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Research of the impact of top management's compensation structure on hazard analysis and critical control points implementation

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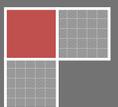
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ABSTRACT

In this paper, we study the effect of top management's compensation structure on Hazard Analysis and Critical Control Points implementation of food listed enterprises in 2005-2013. The results show that some compensation structure variables can not affect firm's Hazard Analysis and Critical Control Points implementation. However, percentage of the total top management in the persons that receive salary only can negatively affect firm Hazard Analysis and Critical Control Points implementation significantly. Thus listed food companies should focus on those problems and enhance the proportion of equity-based compensation and stock dividends payout level in the corporate executives.

KEYWORDS

Top management; Compensation structure; Hazard analysis and critical control points; Food enterprises.



INTRODUCTION

Food is the most important for the people. To the food safe is the most important. Food safety is a major event in the health and safety of life of the people. As the social economy develops and people's living standard improves, we are increasingly concerned about our health. We want to eat enough and to eat healthily. However, in recent years, China's food safety issues are emerging continually. Not only small and medium food enterprises but also the large listing food enterprises have the food safety problem, such as the melamine milk powder of Mengniu and the clenbuterol pork of Shuanghui, and so on. Unsafe food seriously threatens the people's health and makes the masses' trust for Chinese food enterprises to decrease to a new low level. It is not conducive to the good development of China's food industry.

Throughout food industry of the world, the Food and Agriculture Organization of the United Nations (FAO), World Health Organization (WHO) and the International Codex Alimentarius Commission (CAC) all agree that the implementation of the HACCP system is the most effective way to prevent food safety problems. HACCP is the abbreviation for Hazard the Analysis Critical Control Point (Hazard Analysis and Critical Control Points). In 1960s, HACCP was first proposed by the United States. Since the 1990s, the U.S. government gradually developed many technical regulations for some important food. Then the U.S. government popularized these technical regulations in the food companies and got great success. In contrast, there are only 39 listed food enterprises that implement HACCP in Shanghai and Shenzhen stock markets in China in 2013. In comparison with 28 companies that implement HACCP in 2005, this figure has grown significantly. Nevertheless, there is still considerable listed food companies that do not implement HACCP. Enterprises need top management to promote the HACCP implement. Can compensation incentive for top management impact their decision-making about the implementation of HACCP? On the basis of the literature review and background analysis, we use the data of Chinese listed food enterprises. Then we have theoretical analyses and empirical tests on above issues.

REVIEWS OF LITERATURES

In the past ten years, HACCP has been increasingly used in food enterprises. The implementation of HACCP can improve the product quality of food companies significantly^[1,2]. In China, HACCP certification is mainly concentrated in the food export enterprises. HACCP certification is not very popular in food companies that produce food for the domestic market.

From the economic view, the implementation of HACCP certification is determined by the costs and benefits. The increasing costs that enterprises implement HACCP include certification costs, labor costs, equipment costs and operating costs. For most enterprises, this costs are not great. On the other hand, after enterprises introduce HACCP system, the market share of their product, value-added of the products, the management level will improved at various degrees. These are benefits, but the benefits will not appear in a short time^[3]. The maximum benefit that Chinese food enterprises implement HACCP certification is that HACCP certification can provide opportunities that allows companies to enter new markets and improve product quality and market share^[4]. The enterprises income increase after HACCP certification is mainly determined by the sales price and sales volume of final product. The final sales price and sales volume will be affected by the degree that consumers pay attention to safe food. The corporate managers need weigh costs and benefits of HACCP Certification^[5].

Some scholars believe that the establishment of year, size, sales network, the certification year and registered capital can affect the implementation costs of HACCP besides the certification costs, labor costs and other factors^[6]. There are different conclusions about the impact of company size on the HACCP implementation. Company size, policy-makers support and domestic market demand play an important role in the willingness that enterprises implement HACCP. There is a positive relation between them. International market demand affects the willingness slightly. The impact of government action on their willingness is not significant, but there is still a weak positive correlation^[7]. In addition,

the nature of enterprise is also considered to be an important factor. The analysis showed that the private enterprises are more likely to pass the HACCP system certification than foreign-funded enterprises and state-owned enterprises. Enterprises that export at a high proportion prefer to adopt the HACCP system certification^[8].

From the overall perspective, the support of government departments, the support of trade associations, the attention of enterprises managers and staff participation have very important effects in implementation of HACCP certification for food companies^[9]. The Chinese companies often concern about the benefits and costs of HACCP certification. Lack of the HACCP knowledge that managers have, few staff support, lack of time and high profession of HACCP certification is a major obstacle of the implementation of HACCP certification in the Turkish food companies^[10].

We found that there are the lacks of individual motives analysis that top management allows enterprises to implement the HACCP certification although the existing studies mentioned the views of managers can affect that enterprises implement the HACCP certification. Increase of risk factors about the top management's compensation incentives in listed food companies in China will make the top management's revenue to include more uncertainty. Once food safety issues happen in the food enterprises, sale volumes will change. Then corporate net income and share price will be affected. Thereby the top management compensation is affected. Food safety issues can be reduced effectively after certification and implementation of HACCP. It will help to reduce the uncertainty of the senior corporate executive compensation. Top management will not always be indifferent to HACCP certification. Therefore, we decide to think that the decision that top management makes about HACCP certification in the food enterprises from the point of view of incentive compensation. We hope to obtain the corresponding empirical research support.

The rest of the article is organized as follows: the third part is research methods and data. The fourth part is empirical analysis. The fifth part is conclusions and recommendations.

RESEARCH METHODS AND DATA

Research hypotheses

First, we think compensation structure affects firm's HACCP implementation markedly in fact. When principals don't contribute random output and agents' behavior isn't easy to be observed directly by the principals, the principal - agent theory has two main conclusions: First, when agents' participation constraint and incentive compatibility constraint are satisfied in the incentive contract that the principals expected utility is maximized, agents must bear some risks. Second, if the agents are a risk-neutral person, enterprises can make agents bear the full risks (that is, let him become the sole residual interest owner) so as to achieve the optimal incentive effect. In practice, top management shareholding or stock option incentive is all important form that let agents bear partial risks and care more about food quality so as to improve HACCP implementation. This paper focuses on corporate top management shareholding because Chinese listed companies don't implement stock option incentive plans widely.

Moreover, many enterprises have the mechanism of talent flow and out. Enterprises often will not provide compensation to the top management of enterprises that leaves at the begin of the year and came at the end of the year. The situations that top management gets compensation actually reflect the situation of talent flow and out. Therefore, The situations that top management gets compensation is within our consideration.

Data

We will study listed food enterprises in China. In order to ensure the universality of conclusions, we adjust the sample: (1) the ST and * ST enterprises that have incomplete information and poor performance were dropped. Enterprises were dropped because they were given reservations comments, the negative comments and refused to comment by certified public accountants; (2) some listed enterprises' performance are unstable because they were packaged. Hence new listing enterprises were

removed. The sample consists of the enterprises that have listed for 8 years; 3) although the domestic investors mainly care about the A shares market, more and more enterprises will issue B shares or H shares with the opening of Chinese capital market. B shares or H shares can affect the information disclosure of A shares. Therefore, the sample does not contain the enterprises that issued A shares, B shares or H shares at the same time. Eventually, our effective sample consists of the 48 listed food enterprises and observations between 2005 and 2013. These enterprises have been listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange since 2005. Enterprises are classified by China Securities Regulatory Commission's industry classification. Our data are mainly obtained from CCER and RESSET database.

Top management in this paper mean the manager, vice managers, chief financial officer, secretary of the board of directors and the persons that are in office and disclosed in the enterprise' annual report. The data about top management compensation are from the enterprise' annual reports. Top management compensation includes stock options abroad. However, the stock options are far from universal in China. Executive compensation that is disclosed in the annual report mainly includes alary, bonuses and other monetary income. Top management compensation is considered as a whole.

Variables

Variables of compensation structure: (1) percentage of the total compensation in the average annual market value of top management shareholding, average annual market value of top management shareholding= (closing price a share at the start of one year×number of shares held by top management at the start of one year + closing price a share at the end of one year×number of shares held by top management at the end of one year). The total compensation of top management includes basic wage, bonus, stock average market value, stock bonus and stock dividend. (2) Percentage of the total compensation in stock bonus and stock dividend, stock bonus and stock dividend= bonus and dividend per share×number of shares held by top management at the start of one year. (3) Population percentage of top management that hold shares. That means the percentage of total top management in the executives that hold shares. (4) Percentage of total top management in the executives that obtain salary. That means the percentage of total top management in the executives that obtain salary.

Control variable: factors that affect the HACCP implementation of listed companies is not only executive compensation but also corporate ownership structure and other factors. Some scholars believe that the greater the proportion of state-owned shares in the total share capital of listed companies and the stronger internal control. It will affect implementation of HACCP certification negatively. We use the proportion of state-owned shares as control variable in this paper.

Variable of HACCP implementation: If the enterprises implement HACCP, the variable equals to 1; if the companies do not implement HACCP, the variable is equal to 0.

Model

We will use the following equation to describe the relationship between enterprise's HACCP implementation and enterprise's top management compensation structure in this paper.

$$HACCP_{it} = a_0 + a_1 X_{it} + a_2 GYG_{it} + \varepsilon \quad (1)$$

HACCP is the variable that the enterprises carry out HACCP. X is the variable about compensation structure (we only introduce a compensation structure variables at each regression in order to avoid multiple linear between variables about compensation structure). GYG is the variable on the state-owned stock proportion.

EMPIRICAL ANALYSIS

Descriptive statistics

Mean of percentage of the total compensation in the average annual market value of top management shareholding is 19.48%. Its minimum is 0.00%. Its maximum is 99.95%.

Mean of percentage of the total compensation in stock bonus and stock dividend is 0.09%. Its minimum is 0.00%. Its maximum is 2.91%.

Mean of population percentage of total top management in the executives that obtain salary is 96.80%. Its minimum is 33.33%. Its maximum is 100.00%.

Mean of population percentage of top management that holds shares is 15.83%. Its minimum is 0.00%. Its maximum is 100.00%.

Mean of proportion of state-owned shares is 19.41%. Its minimum is 0.00%. Its maximum is 75.82%.

From statistics analysis, we can conclude that there are large differences of compensation structure within the same industry. On average, percentage of total top management in the executives that obtain salary is very high. Equity compensation is not very common. Percentage of the total compensation in stock bonus and stock dividend is not high.

Regression results

We choose HACCP as dependent variable and make regression analysis by use of the panel data. We find that fixed effect model is more appropriate through Hausman test. TABLE 1 shows the regression results of fixed effect model. The results indicate adjusted R^2 of every equation is high. * means that the independent variable is statistically significant at 99% confidence level. All equations can pass F test swimmingly. Autocorrelation doesn't exist too.

Percentage of the total compensation in the average annual market value of top management shareholding is not statistically significant in the equation (1). We believe that the main reason is that percentage of the total compensation in the average annual market value of top management shareholding of most enterprises is generally low. In our study sample, percentage of the total compensation in the average annual market value of top management shareholding of 43.75% enterprises is not more than 1% now. Percentage of the total compensation in the average annual market value of top management shareholding of 82.29% enterprises does not exceed 50%. Low percentage of the total compensation in the average annual market value of top management shareholding can not motivate that top management are more concerned about food quality and promote enterprises to implement HACCP better.

Percentage of the total compensation in stock bonus and stock dividend is not statistically significant in the equation (2). In our study sample, 76.04% enterprises have not annual dividend payout. The highest percentage of the total compensation in stock bonus and stock dividend is only 2.91%. The stock dividend distribution is minimal. That can not motivate that executives are more concerned about food quality and promote enterprises to carry about HACCP better.

Population percentage of total top management in the executives that obtain salary is statistically significant in the equation (3). Its coefficient is negative. The higher the population percentage of total top management in the executives that obtain salary is, the less top management get motivation. The main reason is that top management that did not receive annual pay are the personnel that leave top management positions at the beginning of the year or take office at the end of the year. The working hours of the senior management are too short to get corresponding compensation. If the percentage is less than 100%, it means that the mechanism of talent flow and elimination exists in the enterprise. The lower proportion is, the more intensely enterprise eliminates talent. It is conducive for top management to be more concerned about food quality. It allows enterprise to implement HACCP better.

Population percentage of top management that holds shares is not statistically significant in the equation (4). In our study sample, population percentage of top management that holds shares of 55.21% enterprises is equal to 0 now. Low population percentage of top management that holds shares can not motivate that top management are more concerned about food quality and promote enterprises to implement HACCP better.

Proportion of state-owned shares is statistically significant in all equations. Its coefficient is negative. The higher the proportion of state-owned shares is, the less motivation that top management gets is.

SUMMARY AND CONCLUSIONS

Population percentage of total top management in the executives that obtain salary can motivate corporate executives to be more concerned about the quality of food and promote companies to implement HACCP better in the salary structure variables of top management in the listed food companies at present. It encourages corporate executives by use of the mechanism of talent flow and elimination. There are low proportion of equity-based compensation and little dividend payment in listed food companies in China. It is difficult to have a significantly positive impact on implementation of HACCP in the companies. We recommend that listed food companies focus on those problems and enhance the proportion of equity-based compensation and stock dividends payout level in the corporate executives.

TABLE 1 : Regression Results

Independent variables	HACCP			
	(1)	(2)	(3)	(4)
SZBZ (%)	-4.73E-04(-0.32)			
FHBZ (%)		-1.99E-02(-0.35)		
LXBL (%)			-1.42E-03(-2.16) *	
CGRSBL (%)				-2.95E-04(-0.28)
GYG (%)	-2.57E-03(-2.51)*	-2.59E-03(-2.54)*	-2.55E-03 (-2.50)*	-2.57E-03(-2.52)*
Adjusted R ²	0.83	0.83	0.83	0.83
F	596.83	596.91	601.48	596.76
D.W.	2.21	2.21	2.20	2.21

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