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# *The Control Rights of the Major Shareholder and the On-the-job Consumption Behavior of the Management Layer of Chinese Listed Companies*

**Min Wang, Zimin Gu, Peng Xu***

*School of Business, Linyi University, Linyi, China*
**Corresponding author*

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***Abstract:*** In recent years, the issue of excessive on-the-job consumption of the management of Chinese listed companies disclosed by the media has caused widespread concern. In the case of low monetary compensation, immature equity incentives, and relatively loose market regulation, the management of Chinese listed companies using power to increase on-the-job consumption has become a common phenomenon. Different from the highly dispersed equity of Western companies, the equity of Chinese listed companies is relatively concentrated. Under the Chinese governance environment, can the major shareholder who is universal and has the supervisory ability and motivation effectively exercise its supervisory functions and constrain the management's excessive on-the-job consumption? In view of this, from the perspective of cooperative game theory, this paper measures the control rights of the major shareholder of Chinese listed companies by using the Shapley-Shubik Power Index method established by Shapley and Shubik, and studies the relationship between the control rights of the major shareholder and the on-the-job consumption behaviour of the management layer of Chinese listed companies. Based on the unbalanced panel data of Chinese listed companies from 2003 to 2016, we find that: (1) the greater the control rights of the major shareholder, the lower the on-the-job consumption of the management layer of the listed companies; (2) the on-the-job consumption of the management layer of the non-state-owned listed companies is higher than that of the state-owned listed companies.

## 1. Introduction

The allocation of control rights among a company's shareholders has always been regarded as a key core problem in the corporate finance field. According to the principle of profit maximization, the optimal decision point for the shareholders' control rights of the company should be at the point where the marginal benefit of control rights equals the marginal cost. Otherwise, it will be adjusted accordingly. In general, the benefits of shareholders control rights mainly include: "reduction of agency costs caused by direct control", "net value of income obtained by tunnelling behaviour" and "satisfaction of personal control desire". With regard to the major shareholder control rights and the tunnelling behaviour (the agent problem between major shareholders and minority shareholders), the existing literature has carried out fruitful research [1-3]. The relevant research literature on the "reduction of agency costs caused by direct control (agent problem between shareholders and managers)" is still very limited. The agency cost between shareholders and managers includes the principal's monitoring cost, the agent's bonding cost, and the residual cost [4]. On-the-job consumption is a dominant residual cost [5]. Management power theory believes that management has the incentive to use power to seek rent, in addition to affecting monetary compensation, it may also increase on-the-job consumption [6,7]. Compared with Western companies, the management of listed companies in China faces lower monetary compensation, immature equity incentives, and relatively loose market supervision. This makes it a common phenomenon for management to use power to increase on-the-job consumption. Therefore, the study of on-the-job consumption is of great significance for Chinese companies to constrain management agent issues. At the same time, different from the highly dispersed equity of Western companies, the listed companies in China are relatively concentrated in equity. So under the corporate governance environment in China, can the major shareholder who is universal and has the supervisory ability and motivation effectively exercise its supervisory functions and restrict the management's excessive on-the-job behaviours, and help solve the first-class agency problem between shareholders and managers? In addition, the existing literature measures the control rights of shareholders based on the shareholding ratio. Although this method seems to be more intuitive and advisable, there are actually many problems. The shareholding ratio of the major shareholder is not positively correlated with control rights. At the same time, the control rights of the major shareholder are not only affected by the shareholding ratio of its own, but also by the shareholding ratio of other shareholders [8]. In view of this, this paper takes China listed companies as an example, from the perspective of cooperative game theory, using the Shapley-Shubik Power Index method established by Shapley and Shubik [9] to re-measure the control rights of the major shareholder of listed companies. On the basis of this, it examines and studies the relationship between the control rights of the major shareholder and the on-the-job consumption behaviour of the management layer of Chinese listed companies, and expects to generate new theoretical findings and practical references.

## 2. Theoretical analysis and research hypothesis

In the modern corporate system, ownership and management rights are separated. There is a principal-agent relationship between shareholders and management layer. Managers are not or not completely the owners of companies, but the results of their efforts must be shared with shareholders. However, the benefits of activities such as on-the-job consumption can be monopolized by themselves. Therefore, there is a conflict of interest between shareholders and management layer. Coupled with the existence of information asymmetry, management layer will use its information superiority to adopt opportunistic behaviours that harm the interests of shareholders and pursue high compensation including on-the-job consumption, which can result in agency costs between shareholders and managers. How to supervise and motivate senior managers and reduce the agency cost as much as possible to make it more effective to maximize the value of the company has always been the focus of research. Jensen and Meckling [4] argue that without regard to supervision, if management layer is free to choose the level of benefits, they will be able to maximize their utility by increasing their non-monetary benefits, and the less equity the management layer holds, the less the cost of consumption should be borne by itself, the more likely it is to enjoy more non-monetary benefits. Mueller [10] believes that in the context of developing countries in emerging markets, the strong corporate governance institutions should be established to constrain management's on-the-job consumption and protect the interests of shareholders in order to facilitate the creation of thick equity markets and provide a source of funding for corporate development. Chinese academic research on the issue of on-the-job consumption is mainly concentrated in state-owned enterprises. Huang [11] believes that the on-the-job consumption of executives belongs to the private interest of control rights, and its root cause lies in the mismatch between residual claim rights and residual control rights. Yan [12] believes that the incentive mechanism of state-owned enterprise managers mainly has the disadvantages of low monetary compensation and alienation of reputation and career promotion incentives, which leads to the managers' self-motivation proliferation. The proliferation of such managers' self-motivation is mainly manifested in two aspects: on the one hand, using illegal means to encroach on corporate profits and embezzling state-owned assets; on the other hand, pursuing excessive on-the-job consumption.

In the principal-agent relationship within the listed companies with relatively concentrated equity, the major shareholder dominates corporate governance. The control of the major shareholder can help people to solve the first-type agency problem between shareholders and managers despite that it might bring the second-type agency conflict between major shareholders and minority shareholders. Due to the large shareholding ratio and voting rights of a company, in order to pursue the interests of shareholder and control benefits, the major shareholder has strong motivation and ability to supervise the management layer's business activities, and can use the large voting rights in its hands to influence the business decision-making of the management layer, which can help the companies to solve the problem of insufficient supervision to managers caused by the "free-riding" behaviour of minority shareholders. For the conflict between shareholders and agents, Shleifer and Vishny [13] believe that the existence of the major shareholder can help solve internal control problems and improve corporate performance. Luo et al. [14] believe that compared with listed company without controlling shareholder, the managers of listed company with controlling shareholder have a lower level of on-the-job consumption. Chen and Liang [15] believe that the more concentrated the company's equity, the lower the management's on-the-job consumption, the higher the company's equity balance, the higher the management's on-the-job consumption. Zhen et al. [3] believe that centralized ultimate control helps to reduce the cost of the first type of agency, improve the governance efficiency of listed companies, and ultimately improve company performance. Based on the above analysis, this paper proposes the following assumptions:

H1: The control of the major shareholder is negatively correlated with the on-the-job consumption of management layer.

For a long time, China's state-owned firm's manager market and executive compensation pricing have faced dual control. Due to the unobservability of the operator's performance and the inability of the owner to quit, the development of a uniform compensation management system is almost the only solution for the government as a shareholder. The implementation of this regulation actually deprives the state-owned enterprise managers' rights to negotiate compensation, making the compensation arrangement a pre-determined constraint for the company's selection manager. Such a uniform compensation contract is difficult in efficiency to compare with a compensation contract tailored to the free market. Managers must make choices based on this given hard constraint. Such choices are quite different from managerial behaviours under free contractual compensation. Therefore, out of this regulated compensation arrangement, it is inevitable to form a diversified compensation system that is not directly reflected in money, and the on-the-job consumption is one of the main forms [16]. On the other hand, in state-owned listed companies, due to the mismatch between supervision costs and supervision revenues, the SASACs that appear as state-owned major shareholder cannot actively monitor managers effectively, and thus there are serious "internal person control" problems in state-owned listed companies, and managers are prone to have excessive consumption behaviour. In the non-state-owned listed companies, the major shareholder has incentives to actively supervise the managers for the purpose of protecting its own interests, which can effectively restrict the excessive on-the-job consumption behaviour of managers [17]. Based on the above analysis, this paper proposes the following assumptions:

H2: The on-the-job consumption of management layer of state-owned listed companies is higher than that of non-state-owned listed companies.

## 3. Methods

### 3.1. Sample selection and data source

This paper takes the main board listed companies of China's Shanghai and Shenzhen stock markets as research samples. The management's on-the-job consumption data, corporate governance data, company financial data, and company's characteristic data are mainly from CSMAR database and WIND database, and supplemented and confirmed by the relevant data of company's annual report and announcement, the securities regulatory agency announcement ,the stock exchange announcement. All the data are collected and processed manually to form a data-set covering the years from 2003 to 2016 (before 2003, only a very small number of companies disclosed management's on-the-job consumption details). In this paper, some continuous variables are processed by Winsorize. Variables less than 1% quantile and greater than 99% quantile are equal to 1% quantile and 99% quantile respectively.

### 3.2. Variable definition

(1) Control rights of the company's 1st major shareholder

Because the method of measuring the shareholder's control rights by the shareholding ratio has many flaws, this paper uses the Shapley-Shubik Power Index (SPI) method established by Shapley and Shubik [9] to re-measure the control rights of the major shareholder of listed companies.

The SPI method proposes a new method for calculating the actual power of different political groups in political games from the perspective of political theory. Based on the cooperative game theory, it redefines and measures the power composition and relative power among political groups with different voting rights. The core idea and basic design are: In a political game, one group (player) can, through forming coalition with other groups, obtain the required number of votes for a bill to be passed (the winning rule of votes may be over-half, or two-thirds or any other agreed-upon rule). The SPI of an interest group (player) is defined and measured by the fraction of the possible voting sequences in which that player casts the deciding vote, that is, the vote that first guarantees passage or failure of a bill. In fact, the SPI is a complete description of the probability that a game participant can win in all combinations of game alliances when faced with various possible conflicts of interest under certain relative power structures. Compared with the method of measuring shareholders control rights based on the shareholding ratio of shareholders, this method is more profound, clear and accurate in describing the relative power and power structure among groups, which provides a new perspective for us to really research the actual control rights of Chinese listed companies: **A.** The SPI not only reflects the non-linear relationship between the control rights of the major shareholder and its shareholding ratios, but also considers the influence of the shareholding ratios of other shareholders on the control rights of the major shareholder; **B.** The SPI is based on cooperative game theory and draws possible collusive behaviors among company shareholders, which is closer to the reality; **C.** The SPI gets rid of the shackles based on the shareholding ratio, so that from the theoretical logic to the measurement basis are completely independent of the shareholders' cash flow rights. Based on the above characteristics, the SPI method has also begun to be noticed by some researchers [18,19], however, there is still a lack of research on this aspect, and it mainly studies the influence of shareholder control on corporate performance.

Based on the above analysis, the winning rules of shareholders control rights competition and the establishment of game participants are the key prerequisites for the calculation of the shareholders' SPI. This paper calculates the SPI of the listed company's 1st major shareholder by taking the former top 10 shareholders as the game participants of the company's control rights competition , taking simple majority (over half of the votes that are represented by the meeting attendants)as winning rules [20] .

Table 1: Descriptions and measures of the main variables

| Variables | Symbol | Definitions and measures |
|---|---|---|
| The on-the-job consumption of management layer | Perks1 | The first method to measure the on-the-job consumption of the management layer: (office fees + travel fees + business hospitality fees + communication fees + overseas training fees + board fees + car fares + conference fees) / firm's annual revenue |
| | Perks2 | The second method to measure the on-the-job consumption of the management layer: (management fees deducting the employees' compensation, the provision for bad debts, the provision for inventory depreciation, the intangible assets for the year, and others, which are obviously not included in the item of on-the-job consumption) / firm's annual revenue |
| Control rights | SPI | The Shapley-Shubik Power Index of the 1st major shareholder |
| The nature of the major shareholder | Soe | The value of the state-owned listed company is 1, otherwise it is 0. |
| Board size | Board | Number of board members |
| whether the CEO is also chairman | Dual | "Yes" is assigned a value of 1, otherwise, it is assigned a value of 0 |
| Ratio of independent directors | Rid | The number of independent directors / the number of board members |
| Management shareholding ratio | M-share | Management shareholding / total share capital |
| Asset-liability ratio | Lev | Total liabilities / total assets |
| Company size | Size | Natural logarithm of total assets |
| Listed age | Age | The first year of listing is assigned a value of 1, followed by the addition |
| Industry attributes | Industry | According to the similarity of their attributes, the listed companies' industries are divided into "manufacturing", "general service industry", "financial and real estate industry" and "comprehensive category" |

(2) The on-the-job consumption of management layer (Perks)

Due to the limitation of the availability of on-the-job consumption information, the on-the-job consumption of management layer is difficult to measure [16], and the academic community is trying to find some alternative variables for analysis. The existing literature mainly uses two methods to calculate the on-the-job consumption of management layer. One method is taking the on-the-job consumption of firms as the proxy variable of the on-the-job consumption of management personnel [16]. The data is collected by the "Other Cash Flows Related to Operating Activities" item in the notes of the annual reports. Since the item's reporting rules determine that the management fees paid by the company are included, and the on-the-job consumption of the company's management personnel is generally included in the management fees, and the annual report disclosure rules stipulate that the detailed information of large-amount fees in the item should be disclosed. Therefore, it is possible to obtain relevant data on on-the-job consumption. The fees related to on-the-job consumption can be roughly divided into eight categories: office fees, travel fees, business hospitality fees, communication fees, overseas training fees, board fees, car fares and conference fees. These items are easy to be a shortcut for management personnel to obtain benefits, and management personnel can easily reimburse private expenses through these items, thereby passing them on to company expenses. The management layer's on-the-job consumption data is aggregated from the above detailed items. Another method is that the on-the-job consumption of management layer is the management fees deducting the employees' compensation, the provision for bad debts, the provision for inventory depreciation, the intangible assets for the year, and others, which are obviously not included in the item of on-the-job consumption [7,21]. Although both methods have errors, they are still good methods for measuring on-the-job consumption [22]. In order to maintain the robustness of the results, this paper uses the above two methods to measure the on-the-job consumption. The specific definitions and measures are shown in Table 1.

## 4. Results

### 4.1. Descriptive statistics

Table 2: Descriptive Statistics result

| Variables | Min | Max | Median | Mean | Sd. | Obs |
|---|---|---|---|---|---|---|
| Perks1 | 0.00003 | 391.872 | 0.007 | 0.066 | 4.116 | 9126 |
| Perks2 | 0.00062 | 1797.046 | 0.039 | 0.313 | 18.676 | 9458 |
| SPI | 0.135 | 1 | 1 | 0.867 | 0.242 | 19765 |
| Soe | 0 | 1 | 1 | 0.647 | 0.478 | 19654 |
| Board | 3 | 22 | 9 | 9.312 | 2.113 | 19525 |
| Dual | 0 | 1 | 0 | 0.147 | 0.354 | 17192 |
| Rid | 0 | 0.800 | 0.333 | 0.361 | 0.056 | 19525 |
| M-share | 0 | 0.995 | 2.85E-05 | 0.016 | 0.077 | 18664 |
| Lev | 0.078 | 1.951 | 0.533 | 0.545 | 0.267 | 19662 |
| Size | 10.842 | 30.815 | 21.799 | 21.968 | 1.615 | 19668 |
| Age | 1 | 27 | 12 | 12.042 | 5.546 | 19761 |

Descriptive statistics of the main variables studied in this paper are shown in Table 2. From the descriptive statistics, it can be seen that the average value of the on-the-job consumption of the management layer of listed companies is 0.066, the minimum value is 0.00003, the maximum value is 391.872, and the median is 0.007, which shows that there is a big difference in the on-the-job consumption behavior of management layer of listed companies in China, and that the on-the-job consumption level of managers in a few listed companies is very high. The lowest control rights (SPI) of the first major shareholder of a listed company is 0.135, the highest value is 1, the median value is 1, and the average value is 0.867, which indicates that the first major shareholder of Chinese listed companies has higher control rights and at least half of the listed company's first major shareholder has full control over the listed company. The average value of the nature of the major shareholder of listed companies is 0.647, which indicates that the sample firms controlled by the state-owned major shareholder account for 64.7%.The average number of board of directors is about 9, the largest 22, and the least is only 3. The average value of whether the chairman is concurrently the general manager is 0.147, which indicates that the probability of the chairman and the general manager being the same is relatively low, and most of the listed companies have achieved separation of the two positions. The average ratio of independent directors is 0.361, which indicates that listed companies have basically met the relevant requirements of the CSRC on the establishment of independent director systems for listed companies in China. However, the ratio of independent directors of some listed companies is relatively high, reaching 0.8. Some listed companies do not have independent directors. This may be related to the fact that the CSRC did not require listed companies to set up independent directors at the beginning. There is a big difference in the shareholding ratio of the management layer of listed companies. The company's management shareholding ratio reaches 0.995, while some company management does not hold shares. From the median, most listed companies have management shareholdings, but the ratio of shareholdings is still relatively low.

### 4.2. Analysis of regression results

(1) Control rights of the major shareholder (SPI) and on-the-job consumption of the management layer

As can be seen from Table 3, the control rights of the first major shareholder is significantly negatively correlated with the on-the-job consumption of the management layer. The greater the control powers of the first major shareholder, the more likely it is to restrain the on-the-job consumption of the management layer. The concentration of equity helps to solve the problem of insider control. Since the major shareholder holds more shares and voting rights, in order to pursue the interests of shareholder and control benefits, the major shareholder has strong motivation and ability to supervise the management layer's behaviour, and can use the large voting rights in its hands to influence the decision-making of the management layer, which can help the companies to solve the problem of insufficient supervision to managers caused by the "free-riding" behaviour of minority shareholders, so the control of the major shareholder can help people to solve the first-type agency problem between shareholders and managers despite that it might bring the second-type agency conflict between major shareholders and minority shareholders, which supports the hypothesis H1 proposed in this paper.

(2) The nature of the major shareholder and on-the-job consumption of the management layer

It can be seen from Table 3 that the nature of the major shareholder is significantly negatively correlated with the on-the-job consumption of the management layer. The on-the-job consumption of the management layer of non-state-owned listed companies is higher than the on-the-job consumption of state-owned listed companies, which is contrary to the assumptions in this paper. This result may be caused by the following reasons: **A.** There is two types of agency problems in listed companies. One is the agency problem between managers and shareholders, and the other is the agency problem between major shareholders and minority shareholders. Among state-owned listed companies, the management layer and the major shareholder are two independent stakeholders, and the on-the-job consumption of the management layer is mainly represented by the first type of agency problem. In the non-state-owned listed companies dominated by private listed companies, the identities of the management layer and the major shareholder often overlap. Improving the level of on-the-job consumption has become an important means for the major shareholder (as well as the management layer) of listed companies to encroach on company interests. Therefore, the management layer's on-the-job consumption problem is more reflected in the second type of agency problem. In China's capital market, the second type of agency problem is more prominent, and there is a serious problem of encroachment of the major shareholder. Therefore, the level of on-the-job consumption of the management layer in non-state-owned listed companies may be higher than that of state-owned listed companies; **B.** Compared with non-state-owned listed companies, the behaviour of state-owned listed companies is subject to the control of government departments in addition to laws, market competition, and policy supervision. Although non-state-owned enterprises are also affected by government departments, this impact is relatively indirect. Under this system, the management layer of non-state-owned enterprises (mainly private entrepreneurs or their representatives) has greater power than the management of state-owned enterprises, and controls the entire enterprise, but there are few supervisions and restrictions on them. In a non-state-owned listed company, the power of the management layer is too large, which is easy to cause abuse of power and may also provide excellent convenience for the management layer to implement interest encroachment. Therefore, from the perspective of the constraint mechanism, the management layer of non-state-owned listed companies is less constrained and it is easier to obtain higher on-the-job consumption [22].

Table 3: Regression results from 2003 to 2016 - based on the unbalanced panel data fixed effect model (tested through Hausman)

| Variables | Perks1 | Perks2 |
|---|---|---|
| SPI | $-1.737^{***}$ | $-7.198^{***}$ |
| Soe | $-2.176^{***}$ | $-8.528^{***}$ |
| Board | -0.011 | -0.121 |
| Dual | $0.520^{**}$ | $2.215^{**}$ |
| Rid | 2.631 | 10.691 |
| M-share | 1.968 | 8.599 |
| Lev | $2.999^{***}$ | $12.590^{***}$ |
| Size | $-0.848^{***}$ | $-3.399^{***}$ |
| Age | $0.085^{***}$ | $0.341^{***}$ |
| Industry | Control | Control |
| Constant | $17.651^{***}$ | $71.221^{***}$ |
| $R^2$ | 0.030 | 0.027 |
| F | 17.99 | 16.88 |
| Sig | 0.000 | 0.000 |
| Number of samples | 8462 | 8778 |

Note: *, **, *** respectively indicate the significance level of the two-tailed test $p<0.10$, $p<0.05$, $p<0.01$.

From Table 3, we also find that whether the CEO is also chairman (Yes=1, No=0) is significantly positively related to the on-the-job consumption of the management layer. Compared with the CEO-chairman not duality situation, CEO-chairman duality will lead to higher on-the-job consumption. The greater the management layer's rights, the higher the on-the-job consumption [7]. There is no significant linear relationship between the size of the board of directors, the ratio of independent directors and the level of on-the-job consumption of the management, which means that the main corporate governance mechanism fails to effectively constrain the on-the-job consumption of the management layer. The reason why the ratio of independent directors is not statistically significant may be that the variation of the variable is too small. The establishment of independent directors by Chinese listed companies is based on the mandatory provisions (Article 1, paragraph 3) of the China Securities Regulatory Commission on "Guiding Opinions on Establishing Independent Director System in Listed Companies" (2001): Before June 30, 2002, the board of directors of a listed company should include at least two independent directors; before June 30, 2003, the ratio of independent directors in the board of directors of the listed company is at least 1/3.The establishment of independent directors has become a policy provision. It is clear that due to policy provisions, "1/3" has become an important decision-making reference point for listed companies to establish the number of independent directors, which results in that the ratio of independent directors is basically around 1/3, and the degree of variation is very small. There is also no significant linear relationship between the management layer's shareholding ratio and the management layer's on-the-job consumption of listed companies. This may be because the shareholding ratio of managers of Chinese listed companies is very low.

### 4.3. Robustness test

In order to enhance the credibility of the research results, this paper conducted the following robustness test.

Some scholars believe that on-the-job consumption includes both legitimate business expenses and improper business expenses [15]. In view of the above, this paper uses the difference between the on-the-job consumption of the management layer and the expected normal on-the-job consumption of the management layer determined by economic factors to express the abnormal on-the-job consumption of the management layer[7,21]. The expected on-the-job consumption of the management layer is estimated by the following models:

$$\frac{Mpay_t}{Assets_{t-1}} = \alpha_0 + \beta_1 \frac{1}{Assets_{t-1}} + \beta_2 \frac{\Delta Sales_t}{Assets_{t-1}} + \beta_3 \frac{PPE_t}{Assets_{t-1}} + \beta_4 \frac{Inv_t}{Assets_{t-1}} + \beta_5 \ln Employee + \varepsilon \quad (1)$$

$Mpay_t$ is the amount of the on-the-job consumption of the management layer = office fees + travel fees + business hospitality fees + communication fees + overseas training fees + board fees + car fares + conference fees; $Assets_{t-1}$ is lagged total assets; $\triangle Sales_t$ is change in sales; $PPE_t$ is net value of Property, Plant and Equipment; $Inv_t$ is yearend value of inventories; LnEmployee is natural log of number of employees.

In this paper, we estimate equation in each year, and get the predicted value of the dependent variable (the normal on-the-job consumption) through the regression. The difference between the actual on-the-job consumption and the normal on-the-job consumption is the excess of the management on-the-job consumption (the value less than 0 is assigned to 0).

This paper takes "excessive on-the-job consumption of the management layer" as the dependent variable, and takes "the control rights of the listed company's 1st major shareholder (SPI)" and "the nature of the listed company's 1st major shareholder" as the independent variable, and controls the variables of size of board of directors, whether the CEO is also chairman, the ratio of independent directors, management shareholding ratio, asset-liability ratio, company size, listed age and industry attributes, and use unbalanced panel data from 2003 to 2016 to implement regression with fixed effect model (tested through Hausman), and finds that the conclusions obtained are consistent with the previous part.

## 5. Conclusions

This paper takes the main board listed companies in Shanghai and Shenzhen of China from 2003 to 2016 as the research sample. Based on the perspective of cooperative game theory, this paper uses the Shapley-Shubik Power Index method to re-measure the control rights of the major shareholder of listed companies in China, and examines the relationship between the control rights of the major shareholder and the on-the-job consumption of listed companies. It is found that: (1) the greater the control rights of the major shareholder, the lower the on-the-job consumption of the management layer of listed companies. In order to pursue the interests of shareholder and control benefits, the major shareholder has strong motivation and ability to supervise the management layer's behaviour, and can use the large voting rights to influence the decision-making of the management layer, which can help the companies to solve the problem of insufficient supervision to managers caused by the "free-riding" behaviour of minority shareholders, so the control of the major shareholder can help people to solve the first-type agency problem between shareholders and managers despite that it might bring the second-type agency conflict between major shareholders and minority shareholders. (2) the on-the-job consumption of the management layer of non-state-owned listed companies is higher than that of state-owned listed companies. First, State-owned listed companies are not only restricted by law, market competition, and policy supervision, but also regulated and controlled by superior government departments, while non-state-owned listed companies are subject to relatively few external constraints, in the context of such a system, the management of non-state-owned enterprises enjoys greater power; Second, non-state-owned listed companies' management and the major shareholders often overlap, so the management of non-state-owned listed companies has greater power. This shows that in China, especially when the management has great power, on-the-job consumption is likely to become a rent-seeking means for the management to obtain the benefits of control. The greater the power of management, the easier it is to obtain higher on-the-job consumption. Therefore, it is necessary to pay attention to the management power of non-state-owned listed companies and attach great importance to the governance of excessive on-the-job consumption.

This paper only researches the relationship between the control rights of the major shareholder and the on-the-job consumption of management layer of listed companies. However, the relationship between the ultimate control rights of companies under the pyramid control structure and the on-the-job consumption of the listed company's management layer has not been explored, which needs further study. At the same time, the limitation of the availability of on-the-job consumption information has caused certain limitations for the empirical research in this field, and this paper is no exception.

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## References

*[1] Claessens S., Djankov S., Fan J. P. H., et al. (2002) Disentangling the Incentive and Entrenchment Effects of Large Shareholdings. The Journal of Finance, 57(6), 2741-2771.*

*[2] Lemmon M. L., Lins K. V. (2003) Ownership Structure, Corporate Governance, and Firm Value: Evidence from the East Asian Financial Crisis. The Journal of Finance, 58(4), 1445-1468.*

*[3] Zhen H. X., Zhang X. Z., Chi G. T. (2015) The Influence of Institutional Environment and Ultimate Control on Corporate Performance: The Test of Mediating Effect Based on Agency Cost. Financial Research, 12, 162-177.*

*[4] Jensen M. C., Meckling W. H. (1976) Theory of the firm: Managerial Behaviour, Agency Costs and Ownership Structure. Journal of financial economics, 3(4), 305-360.*

*[5] Li S. X. (2007) Property Rights, Agency Costs and Agency Efficiency. Economic Research, 1, 102-113.*

*[6] Bebchuk L., Fried J. (2003) Executive Compensation as an Agency Problem. Journal of Economic Perspectives, 17(3), 71-92.*

*[7] Quan X. F., Wu S. N., Wen F. (2010) Managerial Power, Private Income and Compensation Rigging. Economic Research, 45(11), 73-87.*

*[8] Wu C. P., Zheng F. B., Lin Z. Y., Li W. Q., Wu S. N. (2006) Theoretical and Empirical Analysis of Influencing Factors of Consideration Payment. Economic Research, 8, 14-23.*

*[9] Shapley L. S., Shubik M. (1954) A Method for Evaluating the Distribution of Power in a Committee System. American Political Science Review, 48(3), 787-792.*

*[10] Mueller D. C. (2010) The Anglo-Saxon Approach to Corporate Governance and its Applicability to Emerging Markets. Corporate Governance An International Review, 14(4), 207-219.*

*[11] Huang Q. H. (2000) Control Rights as Incentive and Constraints of Entrepreneurs: Theoretical Analysis and Realistic Interpretation Significance. Economic Research, 1, 41-47.*

*[12]Yan J. Y. (2002) Managerial Incentive Patterns and the Reform of the Incentive Mechanism in State-Owned Enterprises. Journal of Jiangsu University (Social Science Edition), 2, 104-109.*

*[13] Shleifer A., Vishny R. W. (1986) Large Shareholders and Corporate Control. Journal of political economy, 94, 461-488.*

*[14] Luo J. H., Wan D. F. (2009) Study on the Governance of Large Shareholders' Shareholding on Excessive On-the-job Consumption Behavior of Managers. Journal of Securities Market, 6, 64-70.*
*[15] Chen D. H., Liang S. K. (2010) Perks of Managers, Check-and-Balance of Stock Ownership and Its Economic Consequences: Empirical Evidence from Chinese Listed Companies. Journal of Shanghai Lixin University of Commerce, 24(01): 19-27+97.*
*[16] Chen D. H., Chen X. Y., Wan H. L. (2005) Regulation and Non-pecuniary Compensation in Chinese SOEs. Economic Research, 2, 92-101.*
*[17] Tang X. S., Zhou X. S., Ma R. J. (2007) Empirical Research on Over-investment Behavior and its Restriction Systems in China's Listed Companies. Accounting Research, 7, 44-52+96.*
*[18] Gugler K., Yurtoglu B. B. (2003) Corporate governance and dividend pay-out policy in Germany. European Economic Review, 47(4), 731–758.*
*[19] Edwards J. S. S., Weichenrieder A. J. (2009) Control rights, pyramids, and the measurement of ownership concentration. Journal of Economic Behavior and Organization, 72(1), 489–508.*
*[20] Wang M., He J., Xu P. (2022) Ultimate Control Rights and Corporate Fraud: Evidence from China, Emerging Markets Finance and Trade, 58(4), 1206-1213,*
*[21] Luo W., Zhang Y., Zhu N. (2011) Bank Ownership and Executive Perquisites: New Evidence from an Emerging Market. Journal of Corporate Finance, 17(2), 352-370.*
*[22] Lu R., Wei M. H., Li W. J. (2008) Managerial Power, Perquisite Consumption and Performance of Property Right: Evidence from Chinese Listed Companies. Nankai Business Review, 5, 85-92+112.*