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Decision Engineering Analysis of Fraud Information Disclosure after China's Share-Splitting Reform

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Abstract

This paper outlines a dynamic game model to analyze the fraud information disclosure by listed companies in China since the share-splitting reform in 2005. By analyzing the conditions of coalition-proof Nash equilibrium between large shareholders and the manager, exogenous variables' effects on the equilibrium as well as the first-order condition of the maximum utility of the supervisory department, it is concluded that efficient capital markets require a high supervising probability and intensity of penalty to the "insider" and shortened the intervals between supervising conducts as well. Moreover, there exists a unique optimum incentive stock option ratio over which fraud information disclosure becomes more rampant. This results in a higher intensity of penalty to the manager given more stock option incentive and, in contrast, a higher intensity of penalty to large shareholders of a well managed and efficiently capital-structured company once fraud information disclosure is detected. The model's conclusions are consistent with the facts of listed companies in China. Finally, the model makes sharp suggestions for the mechanism design of stock option incentive as well as suggestions for the supervisory department to achieve efficiency of capital markets in China.

Keywords: the share-splitting reform, fraud information disclosure, game, supervising, decision engineering

1. Introduction

The main problem of the stock market in China is share splitting before 2005. The share splitting means that the stocks hold by the sponsors of the companies (the government agencies and juridical person) could not be transacted in the stock market regularly, these kinds of stocks are called as non-circulative stocks, about two thirds of all. Only the stocks held by small shareholders (they are also called as circulative stocks, about one third of all) could be transacted in the stock market. So the situation of "same stocks, but different prices and different rights" occurs. This kind of transaction system blocked the development of the stock market in China. For example, when the GDP of China increased from 10965.52 billion(RMB) in 2001 to 18308.48 billion(RMB) in 2005, Shanghai stock index decreased from 2245 points on June 14, 2001 to 998.23 points on June 6, 2005 at the same time.

Under this transaction system, the stock price is not related to the return of the large shareholders (the government agencies and juridical person) directly, so the large shareholders are interested in refinancing from the

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stock market instead of the market price of the stocks, but the small shareholders are interested in the market value of the stocks. In order to solve this problem, the China Securities Regulatory Commission(CSRC) issued "The Circular about the Pilot Project of Share Splitting Reforms of Listed Companies" on April 29, 2005. Since then, the share-splitting reform was put forward. The main content of the share-splitting reform is that the large shareholders give compensation (shares, cash, or share option etc.) to the small shareholders, and their stocks can be transacted regularly. According to the statistics of China Securities Depository and Clearing Corporation Limited, only 19 companies had not proposed their share splitting reform plans yet, other listed companies in Shanghai and Shenzhen stock markets had already completed or had embarked on theirs up until December 12th 2008.

Because of the share splitting, the large shareholders have strong motive to manipulate information disclosure for the purpose of financing maximization. Extensive research on China's splitting share structure has documented that large shareholders and the manager, both of whom are called the "insider", managed to manipulate their information-to-be-disclosed because of severe asymmetric information between small shareholders and themselves. For instance, Xie(2002), Fan and Wong(2002) and Haw and Hu(2003), found that large shareholders of listed companies had intense opportunistic motive to despoil small shareholders of their wealth, and therefore by no means would provide high quality accounting information. Ducharme, Malatesta and Sefcik(2004) documented that small shareholders could only judge profitability and investment value of those listed companies from their earnings reports, which intensely motivate the insider of fraud information disclosure to make high of their stock price. Thus, the adjusted EPS (Earnings Per Stock) by the insider is adopted in this paper as a measure of the intensity of fraud information disclosure of listed companies.

Moreover, not only are small shareholders deprived of their wealth, but also the total efficiency of capital markets suffers losses caused by fraud information disclosure of listed companies. As documented by Pae(2002), loss of efficiency was mainly caused by large shareholder's "rent seeking" through surplus management, which enabled small shareholders' evaluation on the company' future development and investment value much higher than the real, resulting in low efficiency of the capital markets as well as damage to small shareholders' wealth. Based on Pae's study, Zhang and Guo (2007) , with a social welfare effect perspective, put forward that earnings of large shareholders increased with a higher level of surplus management, which , in contrast , reduced efficiency of capital allocation and the substantial value of the company.

Lizzei(1999) studied the conditions, mechanism and consequences of probable fraud information disclosure by establishing a dynamic game model under the condition of asymmetric information between investigators and the listed company. Hong, Zhang and Lou (2003)，by establishing a game model of information disclosure, also documented that intensity of asymmetric information between investigators and the manager should be reduced, which, in turn, reduced the intensity of fraud information disclosure of the listed company. Also, game periods as well as penalty by the supervisory department should both be increased. Based on Lizzei(1999)'s study, Ping and Li (2003) pointed out that, as an Nash Equilibrium, fraud information disclosure usually occurred within a narrow interval near the financing qualification regulated by China Securities Regulatory Commission(CSRC), its upper and lower limit were decided by the agent and the company respectively. Furthermore, with the hypothesis of listed companies' quality obeying the normal distribution, frequency of fraud information disclosure would be increased if the CSRC recognizes refinancing qualification of listed companies merely by the estimated weighted average ROE(Return On Equity) with prior experience. Wang(2004), combining game theory with cost-benefit analysis, proved that investment would be distorted by fraud information disclosure and along with the rise of the company's market price in a short time after the fraud information disclosure, there virtually existed a paradox: on one hand it seemed natural to invest more of low cost outside capital, on the other hand the new investment was actually approved deliberately to cover their fraud information disclosure, both of which rooted in their cheating on investigators.

With all these studies about fraud information disclosure by listed companies, however, there has been a basic change of the identity of the new protagonist of the fraud information disclosure since the share-splitting reform. The new incentive mechanism based on stock share has combined large shareholders and the manager as a whole, chasing for stock share value maximization while the player of disclosing fraud information has transferred from large shareholders to the manager as well. Another remarkable change of the share-splitting reform is that shares held by large shareholders is tradable with its value weight criterion change from net asset value per share to market price, which results in large shareholders taking stock share value maximization as their goal, rather than financing maximization. As documented by Wu (2006), fraud information disclosed for financing purpose still existed but had

been considerably reduced, because cost as well as risk of earning through financing maximization had a considerable increase since the reform, and, moreover, earnings from stock share value's increase will highly exceed that from financing maximization. Thus, the objective of stock share value maximization of large shareholders is to be taken as the inception of this paper.

This paper tries to answer three questions. First, does large shareholders taking equity rights value maximization as their goal rather than financing maximization largely promote fraud information disclosure after the reform? Second, what effect does the new incentive mechanism have on fraud information disclosure? Third, how does the supervisory department ensure transparency of capital markets by means of disclosing information? All these three questions provide interesting insights into one ultimate question of whether market efficiency will be achieved after the share-splitting reform?

2. Variables Description and Model Establishment

2.1. Variables description and assumptions

Variables in this game model are as follows: The listed company involves four correlated players: large shareholders, manager, small shareholders and the supervisory department.

$T = t + \varepsilon$, $\varepsilon \sim N(0, \sigma^2)$, where T represents disclosed information of the company's quality as required by large shareholders, while t represents the real earnings (i.e. the real quality of the company). This suggests that reported earnings T (i.e. disclosed information of the company's quality) consists of the real earnings t and a white noise ε , which is distributed as the normal distribution. Thus, it is consistent with empirical findings of listed companies that $T \geq t$, which means fraud information is disclosed when $T > t$. Note that T and t represent the disclosed and real EPS (Earnings Per Stock) of the listed company respectively.

Earnings of large shareholders from fraud information disclosure are $\alpha(1-\theta)(T-t)e$,where α represents actual selling ratio of large shareholders once stock price goes up, α_0 represents the maximum selling ratio of large shareholders, over which large shareholders will lose their control of the company, thus the constraint for α is: $0 \leq \alpha \leq \alpha_0$, e represents weighted average P/E ratio(Price/ Earnings ratio) of the company's industry, θ represents proportion of earnings allocated to the manager from large shareholders' shares selling, or say, large shareholders' rent seeking cost, with, of course, $0 \leq \theta < 1$.

Earnings of the manager are(note that there also have stock option incentive for the manager): $\beta(T-t)e + \alpha\theta(T-t)e$,where β , (though not publicly observable, but does exist in certain familial transactions) represents actual selling ratio of the manager once stock price goes up, β_0 represents the maximum selling ratio for the manager, over which the manager will suffer a considerable loss of his reputation, thus the constraint for β_0 is: $0 \leq \beta \leq \beta_0$. $s_0 = \alpha_0 + \beta_0$, where s_0 represents the maximum selling ratio of large shareholders and the manager.The supervisory department has a mechanism design, including the supervising probability P and the supervising cost C . Large shareholders and the manager are given penalties respectively once fraud information disclosure is detected, intensity of which are represented by k_B and k_M , and thus penalties to large shareholders and the manager are: $P_B = (1+k_B)\alpha(T-t)e$ and $P_M = (1+k_M)\beta(T-t)e$.

In order to focus on interesting sections of the parameter space, we impose the following assumptions:

- First point. Four correlated players of the listed company play in a two-period game model, and also they are all risk-averse or risk-neutral and thus maximize their expected payoff.
- Second point.The manager bears risk of being supervised and penalized once discloses fraud information, and thus large shareholders and the manager pay costs respectively with a discount rate of σ .
- Third point. Without the loss of generality; the manager's fixed income, cost to operate information disclosure and further earnings or losses after these two periods are not taken into consideration.
- Fourth point. Variables θ, T, α, β are all endogenous to large shareholders and the manager's strategies, while other variables are all exogenous, and note that there is a positive correlation between T and α, β , thus, as a

complement to the former define of T as disclosed information of the company quality, the functional expression of T here is given as: $T = T(\alpha, \beta) = \frac{s_0 t}{s_0 - \alpha - \beta}$, which has the following three properties:

First, $\frac{\partial \alpha}{\partial T} > 0$, $\frac{\partial^2 \alpha}{\partial T^2} < 0$, $\frac{\partial \beta}{\partial T} > 0$, $\frac{\partial^2 \beta}{\partial T^2} < 0$, which implies the decline of marginal selling ratio of shares, meaning that although ratios of shares sold by large shareholders and the manager will increase with increasing intensity of fraud information disclosed , yet the increased ratio will decrease at the same time.

Second, $\lim_{\substack{\alpha \to \alpha_0 \\ \beta \to \beta_0}} T(\alpha, \beta) = \infty$, which implies that once the ratios of sold shares α and β reaches their maximum of α_0 and β_0, intensity of fraud information can be achieved as highly as is wanted, with no increase in the ratio of sold shares, suggesting that intensity of fraud information disclosure is not publicly observable at that time.

Third, $T = t > 0$, when $\alpha = 0$, $\beta = 0$, which implies no shares are sold when true quality information of the company is disclosed, because large shareholders and the manager will not earn more through information disclosure.

- Fifth point. It is the aim of the supervisory department to safeguard small shareholders interests, and therefore, by using the VNM（Von Neumann-Morgenstern）model, the utility function of the supervisory department is defined as follow:

$$U(P, k_B, k_M) = P[(1+k_B)\alpha(T-t)e + (1+k_M)\beta(T-t)e - C] + (1-P)[-(\alpha+\beta)(T-t)e]$$

which consists of two parts, one is the payoff once fraud information disclosure is detected, the other is the loss of small shareholders if fraud information disclosure is undetected.

2.2. Model establishment

The order of game is as follow: First, the large shareholders seek rents to the manager with a proposed proportion of earnings, by which the manager decides whether to cooperate with large shareholders to disclose fraud information.

Second, the supervisory department supervises with a certain supervising probability, with which the large shareholders and the manager get penalties once being detected of disclosing fraud information.

Now consider the payoff and losses of these two periods, we have:

In the first period, discounted expected payoffs of large shareholders and the manager are:

$$\pi_B = \alpha(1-\theta)(T-t)e - P\sigma(1+k_B)\alpha(T-t)e \quad (1)$$

$$\pi_M = \beta(T-t)e + \alpha\theta(T-t)e - P\sigma(1+k_M)\beta(T-t)e \quad (2)$$

Here, π_B represents the expected payoff of large shareholders, π_M represents the expected payoff of the manager. In the second period, the utility of the supervisory department is $U(P, k_B, k_M)$.

Using these results allows us to present the equilibrium conditions for the model in a very succinct form, and therefore the model can be transferred into the following mathematical programming:

$$\max_{P, k_B, k_M} U(P, k_B, k_M)$$

$$s.t \begin{cases} \max\limits_{\theta, \alpha} \pi_B(\theta, \alpha) \\ \max\limits_{\beta} \pi_M(\beta) \\ \pi_B > 0 \\ \pi_M > 0 \end{cases} \quad (3)$$

3. Equilibrium and Comparative Analysis

Considering the three-player game model, this section proceeds as follows. The first part analyzes collusion between large shareholders and the manager, both of whom, following the dynamic game model with complete information for subgame Nash equilibrium analysis, establish a coalition-proof Nash equilibrium with exogenous variables of supervising probability and intensity of penalty. The second part, following the comparative static analysis, develops the analysis of those exogenous variables' effects on the coalition-proof Nash Equilibrium between large shareholders and the manager. The third part, based on the former two parts, analyzes for the supervisory department how to apply the solution of the coalition-proof Nash equilibrium to maximize social welfare, which offers optimism for the future development of China's capital markets.

3.1. Analysis of coalition-proof Nash equilibrium between insiders

3.1.1. The necessary and sufficient conditions for the manager to disclose fraud information

From the constraint of fraud information disclosure incentive for the manager $\pi_M > 0$, we have:

$$\beta < \frac{\alpha\theta}{P\sigma(1+k_M)-1} \quad , \tag{4}$$

Where $P\sigma(1+k_M)-1>0$, otherwise the manager will disclose true information of the company. Meanwhile, the first-order condition of $\max \pi_M(\beta)$ is:

$$\beta^* = s_0 - \alpha - \sqrt{s_0(s_0-\alpha) - \frac{s_0\alpha\theta}{P\sigma(1+k_M)-1}} \tag{5}$$

which can be verified as satisfying constraint（4）.

3.1.2. The necessary and sufficient condition for large shareholders to rent seeking

From the constraint of the incentive for large shareholders $\pi_B > 0$, we have:

$$\theta < 1 - P\sigma(1+k_B) \tag{6}$$

In particular, large shareholders will not seek rent to the manager when $1-P\sigma(1+k_B)=0$.

Another condition, which is crucial for our results and, empirically, consistent with the behavior of large shareholders, is that, the variable α, which represents the real selling ratio for large shareholders, is independent of the incentive constraint of large shareholders, thus also independent of the variable θ, which represents allocated proportion of earnings proposed by large shareholders. This implies that $\alpha^* = \alpha_0$ (i.e. large shareholders sell their shares as much as they can) is the payoff maximization condition of large shareholders, on whom supervising has no effect. However, the "rent seeking" can actually be avoided by the supervisory department threatening large shareholders and the manager with a convincing supervising probability P and degree of penalty k_B to ensure $P\sigma(1+k_B)-1 \le 0$, otherwise the acclaimed penalty to large shareholders will not affect the ratio sold by large shareholders, equaling its maximum α_0

Because $\alpha^* = \alpha_0$, formula（5）degenerated as:

$$\beta^* = \beta_0 - \sqrt{s_0\beta_0 - \frac{s_0\alpha_0\theta}{P\sigma(1+k_M)-1}} \tag{7}$$

Following backward induction and substituting from equation（7）into（1）, we have:

$$\pi_B = \alpha(1-\theta)(T^* - t)e - P\sigma(1+k_B)\alpha(T^* - t)e \tag{8}$$

where $T(\alpha,\beta^*) = \dfrac{s_0 t}{s_0 - \alpha - \beta^*}$.

Meanwhile, the first-order condition of $\max \pi_B(\theta,\alpha)$ yields the implicit solution of θ as follow:

$$\frac{\alpha_0}{2}[P\sigma(1+k_B)-1+\theta^*] + \left\{[P\sigma(1+k_M)-1]\beta_0 - \alpha_0\theta^*\right\}^2 - \frac{\left\{[P\sigma(1+k_M)-1]\beta_0 - \alpha_0\theta^*\right\}^{\frac{3}{2}}}{\sqrt{s_0[P\sigma(1+k_M)-1]}} = 0 \tag{9}$$

It can be verified that θ^* satisfies $\max \pi_B(\theta,\alpha)$ and the incentive constraint of large shareholders' rent seeking to the manager (equation（6）). Substituting from θ^* into （7）, we have the optimum selling ratio β^*, expression of which contains only exogenous variables. With all the above solutions, now we have the subgame perfect Nash equilibrium $(\theta^*,\alpha^*,\beta^*,T^*)$, where $T^*(\alpha^*,\beta^*) = \dfrac{s_0 t}{\beta_0 - \beta^*}$.

The equilibrium strategy is: (1) large shareholders propose the "rent" θ^* to the manager; (2)the manager discloses the fraud information T^* as required;(3)large shareholders and the manager have the ratio α^* and β^* of their shares sold when stock price goes up. Thus, each player of the game gets his optimum payoff.

3.2. Comparative static analysis

3.2.1. Exogenous variables' effects on equilibrium strategy of the manager

Considering complete information in the model, we solve（7）instead of（5）and have:

$\dfrac{\partial\beta^*}{\partial P} < 0$, $\dfrac{\partial\beta^*}{\partial k_M} < 0$, which implies that the higher supervising probability and harder penalty to the manager are, the lower ratio of shares the manager will sell(intensity of fraud information disclosed by the manager is on a declined level).

$\dfrac{\partial\beta^*}{\partial\sigma} < 0$, which implies a higher discount rate leads to less intensity of fraud information disclosed by the manager. In other words, intervals between the supervising conducts should not be long; otherwise fraud information disclosed will be intensified to a high level. Note that we did not extend our conclusion to a repeated dynamic game model, under which conclusion may，not surprisingly, be a contrast.

Solving $\dfrac{\partial\beta^*}{\partial\beta_0} = 0$ yields:

$\beta_0 = \frac{s_0}{4} + \frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$, $\frac{\partial\beta^*}{\partial\beta_0} < 0$ when $0 < \beta_0 < \frac{s_0}{4} + \frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$.

This implies the optimum ratio of shares held by the manager under the stock option incentive plan after the share-splitting reform. Thus, the fact that $\frac{\partial\beta^*}{\partial\beta_0} < 0$ when $0 < \beta_0 < \frac{s_0}{4} + \frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$ implies that there exists a unique optimum β_0 such that for $0 < \beta_0 < \frac{s_0}{4} + \frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$ the manager will lower the intensity of fraud information disclosed when shares hold by him increases, which is exactly one of the main purposes the share-splitting reform, and for $\beta_0 > \frac{s_0}{4} + \frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$ the intensity of fraud information disclosure will rise when shares held by the manager increases, because higher intensity of fraud information is actually the preparation for his selling large amount of shares to earn more.

$\frac{\partial\beta^*}{\partial\alpha_0} > 0$. This implies the higher maximum selling ratio of large shareholders is the higher intensity of fraud information disclosure is, which corresponds to the fact that large shareholders are more urgent to disclose fraud information than the manager, whose earnings from the fraud information disclosure are much less, not to mention the penalty he might bear once be detected of doing so. Also, we have $\frac{\partial\beta}{\partial T} > 0$, which implies the higher maximum selling ratio of large shareholders is the higher intensity of fraud information is disclosed by the manager.

3.2.2. Exogenous variables' effects on equilibrium strategy of large shareholders

$\frac{\partial\theta^*}{\partial P} < 0$, $\frac{\partial\theta^*}{\partial k_B} < 0$. This implies the higher supervising probability and the harder of penalty to large shareholders are , the lower proportion of earnings proposed by large shareholders is, thus less urgent the manager is to disclose fraud information.

$\frac{\partial\theta^*}{\partial\sigma} < 0$. This implies a higher discount rate leads to a lower proportion of earnings proposed by large shareholders. The suggestion from this implication is straightforward that intensity of fraud information can be lowered by shortening the intervals between supervising conducts.

3.3. Social welfare analysis based on small shareholders payoffs

T^*, representing the equilibrium fraud information disclosure, is publicly observable in the information disclosure process, while α^*, β^* and e are strictly exogenous. The coalition-proof analyzed before shows that T^* is dependent of P, k_B and k_M. In other words, we have function $T^*(P,k_B,k_M)$, in which T^* is determined by large shareholders and the manager from prior belief of P, k_B and k_M. Therefore, the unique optimum P^*, ${k_B}^*$ and ${k_M}^*$, which satisfy $\max U(P,k_B,k_M)$, can also be attained to improve stability and efficiency of the capital market. Note that, the reason we do not pay much attention to the exact value of $U(P,k_B,k_M)$, is that the exact value of $U(P,k_B,k_M)$ varies with different formations of the utility function. What is interesting from our perspective is how those variables function with one another and for some parameter values of our model such a Nash equilibrium does exist by analyzing first-order conditions.

Solving the first-order conditions of P, k_B and k_M respectively, we get conclusions as follows:

- First point. There exists a unique $P^*(T^*,k_B,k_M,C)$, which depends on degree of penalty to large shareholders

and the manager represented by k_B、k_M together with the supervising cost C.

- Second point. $\frac{\partial T^*/\partial k_B}{\partial T^*/\partial k_M}=\frac{\alpha^*}{\beta^*}$, in which we define $\frac{\partial k_M}{\partial k_B}$ as MRPS (marginal rate of penalty substitution) of penalty to large shareholders for penalty to the manager, and recall that we also have $\alpha^*=\alpha_0$, $T^*(\alpha^*,\beta^*)=\frac{s_0 t}{\beta_0-\beta^*}$, all of which result in $MRPS_{M,B}=\frac{\partial k_M}{\partial k_B}=\frac{T^*\alpha_0}{T^*\beta_0-s_0 t}$.
- Third point. $\frac{\partial MRPS_{M,B}}{\partial T^*}<0$, or say, $MRPS_{M,B}$ decrease while T^* (equilibrium fraud information disclosure) increases, which implies that the MRPS of penalty to large shareholders for penalty to the manager decreases when intensity of fraud information disclosed by the manager rises up, thus suggests that penalty to the manager, who disclosed the information, should be increased to a higher level of k_M once fraud information disclosure is detected more rampant.
- Fourth point. $\frac{\partial MRPS_{M,B}}{\partial t}>0$, or say, $MRPS_{M,B}$ increases while T^* （equilibrium fraud information disclosure）increases, which implies that the MRPS of penalty to large shareholders for penalty to the manager increases when real quality of the company improved. In other words, penalty to the fraud information disclosure should be focused mainly on large shareholders when management and capital structure are improved, improvement of which, to some extent, should be ascribed to the manager's work, who, for private interests, also disclosed fraud information though. Thus penalty to large shareholders should be harder for more effective supervising.
- Fifth point. $\frac{\partial MRPS_{M,B}}{\partial \beta_0}<0$, or say, $MRPS_{M,B}$ declined while β_0 (the maximum selling ratio of the manager) increases, which implies that the MRPS of penalty to large shareholders for penalty to the manager decreases with a more intensive stock option incentive plan for the manager, because, exactly as we analyzed before, the more shares held by the manager, the more urgent he is to disclose fraud information, from which he can earn a lot. Thus penalty to the manager should be harder for more effective supervising.

4. Conclusion and Suggestions

All our conclusions are based on a simple model at the individual level, assumptions of which feature in many listed company models. Thus，the contribution of this paper is not to identify and model a new tension in the information disclosure process of listed companies as well as to propose for the social welfare maximization objective in a Pareto-improvement perspective，but rather to identify the implications of supervising and penalty by the supervisory department at the individual listed company level to safeguard small shareholders' interests. In sum, the main implications and suggestions are concluded as follows:

- First point. The equilibrium supervising probability P^*, figured by prior belief of k_B, k_M, C and T^*, can be implemented by having n listed companies chosen randomly, among which have m companies' information screened as long as n and m, according to the classical probability theory， satisfy $P^*=\frac{m}{n}$.
- Second point. The discount rate σ can be controlled to reduce the intensity of fraud information disclosed by shortening the intervals between supervising conducts.
- Third point. The amount of shares held by the manager should be controlled under a certain level after the share-splitting reform. There, as concluded, exists a unique optimum selling ratio β_0 for the manager, for instance $\beta_0=\frac{s_0}{4}+\frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$, such that for $0<\beta_0<\frac{s_0}{4}+\frac{\alpha_0\theta^*}{P\sigma(1+k_M)-1}$ the manager will lower the intensity of fraud information disclosure and focused on improving the company's quality when his shares increase, which is exactly one of the main purposes the share-splitting reform.

- Fourth point. Penalty to the manager, who has been given more shares as an incentive, should be increased to a higher level once fraud information disclosure is detected.
- Fifth point. Penalty to large shareholders, who control the company with a higher level of management and more efficient capital structure, should be increased to a higher level once fraud information disclosure is detected.

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