

Analysis of Accounting Information Distortion and Dynamic Game Model of Listed Companies in China

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Abstract

Based on the point of view of corporate governance, this paper analyzes the causes of accounting information distortion of listed companies from two aspects of economic interests and administrative interests, probes into the conditions of accounting information distortion of listed companies, and focuses on the problems of insider control, immature manager market, one dominant stock and the false establishment of independent directors. By constructing the dynamic game model of listed company, accounting firm and CSRC, this paper analyzes the important factors that affect the probability of collusion between listed company and accounting firm and the probability of providing distorted accounting information by listed company under Nash equilibrium state, and finally puts forward some corresponding suggestions for the distortion behavior of accounting information of listed company.

Keywords: corporate governance, accounting information distortion, dynamic game, Nash equilibrium

1. Introduction

Accounting information is of great significance to the healthy and sustainable development of listed companies. True and reliable accounting information can fully improve the operational efficiency of the company and optimize the corporate governance structure. On the contrary, the distortion of accounting information may cause significant losses to corporate stakeholders and distort the market resource allocation mechanism. At present, the development of capital market in China is not mature, and the supervision and management mechanism needs to be improved. Therefore, from the perspective of rational people in economics, company managers will actively seek to maximize their own interests, which has become the fundamental motivation of false disclosure of accounting information. In addition, investors-centered corporate stakeholders and corporate managers are always in a state of asymmetric information, that is, the corporate governance structure is still imperfect external conditions, so that false disclosure of accounting information occurred from time to time in recent years (Kim et al., 2012).

2. Motivation of Accounting Information Distortion in Listed Companies

In the process of actual work, the motivation of accounting information distortion of listed companies is mainly manifested in the following two aspects:

2.1 Listed Companies Seek Economic Benefits

(1) Tax evasion and tax evasion by listed companies. Because the market economy system in China is not perfect, the phenomenon of tax evasion and tax evasion by the managers of listed companies in order to seek the interests of enterprises and their own interests emerges in endlessly. Although the administrative departments such as CSRC, accounting firms and other intermediary organizations, as well as market investors and other market subjects constitute a multi-level supervision and management system, but still can not avoid the supervision and management mechanism still has some defects, listed companies try their best to seize these loopholes to seek economic benefits (Duong and Pescetto, 2019). For example, in order to reduce the payment of value-added tax taxes and fees, we try to issue more value-added tax invoices compared with the relevant departments; at the accounting level, try to reduce the amount of business tax taxes and fees paid by artificially reducing business income; privately include the actual income clause in the "accounts received in advance" column, thereby reducing

the payment of taxes and fees, and so on.

(2) Listed companies seek bank loans. In order to obtain the spread of interest rate, that is, the compensation of risk premium, commercial banks issue loans to all kinds of enterprises, but asymmetric information leads commercial banks to become inferior parties to effectively master the information, so it is difficult to make a comprehensive and reasonable assessment of the real operation and financial situation of listed companies. Therefore, commercial banks tend to issue loans to enterprises with sufficient cash flow and long-term benefits. The reality is often on the contrary, listed companies in urgent need of credit funds always show poor financial management in accounting information, and most of the indicators do not meet the standards of bank lending. In order to obtain bank loans, the above enterprises can not help but "whitewash" the accounting information of the company, resulting in the distortion of accounting information in order to cater to the bank audit and lending.

(3) Listed companies evade punishment. In the 1990s, China began to explore the establishment of a securities exchange market. For a long time, the listing qualification of enterprises is allocated according to the index quota, resulting in the phenomenon that listed companies are "difficult to find". After listing on the stock exchange, although listed companies can obtain the investment of the majority of investors in the capital market, the market risks they face are also increasing sharply. If the company is not properly managed, it will not only make the company into difficulties, but may also face the punishment of administrative organizations such as the Securities Regulatory Commission, such as ST system and even delisting system, resulting in the final loss of the scarce "shell" of enterprises. In order to keep this scarce resources, enterprises are most likely to choose to adjust the book accounting information of the current year, in order to make the book accounting information of the next year "beautiful", or directly fabricate false accounting information in order to avoid punishment.

2.2 Listed Companies Seek Administrative Interests

(1) Listed companies should be assessed. The separation of ownership and management rights of listed companies leads owners and managers to fulfill the responsibilities and obligations of both parties by signing contracts. The owner of the enterprise will evaluate the managers through sales income, main business income, net assets at the end of the period, profit margin, ROA, ROE and other indicators. The data of the above financial indicators come from the accounting information of the company. Once the accounting information is disclosed, on the one hand, it will convey to the whole market whether the business situation of the company is good or not, whether the development prospect is bright or not, on the other hand, it is related to the assessment and approval of the owner of the company to the manager, and the book accounting information will be directly linked to the salary and welfare of the manager and the promotion of the position. Whether it is to achieve the long-term benefits of the company or to meet the interests of the managers themselves, the managers of listed companies have a strong incentive to falsify accounting information.

(2) The political performance of listed state-owned enterprises. At present, there is a special existence among the listed companies in China, that is, the listed companies with state-owned equity holding. In such listed companies, the government and enterprises are closely linked, mainly because the boundary between government officials and state-owned executives is not clear: state-owned executives can be from business to government, not as good as official career; government officials can also be from government to business to manage enterprises. It is precisely because of the existence of the above relationship that for listed companies with state-owned equity holding, the operating performance reflected in their accounting information is not only the embodiment of the ability level of enterprise managers, which will also become an important resource for managers to carry out job promotion and job transfer. If poor management makes the company into difficulties, in contrast, it will become an important resource for managers to carry out job promotion and job transfer. Managers will face a more difficult situation than managers of listed companies in general, as this may seriously affect their political careers. In summary, the political performance appeal of listed state-owned enterprises is also an important reason for the distortion of accounting information.

3. Conditions for Distortion of Accounting Information in Listed Companies

3.1 Insider Control

In the current moral environment of the capital market, relying only on the self-supervision and audit of the management can not ensure the true and reliable accounting information, but also need the board of directors and the board of supervisors independent of the management to form checks and balances. However, in the system of listed companies in China, the members of the board of directors and the management members are often both members of each other, and even the chairman and the general manager are the same person, the functions of the board of directors can not be effectively played, which leads to the emergence of insider control problems. In such cases, the manager has control over the superior company, in particular the control of accounting information

(Balsam et al., 2014). Therefore, when there is a contradiction between the actual situation of the enterprise and the contract signed, the management personnel have the supervisor motivation to change the accounting policy to meet their own interests. Under the condition that the enterprise has a perfect corporate governance structure, the internal supervision mechanism can give full play to its role and mandatory, in order to improve the authenticity and transparency of accounting information. On the contrary, managers are most likely to control and manipulate accounting information to serve their own interests, resulting in accounting information distortion (Biddle and Hilary, 2006).

3.2 The Manager Market Is Immature

On the one hand, the existence of manager market exerts pressure on the internal managers of listed companies, which can effectively promote the diligent work of internal managers, safeguard the interests of investors and restrain their behavior; on the other hand, reputation, as the most important intangible asset of professional managers in the manager market, good reputation is conducive to the long-term sustainable development of the managers of listed companies, so that the market value of enterprises gradually expands. Therefore, the manager market is an important external condition to ensure the truth and reliability of accounting information. However, the development of manager market in China is not yet mature, and the assessment and incentive system of managers of listed companies still needs to be improved. If most of the managers are fixed salaries, listed companies lack of medium-and long-term incentives for them, it is very likely to adjust accounting information in order to obtain short-term income to make the short-term performance of listed companies "bright eyes", but this is not conducive to the long-term development of the company. Therefore, the manager market not only positively motivates professional managers, but also needs to improve the punishment mechanism in order to achieve the equivalence of rights and responsibilities.

3.3 One Big Share Alone

The ownership structure of listed companies has a great impact on the composition of shareholders' general meeting, and shareholder meeting, as the highest authority of the company, has a direct impact on the changes of business management personnel and the creation of enterprise performance and value, and finally through the form of accounting information. Through the above analysis, we can find that the ownership structure of listed companies plays a decisive role in the operation and development of the whole enterprise. However, most listed companies in China have the problem of excessive concentration of shares and "one share dominance" of large shareholders. This is particularly true for family businesses, in particular. In this case, the minority shareholders can not play an effective role in the exercise of control rights of the company, and even the board of directors and the board of supervisors will be affected and controlled by the major shareholders. By virtue of their own favorable position, the major shareholders will use related transactions such as the provision of services, reorganization of assets, entrustment and other related transactions to affect the fluctuation of stock prices in the secondary market, thus encroaching on the interests of the company. In order to cover up the above behavior, a large number of changes need to be made to the financial statements to make the authenticity of accounting information full of bubbles (Aynes and Gertner, 1989).

3.4 False Establishment of Independent Directors

Independent directors are independent of the large and small shareholders of the company and do not hold office within the company, and do not have important business or professional ties with the company or the managers of the company, so as to make independent judgments on the affairs of the company. The most critical position of independent directors lies in their independence and there is no link with the interests of listed companies. In western developed countries, independent directors are basically held by legal workers, university scholars and other people who are successful in professional fields, while independent directors in China are basically recommended by major shareholders, and independence is greatly reduced from the beginning. In addition, in the actual work, independent directors and managers also have more exchanges, there may be interests linked. In this case, the independent directors in the listed companies are false, for the top of the enterprise false accounting information disclosure can not play an effective role in supervision.

4. Dynamic Game Model of Accounting Information Distortion in Listed Companies

In the above part, the causes and conditions of accounting information distortion of listed companies are analyzed in detail. Through the analysis, we can find that the root of accounting information distortion of listed companies in China is mainly the imperfection of corporate governance structure. In view of this, this paper will try to construct the dynamic game model of listed companies, accounting firms and CSRC, and continue to explore the deep-seated causes of accounting information distortion in China and the countermeasures.

4.1 Model Construction

In the tripartite dynamic game model composed of listed companies, accounting firms and CSRC, each party will formulate the corresponding strategy according to their own interests. For listed companies, there are two strategies to choose from: providing distorted accounting information or undistorted accounting information; for accounting firms, they can choose to hook up with or not connect with listed companies; for CSRC, they can choose to examine or not examine the accounting information of listed companies and accounting firms. Until the rest of the parties do not adopt an action strategy, the three parties do not understand each other's action strategy, and they will act on the basis of the strategy adopted by the rest. Listed companies and accounting firms can form the following four different strategic combinations: (distortion, hook up), (distortion, unhook), (no distortion, hook up), (no distortion, no hook up), (no distortion, no hook), the dynamic game matrix is shown in Table 1.

Table 1. Dynamic game matrix

		Listed company	
		Distortion (X)	No distortion ($1 - X$)
Accounting firm Strategy	Hook up (Y)	$C_0 + C_1 - B_2\lambda_2, A_0 + A_1 - B_1\lambda_1$	C_0, A_0
	Unhooked ($1 - Y$)	$C_0 - D - E, A_0 + A_1h$	$C_0 - D, A_0$

In Table 1, C_0 represents the normal operating income of an accounting firm; C_1 represents the benefits derived from the linkage between accounting firms and listed companies; Y represents the probability of collusion between a listed company and an accounting firm ($0 \leq Y \leq 1$); B_2 express the punishment imposed by the Securities Regulatory Commission on the collusion between accounting firms and listed companies; λ_2 indicates the probability that the CSRC will examine the collusion between accounting firms and listed companies ($0 \leq \lambda_2 \leq 1$); A_0 represents the normal operating income of a listed company; A_1 represents the additional benefits derived from the provision of distorted accounting information by listed companies; D represents the audit cost of the accounting information of a listed company in an accounting firm; X represents the probability that a listed company will provide distorted accounting information ($0 \leq X \leq 1$); B_1 indicates the punishment imposed by the CSRC for reviewing the distorted accounting information provided by listed companies; λ_1 indicates the probability that the CSRC will review the distorted accounting information provided by listed companies; h indicates that the accountant's affairs do not find the probability that the listed company will provide distorted accounting information ($0 \leq h \leq 1$); E represents the loss that the accounting firm chooses not to be linked with the listed company.

4.2 Dynamic Nash Equilibrium

By further analyzing the dynamic game matrix constructed by accounting firms and listed companies in Table 1, we can calculate the expected returns of accounting firms and listed companies with or without mutual connection, and of listed companies providing distorted accounting information and true accounting information respectively as follows:

$$\bar{E}_{accounting\ firm(hook\ up)} = (C_0 + C_1 - B_2\lambda_2)X + C_0(1 - X) \tag{1}$$

$$\bar{E}_{accounting\ firm(Unhooked)} = (C_0 - D - E)X + (C_0 - D)(1 - X) \tag{2}$$

$$\bar{E}_{Listed\ company(Distortion)} = (A_0 + A_1 - B_1\lambda_1)Y + (A_0 + A_1h)(1-Y) \quad (3)$$

$$\bar{E}_{Listed\ company(NO\ distortion)} = A_0Y + A_0(1-Y) \quad (4)$$

When the expected income of the distorted accounting information and the undistorted accounting information provided by the listed company is completely consistent with the expected income of the accounting firm and the listed company, the Nash equilibrium state is reached, the probability Y^* of mutual connection between the accounting firm and the listed company and the probability X^* of the listed company providing distorted accounting information are solved as follows

$$Y^* = \frac{A_1 * h}{B_1\lambda_1 - A_1(1-h)} \quad (5)$$

$$X^* = \frac{D}{B_2\lambda_2 - C_1 - E} \quad (6)$$

4.3 Analysis of Dynamic Nash Equilibrium

(1) The accountant's office. In the Nash equilibrium, the probability of its association with the listed company:

$$Y^* = \frac{A_1 * h}{B_1\lambda_1 - A_1(1-h)}. \text{ If the listed company provides distorted accounting information for the greater the}$$

additional income, then the accounting firm and the listed company are linked to the greater the income, so the probability of mutual connection between the accounting firm and the listed company is naturally greater; If the accounting firm does not find that the listed company provides distorted accounting information, the greater the probability of the CSRC reviewing the distorted accounting information provided by the listed company, so the greater the probability of the accounting firm connecting with the listed company; The more likely the CSRC will punish the listed company for providing false accounting information, the less likely the accounting firm will choose to associate with the listed company.

(2) Listed companies. In Nash equilibrium, it provides the probability of distorting accounting information:

$$X^* = \frac{D}{B_2\lambda_2 - C_1 - E}. \text{ If the accounting information of the listed company in the accounting firm audit cost is}$$

greater, the listed company to provide false accounting information probability is naturally greater; If the accounting firm and the listed company get more income from mutual connection, it will be more willing to mutual connection with the listed company, which will increase the probability of the listed company to provide false accounting information. The greater the punishment and probability of the CSRC to the accounting firm and the listed company, the smaller the probability of the listed company providing false accounting information; When the accounting firm chooses not to associate with the listed company, the greater the loss, the greater the probability of the listed company providing false accounting information.

5. Conclusion and Inspiration

This paper first analyzes the motivation and conditions of accounting information distortion of listed companies from the perspective of corporate governance. Secondly, by constructing the tripartite dynamic game model of listed companies, accounting firms and CSRC, this paper probes into the deep-seated causes of accounting information distortion of listed companies in China, and puts forward the following suggestions:

5.1 Increase Penalties for Listed Companies That Provide Distorted Accounting Information

From the dynamic Nash equilibrium solution, it can be concluded that the probability of listed companies providing distorted accounting information will become smaller with the strengthening of the punishment of the CSRC. However, most of the penalties for providing false accounting information to listed companies in China are administrative penalties, and the intensity of civil compensation is still small. Therefore, on the one hand, we should improve the civil compensation system for the listed companies to provide distorted accounting information and protect the legitimate interests of the majority of investors; on the other hand, the "quantity" of the punishment for providing distorted accounting information should be much greater than the additional income it obtains, so that the cost of providing distorted accounting information far exceeds the illegal income, in order to

effectively reduce the behavior of the listed companies providing distorted accounting information.

5.2 Perfecting the Supervision System of Accounting Information

The dynamic Nash equilibrium solution is also affected by the probability of CSRC reviewing listed companies and accounting firms, so it is necessary to improve the accounting information supervision system. The accounting information supervision system is mainly divided into government supervision system and social intermediary supervision system.

In the government supervision system, government departments should formulate special laws and regulations and policies to effectively control the production, disclosure and consumption of accounting information, because relying solely on the regulation of the market itself can not complete the complete control of moral hazard and adverse selection. Strengthening the legal supervision can not only protect the interests of investors, ensure the fairness and transparency of the market, ensure the truth and reliability of accounting information, but also enhance the expectations of investors and improve the efficiency of the operation of the capital market.

In the social intermediary supervision system, asset evaluation institutions, credit rating agencies, law firms and accounting firms and other social intermediary institutions, from the perspective of the third party fair and objective evaluation of the accounting information disclosed by the company, which restricts the accounting information providers. At the same time, at the national level, it is also necessary to control the credit visa and other intermediary services provided by social intermediary institutions in order to improve the credibility of social intermediary institutions and their intermediary services.

5.3 Perfecting the Incentive and Punishment Mechanism of Listed Companies

The separation of management rights and ownership of listed companies leads to asymmetric information between managers and owners and the inconsistency of their utility functions. From the perspective of internal governance, listed companies need to improve their own incentive and punishment mechanism. Because at this stage, the incentive of Chinese listed companies for managers is mainly short-term salary incentive, lack of medium-and long-term incentives, such as stock and option incentives, which will lead managers to pay attention to the short-term benefits of enterprises in order to obtain short-term returns, and further increase the risk that listed companies will provide distorted accounting information, which is not conducive to the long-term development of the company. For the professional managers suspected of false accounting information, we should also strengthen the punishment, give strong administrative and economic penalties, and truly reflect the important principle of the integration of managers' market rights, responsibilities and interests.

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