

Research on Government Regulation of Social Credit System — From the Perspective of Business Ethics*

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ABSTRACT

Institution system is an important part of modern social governance. Government, market and social relations within the system, as well as the corresponding institutional arrangements, can be said to be the top priority. Corporate social responsibility is an outstanding case that embodies the relationship and institutional arrangement of the three in practice.

Government regulation of social credit system is a good example to analysis it. The research on government regulation of social credit system itself is put forward from the perspective of government, so in the field of government regulation of social credit system, should enterprises play a role? Especially in the era of big data, a large number of data are provided by private enterprises. Without these data, it is difficult to complete the construction of big data system. If enterprises should play their role, what's the contribution of the government? Academic and industrial circles have been expressing their own opinions on these issues.

Therefore, this paper attempts to build a game model among government, enterprise and society to solve the following problems: how to solve the relationship problem among government, enterprise and society? How to build the corresponding system? What's the corresponding government regulation of China's social credit system go from the perspective of business ethics?

Through the game model analysis, the author finds that shareholders can reduce the threat of CEO replacement and collude with the management staff members to make the cake (including the interests of stakeholders) smaller. But on the basis of the loss of stakeholders' rights and interests, shareholders' wealth is increasing, which also explains why more and more senior executives are trying to form collusion with stakeholders in the campaign against anti-takeover and loose audit system. Shareholders' rights and interests and stakeholders' rights and interests present a seesaw phenomenon. The response of the stakeholders and shareholders to a better corporate governance model is consistent. That is to say, the increase of shareholders' income is not necessarily based on the loss of stakeholders. The game model also shows that the protection of formal laws and regulations is the main factor to increase the benefits of stakeholders. Through the case of the social credit system, we will conclude that the formal laws and regulations cannot fully ensure the increase of stakeholders' income, but also need to strengthen the transformation of institutional advantages into governance advantages, and strengthen the law enforcement. It will finally promote the further improvement of social credit system.

Keywords: Social credit system, Game analysis, Government regulation Corporate social responsibility

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Исследование вопросов государственного регулирования системы социального кредита: взгляд со стороны бизнес-этики

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РЕФЕРАТ

Система институтов является важной частью современного социального управления. Правительство, рыночные и социальные отношения внутри системы, а также соответствующие институциональные механизмы можно назвать высшим приоритетом. Корпоративная социальная ответственность в этом ключе является выдающимся примером, который включает в себя и институциональные механизмы, и отношения между правительством, рынком и обществом.

Государственное регулирование системы социального кредита представляет собой прекрасный пример для анализа. Само исследование государственного регулирования системы социального кредита производится с точки зрения государства, поэтому возникает вопрос: какова роль бизнеса при государственном регулировании системы социального кредита? Особенно этот вопрос актуален в эпоху больших данных, когда большое количество информации предоставляется частными предприятиями. Без этой информации система больших данных вряд ли сможет функционировать. И если бизнесу всё же отведена некая роль, то каким должен быть вклад государства? Ответы на эти вопросы продолжают искать представители как бизнеса, так и науки.

В данной статье предпринимается попытка построить модель теории игр, которая описывала бы взаимодействие между правительством, бизнесом и обществом и позволила бы разрешить некоторые вопросы: как должны быть устроены отношения между правительством, бизнесом и обществом? Какая система должна быть построена, чтобы можно было поддерживать данные отношения? Каким должно стать государственное регулирование системы социального кредита в КНР с точки зрения бизнес-этики?

С помощью анализа моделей теории игр автор приходит к выводу, что акционеры могут стремиться снизить угрозу смены генерального директора и вступать в сговор с менеджментом предприятия, чтобы уменьшить «кусочек торта» (например, интересы заинтересованных сторон). При уменьшении доли прав и интересов заинтересованных сторон благосостояние акционеров растёт, что также объясняет, почему все больше и больше руководителей высшего звена пытаются вступить в сговор с заинтересованными сторонами в рамках кампании против борьбы с поглощениями и слабой системы аудита. Модель также показывает, что соблюдение официальных законов является основным фактором увеличения выгод для заинтересованных сторон. На примере системы социального кредита мы делаем вывод, что официальные законы и постановления не могут полностью обеспечить увеличение доходов заинтересованных сторон, однако они должны усиливать преобразование институциональных преимуществ в преимущества управления. Также необходимо усиливать и правоприменительную деятельность. В конечном итоге это будет способствовать дальнейшему совершенствованию системы социального кредита.

Ключевые слова: система социального кредита, теория игр, государственное регулирование, корпоративная социальная ответственность

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The decision of the CPC Central Committee on several major issues concerning upholding and improving the socialist system with Chinese characteristics and promoting the modernization of the national governance system and governance capacity, which was deliberated and adopted at the Fourth Plenary Session of the 19th CPC Central Committee, highlights that the party and the state continue to promote the modernization of the national governance system and governance capacity. In fact, the relationship among government, market and society, as well as its institutional arrangement, has always been one of the important contents of academic research. Corporate social responsibility is the key factor to reflect the relationship and institutional arrangement of the three in practice. With the help of the case of social credit system and from the perspective of corporate social responsibility, this paper tries to analyze the relationship among government, market and society in the mode of national governance and the corresponding institutional arrangements.

The Third Plenary Session of the 16th CPC Central Committee clearly put forward the social credit system construction policy of “taking morality as the support, property rights as the basis and law as the guarantee”. Credit is the cornerstone of the effective operation of market economy. Like capital, talent and technology, credit has become an important driving force for the healthy development of China’s market economy. In 1988, Shanghai Far East credit rating Co., Ltd., the first credit rating company in China, was established. However, at first, the framework of China’s social credit system was mainly based on the preparation of local and decentralized information databases¹. For example, the integrity of personal financial credit data stored in the credit reference database of the people’s Bank of China is low.

Later, the State Council asked to establish a unified national credit information sharing and exchange platform, integrate credit information in various fields, realize the co-construction and sharing of credit information in various regions and departments, and use the big data standard system to improve the government governance ability². In 2015, “credit China” website was put into operation to provide services for enterprise credit construction. Then, with the help of big data, artificial intelligence and other new technologies, the social credit system embarked on the road of digital governance. On May 18, 2020, the State Council issued the opinions of the CPC Central Committee and the State Council on accelerating the improvement of the socialist market economic system in the new era, which made special arrangements for the social credit system and the new regulatory mechanism.

In the process of China’s economic development, we need to pay attention to improving the level of government governance. We also need to play a positive role of credit service institutions, make up for the shortcomings of the system, and play a key role of the capital market. An important sign of the maturity of China’s socialist market economy is the establishment and improvement of the social credit system.

1. Literature review

Social credit system is a kind of self-discipline governance model, which uses big data, data analysis, artificial intelligence and machine learning tools to develop data-driven comprehensive management structure around algorithm, and produces real-time reward and punishment benchmark for law, economy, society and other behaviors. It has become a new trend of social governance. Public credit system, enterprise credit system and personal credit system constitute the social credit system. Social credit system also covers many aspects, such as laws and regulations system, credit information sharing mechanism, government supervision system and so on.

Among them, the personal credit system refers to the data tracking, recording and retention according to the personal credit situation in various areas of life, and determining the credit rating of each individual through big data analysis. This is also a weak link in the social credit system in the past. According to the data, although the people’s Bank of China has collected the credit information of 990 million people by the end of 2019, there are still 460 million people who have not been included, that is, China’s credit information system has not covered the whole society, and there are still omissions. In recent years, the state has collected data from six sources: the national credit information sharing platform; National enterprise credit information publicity sys-

¹ See the outline of social credit system construction planning (2014-2020) of the State Council (GF [2014] N 21).

² See opinions of the general office of the State Council on using big data to strengthen the service and supervision of market entities (GBF [2015] No. 51).

tem; Special credit rating databases in 11 fields (customs, taxation, environmental protection, etc.); The catalogue of regulatory matters specifies the corresponding inspection results and credit records; Important Internet public opinion and third-party information (Alibaba, Tencent, Taiji Computer); Video monitoring data (vision link power) [17, p. 127]. Through big data tools, credit rating mechanism generates digital personality independent of data ontology. This measure has accelerated the integration of big data resources, especially promoted the digitization process of the weakest link in China's social credit, and effectively alleviated the difficulties of personal financing and expensive financing.

The anonymity of cyberspace makes the "leaving" transaction and "not meeting" transaction become the new normal. Data brings convenience at the same time, the other side is gradually revealed. People are highly dependent on a variety of Internet platforms, so that these platform enterprises have a lot of data. They even have a say in "data monopoly", rather than the government, banks and other traditional credit agencies. However, the calculation method in commercial pilot credit rating scheme is not transparent, And the using of users' online behavior data, including their social networks, to generate scores to evaluate credit degree may become a tool to comprehensively monitor the public [14, P.154]. The social credit system based on data-driven belongs to the public infrastructure of digital technology. While rectifying the profit bias of monitoring capitalism, it generates an administrative algorithm which is parallel to the administrative management mode under legal compulsion. As a new power tool, algorithmic administration leads to the paradigm transformation of governance mechanism in digital society [21, P.36].

Due to the increased specialization of the division of labor, the credit bureaus can only collect data in specific areas, such as Alipay's Sesame credit, which has a large amount of pay data, but lacks the social credit data that Tencent has, so that the same information subject has different credit information among multiple credit agencies. At the same time, it also leads to the fact that a certain credit agency cannot fully display the data information of a specific subject, and information users cannot make comprehensive and scientific decisions. At the same time, the attribute of data rights has not been established in our country. Because of the protection of personal privacy information, and the inconvenience of data circulation and transaction, the institutions holding the data have lost the incentive to exchange and share the data [13, p. 15].

Because of the above concern precisely, under the supervision and guidance of the people's Bank of China, China Internet Finance Association and eight market institutions, including Zhima credit, Tencent credit, Qianhai credit, koala credit, PENGYUAN credit, zhongchengxin credit, Zhongzhicheng credit and Huadao credit, jointly launched the Baihang credit reference Co., Ltd. A market-oriented personal credit reference institution mainly oriented to Internet finance can be said to be a compromise choice. However, how to make profits in its follow-up operation and how to distribute the benefits with other market institutions that share data are still facing challenges [4, p. 52].

Some scholars have been accustomed to think that corporate social responsibility does not contribute to the improvement of social affairs and environment. As crifo and other scholars emphasize, if the corporate managers think of CSR, they will pay attention to the interests of specific stakeholders. This means that it is not regulation or voluntary induction of CSR, but an increasing demand and pressure of stakeholders [6, p. 115]. Djelic and other scholars even believe that voluntary economic contribution of CSR often means the absence of formal legal framework [7, p. 645]. It is also believed that the joint governance of NGOs and enterprises begins to perform the functions of government [2, p. 27]. Schrepf Stirling even believes that in the globalized

world, the traditional roles of state and enterprise have been eroded, the state has lost power and the enterprise has gained power. Therefore, the future of corporate social responsibility lies in political corporate social responsibility, while the new global governance form is mainly organized by non state actors [16, p. 11]. Xiao Hongjun believes that with the change of the situation, CSR has evolved from the initial 1.0 to the common benefit balanced CSR 4.0, and the orientation of the relationship between enterprises and society has also changed from shared value to symbiotic and co-beneficial [19, p. 87]. In recent years, many scholars believe that the promotion of soft CSR policy has promoted the fundamental change of public governance mode, from the original hierarchical management mode to the network-based and partner type common management mode. In a sense, CSR is more and more representative of a new social governance model.

We should not ignore the role of government regulation. Scholars believe that corporate social responsibility based on neoliberalism leads to the shrinkage of government regulation, and the leading role of government has not been fully played in CSR. Kou-rula A and other scholars believe that although the government may lose some power, it will also acquire and deploy power in other areas; The government is taking on a new governance role related to business behavior; Government regulation may make a positive contribution to the governance of business behavior; Government has always been an important focus of management and organization research [12, p. 1103]. For example, through empirical research, Zheng Shiming found that environmental policies such as the scale of investment in environmental pollution control, the “tri-simultaneities” system, the sewage charge system, and the environmental petition system have effectively improved the environmental quality as a whole [23, p. 49]. In fact, governments have been trying to break through the limitations of the original governance model by reshaping the governance and regulation paradigm. The rule of the state over the private and society has gradually evolved into cooperative governance [18, p. 40].

In order to achieve better governance effect, governments pay more and more attention to the cooperation between government and market. Some empirical tests downed by Chen Lin and other scholars, show that the implementation of the Kyoto Protocol and its clean development mechanism has had a significant and positive policy effect on controlling China’s greenhouse gas emissions [5, p. 68]. The Swedish government has set up the office of the global responsibility partnership for sustainable development. This office mainly coordinates three levels: coordinating policies and measures among various government departments; Coordinate and organize various activities to promote corporate social responsibility; Coordinate the social responsibility of enterprises in the countries where they operate. This mode of governance means that social affairs is no longer only the responsibility of the government, but the common responsibility of the government, enterprises and stakeholders.

2. Raising of research questions

Due to the differences of political, economic and cultural environment in different countries, the governance mode of each country is also quite different. For example, Yang Chunfang pointed out that the differences in government functions and supervision methods caused by the differences in cultural backgrounds form the source of the differences in CSR government supervision between China and the United States [20, p. 138]. In addition to the mandatory legal constraints, Hu Yi and other scholars believe that the forms of CSR supervision can be divided into three categories: unilateral agreement; unilateral agreement; Public voluntary schemes and negotiated agreements [10, p. 80]. Among the three forms, there are great differences in the enthusiasm and participation of the government,

enterprises and society. Knudsen and other scholars also found that: even in Britain and the United States, due to the differences between legal and political systems, the British government prefers the bottom-up multi stakeholder cooperation system, while the United States prefers the top-down mandatory supervision system [11, p. 176]. There are three modes of social credit construction in developed countries: the American mode with market-oriented operation as the core, the European mode promoted by the government, and the Japanese mode relying on industry associations.

Different from the bottom-up supervision in Europe and America, China's government supervision is still top-down. For example, in the field of CSR, the most stringent regulatory regulations and requirements were initially put forward by the central government to the central enterprises, or similar requirements were put forward by the CSRC and the stock exchange to the listed companies. Moreover, in the socialist market economy system, the relationship between government and enterprises is different from that of other countries, especially between government and state-owned enterprises. In China, the relationship between the government and the state-owned enterprises is not just principal-agent relationship. The government is not only the role of managers, but also one of the most important stakeholders of enterprises.

Because of the differences in national conditions precisely, although CSR is imported from Europe and the United States, it is different from US market driven CSR, EU government driven CSR or Japan relationship driven CSR. China's construction of social credit system and government's supervision of big data in social credit system must find a new way.

3. The construction of corporate social responsibility governance model in China

The construction of social credit system is a complex system, which needs effective organization and leadership. This is a great change of social governance mode, which requires us to deeply analyze the influencing mechanism and its main influencing factors and subjects.

3.1. The importance of management staff

The manager is the catalyst in the governance model. Efforts to change often fail to achieve the desired results, and the failure is often attributed to managers' resistance to change. Through data analysis, Fiona and other scholars have proved that through middle-level managers actively assume the role of change intermediary, so that employees can understand and reconstruct change, it will help to improve change management [9, p. 228]. On this basis, Bel and other scholars also proved that managers have a crucial impact on the controllability of enterprise management [1, p. 7]. Most scholars conclude that "the learning process and behavior of strategic actors are necessary".

Based on the samples of state-owned listed companies from 2011 to 2016, Chen Cheng and other scholars found that the executive compensation of state-owned enterprises has an inverted U-shaped impact on corporate social responsibility, and the marketization process positively regulates the inverted U-shaped impact of executive compensation of state-owned enterprises on corporate social responsibility. It is suggested to explore and pilot a long-term incentive mechanism linked with corporate social responsibility performance [3, p. 129]. Zhang Qi and other scholars also found that before the implementation of ambient air quality standard (2012), the environmental protection investment scale of enterprises with senior executives' public service experience was significantly lower than that of other enterprises. After the implementation of the new

standard, the environmental protection investment of enterprises with official senior management experience is significantly higher than that of other enterprises [22, p. 183].

3.2. Managers' choice under economic and social responsibility pressure

3.2.1. Pressure from owners

Now, the mainstream idea of owners' equity and institutional investors is to require enterprises to provide timely information on social affairs or environmental protection, and even combine manager's compensation with these indicators. This virtually brings great pressure to enterprise managers.

3.2.2. Pressure from social interest theorists

The increasing concern of the social interest theorists on the issue of corporate governance has also exerted pressure on the managers. Social affairs or environmentalists are more and more frequently involved in the dispute of corporate governance structure, participating in anti-takeover, CEO LED board of directors, tolerant audit committee and other activities.

3.2.3. Pressure from public

Corporate scandals also make people realize that mismanaged enterprises not only hurt their owners, but also the stakeholders. On the one hand, it also shows that the interests of the owners and stakeholders are consistent, and they hope to have a good enterprise oriented system.

3.3. Model construction

3.3.1. Model and variable description

Suppose that the manager (M) who manages the operation of the enterprise can obtain private benefits (such as on-the-job consumption) from the control right C of the enterprise. The manager also owns the shares of the enterprise (α), and the rest of the shares ($1 - \alpha$) are scattered in the hands of other shareholders (SH). Enterprises not only produce profits for owners, but also produce non-monetary externalities for their stakeholders (ST). Assume that everyone in the model is risk neutral.

3.3.1.1. Classification of monetary and social benefits and success probability of projects

Enterprise managers either run existing projects or try to find a new project to improve business income or social effect. Assuming that the owners and stakeholders do not favor the existing projects, and there are N new projects for choosing, the probability that each project will generate monetary profit R_k is $p_0 + p_k$ (the probability of no profit is $1 - p_0 - p_k$), and it can bring non-monetary social benefits (B_k) to the stakeholders. In order to simplify the calculation, it is assumed that $N - 2$ projects will bring less benefits to the owners and stakeholders than the existing project. Only two «related» projects can bring monetary benefits to the owners (assuming that the benefits of the two projects are equal, both are R), or bring non-monetary social benefits to the stakeholders, such as sharing data with the government and other institutions.

Suppose that the success probability of the project favored by shareholders is $p_0 + p_1$; The success probability of the project favored by the stakeholders is p_0 ; Projects favored by stakeholders can bring positive externalities (B) to stakeholders. The probability of assuming that the project favored by shareholders and stakeholders is the same project is θ . It is assumed that when the two projects are inconsistent, the

projects favored by shareholders can not bring any benefits to the stakeholders. Suppose θ belongs to $(0, 1)$.

3.3.1.2. *The talent of managers*

Suppose that before the CEO conducts an in-depth investigation, the income of new projects is an unknown number. The probability that manager m obtains the income information is ω_i . The manager may also know nothing about the benefits. The probability of this event is $1 - \omega_i$. The manager's best decision is to choose the original project. Let's assume that the talent of the current CEO of the enterprise is ω_M , and that there is a better manager outside the enterprise, whose management talent is ω_M , and $\omega_N > \omega_M$.

3.3.1.3. *The act of replacing CEO*

We assume that the probability that the board of directors or shareholders of an enterprise will find better managers is π (capable minority shareholders or potential intruders may also find that they can enhance the value of the enterprise and launch a hostile takeover). Therefore, it indicates the effectiveness of labor market competition for managerial talents at the enterprise level and the broad economic level. When the company law and enterprise regulations encourage independent board of directors and fights for shares, and prohibit anti-takeover, π is particularly high.

3.3.1.4. *Stakeholder influence*

In order to protect social rights and interests, when CEO turnover behavior may occur, the representatives of enterprise stakeholders, such as social and environmental theorists or local community organizations, may support the current stakeholder oriented CEOs to prevent them from being replaced. These stakeholders may adopt the following methods: trying to attract the attention of the media, or even threatening to take boycott action after the replacement behavior occurs; It is also possible to create a disadvantageous political atmosphere for equity wars and acquisitions by putting pressure on leaders of competent departments. So, let's assume that the probability of stakeholders winning the war to prevent CEO turnover is, σ , $\sigma \in (0, 1)$, then the probability of their failure is $1 - \sigma$. At the same time, we assume that the activities initiated by stakeholders have no cost; The cost of an activity can be included in the model without changing its nature.

3.3.1.5. *Formal regulations on the protection of the rights and interests of stakeholders*

The scope of the enterprise's choice of action may be limited by the regulations on the protection of the interests of stakeholders. We assume that once a project is feasible, in the case of probability λ , managers must choose project B that can bring benefits to stakeholders. This can happen under the following two conditions: (a) For example, the law may restrict enterprises to adopt projects that limit data flow, or force enterprises to meet certain safety standards. However, it can be realized only when the project income is known in advance, and the probability of the compulsory agency knowing the project income in advance is λ . We think that it has a negative correlation between λ with the workload of the mandatory agencies, and a direct positive correlation with the ability of the staff of the mandatory agencies and the resources that they can use to conduct project surveys so as to enhance the reliability of their decision-making. (b) The contract to protect the rights and interests of stakeholders. Owners and stakeholders may enter into a multi-party contract to prohibit enterprises from adopting projects that bring lower benefits to stakeholders (for example, $B_k = 0$). The extent to which these contracts can be implemented depends on the amount of information that the enterprise must disclose to stakeholders. Examples include the minimum privacy protection require-

ments that enterprises must comply with, the information that enterprises must not disclose, or the mechanism for data flow.

3.3.1.6. Stage

The phase of the whole model is shown in Fig. 1. When $t = 1$, the probability that a candidate manager will replace the current CEO is π . If CEO turnover is possible, stakeholders may react and threaten to take boycott action against the new manager, and the probability of stakeholder winning is σ . When $t = 2$, the probability of the incumbent manager getting the project revenue information and choosing a new project is $\omega_i (i = M, N)$. If the rights and interests of stakeholders protection laws or contracts are implemented, managers must abide by these laws and contracts; Otherwise, he has the right to choose his favorite projects. When $t = 3$, shareholders and managers (who also get personal benefits from control C, such as on-the-job consumption) get monetary benefits, while stakeholders also get non monetary benefits from corporate behavior. When $t = 0$, we hypothesize that in this stage, the current CEO can show that he is a stakeholder by personal action, so as to establish a good relationship with the influential stakeholder groups.

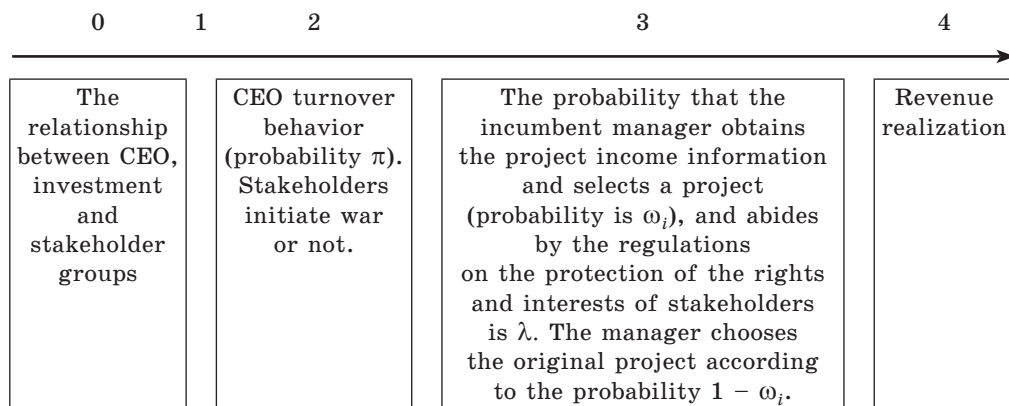


Fig. 1. Phase diagram

3.3.2. Frame of reference: managers do not adopt self-protection strategy

Here, we mainly analyze the impact of corporate governance, which aims to promote management efficiency (π) and formal stakeholder protection (λ), on shareholders' wealth, stakeholders' income and current managers' income, when $t = 0$, the current CEO does not adopt the strategy of self-protection at this stage, when $t = 0$.

Then when $t = 2$, managers are not restricted by regulations, any manager will choose the project of maximizing shareholders' wealth, because managers also own part of the equity income of the enterprise. When the current manager does not treat the stakeholders more kindly than the intruder, the stakeholders can get more benefits only after the more competent manager takes office, because:

$$\omega_N [\lambda + (1 - \lambda)\theta] B > \omega_M [\lambda + (1 - \lambda)\theta] B.$$

Therefore, their best strategy at this stage is not to support the current CEO. Now, shareholders' income is:

$$R_{SH}(\pi, \lambda) = [\omega_M + \pi\Delta\omega] [(p_0 + p_1) - (1 - \theta)p_1\lambda] R.$$

Now, the benefits of stakeholders are as follows:

$$R_{ST}(\pi, \lambda) = [\omega_M + \pi \Delta \omega] [\theta + (1 - \theta) \lambda] B. \quad (1)$$

Finally, the benefits of manager are as follows:

$$R_M(\pi, \lambda) = \omega_N (p_0 + p_1 - (1 - \theta) p_1 \lambda) \alpha R + (1 - \pi) (C - \Delta \omega (p_0 + p_1 - (1 - \theta) p_1 \lambda) \alpha R).$$

If the current CEO has enough equity income, then after he is replaced, his income will be greater than his in-service income, because his equity income will make up for the loss of his post. However, we believe that CEOs are more likely to retain managerial positions than their stock returns (that is to say, they are more likely to earn from their control of the business (Which means $C > \Delta \omega [(p_0 + p_1) - (1 - \theta) p_1] \alpha R$). This means that the current CEO with poor ability has the motivation to resist good corporate governance.

From table, we can see the relationship between the preferences of various interest groups (stakeholders, shareholders and current CEOs) and the sense of security of managers' positions and the regulations on the formal protection of the interests of stakeholders.

Table

The relationship between agent utility, π and λ

	π	λ
ST	+	+
SH	+	—
M	—	—

Here, we notice that the increase protection of stakeholders' rights and interests brings the opposite change of benefits to stakeholders and shareholders, while the response of the stakeholders and shareholders to a better corporate governance model is consistent. That is to say, the increase of shareholders' income is not necessarily based on the loss of stakeholders; In fact, both sides can achieve a win-win situation by employing more capable and innovative managers.

It can be seen from the formula that when π and λ are close to 1 and 0 respectively, it means that the quality of corporate governance is high. And even without the formal protection on the rights and interests of stakeholders, the shareholders' wealth tends to maximize. However, in the absence of formal protection of the rights and interests of stakeholders, once the current CEO and stakeholder groups reach a tacit agreement, and then stakeholders have the motivation to resist the new managers. As we will see below, this change will dramatically change shareholders' preference for corporate governance and the protection of the rights and interests of stakeholders.

3.3.3. Current managers' self-protection strategy: taking social responsibility and seeking the protection of stakeholders

Under the existing corporate governance model, there is a chance (π) that the current CEO will be replaced. At the stage of $t = 0$, current CEOs will try to protect themselves by building good relationships with corporate stakeholders (the larger π , the more urgent their desire).

It is assumed that with the possibility of τ the CEO can identify the specific project information that can bring benefits to the stakeholders by contacting with the stakeholders. It takes time to establish good relationship with stakeholders and local communities; therefore,

this is not feasible for external managers. In other words, the probability of the current CEO's preferred project and the project favored by the stakeholders is consistent is τ : in the case of consistency, the CEO will choose the project favored by the stakeholders, even at the cost of profit loss. However, there is also a chance $(1 - \tau)$ that CEOs do not get the project information preferred by stakeholders, so they only choose the project preferred by shareholders. Then, they only have a chance (θ) to select the project preferred by stakeholders.

Introduction 1: the possibility of the current self-protection CEO adopts the projects which stakeholders favor is $\theta + (1 - \theta)\tau$; Since the value range of τ is $[0, 1]$, the probability of current self-protection CEO adopting stakeholder favor project is $[\theta, 1]$.

Therefore, we can say that τ means the management makes concessions to stakeholders. When $t = 1$, while τ satisfies the following constraints, stakeholders will support the current CEO at the stage:

$$\omega_M(1-\theta)(1-\lambda)\tau \geq (\omega_N - \omega_M)[\theta + (1-\theta)\lambda].$$

That is to say, when stakeholders gain more from CEO compromise behavior than they bear the cost of a low performance manager. This restriction implies that the premise of this decision is that the probability of the manager to make concessions must be greater than $\tau(\lambda)$. We can notice that there is a positive correlation between $\tau(\lambda)$ and λ ; Therefore, if the rights and interests of stakeholders are protected by laws or multi-party contracts, then the stakeholders will lack the motivation to support low performance CEO.

Only under the following conditions can CEO achieve the function of self-protection when investing in the relationship with stakeholders ($\tau \geq \tau(\lambda)$):

$$\pi\sigma\{C - \alpha R\Delta\omega[(p_0 + p_1) - (1-\theta)p_1\lambda]\} \geq [1 - \pi(1-\sigma)][\alpha R\omega_M(1-\lambda)(1-\theta)p_1]\tau(\lambda). \quad (2)$$

In other words, the benefits of self-protection strategy to the current CEO must be greater than the cost of making concessions to stakeholders. From equation (2), we can get the following introduction:

Introduction 2 the greater the threat of CEO being replaced (the greater π), and the greater the influence of stakeholders (the greater σ), the greater the incentive for CEO to achieve self-protection by establishing good relations with stakeholders.

When good corporate governance makes it impossible for managers to protect their positions through common methods (such as anti-takeover defense and CEO LED board of directors), it is a good way for CEOs to establish a good relationship with stakeholders.

Here, we define $\Lambda = \frac{C}{\alpha R}$

Λ measures the ratio of CEO's in-service income (such as in-service consumption) to its monetary income. This variable is crucial in our results; Only when the income of on-the-job consumption is large enough compared with the income of assets, the CEO will resist the fate of replacement, even at the cost of concession to stakeholders.

The following argument can prove that, no matter how dangerous managers are to be replaced, an appropriate stakeholder protection regulation will help to counter CEO's self-protection strategy.

Introduction 3 for any $\pi \in (0, 1)$, the existence of $\Lambda_0(\pi)$, $\Lambda_1(\pi)$, $\Lambda_0(\pi) < \Lambda < \Lambda_1(\pi)$, $\bar{\lambda}(\pi) \in (0, 1)$ is the highest limit for the CEO to adopt the stakeholder protection strategy. On this basis, the current CEO's self-protection strategy will be unprofitable, $\bar{\lambda}$ and π is positively related to Λ , but negatively related to $\Delta\omega$.

$\bar{\lambda}(\pi)$ is positively related to π , which shows that the more effective the activities of stakeholders, the more obvious the protection of the rights and interests of stakeholders should be paid attention to in the reform of corporate governance mode. Otherwise, they only promote the management concession behavior and the activities of stakeholders.

If the current CEO's protection of the interests of stakeholders exceeds that of the enterprise itself, and the CEO and stakeholders share the income equally, the management concession made in advance to protect the interests of stakeholders

$$\tau^* = \frac{\sigma \Delta \omega B (\theta + (1 - \theta) \lambda) + \pi \sigma \alpha R (\Lambda - \Delta \omega (p_0 + p_1 - (1 - \theta) \lambda p_1))}{\omega_M (1 - \lambda) (1 - \theta) (\sigma B + (1 - \pi (1 - \sigma)) p_1 \alpha R)}.$$

From this formula, we can clearly see that $\left(\frac{\partial \tau^*}{\partial \pi}\right) > 0$, $\left(\frac{\partial \tau^*}{\partial \lambda}\right) > 0$ and $\left(\frac{\partial \tau^*}{\partial \theta}\right) > 0$.

Therefore, when there is a big replacement threat (independent board of directors or prohibition of anti-takeover restrictions), the current CEO will be more willing to make concessions to stakeholders in order to keep his position. When potential managers tend to improve the level of stakeholder protection, the current CEO will also be forced to make greater concessions.

4. Game analysis

We now analyze the changes of shareholder's income, stakeholder's equity and CEO's rental income when we strengthen management performance (π) and the explicit protection of stakeholder's equity (λ). We believe that, to some extent, stakeholders and shareholders may have the same preference for everything.

4.1. Shareholder value, the threat of manager substitution and the protection of stakeholders' rights and interests

In the model, the minority shareholders entrust the control to the managers completely, and there is an effective manager market to ensure that a low performance manager can be replaced. If stakeholder activities can interfere with the function of manager market, then the current CEO has the motivation to bribe stakeholders by choosing projects with low economic efficiency. As the following proposition shows, this potential alliance completely changes the shareholders' preference for corporate governance and the legitimate protection of the interests of stakeholders.

Hypothesis 1. Assuming that managers' self-protection measures can be foreseen, if the current CEO's in-service consumption is large enough ($\Lambda > \Delta \omega [p_0 + p_1 (1 + \theta)]$), then the shareholder value is a concave line relative to this independent variable π . When the threat of managers being replaced is $0 < \pi^* < 1$, and there is a minimum of formal protection for the interests of stakeholders ($\lambda(\pi^*) \in (0, 1)$), the value of shareholders is maximized and π^* is negatively related to Λ and σ .

When managers can protect themselves through friendly behaviors with stakeholders, shareholder value is a concave function for independent variables π . Therefore, when the competition in the manager talent market is not very fierce (for example, π is strictly less than 1), the interests of shareholders are maximized. In introduction 3, we can also see that the cost of self-protection measures is very high when π is high (for example, the need for strong stakeholder protection regulations).

The following three cases illustrate that shareholders have two ways to deal with managers' self-protection strategies according to the size of the parameters. In the first case, Λ and σ are not big number, the method of using a higher level of stakeholder protection (relatively large λ) and a larger management substitution threat (relatively large π) is used to make stakeholders pay attention to potential managers. The cost of protecting the rights and interests of stakeholders is compensated by the benefits of

more efficient management. Note the case 1, although some shareholders' value is sacrificed in order to protect certain rights and interests of stakeholders, on the basis of the loss of current CEO, the cake of the enterprise (including the rights and interests of stakeholders) is growing.

Case 1. We set $\omega_M = 0.1$, $\omega_N = 0.5$, $p_0 = 0.2$, $p_1 = 0.3$, $\theta = 0.2$, $\sigma = 0.2$ and $\Lambda = 0.3$, then $\pi^* = 0.67$, $\bar{\lambda}(\pi^*) = 0.85$.

However, the cost of the above solution is too high when the influence of stakeholder activities is strong (large σ), which is fully reflected in case 2. Similarly, when the income of managers' on-the-job consumption is higher (large Λ), the cost of the above solutions is higher. Because it is difficult for stakeholders to resist the temptation of the current CEO to make substantial management concessions. In this case, when the CEO is less likely to be threatened by dismissal, and a lower level of explicit protection is given to the interests of stakeholders, shareholders' wealth is maximized. Current CEOs who do not need the support of stakeholders to keep their positions will minimize the concessions to stakeholders, and their preference for project selection will also consider the interests of shareholders more. Therefore, in case 2 and case 3, the interests of shareholders are protected by providing rent to the current managers. Therefore, when the management level is low, the cake of the enterprise (including the interests of stakeholders) is becoming smaller, but on the basis of the loss of the interests of stakeholders, the wealth of shareholders is increasing.

Case 2. We set $\omega_M = 0.1$, $\omega_N = 0.5$, $p_0 = 0.2$, $p_1 = 0.3$, $\theta = 0.2$, $\sigma = 0.6$ and $\Lambda = 0.3$, then $\pi^* = 0.2$, $\bar{\lambda}(\pi^*) = 0.16$.

Case 3. $\omega_M = 0.1$, $\omega_N = 0.5$, $p_0 = 0.2$, $p_1 = 0.3$, $\theta = 0.2$, $\sigma = 0.2$ and $\Lambda = 0.6$, then $\pi^* = 0.27$, $\bar{\lambda}(\pi^*) = 0.19$.

Note: in the three cases, managers' motivation of self-protection must be considered in the process of maximizing shareholders' wealth. Therefore, we can get the following proposition:

When protecting the interests of stakeholders, we should not blindly improve the influence of individual or group of stakeholders on CEO candidates, but should seek more formal and legal protection mechanism for stakeholders. Blindly intervening in the candidates of CEOs will lead to collusion with the current CEOs in a short period of time, but this is only a stage of game behavior. Shareholders will form a new collusion with CEOs against stakeholders by reducing the threat of CEO replacement, increasing the on-the-job consumption of CEOs, and hindering the establishment of a formal protection mechanism for the rights and interests of stakeholders. Finally, the enterprise cake (including the interests of stakeholders) is becoming smaller, but on the basis of the loss of the interests of stakeholders, the shareholders' wealth is increasing.

4.2. The benefit of stakeholders

When there is collusion between stakeholders and managers, the stakeholder income equation is as follows:

$$R_{ST}(\pi, \lambda) = [\omega_M + \pi(1 - \sigma)(\omega_N - \omega_M)] [\lambda + (1 - \lambda)\theta] B + (1 - \pi(1 - \sigma)) \omega_M (1 - \lambda)(1 - \theta) \tau^*(\pi, \lambda) B.$$

R_{ST} is also positively correlated with λ and π . Note that, compared with equation (1), the more items in the equation represent the benefits of management concession: more benefits encourage stakeholders to formulate corporate governance model aiming at improving management efficiency, because it will increase the value of π , thus forcing the current CEO to make greater concessions. In fact, a corporate governance model that allows anti takeover and other measures will reduce the motivation of CEOs to meet the requirements of stakeholders, because they do not need the support of stakeholders to keep their jobs. This shows that even those stakeholders who want to give support

to the current CEO in exchange for management concessions also want more fierce competition in management positions.

Deduction 1. Although stakeholders may want to fight side by side with the current CEO in the stage of $t = 1$, their benefits are positively related to the improvement of corporate governance mode to enhance management efficiency.

Who benefits from the game of banning outside intruders? Not shareholders, they lost the right to vote on the change of business management; It's not employees or other stakeholders. A new and more dynamic ownership structure will better protect their interests. The only beneficiaries are managers who block the flow of equity in the market. This also explains why more and more people are joining in the movement against anti takeover, management LED board and loose auditing system.

4.3. The behaviors of CEO

CEOs have different views on corporate governance and the protection of the rights and interests of stakeholders. In fact, introduction 3 implies the following inference:

Deduction 2. The current managers benefit from the reduction of substitution threat and the protection of the rights and interests of explicit stakeholders.

There is a reason for CEOs to oppose competition in the executive talent market. We emphasize that CEOs who tend to be the representatives of the interests of stakeholders (when $\lambda < \bar{\lambda}(\pi)$) oppose the law of protecting the interests of stakeholders, or introduce the explicit regulations of protecting the interests of stakeholders into enterprise regulations. This explains that they pay great attention to social affairs and the rights and interests of stakeholders, but at the same time, they are making regulations on the protection of stakeholders and all the activities that institutionalize the interests of stakeholders in the governance structure are passive.

5. Research conclusions and Countermeasures

5.1. Research conclusions

5.1.1. Through the analysis of the game model in the fourth part, we can see that the main factor affecting the benefits of stakeholders is the formal regulations. In the process of one-stage game, shareholders can reduce the threat of CEO replacement to make the cake (including the interests of stakeholders) smaller, but on the basis of the loss of the interests of stakeholders, shareholders' wealth is increasing.

5.1.2. Deduction 1 explains why more and more executives are trying to collude with stakeholders in the anti takeover, management LED board of directors and loose audit system.

5.1.3. The case study also shows that the effectiveness of formal laws and regulations is directly related to law enforcement and the strength of law enforcement. For example, the environmental protection law has changed the environmental protection department from a "toothless" tiger to a "toothed" tiger. It also needs to further transform the powerful deterrent force into action force and implement the laws and regulations.

5.2. Countermeasures

5.2.1. We should build a formal and legal institution atmosphere of stakeholder protection system to play the role of government governance better

According to the role of governments in national CSR governance, the governance model of American government can be summarized as market-oriented. In the process

of CSR development in the United States, the U. S. government is relatively in the role of “Absence”, mainly relying on market forces to promote the development of CSR; The governance model of CSR in European countries can be called relationship style. European governments play an active role in coordination and cooperation in the process of governance development. But in these two governance models, European and American governments are relatively absent.

General Secretary Xi Jinping stressed: “we cannot replace or negate the role of the government in the decisive role of the market in the allocation of resources, nor can we better play the role of the government to replace or even negate the decisive role of the market in the allocation of resources”. Therefore, while giving full play to the decisive role of the market in the allocation of resources, we should not ignore and also pay attention to giving better play to the role of the government.

While setting up stakeholders protection mechanism, we should make more efforts to build a formal, regulatory stakeholder protection regulations, rather than trying to intervene in the selection of CEO. Only in this way, in order to maximize their own interests, shareholders will work harder to find CEO candidates with stronger management ability, thus increasing the opportunity to find better CEO candidates. Through more efficient management to bring high returns, to make up for the cost of stakeholder protection, so although in order to ensure that certain rights and interests of stakeholders are protected, some shareholders' value is sacrificed, but on the basis of the loss of the current CEO, the enterprise cake (including the rights and interests of stakeholders) is growing.

5.2.2. We should actively promote the establishment of a reasonable flow of equity such as mixed ownership and market-oriented supervision force such as audit, so as to avoid collusion between senior executives and stakeholders

CSR's active policy has changed the government regulation. Moreover, in the process of CSR participation, when the government integrates CSR standards with its traditional judicial power and regulatory functions, the boundary between CSR and legal norms becomes more and more blurred. In fact, CSR and law also intertwine and influence each other.

For example, Midttun and others believe that the incorporation of social and environmental policy agenda into specific national welfare policies through self-discipline governance of enterprises also brings about new embedded relationship models and problems of government enterprise cooperative management [15, p. 486]. Enderle also believes that it is not enough to rely only on the strength of enterprises for the cohesion of society. What is needed is the complementarity of multi-level strength and action between enterprises and society [8, p. 9]. Therefore, when some countries are still using the idea of Neo liberalism to construct and realize the CSR concept, many countries have begun to build a governance system in which the government, enterprises and non-governmental organizations compete and cooperate together.

In order to avoid collusion between managers and stakeholders, for competitive enterprises, we should actively promote the development of mixed ownership economy, take public companies as the main form of expression, promote the reasonable flow of equity, avoid the situation of collusion between managers and stakeholders, to realize the maximization of the benefits of stakeholders better.

5.2.3. We should accelerate the data flow planning and its safeguard mechanism, and transform the institutional advantages into governance efficiency better

Transform the institutional advantages into governance efficiency is a major proposition stressed by the party in the fourth Plenary Session of the 19th CPC Central Committee and a major issue that has always been concerned by the Central Committee of the

CPC at the core of Comrade Xi Jinping's system. During the period of the 14th five-year plan, we should build a reasonable and efficient social credit system planning and its guarantee mechanism, to realize the modernization of big data governance capacity and governance system.

For example, limited by the original legal provisions, for a long time, the punishment and law enforcement measures of China's environmental protection departments are quite limited. Compared with the public security, tax and industrial and commercial departments, the environmental protection department has always been a "soft hammer", which is difficult to deter the increasingly rampant environmental violations. To solve these problems, the new environmental protection law provides a series of targeted enforcement tools.

5.2.3.1. A new system of "daily penalty" is added, that is, to impose a daily and continuous penalty on persistent environmental violations. The penalty for environmental violations stipulated in the previous law is a fixed amount, and the amount is not large, which leads to the low cost of illegal activities, so many enterprises are lazy in pollution control.

5.2.3.2. As an administrative law, the new "environmental protection law" rarely stipulates the punishment measures of administrative detention, and the most severe means of administrative punishment will be used for those who violate the law of pollution.

5.2.3.3. The reason why individual local enterprises are unscrupulous in their pollution behaviors is mainly because local officials connive based on the abnormal view of political achievements. So, the new environmental protection law will take removing the "umbrella" as the starting point. The specific provisions are: leading cadres will resign if they falsely report, lie or conceal the pollution situation; In the face of major environmental violations, the leaders in charge of the local government, the environmental protection department and other regulatory departments will "take the blame and resign".

Because the environmental protection law involves a wide range of issues and there are many controversies, the amendment was passed after the fourth deliberation. We can say that this is a mature legislation that condenses the wisdom of China's environmental governance, draws lessons from previous experience and can suit the remedy to the case. The new "environmental protection law" is a "long teeth" law, is a law that can fight against the pollution phenomenon of people's grievances.

On April 24, 2014, the eighth meeting of the Standing Committee of the 12th National People's Congress voted and passed the amendment to the environmental protection law, which was implemented on January 1, 2015. So far, this "basic law" in China's environmental field has been revised for the first time in 25 years.

However, on March 17, 2015, the digest newspaper published the article "why listed companies are not afraid of the new environmental protection law". Up to the time of the report, "the top 20 pollution sources online monitoring risk rankings of listed companies" were published once a week, the article said. But most of the companies on the list are indifferent.

The article author believes that the reason for this phenomenon is that the daily penalty is still insufficient and pollution information can not affect the stock market. The article also mentions Zhang Wang, then-director of the social responsibility research center of listed companies of the securities times: "in foreign countries, environmental information has a huge impact on listed companies, but our pollution information can not affect the stock market for the time being".

Can the introduction of formal regulations improve the benefits of stakeholders? In fact, the key lies in whether to enforce the law and the strength of law enforcement.

The transformation of production relations should be suitable for and centered on the development of productive forces. Data has become an important basic factor of production and one of the main sources of commercial profits. But data is also used for bad purposes by some enterprises, such as data monopoly. Therefore, data should be listed as the main object and content of governance. For example, standardize the generation of data information, clarify the new property attributes of data, encourage data transactions, strengthen the construction of data ownership system, and explore the construction of data ownership rules from the perspective of utilization. In the context of ensuring the citizens privacy, we should max the usage of data as a new factor of production. At the same time, we should strengthen the work of digital empowerment, transform data from governance objects into governance tools and means, and supervise big data maturity and other behaviors.

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