

Analysis of Game between Supervisors and Fund Managers under Rat Trade Condition

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Abstract –The rat trade, the inevitable outcome of that particular period of the economic development, especially the certain stage in the development of the Securities Market, is the manifestation of the motivation of pursuing huge profits in the Securities Market. The paper is written on the basis of the connotation and the constitution of the rat trade, and makes an initial analysis for the behaviors of both sides. From the viewpoint of the game theory, this paper establishes models and analyzes on game between supervisors and fund managers, suggests improving the supervision guarantee system. It is significant for the authorities to bring the rat trade under control and establish the investment environment, which is impartial, fair, honesty and keeping promises.

Keywords –Fund managers; Rat trade; Intendance game; Management proposals

Since the second half of 2001, the stock market due to the lack of credit system and the culture of integrity, resulting in the phenomenon of the "Prosperous critical situation" (Ang Lee Fang, Yi Chan Jun, 2004), since the development of the investment fund, its set of bank deposits and stock advantages in the characteristics of a diversified investment and reduce investment risk than bank deposits, low cost, earnings are high liquidity, liquidity and attract a large number of small and medium-sized investors, but also because of the advantage of professional financial professional investment. Practice has proved that the fund investment is also a good way of national financing, with the deepening of reform and opening up, the investment fund heat become an inevitable trend.

However, after the reform and opening up China's securities market was able sprout generated and ideological awareness and market reconstruction double caught in a difficult development, and thus for the relatively indirect financing, commercial banking and

financial system, with severe developmental adverse initial characteristics, making China's stock market ahead (Shen Yi-feng, 1999), and imperfect credit system and the lack of culture of integrity, so as the popular "crossing the river by feeling the stones" in its development of the road to take "Rat" phenomenon of repeated the fiduciary financial institutions fund industry. "Rat" phenomenon undermines the "lifeline" of the capital markets, fair trade, which would seriously hinder the healthy development of the capital market. This paper attempts to regulatory behavior and illegal fund managers move from the securities regulatory authorities are starting to build the the disciplinary game model between the regulatory authorities and the fund managers analyze the regulatory regime for reasons of "Rat" problems, and propose effective solutions approach.

1. The concept of the "Rat" and the constituent elements

"Rat" is a habit of the people, it is called, may have different meanings in different areas, but the "Rat", is a violation of the especially stock market fund managers behavior. View, the so-called "Rat", pulled up certain stocks in the use of public funds, the fund managers before using personal funds in low-cost to buy the stock until the stock price move up to the high use of public funds to , the the holdings first to sell personal profit, and institutional and retail funds may be stuck. I believe that the concept is basically reflects the nature of the "Rat", but this representation is not very comprehensive. "Rat", should the public fund managers raised funds pulled in a stocks advance with their personal funds in low-cost to buy the stock, the stock pulled to a certain price, and then stock held by the first to sell in order to obtain benefits, which may make the funds or retail funds is stuck with a behavior. Under this concept, we can see that the establishment of the "Rat" need to have the following elements:

1.1 The establishment of the body of the "Rat" is the management of the public fund.

In our country, depending on the source of the fund of funds, the fund is divided into raised funds and private equity funds. Raised funds, means-oriented investments in securities issued to the public and raise funds. The source of funding of the public fund is a public fund information such as fund companies, fund managers, investment style, Fund positions circumstances, the Fund's annual report and financial report should be exposed to the public, to some extent by the special protection of the laws, regulations, and government. The private equity fund, is the non-disclosure to the minority or specialized investment experience, do not need special government protection of specific currency investors to raise capital to fund operation system of collective investment. The source of private equity fund of funds is a specific individual investors, fund companies, as well as the basic information of the Fund is not open to the public, and do not need laws and regulations, as well as special government protection fund. Here, the main body of the "Rat" refers specifically to the management of the public fund, does not include the management of private equity funds, raised funds in the laws, regulations and the government's credibility based the establishment of this

fund is to go through the government approval, this approval reflects the credibility of the government. In addition, the management here refers not only to fund managers, but also including other fund companies, such as the general manager, researcher, Chief Investment Officer, traders and other executives. Because they have the means to understand the transactions of the Fund and specific strategies.

1.2 The behavior of low-cost to buy stocks and funds will want to move up in the stock's behavior is relevant.

The one hand, to establish the main body of the "Rat" at a relatively low price to buy the Jiancang Jiancang stock is a stock positions in public funds. There are two conditions, one of which is in a relatively low-cost positions, and the second is the stock positions must be built with public funds he or pulled. If not positions in a relatively low-cost, it would be difficult to prove the intention of the profit from the actors; Jiancang stock is not to use public funds Jiancang or pulled, then it is difficult to be called "Rat". "Rat", on the other hand, actors will use their management duties of a fund's convenience, to spend public funds to move up the stock, which is after its own funds Jiancang using public funds to Jiancang or pulled up the stock, and then pulled in the stock to rise to a certain height, with the principle of supply and demand relationship, own that part of the stock began to sell and make a profit. These two must have relevance to the establishment of the "Rat" to enter a stock based on the actors first, and then pulled up with public funds, both with consistency, the establishment of the "Rat" objective elements.

1.3 In the high-priced to sell their shares and make a profit.

Establish the body of the "Rat" in order to obtain benefits in the subjective, the actors pulled up a stock of public capital, the high price to selling used its own funds to buy the stock for huge interests, which is to establish a "mice positions in the subjective element of the actors. The general performance of the intent, the perpetrator know that their behavior contrary to the law and cause damage to property of others, has the purpose to

themselves or a third party to obtain benefits and imputation should be used in the principle of presumption of fault. As the Chinese stock market is still not established the short-mechanism, can only do more to get a return on investment. Perpetrator get is generally fund a stock the Jiancang information and its target price, and then the first to buy the stocks in the fund, to be informed of the fund is about to lighten up again before selling shares of the Fund. This behavior is commonly known as the "banker Sedan Chair." Behavior is another feature of the "Rat" account is often the relatives and friends of the fund managers are opened, the actual control of the fund managers. A huge amount of income received by the fund managers by this breach of trust, from the data published by the SFC, cast Morgan fund manager Tang Jian "Rat" profit 1,509,400 yuan, fund managers in the South Wang Limin "Rat" profit 1,527,200 yuan, the intermediation fund managers Zhang Ye "Rat profit of 2,294,800 yuan, its actual control" Zhou Qiang account to achieve a profit of nearly 10 million yuan.

2. The analysis of Game behavior

2.1 The fund manager's behavior analysis

As a rational person, fund managers, operation and management of investors seeking to maximize the benefits of investment. Due to the unique advantage of investment fund managers, decided to exclusive information - fund managers hold more resources, such as a stock pond, position adjustment, capital, and thus to a certain extent affect the movements of the stock. Information is the interests of the unique advantages of the fund managers for which he seeks a huge illegal profits provide a basis in reality, temptation before the fund managers will be faced with two options: legitimate business to obtain legal remuneration; two irregular operations, ignoring investors interests, through the establishment of the "Rat violations reap huge illegal profits. The securities regulatory authorities on the size of the fund manager's supervision is an important factor to affect the choice of fund managers. When fund managers aware of regulatory authorities intensify supervision and punishment of their own behavior will be more cautious, more energy is devoted to the analysis

of the stock market to expect legal way to get more profit; Once the regulatory authorities deregulation fund managers "Rat" behavior is difficult to be found, it attracted huge interests, most would choose the illegal operation.

2.2 The analysis of the behavior of the SFC

Fair and equitable trading managers as to protect the investment market, the SFC pursuit of utility maximization, great to play a role in promoting rapid economic growth and provide strong capital support for China's economic restructuring of the capital market. However, because of the particularity of the Fund's investment in the nature of the work the particularity and information disclosure, the strict supervision of the SFC requires huge regulatory costs, not only have sufficient human resources and financial resources, and the demand for high-tech will also be increasing. In the course of the game with the fund managers, the SFC has two choices: First, strict supervision, although there is a huge regulatory costs, but if effective supervision and fines sufficient to cover the costs to the appropriate regulatory material reward, the SFC select the strict supervision; the SFC will select deregulation significant regulatory outcomes, can not compensate for the cost of regulation.

3. The analysis of Game between Supervisors and Fund Managers

Game model of the SFC and the fund managers, both unable to anticipate each other's behavior, and there is no obvious sequencing, which is a static game; due to the special nature of the fund investment information, fund managers have complete information at the same time SFC fund managers have all the information can not be obtained, this model is a static game of incomplete information. To build this game model matrix, made the following assumptions:

Y is a normal law-abiding business income of the fund company; F_{Fund} for fund companies operating illegal amount of punishment, not be investigated and dealt with by the regulatory agencies, including the confiscation of illegal gains; M excess profits to fund illegal business, and that is more than the law-abiding operators the utility obtained; the N regulatory agencies the normal utility; C1

regulatory agencies strategy of strict supervision of law-abiding conduct of operations of the fund company to pay the cost of regulation; C2 regulatory agencies implement strict supervision strategy, investigate and deal with the fund company is illegal operators pay regulatory costs, general $0 < C1 < C2$; F_{SFC} for the regulatory agencies work dereliction of duty and punishment; the R regulatory agencies successfully investigated the reward fund company illegal business; regulatory bodies of the Fund strict supervision of the company investigated the fund company for the illegal business success probability α ; fund illegal business behavior reported by the public probability β ; regulators check probability μ ; Fund violation probability λ .

3.1 The analysis of the behavior of the SFC game:

Given fund manager violation probability λ premise, the Commission choose to check the expected revenue π_1 :

$$\pi_1 = [\alpha * \lambda * (Y + M - C_2 + R) + (1 - \alpha) * \lambda * (-C_1) + (1 - \lambda) * (-C_1)]$$

SFC chose not to check the expected revenue π_2 :

$$\pi_2 = \beta * \lambda * (Y + M - F_{SFC})$$

No difference when the expected benefits of the SFC checks and does not check, also get the illegal operations of the SFC game equilibrium optimal efficiency, $\pi_1 = \pi_2$ Solution:

$$\lambda * = C1 / [(\alpha - \beta) * (Y + M) + \alpha * (C1 - C2 + R) + \beta * F_{SFC}]$$

That the fund managers do not have the advantages in the game to enable the SFC $\lambda *$ probability of violation.

3.2 The Fund Manager game behavior analysis

Given SFC checks the probability μ , fund managers select a breach of the expected revenue π_3 for:

$$\pi_3 = \mu * \alpha * (-F_{Fund} - M) + \mu * (1 - \alpha) * (Y + M) + (1 - \mu) * (\beta) * (-F_{Fund} - M) + (1 - \mu) * (1 - \beta) * (Y + M)$$

The expected revenue fund managers choose not to irregularities π_4 :

$$\pi_4 = Y$$

No differences in the expected revenue fund managers select irregularities and violations, it has been the fund managers in the game equilibrium optimal efficiency of the supervision of the SFC, $\pi_3 = \pi_4$ solution:

$$\mu * = [\beta * (F_{Fund} + Y) - Y - 2 * M * (\beta - 1)] / [(\beta - \alpha) * (F_{Fund} + Y + 2 * M)]$$

Commission probability checks to $\mu *$ fund companies do not have the advantage in the game.

Therefore, the mixed strategy Nash equilibrium of the game model is:

$$\lambda * = C1 / [(\alpha - \beta) * (Y + M) + \alpha * (C1 - C2 + R) + \beta * F_{SFC}]$$

$$\mu * = [\beta * (F_{Fund} + Y) - Y - 2 * M * (\beta - 1)] / [(\beta - \alpha) * (F_{Fund} + Y + 2 * M)]$$

The balanced fund companies will be the best probability $\lambda *$ Select the violations, and to obtain additional income. If the economic entities of the fund company in probability $\mu > \mu *$ illegal operations, the optimal choice of the SFC checks; contrary is not checked. If the fund company subject selection in probability $\mu = \mu *$ when illegal operations, then the optimal choice of the SFC selected randomly check or not check.

The Nash equilibrium, the optimal probability of non-compliance by the fund company depends on Y, C1, C2, R, β , α , M and F_{SFC} , including non-compliance from the excess profits of M and the reporting rate β is independent of our model outside, they can be assumed constant, we can change through the efforts of the C1, C2, Y, R, α and F_{SFC} . The optimal probability due to the illegal operations and regulatory costs C1, C2 is proportional to, Y, R, F_{SFC} and α is inversely proportional to, so trying to reduce regulatory costs, improve inspection methods to improve the efficiency of check real and amount of violation penalties optimize the incentives of regulators to improve the people's awareness of investment norms, must have the courage to report non-standard investment behavior, play the role of public opinion, so as to achieve the governance fund market, the lack of credit.

4. The "Rat" governance proposals

Due to the problem of the "Rat" caused great harm, and getting worse, with the development of the securities market, when reaches a certain level the market can not accommodate the development of the national economy will be extremely bad influence. Therefore, the "Rat" issues of governance put on the agenda must be firmly cut off the chain of transfer of benefits.

4.1 Advancing legislation to increase penalties, increase compliance costs

First of all, to promote the establishment of the legislative building and illegal trading criteria. Should be special legislation against insider trading and manipulation, the foreign governance insider trading advanced theory and judicial practice introduced to China, to further promote the securities market legal system construction, accelerate the legislative process of China "insider dealing", for sound securities the laws and regulations of the market system, against securities crimes, safeguarding the interests of investors and the securities market efficiency has important practical significance. Second, to establish the criteria for the "Rat". For example, according to the disclosure of information is not cause the share price of the transaction to define whether there is insider information. Once a stock under the criteria established suspected of illegal trading law to require traders to assume self-responsibility of proof, that traders must be proof why will exist at the exact moment to buy stocks without insider trading, if you can not prove I was determined to build the "Rat" insider trading, which is a time-tested regulatory tool of the U.S. stock market. Search irregularities evidence of commitment will be transferred to the offenders, like regulators is difficult to grasp the offender breaches evidence, offenders will be difficult to prove his innocence.

The current punishment fundamentally determines's difficult to fight against the "Rat degree is therefore proposed to increase the punishment from the system, the substantial increase in the cost of violations of the offenders: increase the punishment, up to a maximum amounts involved several times; regulators the offenders resolutely Shichangjinru, intensify the crackdown; consider serious cases, criminal penalties.

4.2 Drawing on international experience, to relax restrictions on the practitioners' investment securities, and to enhance the review

Although China has been the investment of the fund practitioners let go, to allow its investment in open-end funds, but this does not prevent them from engaging in the investment in higher yielding stocks. In the case of

reality can not prohibit fund managers from stock investment behavior, it is better to change the prohibitive provisions that draw on the Measures for the Administration of the United States to actively divert allows insiders to buy shares in an open and transparent manner, and to openly share investment opportunities and income . Abandon regulatory investment restrictions practitioners require employees to regularly disclose their personal investment records data to establish the property declaration system of securities professionals, Chief Investment Officer, executives such as fund managers, the scope of the property declaration expanded to "stakeholders", as long as the third person account, fund managers have control rights and interests related, is the relevant parties, which are not limited to the narrow scope of the "immediate family". In addition, strict blocking material opened mice households "identity of others, should be instructed securities companies and other brokers to undertake rigorous review responsibilities, such as requiring the broker only accept the account applicant scene account of the way, can not act for the account. By judicial interpretation or the regulations of the China Securities Regulatory Commission, to take positive or negative list of established rules of conduct and fund managers personal trading mode. For example, fund managers and fund companies at the same time to buy some securities regulatory period, the circumstances under which the fund managers involved in the transaction. Finally, under the name of the fund managers use third party identity cards, the use of insider information to build a "Rat" violation, no matter how hidden interests of its violations will eventually have to implement to the individual or his or her spouse and immediate family Once a property from unidentified sources, immediately asked the source of personal description of the property can not prove a legitimate source of income, all violations gains treatment.

4.3 The practice of option incentive fund managers get paid

As we all know, the fund manager's income is relatively high, and the pursuit of the interests of the "Rat seems worth the candle. But the relative contribution of the fund managers, whose income is relatively small. The ideal

reward incentive design is the manager of the option system. The so-called manager options, in fact, is a right to choose, the basic content of the right to give the chief executive officer, led by senior management to a future time to buy the stock at a certain price. In this way, the managers acquired the right to a certain period will fund shares are sold in the market, but the option is non-transferable. Manager options on the fund manager who has ownership incentive, according to the company manager shareholding incentive general analysis, fund managers in the company's stock options have become shareholders of the fund company, so managers will have a dual identity, in order to effectively solve the problem of inconsistent goals between principals (shareholders) and agents (managers), to prevent the occurrence of moral hazard. Manager option system can also be an effective solution to the fund managers' lack of long-term incentive problem, manager option system on the institutional arrangements, including the expected benefits and fund development managers closely combined, managers For option income can only strive to improve fund company management, the assets of the company to continue to add value, profitability and increased the capacity to promote NAV continuously improve. Managers work more efforts, more fund profitable, the higher the NAV managers greater the returns on stock options. Thus, this system to promote the fund manager remuneration incentive reform, can not only solve the problem of fund managers incentive incompatibility can also solve the problem of China's fund managers relative lack of long-term incentive.

(D) to improve the company's internal control system, strictly enforce

1. Strengthen the monitoring of the Fund's internal audit. Any one fund with monitoring the Internal Audit Department directly on the board of directors is responsible for the behavior of the inspection business with employees to ensure that the behavior of the company's operations and employees comply with laws and regulations. Audit Department to monitor by monitoring the operation of the Fund program reveals the problems and risks of the operation of the process. If you find that the operation of the Fund to be materially breaches to the relevant authorities, and under the authority of the board of directors, will be investigated. Take effective measures to guarantee the security of

confidential information, to prevent information leaks result in losses to investors. Prone to lead to "Rat" top secret information for investment decisions, investment plans have not been implemented, and strict control insider. For different work, strict separation of the office area, the most important secret area of the trading room, computer room, any unauthorized person to enter any pretext is strictly prohibited. For the production, transmission, and use of secret documents belonging to the company, by the company someone responsible for the implementation of the "responsibility to the people" system, the event of a leak, that is to be held accountable by the relevant personnel.

Securities Investment Fund "Rat" problem, in fact, reflected in the fund ethical choices and interests. Rely solely on industry and personal self-discipline is difficult to solve the problem in the case of the current regulation in place internal control missing, you must establish a sound investment fund regulatory system, improve the governance structure of the securities investment fund to strengthen the internal control of securities investment funds, while extensively mobilize the fund Fang Duiji gold oversight to inhibit or even eliminate the occurrence of the "Rat" problem, so as to promote the development of securities market norms. We have reason to believe that, With the social emphasis of the "Rat" in the efforts of all sectors of the securities investment fund investors' interests be guaranteed, "Rat" issue of the securities investment fund must be properly resolved.

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