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## **Incentive and Constraint of Information Structure and Unfair Connected Transaction Regulation: Release Conditions and its Strategy Optimization**

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**Abstract:** As the important content of corporate governance, the unfair connected transaction regulation's generation is to adapt to requirements of protecting the stakeholder's equity and it has important significance in perfecting the corporate governance structure. Using the game theory, the study research the relationship between supervision authorities and small investors, the relationship between supervision authorities and various types of stockholders, the relationship between regulators and controlling stockholders, the study think that forming incentive-compatible mechanism.

**Key words:** Unfair connected transaction, information structure, agency by agreement, release conditions

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### **INTRODUCTION**

Connected transaction refers to the matters of transferring resources or obligation among listed company as well as its holding subsidiaries and related parties, whether it charges at the present stage or not. At present, connected transactions exist widely in daily business activities of listed companies and have quite a few connected transactions belong to unfair connected transactions in listed companies of China. The so-called unfair connected transaction in essence refers to the related parties, mainly controlling stockholders transfer to cash out through unfair connected transaction, transfer resources of listed companies. It ultimately damages the interests of medium and small investors and it is against the development of the listed company and capital market. The spawn of unfair connected transaction has become a key factor in influencing the financial position and the production of listed companies. It is a serious threat to the healthy development of the stock market and the economy and affects the development of listed companies' main business as well as the ability to be consistently profitable. Because of this, it is necessary to supervise the connected transaction of listed companies. But connection transaction regulation is a process of repeated game among parties (Miao, 2012). In reality, the information among regulators and listed companies is asymmetric, as well as the information among social investors and supervision authorities. Due to the involved problem of interest demand, it is inevitable to involve in the conflictions among medium and small investors and supervision authorities, major stockholders

and supervision authorities and controlling stockholders. Only by dealing with incentive conflictions among medium and small investors and supervision authorities as well as regulators and controlling stockholders properly, thereby forming incentive-compatible mechanism among them can regulators improve the supervision efficiency of the stock market.

In view of this, this study studies the relations of regulators, controlling stockholders of listed companies and medium and small stockholders in the listed company in unfair connected transactions through constructing a mixed strategy model of regulators supervising connected transactions of listed companies. And also the study puts forward relevant policy suggestions in order to improve the supervision efficiency of unfair connected transactions and protect the legal interests of investors authentically.

### **GAME ANALYSIS OF REGULATORS AND CONTROLLING STOCKHOLDERS**

Big stockholders actually dominate the control rights of listed companies through the cross shareholding, but they are not the absolute owners of listed companies. Thus, it is inevitable that they have motivations of entrenchment. The share dilution of medium and small stockholders leads to the "free-riding" behavior of small stockholders. As a result it is difficult to supervise predatory practices of big stockholders effectively. In this case, it is necessary for regulators to carry out external supervision (Yugang and Shanmin, 2007). But is this kind of supervision really effective? In this case, a regulatory

external supervision is necessary. Is this kind of regulation really effective? The study will discuss this problem below.

In order to make the analysis of the problem easier, the study specially put forward the following basic assumptions, combined with the actual situation of the listed company:

- **Assumption 1:** Controlling stockholders(S) of listed companies and the securities regulators departments (R)are risk neutral
- **Assumption 2:** Regulator’s goal is to realize the maximization of social welfare; controlling shareholder’s goal is to realize the maximization of their own utility through unfair connected transaction (Dakai, 2009)
- **Assumption 3:** The information of the two parties is asymmetric, controlling stockholders have the information advantage; the shareholding ratio of big shareholders is  $\alpha$  and big shareholders have real control authority via cross shareholding
- **Assumption 4:** The potential value of listed company is V when there are no agency costs

The proportion for unfair connected transactions of controlling stockholders accounting for the total transactions, the total transaction can be quantified, showed with b,  $b \in (0,1)$ . The probability of controlling stockholders using unfair connected transaction to make excess profits is  $\lambda$ . And at the same time, the study assume that the extent of controlling stockholders using unfair connected transactions is higher and the extraneous income of controlling stockholders is bV. But at the same time, controlling stockholders using unfair connected transaction to make excess profits also need to payment cost, such as bribing regulators, the manpower and wealth that small stockholders need to pay when they appeal (for example, the legal responsibility that small stockholders may assume). These make up the payment cost of unfair connected transactions, so, C(b) refers to the coefficient of the payment cost. This shows that the probability of the payment cost that controlling stockholders pay to the society when they use unfair connected transaction increases with the increase of the proportion for connected transactions.

In order to prevent this kind of unfair connected transaction from overflowing, regulators carry out strict supervision whose probability is  $\mu$ . If they find unfair connected transactions of listed companies occur, government will give a punishment of M(b)V for listed companies according to the severity b. And government requires listed companies to cancel this kind of unfair

connected transaction or accept punishment, in order to make b back to the condition when unfair connected transaction did not happen, that is,  $b = 0$ . At the moment, extraneous income of controlling stockholders changes from bV to zero and this is equivalent to the increase of social benefits. Of course, the government needs to input when carrying out external supervision of unfair connected transactions. The study assume that the cost of supervision is  $C_M$ . Meanwhile, in order to carry out effective incentive and constraint for regulators, the social public departments give certain penalty F to regulators when listed companies use unfair connected transactions. F can be penalty and can also be public censure. I is the fixed income of regulators, B is the award when regulators seized unfair connected transaction successfully.

On this assumption, the study can structure a basic game model, in order to get the game balance based on the analysis of the model and then provide some policy support.

There are following four strategies in terms of the combination of controlling stockholders and regulators: (strict supervision, carry out unfair connected transaction), (strict supervision, not carry out unfair connected transaction), (general supervision, carry out unfair connected transaction), (general supervision, not carry out unfair connected transaction). The corresponding payoff matrix is as Table 1.

According to the payoff matrix, the study can calculate the expected revenue function of regulators(R):

$$ER = \mu\lambda(1+B-C_M)+\mu(1-\lambda)(I-C_M)+(1-\mu)\lambda(I-F)+(1-\mu)(I-\lambda)I \quad (1)$$

The expected revenue function of controlling stockholders(S) via unfair connected transactions:

$$ES = \mu\lambda [\alpha V - C(b) V - M(b) V] + \lambda (1-\mu) \{(\alpha (1-b) V + [b - C(b)] V)\} + (1-\lambda) \mu \alpha V + (1-\lambda) (1-\mu) \alpha V \quad (2)$$

According to the Eq. 1, the study take the derivative of supervision probability and get the reaction function of regulators:

Table 1: Payoff matrix strategy analysis between controlling stockholders and regulators

Controlling stockholders	Regulators	
	Strict supervision ( $\mu$ )	General supervision ( $1-\mu$ )
Carry out unfair connected transaction ( $\lambda$ )	$[\alpha - C(b) - M(b)] V, I + B - C_M$	$\alpha(1-b)V + [b - C(b)]V, I - F$
Not carry out unfair connected transaction ( $1-\lambda$ )	$\alpha V, I - C_M$	$\alpha V, I$

$$\partial ER/\partial \mu = \lambda(I+B-C_M)+(1-\lambda)(I-C_M)-\lambda(I-F)-\mu(1-\lambda)I = 0 \quad (3)$$

According to the Eq. 2, the study take the derivative of the probability of stockholders getting out of line and get the reaction function of big stockholders:

$$\partial ES/\partial \lambda = \mu[\alpha v-C(b)V-M(b)V]+\lambda(1-\mu)\{\alpha(1-b)V+[b-C(b)V\}-\mu\alpha V+-(1-\mu)\alpha V = 0 \quad (4)$$

According to the Eq. 3, 4, the study can get the best  $\mu^*$ ,  $\lambda^*$ , namely the so-called Nash Equilibrium of mixed strategy:

$$\mu^* = [b-b\alpha-C(b)]/M(b) \quad (5)$$

$$\lambda^* = C_M/(B+F) \quad (6)$$

The study can draw the following conclusion:

- From the Eq. 5 the study can conclude

The bigger the  $M(b)$  is, the smaller the  $\mu^*$  is. That is, regulators increase punishment and the probability of controlling stockholders using unfair connected transactions lowers because they are for fear of being severely punished. Supervision probability of regulators reduces accordingly and the supervision cost can also be reduced.

The bigger the  $C(b)$  is, the smaller the  $\mu^*$  is. That is, the cost of controlling stockholders carrying out unfair connected transactions increases, so, that controlling stockholders become cautious. At the moment, supervision probability of regulators reduces.

The bigger the  $a$  is, the smaller the  $\mu^*$  is. That is, the proportion for controlling stockholders accounting for the total shares of listed companies increases. Due to the increase of interests coordination, extraneous income of controlling stockholders via unfair connected transactions decreases. Thus the motivation of transactions decline and at this time, regulators can reduce the probability of supervision.

The bigger the  $b$  is, the bigger the  $\mu^*$  is. That is, the larger the proportion for unfair connected transactions of controlling stockholders accounting for the total transactions the total transaction, the bigger the infringement it is to medium and small stockholders. At this time, regulators should increase the probability of supervision.

- From the Eq. 6 the study can conclude

The bigger the  $C_M$  is, the bigger the  $\lambda^*$  is. That is, in order to get the desired income, the higher the

payment cost of unfair connected transactions is, the bigger the probability of the controlling stockholders carrying out the transactions.

The bigger the  $B$  is, the bigger the  $F$  is and the smaller the  $\lambda^*$  is. That is, the stronger the constraints that social public is imposing on the regulators are, the greater incentive degree is. Thus regulators will increase supervision and the probability of unfair connected transaction will be smaller.

### GAME ANALYSIS OF MEDIUM AND SMALL INVESTORS AND SUPERVISION AUTHORITIES

As an abstract subject, supervision department also has the characteristics of rational person. Regulators supervise this kind of unfair connected transaction regulations on behalf of the investors, especially medium and small investors. Medium and small investors encourage according to the efforts and regulatory effects of regulators. Because the two behavior subjects are independent, there is information asymmetry and the goals of them are not identical. As a result, it is difficult to supervise effectively through the complete contract. (Gomes, 2000). In this case, regulators have two kinds of strategies: Work hard and be lazy, medium and small investors also have two strategies: Provide high reward for hard-working regulators and low reward for the lazy ones. The so-called reward not only includes material rewards provided for medium and small stockholders, but also includes invisible incentive and constraint, such as moral support or moral condemnation (Tian, 2012). In view of this, this study puts forward the following assumptions:

- **Assumption 1:** Medium and small investors judge that the probability that regulators work hard is  $P$ , the probability of being lazy is  $(1-P)$
- **Assumption 2:** When regulators work hard, their income of high reward is  $(R_1-C_1)$  and their income of low reward is  $(R'_1-C'_1)$ ; when regulators are lazy, their income of high paying is  $(R_2-C_2)$  and their income of low paying is  $(R'_2-C'_2)$
- **Assumption 3:** When regulators work hard, the net income that medium and small investors get when they pay high reward is  $(R_3-C_3)$  and the net income that medium and small investors get when they pay low reward is  $(R'_3-C'_3)$ ; when regulators are lazy, the net income that medium and small investors get when they pay high reward is  $(R_4-C_4)$  and the net income that medium and small investors get when they pay low reward is  $(R'_4-C'_4)$ .  $R_i$  is income per unit and  $C_i$  is payment cost per unit. The corresponding payoff matrix is as Table 2

Table 2: Payoff matrix strategy analysis between medium and small investors and regulators

Medium and small investors	Regulators	
	Work hard (P)	Be lazy (1-P)
Pay high reward	$R_3-C_3$ $R_1-C_1$	$R_4-C_4$ $R_2-C_2$
Pay low reward	$R'_3-C'_3$ $R'_1-C'_1$	$R'_4-C'_4$ $R'_2-C'_2$

At present, evaluation mechanism of regulators has not formed completely and the degree of information disclosure of regulators is low. Thus medium and small investors cannot make the right judgment whether regulators work hard or not. At the same time, since securities regulators belong to the state organs and personnel income is relatively fixed, directly linked with the degree of efforts. In this case, it is evident that the cost of regulators when they work hard is higher than the cost when they are lazy, but there is little difference between the incomes of the two conditions. Thereby, the study can conclude:  $(R_2-C_2) > (R_1-C_1)$ ,  $(R'_2-C'_2) > (R'_1-C'_1)$ . Regulators must choose to be lazy.

For medium and small stockholders, when the expected net income that medium and small investors get when they pay high reward is higher than when they pay low reward, medium and small stockholders choose to pay regulators high reward. That is, when  $P(R_3-C_3)+(1-P)(R_4-C_4) > P(R'_3-C'_3)+(1-P)(R'_4-C'_4)$ . That is when  $P > P^*$ , medium and small stockholders choose to pay regulators high reward. From this the study can conclude that  $P^* = [(R'_4-C'_4)-(R_4-C_4)]/[(R_3-C_3)-(R'_3-C'_3)-(R_4-C_4)+(R'_4-C'_4)]$ . That is, medium and small stockholders choose to pay regulators high reward. At this moment, this game has the only Bayesian Nash equilibrium: regulators choose to be lazy and medium and small stockholders choose to pay regulators high reward; when  $P < P^*$ , the game also has the only Bayesian Nash equilibrium: regulators choose to be lazy and medium and small stockholders choose to pay regulators low reward; when  $P = P^*$ , both of the two equilibriums are likely to appear. At present, due to the asymmetry of information and the disclosure of which is not in time, the mainly existing equilibrium is the second one: regulators choose to be lazy and medium and small stockholders choose to pay regulators low reward.

### GAME ANALYSIS OF THE CONSPIRACY OF BIG STOCKHOLDERS

At present, in order to prevent controlling stockholders from encroaching the interests of listed companies via unfair connected transactions and emphasize the decentralization of stock equity. This

decentralization may lead to two kinds of situations: One is the extreme decentralization of stock equity, forming a large number of small stockholders and the other is the formation of several big stockholders, forming certain checks and balances. In any case, it is in order to prevent controlling stockholders from encroaching the interests of listed companies via unfair connected transactions (Miao, 2012). But no matter what kind of situation is, it may bring about certain problems, especially for the situation that the checks and balances are forming among big stockholders. Although, there is evidence that checks and balances of equity can reduce the occurrence of unfair connected transactions, promoting the value of listed companies. But the big stockholders of checks and balances still have economic rationality. Thus, it is difficult to solve the conspiracy among them according to the view of self-interest. In this case, it is not necessarily conducive to the protection of the interests of medium and small stockholders (Enriques and Volpin, 2007).

In order to make the analysis of the problem easier, the study specially put forward the following basic assumptions:

- **Assumption 1:** The listed company has two big stockholders, one is the controlling stockholder 1 and the other is the big stockholder 2 whose shareholding ratio is lower than the controlling stockholder 1. The shareholding ratio of controlling stockholder 1 is  $\alpha(0 < \alpha < 1)$  and the shareholding ratio of controlling stockholder 2 is  $\beta(0 < \beta < \alpha)$ . According to the previous research, this study believes that the decision of unfair connected transaction is mainly made by controlling stockholder 1 (Berkman *et al.*, 2009)
- **Assumption 2:** The proportion for unfair connected transactions of controlling stockholders accounting for the total transactions the total transaction can be quantified, showed with  $b, b \in (0, 1)$ . Big stockholders are all economic rational and risk neutral. the potential value
- **Assumption 3:** The study assume that probability that their conspiracy will be found by the regulators is  $\lambda_1$ , the penalties they received are  $F(\alpha)$  and  $F(\beta)$  respectively. Controlling stockholder will share ratio  $\mu$  of the benefit with big stockholder when they conspire
- **Assumption 4:** The supervision cost of the big shareholder 2 is  $C$ . In this case, probability that their conspiracy will be found by the regulators is  $\lambda_2$ , obviously,  $\lambda_2 > \lambda_1$ . The corresponding payoff matrix is as Table 3

Table 3: Payoff matrix strategy analysis between controlling stockholder 1 and big shareholder 2

Controlling stockholder 1	Big shareholder 2	
	Conspire (p)	Supervise (1-p)
Carry out unfair connected transaction (q)	$\alpha(1-b)V+(b-\mu)V-\lambda_1 F(\alpha)$	$\alpha(1-b)V+(b-\mu)V-\lambda_2 F(\alpha)$
Not carry out unfair connected transaction (1-q)	$\beta(1-b)V+\mu V-\lambda_1 F(\beta)$	$\beta V-C$

According to the payoff and income matrix, the study can calculate the expected revenue function of controlling stockholder 1:

$$E1 = qp[\alpha(1-b)V+(b-\mu)V-\lambda_1 F(\alpha)]+q(1-p)[\alpha(1-b)V+(b-\mu)V-\lambda_2 F(\alpha)]+(1-q)p\alpha V+(1-q)(1-p)\alpha V \quad (7)$$

The expected revenue function of big stockholder 2:

$$E2 = qp[\beta(1-b)V+\mu V-\lambda_1 F(\beta)]+p(1-q)\beta V+(1-p)q(\beta V-C)+(1-q)(1-p)(\beta V-C) \quad (8)$$

According to the Eq. 7, the study take the derivative of the probability of controlling stockholder 1 carrying out unfair connected transaction and get the reaction function of controlling stockholder 1:

$$\frac{\partial E1}{\partial q} = p[\alpha(1-b)V+(b-\mu)V-\lambda_1 F(\alpha)]+(1-p)[\alpha(1-b)V+(b-\mu)V-\lambda_2 F(\alpha)]-p\alpha V-(1-p)\alpha V = 0 \quad (9)$$

According to the Eq. 8, the study take the derivative of the probability that they conspire and get the reaction function of big stockholder 2:

$$\frac{\partial E2}{\partial p} = q[\beta(1-b)V+\mu V-\lambda_1 F(\beta)]+(1-q)\beta V-q(\beta V-C)-(1-q)(\beta V-C) = 0 \quad (10)$$

According to the Eq. 9 and 10, the study can get the best  $\mu^*$ ,  $\lambda^*$ , namely the so-called Nash Equilibrium of mixed strategy:

$$p^* = [(b-b\alpha-\mu)V-\lambda_2 F(\alpha)]/[(\lambda_2-\lambda_1)F(\alpha)] \quad (11)$$

$$q^* = C/[\lambda_1 F(\beta)+\beta bV-\mu V] \quad (12)$$

From Eq. 11 and 12 the study can see that there is possibility of conspiracy between the controlling stockholder 1 and big stockholder 2 under the condition of asymmetric information and bounded rationality.

The study shows that in order to obtain long-term interests, the possibility that the two parties choose to refuse to confess in earlier stage even if they are in a repeated "prisoner's dilemma" game in a limited period. That is to say, it is possible that conspiracy may occur.

From the analysis above, the study get the following conclusions:

- With other conditions unchanged, as the shareholding ratio  $\alpha$  of controlling stockholder rises, the proportion of unfair connected transaction  $b$  drops, the sharing rate  $\mu$  of the benefit gained via unfair connected transaction rises. The supervision probability  $\lambda_2$  rises, the penalties  $F(\alpha)$  rises and the probability that the controlling stockholder 1 choose to conspire  $p^*$  drops when they conspire
- With other conditions unchanged, as the supervision cost of the big stockholder falls, the penalties  $F(\beta)$  and the supervision probability  $\lambda_2$  rises, also the shareholding ratio  $\beta$  of controlling stockholder rises and the proportion of unfair connected transaction  $b$  rises, but the sharing rate  $\mu$  of the benefit gained via unfair connected transaction drops. In this case, the probability that the big stockholder 2 choose to conspire  $q^*$  drops

### CONCLUSION AND POLICY SUGGESTIONS

The analysis above shows that the main causes of the regulation failure of the unfair connected transactions are information asymmetry of the supervision of the securities market and supervision process as well as the irrationality of the regulatory system. Therefore, in order to solve the regulation failure of the unfair connected transactions, regulators must structure the incentive-compatible mechanism of regulation among regulators, medium and small investors and listed companies on the basis of strengthening the construction of information disclosure transparency. Only by this can regulators solve the problem of regulation failure under the condition of the information asymmetry effectively. At the same time, regulators must consider the reasonable sharing of the interests among big stockholders, regulators and medium and small stockholders when they supervise the unfair connected transactions of listed company. Followings are conditions of realizing the profit sharing among the three parties: First, the regulators carry out effective regulation; Second, the big shareholders and their agents must carry out fair connected transactions reasonably and maximize their own interests with the approval of medium and small stockholders; Third, medium and small stockholders need to form the incentive-compatible mechanism of regulators via principal-agent mechanism and supervise unfair connected transactions through regulators. Now the study will put forward the suggestions in details.

**Optimize the ownership structure of listed companies and perfect the protection mechanism of medium and small investors of listed companies:** The "one share jumbo" ownership structure and the lack of effective corporate governance structure is the main reason of generating the unfair related party transactions. Therefore, listed companies must put forward the reasonable way of realizing the optimal allocation of ownership structure under the condition of protecting the interests of the medium and small investors. The process of changing the ownership structure is also the process of redistribution of corporate control in essence. The diversified ownership structure can make the personification feature of the joint stock company more evident and then supervise and constrain the behavior of controlling stockholders or actual controllers. Therefore, it reduces the occurrence of behaviors that controlling stockholders or actual controllers impose their own wills on listed companies and harm the interests of medium and small investors for their own interests by right of their equity advantages (La Porta *et al.*, 2003). So, it is helpful for controlling stockholders or actual controllers and listed companies to change the concept of financing, to improve the utilization efficiency of the equity capital and realize the operation target of the maximization of enterprise wealth. After the reasonable allocation of ownership structure, the perfection of the corporate governance structure should reflect the mutual restriction and supervision of consignors, consignees and administering authority.

**Strengthen legislation and law enforcement, improve the efficiency of securities regulation and increase the construction of punishment mechanism:** A strong executive system of law can make up for the deficiency of the stockholders' legal rights. However, the improvement of law enforcement needs upright, professional, independent law-executors, which often takes several decades to complete. In the long term, when legal environment improves, especially the law enforcement improves, law enforcement may be the important mechanism which bans unfair connected transactions, protects the interests of medium and small investors and improves economic efficiency (Sheng *et al.*, 2011).

The improvement of regulation efficiency and the increase of punishments have substitution effect on suppressing unfair connected transactions. It is difficult listed company to use repristination to relieve this kind of illegal unfair connected transactions. This raises a special claim for the law enforcement of securities. First, law-executors should pay attention to the timeliness when doing the investigations, otherwise the effect will be

constantly expanding and damage may be difficult to relieve. Second, law enforcement must be professional, otherwise it will be difficult to solve some of the complicated problems. At present, the regulatory means of unfair connected transactions is still not flexible enough and with lack of administrative discretion, regulators have difficulty in identifying and dealing with all kinds of unfair connected transaction behaviors. At the same time, regulators are easy to be captured by some interest groups of listed companies for their own interests, which may go against the promotion of the whole social welfare. Besides, medium and small stockholders' equities of the listed companies depend on the government's regulation. As a result, under current conditions, the key to reduce unfair connected transactions is to perfect performance appraisal system and responsibility restraint system and make the regulators independent, professional and with strong incentive mechanism.

**Increase the negative act cost of regulators:** Negative act cost of regulators actually refers to the behaviors that there is no conclusive evidence but regulators are involved a suspected "conspiracy" in a sense in the regulation of unfair connected transactions, which is showed that regulators find the illegal behavior controlling stockholders encroach the interests of listed companies via unfair connected transactions but do not disclose or avoid responsibility deliberately. This kind of behavior has characteristics of negativity and invisibility. Negative act cost of regulators can be expressed quantitatively using the analysis above. Thus, increase the negative act cost of regulators can increase the probability of being discovered of regulator's negative acts, loss of reputation they suffered from and the corresponding material loss. In practice, changing the single assessment of super ordinate appraisal into departments shall be regularly or irregularly common assessments from competent authorities and the public is an important way in optimizing the evaluation mechanism of regulators. Regulators should publish the investigative cases of unfair connected transactions of listed companies in the form of report on a regular basis when they do regular assessments while irregular assessments mainly regard assessments of the regulator's actions from professionals and the general medium and small investors as the judging basis.

**Improve the information condition of the capital market:** In this study, information condition directly influences the results of the game equilibrium. Generally speaking, amount of information owned by the main bodies of capital market, such as big stockholders, medium and

small investors and regulators and other capital market in the game is different in the game process. About the information of the company's specific management, the big stockholders have the most abundant information, followed by regulators and medium and small investors as well as the public are always at the weak position, but the information among them is always incomplete and asymmetric. Although, the absolute and asymmetric information can never be reached, the degree of the absolute and asymmetric information can be improved by clearing information supplying channels, improving the ability of absorbing and integrating information and improving the dissemination and transmission mechanisms of information.

**Establish the pre-commitment approach:** Pre-commitment approach comes from the technical terms of game theory. When used in the regulation of unfair connected transactions of listed companies, it refers to the behaviors that the big stockholders of listed companies make a commitment to regulators in a certain period and prohibit the unfair connected transactions according to the forecast of the possible maximum error. In the range of the maximum forecasting error, listed companies can do self-regulation. If unfair connected transactions exceed the maximum possible error within a certain period, regulators will give certain punishment and strengthen supervision. Compared with traditional supervision methods, Pre-commitment approach has more flexibility. Under this mechanism, the big stockholders of listed companies also have some flexibility. If there is any problem, they cannot shirk their responsibilities. Therefore, it strengthens the conservatism of big

stockholders of listed companies on connected transactions, reduces the supervision cost indirectly and increases the effectiveness of supervision.

## REFERENCES

- Berkman, H., R.A. Cole and L.J. Fu, 2009. Expropriation through loan guarantees to related parties: Evidence from China. *J. Bank. Finance*, 33: 141-156.
- Dakai, Y., 2009. Financial reporting fraud research based on the corporate governance. *Finance Trade Econ.*, 5: 24-29.
- Enriques, L. and P. Volpin, 2007. Corporate governance reform in continental. *J. Econ. Perspectives*, 21: 117-140.
- Gomes, A., 2000. Going public without governance: Managerial reputation effects *J. Finance*, 55: 615-646.
- La Porta, R., F. Lopez-de-Silanes and G. Zamarripa, 2003. Related lending. *Q. J. Econ.*, 118: 231-268.
- Miao, L., 2012. Study on the relationship between corporate social responsibility and organizational commitment. *Adv. Inform. Sci. Service Sci.*, 4: 339-346.
- Sheng, M., W. Keyi and W. Jian, 2011. The corporate stakeholder management integrated model research: A conceptual framework and theoretical approach review. *J. Convergence Inform. Technol.*, 6: 415-424.
- Tian, X., 2012. Empirical research on organization performance and the influential factors of corporate philanthropy *J. Digital Content Technol. Appl.*, 6: 520-531.
- Yugang, C. and L. Shanmin, 2007. Predictability of merger the company-based on the transaction cost. *Econ. Res.*, 4: 90-100.