# Research on the Influencing Factors of Food Safety Information Disclosure -- Based on the Data of Listed Companies in the Food and Beverage Industry in 2015-2017

## Ma Yingli

Nantong Institute of Technology, Nantong, Jiangsu, 226000, China

**Keywords:** Food Safety, Information Disclosure, Influencing Factors, Empirical Analysis

Abstract: This paper selects 74 groups of data from 30 food and beverage industries in shanghai and shenzhen stock markets from 2015 to 2017. information disclosure will cover all aspects of food safety, including raw material supply, production, circulation, sales and after-sales. The information of food sales and after-sales includes three categories: pre prevention, in-process supervision and post guarantee. The level of food safety information disclosure is calculated by content scoring method, and the influencing factors of food safety information disclosure are studied. The results of the study show that the voluntary disclosure of environmental factors is positively related to the size of the company, the nature of its equity, and the level of food safety information disclosure. Institutional holdings and the size of the board of directors are negatively related to the level of food safety information disclosure. Profitability is negatively related to it. This may be due to the stronger social constraints, forcing companies to increase security investment and increase costs. Among the compulsory disclosure environmental factors, media attention, legal environment and external audit are positively related to the level of food safety information disclosure. To this end, relevant suggestions for improving food safety information disclosure are put forward.

#### 1. Introduction

Food Safety is a Major Issue That Affects People's Livelihood. It Has a Bearing on the Physical and Mental Health of the People and the Stability and Harmony of the Country. in Recent Years, Frequent Food Safety Incidents Such as Shuanghui Group 's "Clenbuterol", Sanlu 's "Poison Milk Powder", "Refurbished Bread", and the "Ginger Dumpling" Missed Not Only Endanger the Public Health. At the Same Time, Food Companies Have Been Widely Criticized by Society and Their Industry Image Has Been Greatly Reduced. in Order to Fully Gain the Trust of Consumers and Alleviate the Current Situation of Information Asymmetry between Consumers and Enterprises, Many Companies Have Joined Social Responsibility Information Disclosure Teams and Gradually Strengthened the Awareness of Social Responsibility Information Disclosure. Especially the Information of Food Safety, in Order to Make Stakeholders Familiar with the Situation of Food Enterprises, to Meet the Needs of the Public for Social Responsibility Information Disclosure. However, on the Whole, the Disclosure of Food Safety Information in China's Food Enterprises is Far from the Expectations of the Public, Which May Cause Public Dissatisfaction, Increase the Illegal Cost of Enterprises [1], and Ultimately Affect the Performance of Enterprises. Therefore, It is of Practical Significance to Study the Influencing Factors of Food Safety Information Disclosure. At the Same Time, It Also Provides a Reference for Regulating the Social Responsibility Information Disclosure of Food Enterprises.

#### 2. Literature Review

# 2.1 Research on Information Disclosure of Social Responsibility of Food Enterprises

Many scholars have made in-depth study on the information disclosure of social responsibility of food enterprises. Lin haichao [2] believes that improving the laws and regulations related to the

accounting system of corporate social responsibility is conducive to the effective implementation of the disclosure of corporate accounting information and the improvement of the social responsibility of food enterprises. Yin hong, lin haichao, etc. [2-3] all think that media public opinion plays an important role in social supervision, can give full play to the role of media public opinion supervision, can improve the level of social responsibility information disclosure of food enterprises, and promote the long-term development of enterprises. Xia chunlian [4] conducted an empirical study by constructing a social responsibility rating index system and using content scoring to calculate social responsibility information disclosure levels. Xia chunlian believes that the scale of enterprises, profitability, nature of stock ownership, and corporate culture are positively affecting the level of disclosure of social responsibility accounting information for listed food and beverage companies. Zhu jinwei and li bingxin [5] believe that food companies with large scale and high proportion of independent directors will disclose more corporate social responsibility information. In order to establish a good image in front of the public, large enterprises are more willing to disclose social responsibility information. Li xing [6] believes that factors such as corporate size, profitability, and financial risk are positively related to the level of social responsibility disclosure of listed food companies; corporate growth capabilities are negatively related to the level of social responsibility disclosure of listed food companies.

# 2.2 Research on Food Safety Information Disclosure

For the study of food safety information disclosure, related scholars have also discussed it. Zhang qinghong [7] believes that there are two main reasons for the lack of social responsibility reflected on the issue of food safety: one is the internal reason, which mainly includes the lack of morality of food operators and driven by economic benefits. Another is external reasons, including weak government supervision, incomplete information disclosure systems, and incomplete food safety standards and supporting legal systems. Zhao chunyan [8] believes that food companies should put forward information disclosure standards from production safety, circulation safety and sales safety, and build a relevant food safety social responsibility database to disclose and verify database information. Ding xinglan [9] believes that food companies urgently need to establish a food safety accounting information disclosure system. In terms of disclosure, the food supply chain links are used to list the food safety information in various links that food companies may include. Wu haixia and chen li [10] look for the influencing factors of food safety information disclosure from the external and internal aspects. According to wu haixia and chen lisi, the mandatory role of law in information disclosure should not be underestimated. At the same time, increasing executive compensation can weaken the principal-agent problem and improve the level of food safety information disclosure. According to jiang tao and wang huaiming [11], the company's size, profitability, the nature of the company's ultimate controller, the two positions of chairman and general manager, the average age and technical background of senior executives, the level of legalization in the company's region and government regulations jointly affect the disclosure of food safety information.

To sum up, the existing literature on the level of social responsibility information disclosure of food enterprises and the factors affecting the level of social information disclosure have an important role in this paper, and the level of food safety information disclosure needs to be further deepened. This article starts from food safety, and will cover all aspects of food safety, including raw material supply, production, circulation, and sales and after-sale information disclosure. This article uses the content scoring method to calculate the level of food safety information disclosure, and studies the impact on the level of food safety information disclosure from two aspects: voluntary disclosure of environmental factors and mandatory disclosure of environmental factors.

# 3. Research Design

#### 3.1 Research Hypothesis

The research on social responsibility information disclosure is based on stakeholder theory and

sustainable development theory. Kuang haibo [12] proposed that the management of corporate social responsibility is mainly due to two reasons: first, the corporate self-cognition action needs, and continuous improvement of social image through the requirements of continuous development and self-realization. The second is the pressure from all aspects of social control. Based on this, this paper divides the impact of the level of food safety information disclosure into two aspects: voluntary disclosure of environmental factors and mandatory disclosure of environmental factors.

# 4. The Impact of Voluntary Disclosure of Environmental Factors on the Level of Food Safety Information Disclosure

- (1) Enterprise scale. According to the theory of political cost, compared with small and medium-sized enterprises, large enterprises are paid more attention by the society and the public, and pay more attention to disclosing more food safety information to improve their image, so as to win the trust of the public. However, due to the limitation of time, resources and information disclosure cost, SMEs can not fully disclose their information. Foster (1996) [13] summarized previous researches that larger companies tend to disclose more information. Under pressure from the government, the media, and the public, they have to disclose social responsibility information and improve relationships with stakeholders. The research in this paper believes that large enterprises have received more attention and support from the government, and have been better performed by the more public expectations. Therefore, this article proposes Hypothesis 1: The size of a company is positively related to the level of food safety information disclosure.
- (2) Nature of equity. State-owned enterprises are an important pillar of the national economy, an important force for building a well-off society in an all-round way, and a harmonious socialist society. Due to social pressure, enterprises of other natures bear more social responsibilities and may disclose more food safety information. Therefore, this paper puts forward hypothesis 2: the level of food safety information disclosure of state-owned enterprises is higher than that of other enterprises.
- (3) Profitability. According to the theory of signal transmission, enterprises with good profitability are more willing to disclose more information of social responsibility, that is, to show investors the information of good business conditions and enhance investors' confidence. Most scholars also believe that corporate profits affect the level of corporate social responsibility information disclosure. Frost (2009) [14] found that the level of corporate environmental information disclosure with high profits is higher than that of enterprises with low profits. In terms of the specificity of the food industry, the public is more concerned about food safety issues. The more profitable the company is, the more it hopes to prove the safety and product strength of its products by disclosing more food safety information. This article argues that companies with better profitability are more willing to disclose food safety information. Therefore, this article proposes Hypothesis 3: Profitability is positively related to the level of food safety information disclosure.
- (4) Board size. Too many board members will lead to the decentralization of power and poor communication and coordination among board members. Therefore, the board's supervision effect on managers is greatly reduced, which is not conducive to social responsibility supervision. Therefore, this paper puts forward hypothesis 4: the board size is negatively and positively related to the level of food safety information disclosure.

# (5) Management shareholding

As a way of management incentive, management stock ownership is bound by its risks and benefits to achieve governance optimization. However, many enterprises ignore the disclosure of food safety information for the purpose of maximizing benefits, and even suspect that the disclosure of food safety information affects the realization of benefits. Therefore, this article proposes Hypothesis 5: Management's shareholding has a negative correlation with the level of food safety information disclosure.

# (6) Institutional holdings

There are many institutions in China. Public funds, insurance funds, social security funds, QFII, private equity funds, and brokerage funds are the main institutions. So the main purpose of these

institutions to buy stocks is to make profits. They often ignore or evade the disclosure of social responsibility information, especially the disclosure of food safety information. Therefore, this paper puts forward hypothesis 6: institutional ownership is negatively related to the level of food safety information disclosure.

# 5. The Impact of Mandatory Disclosure of Environmental Factors on the Level of Food Safety Information Disclosure.

#### (1) Media attention

Studies have shown that the role of internal mechanism in corporate governance is far from enough, but also needs media supervision and help, and the public can obtain corresponding information through the media public platform. Wu Dejun [15] believes that China's media plays an important role in food safety, consumer and employee rights and interests protection, environmental protection and other aspects of supervision. Zhang Xiaoying [16] believes that in order to attract attention or meet the needs of the public, the media usually report enterprises with high news value and high social attention. This article believes that on the one hand, companies can enhance their image through media reports, and may further disclose more social responsibility information to stabilize the company's position in the industry. On the other hand, the media's negative reports on food safety issues will urge companies to further disclose their social responsibility information in order to prove that they "reformed and renewed" and regain the trust of the public. Therefore, this article proposes Hypothesis 7: Media attention is positively related to the level of food safety information disclosure.

# (2) Legal environment

Law as a rule of conduct has a restrictive effect on society as a whole. Corporate behavior is inevitably affected by the local legal environment. Detomasi believes that social norms and legal standards are the determining conditions for how management views socially responsible behavior, which affects the performance of corporate social responsibility. When the external environment is sound and the system is guaranteed, the management is more likely to be consistent in the performance of social responsibility. At the same time, the binding role of law will remind enterprises to strengthen food safety production, and enterprises in regions with higher legal level pay more attention to the disclosure of food safety information. Therefore, this paper puts forward hypothesis 8: legal environment and food safety information disclosure are positively related.

## (3) External audit

As a supervision mechanism, external audit is responsible for maintaining the economic order and ensuring the stable and healthy development of the economy and society. It is also responsible for the economic and social development. Both of them should work together, cooperate with each other and bear their due social responsibilities.

Therefore, this paper puts forward hypothesis 9, external audit is positively related to the level of food safety information disclosure.

# **5.1 Sample Selection and Data Source**

In this paper, the listed companies of Shanghai and Shenzhen food and beverage industry (including alcohol) in 2015-2017 are taken as the research objects to ensure the data integrity. The food and beverage enterprises listed on the Shanghai and Shenzhen stock exchanges before 2015 have been comprehensively screened and eliminated according to the following principles: St, \* ST, Pt companies that have not issued independent social responsibility reports, with poor performance, and companies with missing financial data. At last, 74 sets of data were selected for 3 years. The data in this article are from the Guotai'an database and Sina Finance.com.

# 5.2 Variable Design and Model Building

The variables selected in this article are as follows:

(1) The dependent variable. There are four main methods of social responsibility disclosure: measurement based on questionnaire survey, measurement based on reputation index, measurement

based on analysis of annual report content, and measurement based on data from professional institutions. [17] This article will use the most commonly used measurement method based on the content analysis of the annual report to calculate the food safety information disclosure level using the content scoring method. It is about to disclose information concerning the supply, production, circulation, sales and after-sales of raw materials from all aspects related to food safety. Food sales and after-sales are specifically divided into three categories including pre-event prevention, interevent supervision and post-event protection, including 7 sub-categories. The content scoring method was used to calculate the level of food safety information disclosure (FSDI). The quantitative disclosure of each index was scored 2 points, the qualitative disclosure was scored 1 point, and the non disclosure was scored 0 point. After statistical summary, the sum of scores of each enterprise is calculated, so as to calculate the score of each index of food safety information disclosure level  $CSI = \Sigma$ . In addition, this paper assumes that all indicators are equally important. See table (1) for specific classification and assignment.

Table 1 Assignment Table of Food Safety Information Disclosure Level

First class classification	Two level classification	Assignment
Precaution beforehand	Raw material quality and safety control	2, 1, 0
	and guarantee	
	Health and safety publicity and anti fake	2, 1, 0
	activities	
	Self supervision	2, 1, 0
Supervision in matters	Third party testing	2, 1, 0
	Quality control standard system	2, 1, 0
Ex post guarantee	Complaint and recall mechanism	2, 1, 0
	After-sale service	2, 1, 0

(2) Independent variable. In order to facilitate the data operability, we use the natural logarithm of the total assets disclosed in the annual balance sheet to measure. Profitability, the main indicators of corporate profitability are return on net assets, return on total assets, and earnings per share. Since the data selected in this paper are all from listed companies, earnings per share can better reflect corporate profitability. Therefore, this paper chooses EPS to measure the profitability of enterprises. The nature of equity (GU) is determined by whether the controlling shareholder of the listed company is state-owned or not, and is represented by virtual variables. If the controlling shareholder is state-owned, the value is 1; otherwise, the value is 0. Board size (BOD). This article measures the number of boards. Institutional holdings (MH) are measured by the ratio of institutional investors to total investors. Management holdings are measured by the proportion of management holdings in total equity. External audit (EA), using dummy variables, whether the company hires the four major firms, take 1; otherwise, take 0. Media Attention (MA). In the past, scholars used mainly authoritative financial newspapers to measure the level of legality for media attention. In view of the rapid development of the Internet and the dominance, timeliness, interactivity, and cross-temporal characteristics of new media on the Internet. This article selects the media index in the Baidu Index to summarize and take the logarithm as the media attention index data. The legal environment (LE) is calculated using the project score of "the development of the market intermediary organization and the environment of the rule of law" in the marketization index report of Chinese provinces prepared by Wang Xiaolu in 2018.

The definitions of the variables selected in this paper are shown in Table (2). Based on the setting of variables and research assumptions, the following regression models are constructed from the impact of voluntary disclosure environment, mandatory disclosure environment, and the combination of voluntary disclosure and mandatory disclosure on food safety information disclosure levels:

FSDI= $\beta_0+\beta_1$ SIZE+ $\beta_2$ GU++ $\beta_3$ EPS+ $\beta_4$ BOD+ $\beta_5$ MH+ $\beta_6$ IS+B $\beta_7$ EA+ $\beta_8$ MA+ $\beta_9$ LE+ $\epsilon$  Where  $\beta_i$  (i=0,1,2) is a constant term and  $\epsilon$  is a random error interference term.

Table 2 Variable Definitions

Variable type	Variable name	Symbol	Concrete explanation
Dependent variable	Disclosure level of food safety	FSDI	Sum of scores of food safety information
	information		disclosure
	Enterprise scale	SIZE	Natural logarithm of total assets at the end of
Independent			the year
variable	Ownership nature	GU	State holding takes 1, otherwise 0
	Profitability	EPS	Earnings per share
	Board size	BOD	Number of directors
	Management shareholding	MH	Proportion of shares held by management in
			total shares
	Institutional shareholding	IS	Proportion of institutional investors in total
			investors
	External audit	EA	Take 1 for the four major firms, otherwise take
			0
	Media attention	MA	Logarithm of annual total of Baidu media index
	legal environment	LE	Project score of "rule of law environment" in
			the market index report of China's provinces
			prepared by Wang Xiaolu in 2018

# 6. Empirical Test Analysis

# **6.1 Descriptive Statistics**

Table (3) reflects the statistics of variables of listed food and beverage enterprises (including alcohol) that disclosed independent social responsibility reports in 2015-2017. Among them, the minimum level of food safety information disclosure is 2, and the maximum level is 13, indicating that there is a large gap between different enterprises in food safety information disclosure. However, from the average point of view, the overall level of food safety information disclosure is relatively low.

Number of Minimum Maximum Average value Standard cases value value deviation Disclosure level of food safety 74 2.0 13.0 5.946 2.6838 information 20.9670 24.9849 22.736832 1.0509143 Enterprise scale 74 0. 1.0 .568 .4988 Ownership nature -.0219 Earnings per share 74 4.3921 .746069 .9030522 74 5.0 15.0 8.716 2.2054 Board size 74 .0000 .4821 .079093 .1508452 Management shareholding 28.2000 Institutional shareholding 74 .0000 5.650038 5.0648414 External audit 74 .122 .3291 0. 1.0 Media attention 74 4.0943 8.5372 6.199888 .9447832 legal environment 74 1.88 10.32 2.09070 6.2888 Number of valid cases (listed) 74

Table 3 Descriptive statistics

# **6.2 Regression Analysis**

The model is regressed according to the comprehensive stepwise regression method, and the regression results are shown in Table 4. It can be seen from table 4 that the tolerance of all variables is close to 1, and the Vif (expansion factor) is less than 3, so there is no multicollinearity problem between variables. Among the environmental impact factors of voluntary disclosure, the regression coefficient of enterprise scale is 0.842, which has a positive correlation at the significance level of 5%. Hypothesis 1 is supported, indicating that the larger the enterprise scale is, the more food safety information it is willing to disclose, that is, the higher the level of food safety information disclosure. The coefficient of equity nature is 2.355, which is significant at the level of 1%, supporting hypothesis 2. It can be concluded that state-owned enterprises are more willing to

disclose food safety information. The regression coefficient of profitability is -0.792, which is significantly negative at the level of 5%, contrary to the hypothesis in this paper, namely, the profitability is negatively related to the level of food safety information disclosure. This may be due to the more information disclosure of food safety, the stronger social constraints, forcing the disclosure enterprises to increase safety investment and cost. The board size coefficient is -0.253, which is significantly negative. Hypothesis 4 is verified. That is, the larger the board of directors, the lower the level of food safety information disclosure. Management's shareholding coefficient is negative, which is negatively related to food safety information disclosure, but not significant. Hypothesis 5 has not been verified. The institutional shareholding coefficient is -0.146, which is significantly negative. Hypothesis 6 is supported, indicating that the higher the institutional shareholding ratio, the lower the food safety information disclosure. The media attention coefficient is 1.353, which is significant at the 1% level. Hypothesis 7 is verified. This shows that media attention has become one of the main supervisory forces for corporate food safety information disclosure. Strengthening media attention can help food safety information disclosure. The legal environment has a coefficient of 0.240, which is significantly positive at a significance level of 5%. Hypothesis 7 is verified. It shows that the stronger the legal environment, the stronger the supervision of food safety information disclosure, the higher the level of disclosure. The external audit coefficient is 1.428, which is significantly positive, indicating that external audit is positively related to food safety information disclosure, that is, external audit is helpful to the disclosure of food safety information.

Model Non standardized Standardization Saliency Collinearity statistics coefficient coefficient VIF В Standard Beta Tolerance error -20.788 7.031 -2.956 .004 (Constant) legal environment .240 .187 .784 1.275 .118 2.032 .046 Board size -.253 .107 -.208 -2.372 .021 .867 1.153 Ownership nature 1.956 2.355 .614 .438 3.834 .000 .511 .356 2.365 .021 2.917 Enterprise scale .842 .330 .343 External audit 1.428 .797 .175 1.793 .078 .699 1.431 Media attention 1.353 .333 .476 .000 .484 2.065 4.061 Institutional -.146 .046 -.275 -3.168 .002 .883 1.133 shareholding -2.519 2.033 -.142 -1.239.220 .510 1.959 Management shareholding -.792 .342 -2.320 .024 .505 1.982 Earnings per share -.267 a. Dependent variable: food safety information disclosure level

Table 4 Regression results

#### 7. Conclusions and Suggestions

The above empirical analysis results show that: the level of food safety information disclosure is positively related to the size of enterprises and the nature of equity in the voluntary disclosure environment, and negatively related to earnings per share, the size of the board of directors and the proportion of institutional shareholding. Three factors of the mandatory disclosure environment Media attention, legal environment and external audit are positively related to the level of food safety social responsibility information disclosure. Therefore, some suggestions are put forward for the existing problems of food company safety information disclosure.

First, the negative correlation between earnings per share and the level of food safety information disclosure in the above empirical analysis may be due to the increase in the cost of food safety and the increase in costs and expenses leading to lower earnings. At the same time, it also shows that there are many problems in the disclosure of food safety. Enterprises do not consciously put food safety and people's health in the first place. Once enterprises take the initiative to provide

high-quality and people's satisfied food, there will be a positive correlation. Therefore, it is suggested that the state should increase the disclosure of food safety information, change voluntary disclosure to compulsory disclosure, and continue to publicize the issue of food safety information disclosure through modern media tools, and strengthen consumers' awareness of food safety.

Secondly, it is suggested that enterprises should put social and people's health benefits in the first place and pursue the maximization of economic benefits to achieve sustainable development.

Finally, it is suggested to change the evaluation system of listed state-owned capital and put social and health benefits into the evaluation index system.

# Acknowledgements

"13th five year plan" Jiangsu Province first level key construction discipline phased achievements, project number: SJY (201609).

Jiangsu University Philosophy and social science research project fund project "Research on the impact of social responsibility information disclosure of food enterprises on brand value from the perspective of food safety" (Project No.: 2017SJB1291).

#### References

- [1] Zhang Jun. all harm; food safety, corporate social responsibility and market response -- Taking the "plasticizer" event as an example [J]. Financial Forum (Journal of Zhejiang University of Finance and Economics), 2015196 (7): 66-74
- [2] Lin Haichao. Study on the disclosure system of social responsibility accounting information of food enterprises [J]. Food and machinery, 2015,31 (03): 275-277
- [3] Yin Hong. Media supervision and corporate social responsibility information disclosure -- Empirical Evidence Based on the food industry [J]. Financial and accounting communication, 2015 (14): 24-27
- [4] Xia Chunlian. Research on social responsibility accounting information disclosure in food and beverage industry [D]. Jiangsu University of science and technology, 2014
- [5] Zhu Jinwei, Li Bingxin. Study on the influencing factors of social responsibility information disclosure of food enterprises [J] Research on economy and management 2012 (5)
- [6] Li Xing. Research on the influencing factors of information disclosure of food corporate social responsibility [D]. Tianjin University of science and technology, 2016
- [7] Zhang Qinghong. Analysis of corporate social responsibility based on food safety [D]. Sichuan Normal University, 2012
- [8] Zhao Chunyan. Corporate food safety social responsibility information disclosure [J]. Journal of Hubei University of Economics (HUMANITIES AND SOCIAL SCIENCES EDITION), 2014,11 (03): 66-67
- [9] Ding Xinglan. Research on corporate social responsibility accounting information disclosure aiming at food safety [D]. Qingdao University, 2013
- [10] Wu Haixia, Chen LIsi. Analysis on the influencing factors of food safety information disclosure [J]. Journal of northwest agricultural and Forestry University of science and Technology (SOCIAL SCIENCE EDITION), 2018,18 (04): 152-160
- [11] Jiang Tao, Wang Huaiming. Government regulation and food safety information disclosure [J]. Journal of South China Agricultural University (SOCIAL SCIENCE EDITION), 2012,11 (02): 51-58
- [12] Kuang Haibo, Luo Jiaqi, Cheng Yuehui, Sun Ming. Evaluation and suggestions on corporate social responsibility of China's port transportation industry [J]. World shipping, 2019,42 (06): 1-11

- [13] Foster.Social Issues in Management Theory and Research in Corporate Social Performance [J].Journal of Management, 1996,17(2):383-406.
- [14] Frost, Geoffrey R. The adoption of environment-related management accounting: ananalysis of corporate environmental sensitivity[J]. Accounting Forum, 2009
- [15] Wu Dejun, Ma Lisha. Food safety crisis and corporate social responsibility information disclosure: a longitudinal case study based on Shuanghui "Clenbuterol" event [J]. Accounting forum, 2015,14 (01): 40-53
- [16] Zhang Xiaoying, Yang Zhen, Zhong Jinwen. Media supervision and corporate social responsibility information disclosure empirical data based on heavy pollution industry [J]. Journal of Finance and accounting, 2017 (27): 9-14
- [17] Mao Hongtao, Zhang Zhengyong. A review of the research on the influencing factors and economic consequences of corporate social responsibility information disclosure [J]. Scientific decision making, 2009 (8): 87-94