSR helps increase employee benefit and improve their morale	0.750	
9. CSR helps maintain business integrity	0.760	
10. We are member(s) of (an) international CSR organization(s)	0.747	
11. We have drawn CSR outline	0.748	
12. We have set up CSR index	0.749	
13. We have set up CSR training timetables for employees	0.747	
14. We have been encouraging our suppliers and customers to be socially responsible	0.749	
15. We always publish CSR report on time	0.750	
16. CSR helps show that we follow the government regulation	0.784	
17. CSR is an important part of our company strategy	0.758	
18. For the long-term development we are willing to give up short-term benefit and be socially responsible	0.755	
19. CSR is part of our company’s obligation to the society	0.756	
20. The support from the senior management has been increasing in the previous 3 years	0.752	
21. Senior management received CSR training	0.748	
22. Senior management are committed to CSR	0.748	
23. The budge for CSR has increased in the previous 3 years	0.751	
24. Food safety incident: Product recall	0.767	
25. Food safety incident: Food safety complaints & compensation claim	0.792	
26. Food safety incident: Food safety issue being reported by mass media	0.765	
27. Food safety incident: failing to pass quality tests (run by relevant food quality supervision department)	0.773	
27. We have ISO 9000 accreditation	0.764	
29. We have ISO 14000 accreditation	0.762	
30. We have SA 8000 accreditation	0.768	
31. We have HACCP accreditation	0.760	
32. We have GMP accreditation	0.763	

3.2. Demographic Analyses

Based on the answers to the question “did your company have food safety incidents in the previous three years?” the companies are divided into two groups: companies that had between 1 and 12 food safety incidents in the previous three years (CHI) and companies that had zero food safety incidents during the same period (CH0I). Table 2 shows the demographic information of food companies surveyed and the crosstab between the demographic information and food safety incidents (CHIs/CH0Is). Table 3 shows some Chi-square test results.

Table 2. Crosstab between demographic information and whether or not had food safety incidents.

			No Food Safety Incidents (CH0I)	At Least One Food Safety Incident (CHI)	Total
Location	Shanghai	Observed (expected) % with in column	211 (220.1) 60.6	104 (94.9) 69.3	315 63.3
	Shandong	Observed (expected) % with in column	104 (94.3) 29.9	31 (40.7) 20.7	135 27.1
	Other regions	Observed (expected) % with in column	33 (33.5) 9.5	15 (14.5) 10.0	48 9.6
Type of company	Private company	Observed (expected) % with in column	198 (192.6) 58.1	76 (81.4) 52.8	274 56.5
	Foreign invested company	Observed (expected) % with in column	49 (54.1) 14.4	28 (22.9) 19.4	77 15.9
	State-owned enterprise	Observed (expected) % with in column	41 (42.2) 12.0	19 (17.8) 13.2	60 12.4
	Public listed company	Observed (expected) % with in column	22 (20.4) 6.5	7 (8.6) 4.9	29 6.0
	Collective company	Observed (expected) % with in column	31 (31.6) 9.1	14 (13.4) 9.7	45 9.3
Number of employees	1–199	Observed (expected) % with in column	187 (174.9) 64.0	61 (73.1) 50.0	248 59.9
	200–499	Observed (expected) % with in column	56 (55.7) 19.2	23 (23.3) 18.9	79 19.1
	500–999	Observed (expected) % with in column	19 (23.3) 6.5	14 (9.7) 11.5	33 8.0
	1000 and more	Observed (expected) % with in column	30 (38.1) 10.3	24 (15.9) 19.7	54 13.0
Year of establishment	2009–2012	Observed (expected) % with in column	51 (45.6) 17.2	14 (19.4) 11.1	65 15.4
	2004–2008	Observed (expected) % with in column	60 (65.2) 20.3	33 (27.8) 26.2	93 22.0
	2000–2003	Observed (expected) % with in column	63 (63.1) 21.3	27 (26.9) 21.4	90 21.3
	Before 2000	Observed (expected) % with in column	122 (122.0) 41.2	52 (52.0) 41.3	174 41.2
Operating strategy	Private brands	Observed (expected) % with in column	163 (169.5) 47.4	79 (72.5) 53.7	242 49.3
	Manufacturing	Observed (expected) % with in column	159 (151.3) 46.2	57 (64.7) 38.8	216 44.0
	Store brands	Observed (expected) % with in column	12 (12.6) 3.5	6 (5.4) 4.1	18 3.7
	Franchise	Observed (expected) % with in column	6 (7.7) 1.7	5 (3.3) 3.4	11 2.2
	Others (i.e., family business with no brand)	Observed (expected) % with in column	4 (2.8) 1.2	0 (0.0) 0	0.8
Accreditations	ISO 9000	Observed (expected) % with in column	181 (189.9) 64.6	93 (84.1) 75.0	274 67.8
	HACCP	Observed (expected) % with in column	122 (135.7) 46.9	70 (56.3) 64.8	192 52.2
	ISO 14000	Observed (expected) % with in column	61 (61.9) 29.8	25 (24.1) 31.3	86 30.2
	GMP	Observed (expected) % with in column	39 (40.4) 20.3	18 (16.6) 22.8	57 21.0
	SA 8000	Observed (expected) % with in column	19(21.2) 10.7	11(8.8) 15.1	30 12.0
Number of accreditations	0 accreditation	Observed (expected) % with in column	95(84.4) 32.3	27 (37.6) 20.6	122 28.7
	1 accreditation	Observed (expected) % with in column	75 (72.6) 25.5	30 (32.4) 22.9	105 24.7
	2 accreditations	Observed (expected) % with in column	67 (80.2) 22.8	49 (35.8) 37.4	116 27.3
	3 and more accreditations	Observed (expected) % with in column	57 (56.7) 19.4	25 (25.3) 19.1	82 19.3

Table 3. Chi-square tests.

Pairs of Variables		Value	df	Asymp. Sig. (2-Sided)	Exact Sig. (2-Sided)
Number of employees * food safety incidents (CHI/CH0I)	Pearson Chi-Square	11.329 ^a	3	0.010	
	Likelihood Ratio	10.833	3	0.013	
	Linear-by-Linear Association	10.416	1	0.001	
	N of Valid Cases	414			
Implementation of ISO 9000 (Yes/No) * food safety incidents (CHI/CH0I)	Pearson Chi-Square	4.224 ^b	1	0.040	
	Continuity	3.763	1	0.052	
	Likelihood Ratio	4.338	1	0.037	
	Fisher's Exact Test				0.049
	Linear-by-Linear Association	4.214	1	0.040	
Implementation of HACCP (Yes/No) * food safety incidents (CHI/CH0I)	N of Valid Cases	404			
	Pearson Chi-Square	9.789 ^c	1	0.002	
	Continuity	9.085	1	0.003	
	Likelihood Ratio	9.915	1	0.002	
	Linear-by-Linear Association	9.762	1	0.002	
	N of Valid Cases	368			
Number of international standard implemented * food safety incidents (CHI/CH0I)	Pearson Chi-Square	11.669 ^d	3	0.009	
	Likelihood Ratio	11.567	3	0.009	
	Linear-by-Linear Association	5.007	1	0.025	
	N of Valid Cases	425			

^a 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.72. ^b 0 cells (0.0%) have expected count less than 5. The minimum expected count is 39.90. ^c 0 cells (0.0%) have expected count less than 5. The minimum expected count is 51.65. ^d 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.30.

Around 90% of the surveyed companies were located in Shanghai City and Shandong Province, the rest were spread across China, including Beijing, Inner Mongolia, Xiamen, Tianjin, Anhui, Guangxi, Xinjiang, Jiangsu, Jiangxi, Hebei, Henan, Zhejiang, Hubei, Shaanxi, Qinghai. More than half of the companies were private (56.5%), followed by foreign invested companies (15.9%), SOEs (12.4%), public listed companies (6.0%) and collective companies (9.3%). About 60% of the companies had fewer than 200 employees at the time of the survey, 27.1% had between 200 and 999 employees, and 13% had 1000 employees or more. In terms of age, 15.4% of the companies were established in the previous three years, 22% from 2004 to 2008, 21.3% from 2000 to 2003, and 41.2% of the companies were established 13 years ago. Around half of the companies operated with private brands, 44% manufacture products for other companies (i.e., they were suppliers), 3.7% operated with their store brands, 2.2% were run as parts of franchises, and 0.8% were small family business with no brand. Of all the responding companies, 67.8% were ISO 9000 accredited, around half were HACCP accredited, 30.2% were ISO 14000 accredited, 21% GMP accredited, and 12% SA 8000 accredited. In terms of the number of international standards implemented, 28.7% of the responding companies did not implement any international standards, 24.7% implemented one, 27.3% implemented two standards, and 19.3% implemented more than two.

Pearson Chi-square test results indicate that the sizes of companies (indicated by the number of employees) between CHIs and CH0Is are significantly different ($p = 0.01$, see Table 3). A crosstab analysis (Table 2) indicates that big companies are more likely to have food safety incidents than smaller ones. It should be noted that this result is contrary to Jin et al.'s [17] finding that larger food companies have a higher participation rate in HACCP which was designed to reduce food safety hazards. It also challenges Bai et al.'s [13] observation that the average up-to-standard rate of food products produced by small-sized companies was lower than the average of all products that were randomly tested by China's Administration for Quality Supervision, Inspection and Quarantine in 2003. However this result agrees with Zhang et al.'s [16] results, after investigating food companies in 14 regions of China, that the bigger the company, the higher the frequency of food risk incidents.

The results of a Fisher's exact test indicate that companies that have implemented ISO 9000 are more likely ($p < 0.05$) to have food safety incidents than those that have not implemented it. Similarly,

the results of a Pearson Chi-square test lead to a conclusion ($p < 0.01$) that companies that have implemented HACCP are more likely to have had food safety incidents. Table 3 also proves that the numbers of international standards that companies implemented are significantly different between CHIs and CH0Is ($p < 0.01$); the more international standards a company implements then the more likely it is to have had food safety incidents, and implementing two international standards is most ineffective in reducing food safety incidents. These results are not what one would expect because of the common understanding of the purpose of international standards such as ISO 9000 which deals with the fundamentals of quality management system, and HACCP which is the systematic preventative approach to food safety, and are contrary to the results of many current food safety studies such as Bas et al. [23], Jin et al. [17], Karaman et al. [24], Pei et al. [4], Zhou et al. [18]. However, these findings do correspond in part with Zhang et al.'s [16] result that companies that have implemented HACCP and/or ISO 9000 tend to have higher food safety risks than companies that have not implemented them; but differ from other part of the result from the same study that companies that have implemented two international standards have the lowest food safety risk. Further investigation as to why such inconsistent results exist is clearly needed.

3.3. Type of Food Safety Incidents

Four types of food safety incidents were reported by 150 companies (Table 4). The most frequent incident was “food safety complaints and compensation claim”, followed by “failing to pass the quality test (run by relevant food quality supervision department)” and “Product recall”, and the last one was “food safety issue being reported by mass media”. Per company frequency of incidents was also indicated in Table 4. It seems that the frequency of incidents that have lower public exposure i.e., “food safety complaints and compensation claim” and “failing to pass the quality test” is higher than those that have higher public exposure i.e., “product recall” and “food safety issue being reported by mass media”. As noted earlier, this result did not consider the seriousness of food safety incidents because the managers were reluctant to provide such information. Hence assessing seriousness of incidents is highly challenging. Nonetheless, this does provide a limitation on the research as it is arguably very different to have one minor incident than, for example, two major food safety issues between 2009 and 2012. However, the results do provide some idea regarding the type of food safety incidents.

Table 4. Type of food safety incidents.

Type of Incident	Frequency	Frequency of Incidents per Company
1. Food safety complaints & compensation claim	201	1.34
2. Failing to pass quality tests (run by relevant food quality supervision department)	93	0.62
3. Product recall	78	0.52
4. Food safety issue being reported by mass media	39	0.26
Total	411	2.74

3.4. Attitude and Commitment to CSR

The companies were also asked to report their CSR with regard to three aspects:

1. Company's attitude to CSR
2. Senior management's actual support and commitment given to CSR
3. Current state of CSR engagement.

Mann–Whitney U test was carried out to test whether there was a difference between the two groups of companies: CHI and CH0I (Table 5).

Table 5. Attitude and commitment to corporate social responsibility (CSR), CSR engagement and effects of CSR.

	Food Safety Incidents in Previous 3 Years	Mean	MWU Test (<i>p</i> Value)
<i>Attitude to CSR:</i>			
CSR is an important part of our company strategy	No	4.57	0.000 **
	Yes	3.89	
For the long-term development we are willing to give up short-term benefit and be socially responsible	No	4.46	0.000 **
	Yes	3.78	
CSR is part of our company’s obligation to the society	No	4.71	0.000 **
	Yes	4.07	
<i>Senior management’s actual support and commitment given to CSR:</i>			
The support from the senior management has been increasing in the previous 3 years	No	4.52	0.000 **
	Yes	3.78	
Senior management received CSR training	No	4.25	0.000 **
	Yes	3.60	
Senior management are committed to CSR	No	4.44	0.000 **
	Yes	3.61	
The budget for CSR has increased in the previous 3 years	No	4.12	0.000 **
	Yes	3.41	
<i>Current CSR engagement:</i>			
We have drawn CSR outline	No	4.11	0.000 **
	Yes	2.53	
We are member(s) of (an) international CSR organization(s)	No	3.47	0.000 **
	Yes	2.43	
We have set up CSR index	No	4.14	0.000 **
	Yes	3.30	
We have set up CSR training timetables for employees	No	4.29	0.000 **
	Yes	3.48	
We have been encouraging our suppliers and customers to be socially responsible	No	4.22	0.000 **
	Yes	3.46	
We always publish CSR report on time	No	4.01	0.000 **
	Yes	3.22	

Note: ** significant at 5%.

Responding companies' attitudes to CSR, being positive or negative, were identified by looking at responses to the three statements: "CSR is an important part of our company strategy", "for the long-term development, we are willing to give up short-term benefit and be socially responsible", and "CSR is part of our company's obligation to the society". The responses were scored based on the 5-point Likert scale mentioned earlier. If the answer was scored between 3.5 and 5, then this was regarded as a positive attitude and if the answer was scored between 1 and 2.5, then the attitude was regarded as being negative. Anything between 2.5 and 3.5 was regarded as neutral attitude. Both groups of companies seem to have a positive attitude towards CSR (with the mean score for both being above 3.5), and Mann–Whitely U test found no difference between the two groups.

On average the senior management of CH0Is appeared to have given more support in the previous three years to CSR (with higher mean score), and were more committed to CSR than that of CHIs. CH0Is also provided more training for their senior management regarding CSR and obtained higher financial support for CSR than CHIs. Mann–Whitely U test indicates a significant difference between the two groups of companies in these four areas. This partly agrees to Zhang et al.'s [1] conclusion that the budget allocated to food safety management was a direct affecting factor for the frequency of food safety incidents.

Looking at the mean scores of both CHI and CH0I companies between their attitude to CSR and their actual support and commitment to CSR, it is not hard to notice that managers of Chinese

food companies are more generous scoring their attitude than actual action. It is not surprising given Chinese government's eager embrace of the idea of CSR in recent year and the Chinese managers certainly know the right things to say to gain a positive social image for themselves and their companies. It seems CSR in Chinese food companies are still at the "talking" stage.

3.5. Current CSR Engagement

Table 5 also showed that CH0Is gained a higher score on average than CHIs in terms of the status of current CSR engagement. Mann–Whitney U tests showed that CHIs and CH0Is had significant differences in this area (with p being 0.000 for all variables). The highest scores of both groups went to the responses to the statement "we have set up CSR training timetable for employees" (4.29 for CH0I and 3.48 for CHI), and the lowest scores of both groups went for the responses to the statement "we are member(s) of (an) international CSR organization(s)" (3.47 for CH0I and 2.43 for CHI). It seems that setting up timetables for CSR training for the employees was a more popular CSR activity than the joining of international CSR organizations for the food companies surveyed. Is this because setting up a timetable for employees' CSR training is the easiest and cheapest way of engaging in CSR while joining international CSR organizations is a more challenging and expensive approach? Provision of training also tends to be more readily apparent to the managers. An alternative explanation may be that the food companies regarded employees' CSR training as the most important part of CSR while joining an international CSR organization was of lesser importance. There is obviously a need for further research to explore this aspect of CSR. Nonetheless, this indicates that international CSR organizations need to do more to strengthen their role in promoting CSR in Chinese food companies.

3.6. Motives and External Factors That Encourage Food Companies to Engage in CSR

With a clear link between higher levels of CSR engagement and zero food safety incidents as shown in section above, encouraging food companies to engage more in CSR becomes very important in reducing food safety incidents. To identify the motives and external factors for food companies to engage in CSR, respondents were asked to rate a list of eight benefits that CSR may bring based on their experiences and perceptions. A 5-point Likert scale was applied here with 1 being strongly disagree and 5 being strongly agree. The answers were organized in two groups based on the answers to the question "has your company drawn a CSR outline?" One group consists of companies that have drawn a CSR outline and the other is formed from the companies that have not (Table 6).

The most obvious benefits of engaging in CSR as perceived by the group of companies that did not have a CSR outline were to ensure food safety and to enhance product quality (with mean score of 4.47), while for the companies that had a CSR outline, the most obvious benefit was regarded as maintaining business integrity (with mean score of 4.96). This was indicative of the differences in focus between the two groups of companies. Understandably, companies having no CSR outline in place concentrated more on the product aspect as it is the "bottom line" for business survival. However the companies with a CSR outline in place considered not only their short-term survival but also long-term business excellence, hence the choice of "business integrity". These differing views set the different "bottom lines" for both groups of companies, which to some extent decided their business behavior to be ethical or the opposite. Many business owners and entrepreneurs thought that the most influential attribute with regard to the success of a business is the distinguishing quality of integrity; without it a business is usually short-lived [25]. In fact, when business integrity is present throughout the deepest layers of a company and not just at its surface, it becomes the heart and soul of the company's culture and can mean the difference between a company that succeeds and a company that falters.

Table 6. Motives and external factors affecting food companies' engagement in CSR.

	CSR Outline	Mean	MWU Test (<i>p</i> Value)
<i>Motives:</i>			
To help achieve strategic objectives	No	3.81	0.000 **
	Yes	4.42	
To help improve daily management	No	4.26	0.000 **
	Yes	4.85	
To ensure food safety	No	4.47	0.000 **
	Yes	4.94	
To help improve internal cooperation	No	4.11	0.000 **
	Yes	4.71	
To enhance product quality	No	4.47	0.000 **
	Yes	4.95	
To encourage employees to improve their skills at work	No	3.94	0.000 **
	Yes	4.50	
To increase employee benefit and improve their morale	No	4.21	0.000 **
	Yes	4.67	
To maintain business integrity	No	4.49	0.000 **
	Yes	4.96	
<i>External factors:</i>			
To ensure consumer satisfaction	No	4.78	0.002 **
	Yes	4.90	
To show that we follow the government regulation	No	2.29	0.000 **
	Yes	3.13	
To make suppliers to improve their CSR engagement	No	4.02	0.000 **
	Yes	4.62	

Note: ** significant at 5%.

Mann–Whitney U test results reveal that significant differences existed between the two groups of companies regarding their views as to whether or not CSR would help in achieving strategic objectives, improving daily management, ensuring food safety, internal cooperation, enhancing product quality, encouraging employees to improve their skills at work, increasing employee benefit and improving their morale, and in maintaining business integrity (with *p* value of 0.000 for all variables). Companies having a CSR outline were more likely to recognize the benefit of CSR in the above eight areas.

Furthermore, three external benefits that CSR might bring were also rated by the respondents. The most important of these was to ensure consumer satisfaction, followed by making suppliers improve their own CSR engagement, and the least recognized benefit was to show that they followed government regulations. Mann–Whitney U test indicates the significant difference between the views of the two groups regarding the three aspects of benefit that CSR brings externally (*p* = 0.002, 0.000 and 0.000). Similar to the internal benefits, these external benefits were more likely to be recognized by companies that have a CSR outline in place.

4. Conclusions and Implementations

The results of the research reported here suggest that CSR and food safety are indeed related. While the managers of both CHI and CHOI claimed to have a positive attitude to CSR, the senior managements of CH0Is showed steadily increasing support and commitment to CSR in the previous three years, and the levels of current CSR engagement of CH0Is were higher than that of CHIs. It was also found that CH0Is tended to see more of the benefits that CSR might bring including helping achieve strategic goals, improving daily management, ensuring food safety, improving internal cooperation, enhancing product quality, encouraging employees to improve their skills at work, increasing employee benefit and bringing up their morale, maintaining business integrity, and externally ensuring consumer satisfaction, making suppliers to improve their CSR engagement, and meeting the government requirements.

Some demographic information of the companies was found to be related to whether or not the company would have food safety incidents. Bigger companies (indicated by the number of employees), companies implementing ISO 9000 and/or HACCP, and companies implementing two international standards were more likely to have food safety incidents. While the relationship between the company size and food safety incidents is discussed in the next paragraph, a possible explanation as to why implementing international standards being unhelpful in eliminating food safety incidents is provided by Zhang et al. [16] that some companies make an effort to get the international standards accreditation just to make it easier for them to gain trust from consumers and to expand the market, and their ultimate purpose is simply making more profit. They will stop improving once they receive the accreditation. So a more strict surveillance review and re-certification audit system is needed to make sure the companies keep up with the international standards after accreditation. To avoid misunderstanding, it has to be noted that this explanation is based on the number of food safety incidents and number of international standards implemented at the time of the survey, and is not based on information regarding whether or not the international standards have been implemented before or after the food safety incidents because this information was challenging to collect in the survey. As indicated in the pilot study, in a self-reported questionnaire survey like this it is noticeable that managers are uncomfortable with answering questions that request details of past events as they do not want to physically track back the related document and in particular talking about serious food incidents. Therefore, to avoid getting no answer or random answers, we framed the questions in terms of the present situation or what has been happening till now.

There has been controversy over the relationship between company size and the frequency of food safety incidents for Chinese food industry. The reasons for this controversy could be multiple, but high publicity has been regarded as a good reason for big companies being more careful in keeping the food safety incidents to the minimum [1,13,14]. However Jiang and Zhu [22] and Zhang et al. [16] argued that the more complicated supply chains owned by bigger food companies make it harder to control food safety hazards in these companies and any neglect of a small food safety incident in the supply chain could lead to a significant scandal. This controversy indicates the complexity of the food safety control in China. Lam et al. [12] and Zhang et al. [19] has pointed out that the huge scale of China's food industry and sheer size of the food sector have limited the progress of food safety legislation and regulation, which has made it difficult to uphold high safety standards across the vast diversity of food products, and has indeed presented a significant challenge. There obviously is a need for a more comprehensive regulation and inspection system for Chinese food industry, which should include different assessment and inspection tools, and different training and support programme for companies with different sizes. In fact, China's President Xi Jinping has, at various occasions, insisted on the "strictest" control over food safety [2]. But given the magnitude and diversity of the sector the resources required would be very large indeed, a good example of this would be the 8.8 billion Yuan (1.4 billion USD) investment by China's State Food and Drug Administration between 2006 and 2010 for food and drug safety [26], and the 18.5 billion Yuan (2.8 billion USD) investment between 2016 and 2020 for food safety only [27].

Food safety related incidents of the sample companies included "food safety complaints and compensation claims", "failing to pass quality test set by relevant food quality supervision department", "product recall", and "food safety issue being reported by mass media". It was noted that the per company frequency of "product recall" in this study (0.52) is lower than reported in Zhang et al.'s [1] study (0.62) which focused on food companies in central China. Considering that more than 90% of the sample companies in this study were from eastern China (both Shandong and Shanghai are in eastern China), and eastern China is an economically more developed area than central China, "product recall" is also one of the major food safety incidents, a tentative conclusion seems to be that the more developed area has lower level of food safety incidents than the less developed area in China. This echoes Lin et al.'s [28] conclusion, based on examinations of the correlation between economic development and food safety in China, that economic development stage is the key control factor

to food safety. More studies are needed so as to reach a more certain conclusion on this topic, and the most obvious one would be a comparative investigation across the eastern, central and western (the least developed) regions.

While it is obvious the increasing support from the senior management over the previous three years and their commitment to CSR are related to whether or not food companies would have food safety incidents, the CSR training senior managers received and the budget allowed to CSR are also reported to be related to it. This corresponds to the results of Bas et al. [23] and Karaman et al. [24] which regard both factors are important for HACCP implementation for Turkish food companies, it also corresponds to Yang et al.'s [29] conclusion that both factors are crucial for the establishment of food control system in China. However, as warned by Pei et al. [4] and Zhang et al. [1], CSR trainings to food company managers should be purposely tailored so as to make sure the managers actually gain knowledge from them, instead of being just a "tick-box" exercise. Zhang et al. [1] also suggested that CSR budget should not only be sufficient but also be used efficiently. Why are there still the on-going food safety problems in China after the 8.8 billion Yuan spending on food and drug safety between 2006 and 2010? Will the 18.5 billion Yuan investment on food safety between 2016 and 2020 put a stop on food safety issue in China? Clearly, it is not just the quantity but the quality that matters in terms of both CSR trainings and resource allocation.

Both groups of companies claimed to have a positive attitude to CSR, but CH0Is appear to have given more steadily increasing support and commitment to CSR in the previous three years than CHIs have done. The outcome of higher levels of support and commitment from the senior management resulted in a higher level of CSR engagement in general, including having drawn CSR outline, being a member of international CSR organizations, setting up a CSR index, setting up CSR training program for employees, encouraging suppliers and customers to be socially responsible and on-time CSR-Report publication. However, in this self-reported survey, managers are more generous in scoring their attitude to CSR for both CH0Is and CHIs, while their actual support and commitment to CSR is scored lower, and the lowest goes to the current level of CSR engagement. It is always easy to claim a positive attitude, but the reality tells the truth. When will the Chinese food companies stop "talking and talk" and start "walking the walk" when it comes to CSR? We will still have to wait and see. But hopefully this research would give a wakeup call to Chinese CSR policy makers and food company managers.

So the levels of CSR engagement of food companies does seem to have a relationship with the frequency of food safety incidents, and a higher level of CSR engagement is related to low food safety incident rate. Hence encouraging food companies to engage in CSR is important in terms of reducing food safety incidents. The question then becomes what influences the food companies' CSR engagement? The levels of CSR engagement is decided more by the management's actual support and commitment given to CSR and the current CSR engagement than by the company's claimed attitude to CSR, so action speaks louder than just words. This result echoes Wilcock et al.'s [30] finding that managers' commitment to HACCP is a key driving factor for HACCP implementation in Canadian food companies.

Other internal motives for food companies' CSR engagement are to achieve strategic objectives, to improve daily management, to ensure food safety, to improve internal cooperation, to enhance product quality, to encourage employees to improve their skills at work, to increase employee benefit and improve their morale, and to maintain business integrity. External factors include consumer demand, government pressure and pressure from the food supply chain.

Based on the above findings, a few suggestions can be made. First, the government should provide more guidance on how CSR could help food companies in the above mentioned areas, and make the companies realize the benefits of CSR. At the same time, it would be wise for the Chinese policy makers to promote CSR and pass CSR knowledge to the public so as to increase the consumer awareness of CSR, and to ensure the consumer satisfaction, the food companies would have to include CSR in their company strategy and engage in CSR activities. In addition, although CSR in general is

a voluntary initiative, some part of CSR activities such as the restriction on discharge of environmental wastes, and payment of taxes are mandatory, and the government should strengthen legislation and enforcement in these areas although it is acknowledged that this will require extra resource. The good news is that the Chinese government has realized this and is determined to do so. Furthermore, policy makers should encourage CSR in the food supply chain, and once one company in the chain values CSR, others can be assumed to follow.

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Abbreviations

CSR	Corporate social responsibility
CHI	Companies that had between 1 and 12 food safety incidents in the previous three years
CH0I	Companies that had zero food safety incidents in the previous three years
HACCP	Hazard analysis and critical control points

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