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The Relationship between Enterprise Equity Incentive and Earnings Management in Big Data Era

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Abstract. With the development of China's securities market, earnings management of listed companies has attracted more and more attention from creditors, shareholders, securities regulatory authorities and other stakeholders. Equity incentive has two sides. If it can be effectively used, it will greatly mobilize the enthusiasm of management and bring about long-term incentive effect. Unlike mature western markets, China's securities market is an emerging market in a transitional economy. Because there is not a high correlation between the degree of earnings management and the compensation level of the management in China's listed companies, the motivation of the management to improve their compensation level is not significant for the purpose of self-interest. This paper analyzes the relationship between equity incentive and earnings management of Listed Companies in the era of big data, focusing on the relationship between equity incentive and earnings management.

Keywords: Securities market, Earnings management, Equity incentive; Contact.

1. Introduction

With the continuous progress and development of corporate governance, the corporate governance structure with the separation of ownership and management rights will inevitably lead to the difference between the utility function of management and that of shareholders [1]. In the process of the development of China's capital market, for the purpose of seeking self-interest, the phenomenon of listed company management using asymmetric information and adopting various ways to manage earnings emerges one after another [2]. Equity incentive mechanism is an institutional arrangement that gives management certain economic rights in the form of obtaining corporate equity by enterprise management, enabling them to participate in enterprise decision-making, share profits and bear risks as shareholders, thus serving the long-term development of the company [3]. The core purpose of equity incentive is to establish an incentive and restraint mechanism of benefit sharing and risk sharing between the principal and the agent, so that the owner can give the agent sufficient incentive while pursuing the maximum surplus [4]. Shareholders spend time and money to hire professional managers to run and manage the company through a series of processes such as shareholders' meeting and board of directors. Shareholders expect the management to be responsible and diligent, and to create maximum returns for shareholders' capital investment with low cost and high efficiency [5]. All kinds of facts show that equity incentives can effectively combine the private interests of listed companies with the interests of shareholders and the interests of the company, and will transform the short-term incentive effect into a long-term incentive effect, and effectively reduce the short-term behavior of managers.

For listed companies, the capital market continuously evaluates the value of the company, which makes it possible to use incentives that are directly linked to the company's value. Due to the existence of supervision costs, shareholders' constraints and supervision on management are always limited. The essence of solving the contradiction between principal and management is to resolve the conflict of interests between shareholders and management, and to share the interests of shareholders and management. Equity incentives with consistent interest objectives have emerged [6]. Under the assumption of efficient market, in order to make stock prices rise, managers must work hard to enhance the intrinsic value of enterprises. The initial completion of the share-trading reform has cleared the obstacles for the restricted shares for the implementation of equity incentives by listed companies in China. Under the constraint of the shareholder contract, while the operating company

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creates income for the shareholders, it will inevitably maximize the personal input and income by reducing working hours and on-the-job consumption under the condition of fixed compensation [7]. The equity value of non-tradable shareholders is directly related to the secondary market price of the stock, which makes the equity incentive system of listed companies in China have an essential leap. It can be expected that the introduction of the equity incentive mechanism will bring about changes in the Chinese securities market in a multi-faceted and multi-level [8]. Equity incentives have been widely implemented in countries such as the United States, and their proportion in the overall compensation structure of managers has also increased [9]. This paper analyzes the relationship between equity incentives and earnings management in the era of big data, focusing on the relationship between equity incentives and earnings management of listed companies before and after the announcement of equity incentive plans.

2. Status Quo of Equity Incentive and Earnings Management

2.1 Theoretical Basis of Equity Incentive

Earnings management is the behavior that the enterprise management authority controls or adjusts the accounting income information reported by the enterprise on the basis of following the accounting standards to maximize the self-interest of the main body. Managers and shareholders are actually a principal-agent relationship. Shareholders entrust managers to manage assets. The objectives pursued by shareholders and managers are not the same. Shareholders want to maximize the value of their shares while managers want to maximize their own utility. In different incentive methods, the salary is mainly determined in advance according to the manager's qualifications, the company's situation and the target performance. It is relatively stable in a certain period of time and has a very close relationship with the company's target performance. The enterprise provides equity incentive. If the invitees work hard, the enterprise achieves its goals, and the invitees can obtain exercise income. Although managers and the board of directors have different motives for earnings management, they have great influence on corporate accounting policies and external earnings reporting. The disclosure of corporate earnings information is determined by the combined efforts of their respective roles.

Equity incentive focuses on the future and gives the management of the company certain rights by allowing them to take part in the company's decision-making, share profits and take risks as shareholders. For example, Table 1 shows the statistics of the industries where the incentive companies are located.

Table 1 Statistics on the industry in which the company is motivated

Industry distribution	Sample size	Proportion of total sample	Proportion of the industry
Manufacturing industry	62	57.4%	5.8%
Information technology industry	18	16.7%	2.8%
Construction industry	3	2.8%	1.4%
Real estate	10	9.2%	4.2%
Wholesale and retail trade	7	6.5%	4.3%
Social services	3	2.8%	7.3%
Communication and Culture	3	2.8%	4.6%
Comprehensive class	2	1.9%	2.2%
Total	108	100%	4.5%

In order to make managers care about the interests of shareholders, it is necessary to make the interests of managers and shareholders as consistent as possible. Generally, the bonus is determined by the assessment of performance beyond the target, so it is closely related to the short-term performance of the company, but not to the long-term value of the company. Earnings management

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is that managers use accounting means or arrange transactions to change financial reports, in order to mislead stakeholders' understanding of the company's performance, or affect the results of contracts based on the reported accounting figures. In the principal-agent chain of corporate governance, shareholders have the ownership of the enterprise as the principal, and the management is responsible for the daily operation of the company as the agent of shareholders. The listed companies that announce the equity incentive plan mainly exist in the manufacturing industry, because the manufacturing industry accounts for a large proportion of the listed companies [10]. The essence of equity incentive is a part of the incentive object's labor remuneration, which is granted not only to the management but also to the core employees. Due to the complexity and uncertainty of the economic environment and future events, as well as the limited rationality and opportunistic behavior of the contractual parties, the contract will be incomplete. The principal needs to bear the risk of adverse consequences brought about by the agent's behavior mainly comes from the incompleteness of the contract caused by information asymmetry, which can never be overcome and eliminated.

2.2 Theoretical Analysis of Earnings Management

Accounting surplus is one of the most important accounting information of enterprises. Many contracts not only take accounting surplus as the basis for signing contracts, but also take accounting surplus as the basis for evaluating the performance of contracts. The stock option method is the most important way of equity incentive in our country, because it is safer to measure the increase of equity with the increase of stock price, and it is not easy to cause the loss of company assets. Human capital property rights emphasize that in market transactions, a series of income rights, use rights and control rights related to human capital property rights are the economic rights of the parties' interests and behaviors. In order to implement the equity incentive plan smoothly, the listed company must hold a certain amount of disposable shares. No matter which method is adopted to satisfy the equity source in the incentive scheme, it should be adapted to the company's own characteristics so as to promote the exertion of equity incentive effect [11]. Prior to exercise, the holder of stock option does not have any cash income. The exercise of stock option is limited in time and quantity, and the incentive object should pay cash for exercise. The property right of human capital can internalize human capital and thus produce an incentive effect. At the same time, the subject of human capital property right has the right to obtain income. Generally, listed companies can obtain shares in three ways: first, private placement, second, transfer by major shareholders, and third, repurchase from the open market. For example, Table 2 shows the distribution of stock sources for equity incentive.

Table 2 Distribution of equity incentive stock sources

Sources of Incentive Stock	Quantity	Proportion
Private placement	102	94.4%
Open market repurchase	3	2.8%
Transfer of major shareholders	2	1.9%
Not involved	1	0.9%
Total	108	100%

The progress of equity incentive is mainly divided into four stages: announcement, approval, implementation and completion. Table 3 shows the progress of equity incentive.

Table 3 Equity incentive progress

Programme progress	Announcement	Approval	Implementation	Completion	Total
Sam ple size	46	25	28	9	108
Proportion	42.6%	24.5%	27.5%	8.3%	100%

Different market participants have different market positions and degrees of market participation, and the information they know will be different. Compared with investors, the management of an enterprise has absolute information advantages in terms of its own conditions, business conditions and development potential. Equity incentive can separate the human capital of management from that

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of ordinary employees from the perspective of human capital property rights and residual claims derived from it. Only when the incentive target has achieved a specific goal can it sell restricted stocks and benefit from them. Otherwise, the company has the right to take back the restricted stock donated free of charge or buy back the restricted stock at the price when the incentive object purchases it. Accounting information is an important information system for enterprises to carry out signal transmission, which can help enterprises quickly raise the funds needed for the development of enterprises with low-cost advantages. Whether earnings management is appropriate or not depends on whether there is sufficient cash flow to ensure the true profit as the support. In the principal-agent relationship, there must be a certain control mechanism to restrict the management to act according to the wishes of investors. Under the modern company system, the shareholders entrust the management to run the enterprise, and there is a kind of principal-agent relationship between the shareholders and the management. The restriction of the cost-benefit principle has left the realistic operation space for the management to adjust the external report accounting figures and change the market expectation and evaluation of securities.

3. Correlation Analysis of Equity Incentive and Earnings Management

Since the reform and opening up in 1978, China has entered a period of transition from the traditional planned economy system to the modern market economy system. This fundamental change has changed China's economic structure and the environment in which enterprises operate in many ways, and has also had a huge impact on the internal mechanism of enterprises. The implementation of the company's equity incentive plan, while mobilizing the enthusiasm and creativity of the management and achieving the long-term incentive effect of reducing agency costs, may also increase management's opportunistic behaviors such as manipulation of accounting information and disclosure of false information, leading to the emergence of new moral risks [12]. Under the dual support of the internal needs of China's economic system reform and policy encouragement, various state-owned assets, restructuring and other departments and business circles have combined their own characteristics to explore specific ways of equity incentive. China's capital market is not yet fully semi-strong and effective, and the market price of stocks does not fully reflect all the public information [13]. Earnings management, as a result of the company's management's decision-making based on its own interests, will inevitably be affected by the equity incentive mechanism. The semi-strength of the market is effective and even weak, and the temptation of the equity incentive income to the management makes it motivated and has the right and ability to manipulate the stock price through earnings management to obtain excess returns. Equity incentives mitigate management's risk aversion by encouraging management to take risks, but they may also put management over-risk and even take risks.

The market structure affects corporate behavior, so the degree of market power can be observed through market concentration. When the level of significance is low, the accounting power of enterprises has a relatively large impact on marketing performance. And as shown in Table 4 is the performance indicator structure parameter estimation and significance test.

Table 4 Performance indicator structure parameter estimation and significance test

Path description	Path coefficient
Income Accounting Ability → Affect Performance	3.47
Cost Accounting Ability → Marketing Performance	3.56
Tax Accounting Ability → Marketing Performance	3.79

Equity incentive has developed rapidly in our country. At present, listed companies have generally adopted the equity incentive system. Although its forms are quite different, it still achieves good

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results. Profit index with profit as the core is the main index of management performance evaluation for most listed companies in our country. It is possible for the management to conduct earnings management by manipulating profits in order to maximize their own interests. From the point of view of the incentive object, the amount of incentive equity obtained is generally the more the better. Because the greater the number of incentive shares obtained, the greater the potential income in the future. Modern company theory holds that the incentive and restraint mechanism of enterprises can be solved by establishing effective residual claim and control rights. That is, the principal must design an appropriate incentive contract to solve the agency problem and reduce the agency cost. Compared with stock options, the incentive effect of virtual stocks is less affected by the effectiveness of the securities market, but the company's cash expenditure pressure is higher when it comes to redeeming incentives. The greater the scope of equity incentives, the stronger the incentives for executives to improve their performance through earnings management. In the performance unit program, the income of the top management is cash, and it is no longer affected by the stock price, except for the price impact of the initial price-earnings ratio. Companies that implement stock appreciation rights need to set up special funds for the stock appreciation rights plan. The incentive effect of stock appreciation rights is also affected by the effectiveness of the capital market.

4. Conclusions

Listed companies have strong earnings management motivation before and after the implementation of equity incentive plan, which will lead to earnings management behavior in different directions. Before the implementation of equity incentive, the management will reduce the base year surplus for the purpose of smooth exercise in the future. After the implementation of equity incentive plan, listed companies can trigger the earnings management behavior of the management. The higher the incentive level, the higher the level of earnings management. There is a significant positive correlation between the company size and the degree of earnings management. At present, the strength of equity incentive in our country is not strong, not only does it not make the management think from the perspective of shareholders, but it makes the management increase the earnings management behavior that damages the interests of shareholders in order to seek their own interests. Many listed companies do not have real-time constraints on management after implementing equity incentive, which leads to the stronger motivation of management to manipulate earnings with the increase of shareholding ratio. Measures should be taken to improve the equity incentive scheme, strengthen the construction of the internal governance structure of listed companies, and improve the external environment of listed companies. In order to promote the healthy development of corporate governance, we should strengthen the supervision and management of the operation of the securities market while improving the efficiency of equity incentive.

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