Journal of Accounting, Business and Finance Research
ISSN: 2521-3830
Vol. 16, No. 2, pp. 93-109, 2023
DOI: 10.55217/102.v16i2.659

Equity incentive, separation of two rights and corporate performance: research on corporate governance based on two types of agency costs

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Abstract

This paper discusses the impact of equity incentive and the separation of two rights on corporate performance and the intermediary role of two kinds of agency costs by using the revised stepwise method taking A-share listed companies as the research object and using the Jones model to remove the impact of earnings management on corporate performance. The classification of industry and nature is introduced to further judge the heterogeneity of the conclusions. The results show that equity incentive can significantly reduce the first kind of agency cost and improve corporate performance, but the intermediary effect of the first kind of agency cost between equity incentive and corporate performance is not significant. Limiting the degree of separation of the two rights can significantly reduce the second kind of agency cost to improve corporate performance, and the second kind of agency cost has a partial intermediary effect between the degree of separation of the two rights and corporate performance. The results of different industries are heterogeneous and need to be treated differently. It is further found that non-state-owned enterprises can improve corporate performance through governance measures, but state-owned enterprises have not achieved a significant governance effect. This paper clarifies the black box between corporate governance and corporate performance from the effects of the two types of agency costs and effectively supplements the existing research system, which also provides a reference for market regulators to formulate policies.

Keywords:
Corporate performance
Equity incentive
Intermediary effect
Separation of two rights
Two kinds of agency costs.

JEL Classification:
G30; G34; G38.

Publisher:
Scientific Publishing Institute

Received: *30 March 2023*
Revised: *19 May 2023*
Accepted: *1 June 2023*
Published: *8 June 2023*

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Funding: This work is supported by the National Social Science Foundation of China (Grant number: 17CJY060), the National Natural Science Foundation of China (Grant number: 71971046), the Fundamental Research Funds for the Central Universities (Grant number: DUT21RW109), the Liaoning Economic and Social Development research project (Grant number: 2022lslqnwzzkt-002), the key project of the National Natural Science Foundation of China (Grant number: 71731003), and the major project of the National Social Science Foundation of China (Grant number: 19ZDA094)
Competing Interests: The authors declare that they have no competing interests.

1. Introduction

As corporates are the carriers of economic development, their quality has received extensive attention. One of the manifestations of development quality is performance. Shareholders, operators, and creditors all focus on

corporate performance and seek ways to improve it, while corporate governance effectively reduces costs and improves performance.

The effect of corporate governance depends on whether it can reduce the costs caused by agency problems and improve corporate performance. There are two main types of agency problems faced by companies. The first type of agency problem[1] comes from the conflict of interest between shareholders and managers, that is, managers' autonomy will enable them to increase personal income, improve their social status and maintain their job stability through self-serving behavior, thus leading to the goals of managers deviating from the maximization of corporate value pursued by shareholders.

The second type of agency problem[2] stems from the conflict of interest between controlling shareholders and minority shareholders, that is, large shareholders with high control rights can use their power to collude with executives to encroach on the interests of minority shareholders, thus causing conflict between the two groups of shareholders. These two kinds of agency problems will bring high agency costs. In order to manage and control such agency costs effectively, the common means at present is to use equity incentive[3] for management or control the separation degree of the two rights[4] for supervision.

Unfortunately, the existing research has not yet reached a consensus on the governance effect of equity incentive and the separation of the two rights on corporate performance. It is believed that equity incentive does not have a significant role in promoting corporate performance but may inhibit the tunneling behavior of major shareholders, which is based on the fact that Chinese, state-owned, corporate managers are directly appointed by the government, the serious phenomenon of internal control, and the rigid shareholding system. Although some scholars have proposed that executive stock ownership will lead to the convergence of the interests of managers and shareholders and thus promote performance, some scholars still believe that executive stock ownership may still bring many negative effects, such as plunder and performance decline. According to the research on the degree of separation of the two rights of the actual controllers of corporates, some scholars believe that the degree of separation of the two rights is negatively correlated with corporate performance, and have found that the increase in the ownership of controlling shareholders is conducive to the improvement of corporate performance, while others have proposed that the increase in the shareholding ratio of the controlling shareholders will first increase corporate performance and then decrease it. Scholars have studied the relationship between the two governance methods and corporate performance from different perspectives. The conclusions are not uniform and are also not suitable for the development of the Chinese economy. With the deepening reform of China's economic system, the market has begun to play a decisive role. The new market environment has led to various departments increasing their monitoring and warning against the conflict of interest between executives and shareholders, as well as the predatory behavior of controlling shareholders on small and medium shareholders, to ensure the healthy development of corporates. Therefore, it is of theoretical value and practical significance to incorporate equity incentive, separation of the two rights, and corporate performance into a unified framework for research. It is not clear how equity incentive and separation of the two rights as two types of governance measures affect corporate performance and whether the two types of agency costs play key roles, thus requiring urgent study to obtain answers.

Given this, we use the intermediary effect model to clarify the black box between corporate governance and corporate performance. Starting with solving the two types of agency costs and their effects, our study systematically examines corporate governance and corporate performance, and the results supplement the existing research.

Unlike the existing literature, this paper integrates equity incentive, separation of the two rights, two types of agency costs, and corporate performance into a research system and constructs an intermediary effect model. We use the data of state-owned and non-state-owned listed enterprises in China's A-share market to empirically test the effects and approaches of the equity incentive and the separation degree of the two rights on the two kinds of agency costs and corporate performance. We also discuss and test the intermediary effects of two types of agency costs in the relationship between equity incentive, separation of ownership, and corporate performance, draw meaningful conclusions, and give reasonable suggestions.

The main features and contributions of this study are as follows: First, by discussing the intermediary effects of the two types of agency costs, we integrate two corporate governance measures, two types of agency costs and corporate performance into a research framework. We comprehensively judge whether equity incentive and the separation of the two rights affect corporate performance by affecting agency costs and empirically test its impact mechanism. Second, we use the Jones model to deal with corporate performance, remove the impact of earnings management on corporate performance, alleviate the endogeneity of the model, and make the empirical results more accurate and reliable. Third, we not only set up industry-level control variables, but also set up corporate-level control variables, as well as division methods, such as property rights classification, which is conducive to the in-depth subdivision of the research content.

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[1] Michael and William (1976) proposed the traditional western principal–agent theory.
[2] La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999) complemented the traditional agency theory and proposed the second type of agency problem.
[3] Equity incentive refers to giving senior executives partial shareholder equity to form a community of interests with shareholders.
[4] The degree of separation of two rights refers to the degree of separation of the right of control and ownership of the actual controller. The equity of Chinese companies is generally concentrated, so the research on corporate performance cannot ignore the separation of two rights.

This study has produced some meaningful results. The equity incentive of executives can significantly reduce the first type of agency cost and improve corporate performance. Although the impact mechanism is clear, the intermediary effect of the first type of agency cost between equity incentive and corporate performance is not significant. Restricting the separation of the two rights can significantly reduce the second type of agency cost to improve corporate performance. The second type of agency cost plays a partial intermediary effect between the separation of the two rights and corporate performance. The results of the sub-sectors are heterogeneous. For corporates in the construction, transportation and warehousing, and social service industries, equity incentive and the separation of the two rights have no significant correlation with corporate performance and need to be treated differently. It is found that the non-state-owned enterprises can improve corporate performance through governance measures, but for the state-owned enterprises, the separation of equity incentive and supervision has not had a noticeable corporate governance effect.

The structure of the paper is as follows: The second part contains a literature review; the third comprises the theoretical analysis and research hypotheses; the fourth part explains the research design; the fifth part is the empirical test; and the sixth part contains the conclusion and suggestions.

2. Literature Review

2.1. Equity Incentive and Corporate Performance

The importance of equity incentive in corporate governance has been widely recognized in the academic community. Equity incentive encourages managers to reduce self-serving behavior by allowing managers to hold a certain number of company stocks, thereby resolving conflicts. Mehran (1995) believes that executive incentive includes salary, equity, and bonus, among which equity is the most important. Executive shareholding will converge the interests of managers and shareholders and promote the development of corporate performance. Frye (2004) and Sesil, Kroumova, Kruse, and Blasi (2007) concluded that the implementation of equity incentive can promote the improvement of corporate performance through their respective research results, which is an effective corporate governance measure. However, some scholars hold opposite views on the impact of equity incentive on corporate performance. Based on the "managerial entrenchment" hypothesis, Fama and Jensen (1983) believe that the existence of information asymmetry and moral hazard will lead to senior executives eroding shareholders' rights and interests to maximize personal interests with the increase of equity incentive, thus affecting the overall value of the company. DeFusco, Zorn, and Johnson (1991) proposed that corporates that increase equity incentive will experience a decline in earnings relative to their industry. Kadan and Yang (2016) found that with the increase in equity incentive, executives' earnings management and insider trading behavior will also increase, which will not have a positive effect on corporate performance. Lie (2005); Heron and Lie (2007) and Brown, Liang, and Weisbenner (2007) found similar results. In addition, some papers have shown that the situation in China is different from that in the West, so the impact is also different. Qiao, Chen, and Xu (2023) drew a diametrically opposite conclusion compared with the empirical research conclusions of the mature capital market in the United States. The increase in incentive intensity will have a negative impact on corporate performance and increase over time. This paper argues that compared with developed countries, the immaturity of China's current equity incentive plan, the imperfection of the compensation system, and the special status of executives in state-owned enterprises which undertake more social functions have led to poor incentive effects. Some also propose that the imperfection of China's capital market makes it difficult for the equity incentive system to play its due role. Equity incentive may lead to great unfairness and may dampen the enthusiasm of executives (Fang & Jin, 2020). Similarly, based on Chinese corporate data, some scholars have pointed out from different perspectives that equity incentives do not always have a positive effect on corporate performance (Tang, Zhang, Ding, & Huan, 2022; Tian, 2023).

2.2. Separation of Two Rights and Corporate Performance

Many scholars have conducted research on the relationship between ownership structure and corporate performance, but the conclusions are not uniform. The formal research on the relationship between the value of a corporate and the equity owned by the manager begins with Michael and William (1976). The paper constructed a corporate control model based on the 'managerial entrenchment' and 'convergence of interests' hypotheses to study the relationship between the voting rights of managers and corporate performance from the perspective of mergers and acquisitions. The research found that when the voting power is low, it has a positive relationship with corporate performance, and when the voting power is high, it has a negative relationship with corporate performance.

Taking enterprises with different extreme ownership structures as the research object, Holderness and Sheehan (1988) found that there is no significant correlation between ownership structure and corporate performance. McConnell and Servaes (1990) believe that there is a curvilinear correlation between the equity owned by shareholders with actual control and corporate value. La Porta et al. (1999) found that the interests of other shareholders tend to be encroached upon more when the actual control of the controlling shareholders is large but the ownership is small, resulting in a decline in corporate performance. Therefore, there is often a negative correlation between the degree of separation of the two rights and corporate performance. It is also pointed out that the ownership structure has changed from dispersion to concentration, except for the US and

the UK, which means that the agency problem between managers and external shareholders has gradually changed into an agency problem between controlling shareholders and minority shareholders. Since then, it has received extensive attention from academia. Claessens, Djankov, and Lang (2000) and Faccio and Lang (2002) have shown that the pyramid ownership structure leads to the separation of the two rights in Western Europe and East Asia, respectively. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) found through further research that the increase of the controlling shareholders' actual control rights improves corporate performance. Lin, Ma, Malatesta, and Xuan (2012) believe that excessive control of controlling shareholders will increase their motivation to conduct moral hazard activities, thus increasing the cost of corporate debt and affecting corporate value. Kang, Lee, Lee, and Park (2014) believe that the separation of ownership and actual control has a significant positive effect on the scale of related party transactions and thus has a negative effect on corporate value.

2.3. Two Types of Agency Cost and Corporate Governance

There is a long history of study on agency costs. Michael and William (1976) put forward the traditional western principal–agent theory, that is, when there is a conflict of objectives between the managers who control the right and the shareholders who control the ownership and the managers make decisions motivated by maximizing their own interests, this leads to additional costs for the enterprise's operation. This is the first type of agency cost. They attribute agency cost to the sum of agent-based constraint cost, principal-based supervision cost, and residual loss. La Porta et al. (1999) supplemented the traditional agency cost theory and put forward the second type of agency cost. They believe that in the case of a high concentration of corporate equity, if the control right of major shareholders is much higher than the cash flow right, the controlling shareholders in the dominant position and the small and medium shareholders often have conflicting interests. The controlling shareholders can control the decision making of listed corporates to serve private interests. At this time, the second type of agency problem should be focused on, which is the agency problem between major shareholders and small and medium shareholders.

Ang, Cole, and Lin (2000) used a sample of 1,708 small enterprises in the United States and found a negative relationship between the proportion of managerial ownership and the first type of agency cost. Based on the data on executive compensation of American listed companies from 1935 to 2005, Frydman and Saks (2010) proposed that executive compensation incentive can promote the convergence of interests between shareholders and executives, thus effectively reducing the first type of agency cost. Burns, McTier, and Minnick (2015) found that equity incentive can combine the long-term value of managers and enterprises, so it can better promote the convergence of interests between managers and enterprises, thus reducing the first type of agency cost. While Robinson and Sensoy (2013), from the perspective of managerial power, believe that managers can use their power to administer self-serving compensation, so executive compensation incentive can only play a limited role in reducing the first type of agency cost. Xu (2013) also proposed that equity incentives are vulnerable to manipulation by executives. Executives may affect corporate information disclosure to achieve the goal of equity incentive but aggravate the information asymmetry between principals and agents, making equity incentive ineffective, and even increasing the first type of agency cost. Bebchuk and Fried (2003) proposed the theory of managerial power, which holds that due to the existence of rent-seeking behavior and greater power among management, the stronger the ability to manipulate their salary. The equity incentive mechanism cannot properly solve the first type of agency problem but becomes an important reason to promote the increase of agency cost.

For the second type of agency cost, Wang and Xiao (2011) believe that large or controlling shareholders are more inclined to unite with executives to encroach on the interests of small and medium shareholders for personal gain and damage the interests of the corporate, while the implementation of equity incentive strengthens the relationship between executive compensation and corporate performance, reducing their willingness to collude with the large shareholders and reducing the second type of agency cost. It also points out that the ownership concentration of Chinese listed companies was high, and there was a serious second type of agency problem. Van den Steen (2005) pointed out that the greater the degree of incentive given to managers, the more attention they will pay to the correctness of decisions, thus reducing the degree of deviation from the goal of maximizing shareholders' interests. Therefore, equity incentive can restrict the hollowing behavior of major shareholders and reduce the second type of agency cost. Some scholars used British listed companies as an example to point out that the overall interests of enterprises will be damaged due to the increase of the rights of major shareholders, which will lead to increased agency costs and reduce corporate performance (Florackis, 2008; Jelinek & Stuerke, 2009). Taking listed companies in East Asian countries as samples, Bae, Baek, Kang, and Liu (2012) studied the relationship between corporate governance mechanisms and corporate performance during the financial crisis and found that corporates with higher governance quality during a period of financial crisis could better restrain the occupation of minority shareholders' interests by major shareholders and senior executives, so they maintain a higher return on assets.

Agency theory holds that the direct purpose of the corporate governance mechanism is to alleviate agency problems and reduce the two types of equity agency costs. The ultimate goal is to ensure that corporate controllers make scientific decisions and effectively manage the business in accordance with the interests of its shareholders. However, there are few pieces of literature on the intermediary effect of dual agency cost. Most

studies only include a single agency cost in the research framework or only theoretically explain the impact of two types of agency costs. Florackis (2008) found that corporate governance mechanisms affect corporate performance by reducing agency costs. Since equity incentive is an important part of corporate governance mechanisms, reducing the two types of agency costs can improve corporate performance.

2.4. Literature Commentary

The current research on equity incentive, the separation degree of the two rights, and the two types of agency costs mainly have the following deficiencies: First, although there are extensive studies on the impact of equity incentive on corporate performance, many studies don't consider earnings management. Equity incentive can affect corporate performance by inducing earnings management, so there will be significant changes between equity incentive and corporate performance after earnings management is used to adjust corporate performance. Additionally, most research does not take into account the endogeneity brought by earnings management, which may partly explain why there are great differences in the research conclusions between equity incentive and corporate performance. Second, although relevant literature has focused on the direct impact of the two types of agency cost governance on corporate performance, it has not clearly pointed out its impact mechanism. Most of the literature only analyzes the influence of agency cost from a theoretical perspective and does not incorporate agency cost into the empirical research system, which cannot adequately explain the mechanism of the two types of agency cost governance. Third, the existing agency cost governance literature mainly uses financial indicators as control variables, lacking control variables such as industry, region, and property rights structure. When the basic situations of the companies are different, the impact may be heterogeneous.

This paper will solve the above problems by using the intermediary effect model to clarify the impact mechanism between corporate governance and corporate performance, and systematically study corporate governance and corporate performance by solving the two types of agency costs, which is a meaningful supplement to the existing research system.

3. Theoretical Analysis and Research Hypotheses

3.1. The Impact of Equity Incentive on the First Type of Agency Cost

Many studies have shown that equity incentive has a certain impact on the first type of agency cost. Based on the principal–agent theory, the first type of agency cost is mainly composed of constraint cost, supervision cost, and residual loss. We mainly consider the residual loss. Compared with the decision to maximize the welfare of the client, managers need to consider the risk of dismissal, professional reputation, etc. Chakraborty, Sheikh, and Subramanian (2007) found that a 10% increase in dismissal risk usually leads to a 5%–23% decline in stock return volatility. Kempf, Ruenzi, and Thiele (2009) pointed out through empirical research that the relative size of dismissal risk and reward determines whether managers make high-risk decisions. When an increase in salary is not enough to compensate for the risk of dismissal, the manager will reduce the level of risk-taking to avoid being dismissed. In addition, due to the information asymmetry of the manager market, shareholders can only make employment decisions by observing the success or failure of projects and corporate performance. Therefore, managers will consider investing in some low-risk projects when making investment decisions. If a project is successful, it will send a strong signal to shareholders, which is conducive to the establishment of their professional reputation. The above behavior of management is mainly because managers are not the owners of the enterprise and lack the incentive to work hard. That is to say, when managers have full ownership of the company, the first type of agency cost does not exist. According to the existing literature, executive shareholding can alleviate the conflict of interest between shareholders and managers. The owner of the company can reduce the first type of agency cost by giving the management a residual claim and encouraging them to reduce their profit-seeking behavior. At the same time, equity incentive helps to reduce free cash flow, which will also help management to reduce perquisite consumption, thereby reducing agency costs. Although western theories have proposed the possibility of the "entrenchment effect",[5] considering that China's equity is more concentrated and there is no phenomenon of large-scale management shareholding, we do not consider this particular effect. This leads to the formation of H1.[6]

H1: There is a significant negative relationship between equity incentive and the first type of agency cost. Equity incentive can reduce the first type of agency cost of listed companies.

3.2. The Impact of the Separation of Two Rights on the Second Type of Agency Cost

According to the theory of tunneling behavior, the second type of agency cost arises from the "tunneling behavior" of major shareholders, which not only infringes on the interests of minority shareholders but also harms the development of the corporate, and even the market. The tunneling behavior of shareholders will reduce cash flow, affect normal operations, and even lead to corporate collapse. The development of the capital

[5] The entrenchment effect refers to when the shareholding ratio of executives exceeds a critical point and executives with sufficient influence no longer worry about the risk of dismissal but unscrupulously encroach on corporate resources, which makes the agency cost rise rapidly.

[6] There are many pieces of literature on the positive effect of equity incentives on the first type of agency cost, such as Burns et al. (2015). We assume that there is no endogeneity problem in H1.

market is inseparable from small and medium-sized investors, and the tunneling behavior of controlling shareholders affects their enthusiasm and will further inhibit market investment and consumption.

Many existing studies have shown that the degree of separation of the two rights can be used as an indicator to measure the severity of the second type of agency problem. If the actual controller's control and ownership are almost equal, the major shareholders' encroachment on the interests of minority shareholders will affect the company's earnings and cash flow and will hinder the company's operation and further development. Therefore, rational controllers will stop the plunder of minority shareholders in this case. When the controlling shareholders' control is large but the ownership is small, the controller's motivation to encroach on the interests of other shareholders increases due to the fact that the benefits of predatory behavior are greater than the losses, resulting in a decline in corporate performance. Therefore, the degree of separation of the two rights is often negatively correlated with corporate performance. Due to the concentrated shareholding structure of most Chinese companies, the control rights of minority shareholders are ignored in many cases, so the phenomenon of major shareholders robbing minority shareholders is more serious. In addition, the imperfect capital market system, the system that protects the interests of small and medium investors, and the information disclosure system also lead to major shareholders unscrupulously seizing the rights and interests of small and medium shareholders. Therefore, it can be inferred that, in China, the correlation between the degree of separation of the two rights and the second type of agency cost may be more obvious than in western countries. Based on the above analysis, H2 is proposed.[7]

H2: There is a significant positive relationship between the separation of the two rights and the second type of agency cost. Reducing the separation of the two rights can reduce the second type of agency cost of listed companies.

3.3. The Intermediary Role of Two Types of Agency Costs

Most existing studies suggest that corporate governance in China should focus on these two agency problems, as both of them will lead to an increase in their respective agency costs, thereby reducing corporate performance. In reality, agency costs are often reduced by introducing various governance mechanisms and measures to improve corporate performance, which indicates that agency costs can be used to explain the impact of various governance methods on corporate performance. Given that there is no significant interaction between regulatory measures of the separation of the two rights and executive incentive, it is reasonable to infer that equity incentive and the separation of the two rights only affect one type of agency cost, and these two governance measures indirectly affect corporate performance through two types of agency costs. Thus, to supplement H1 and H2, H3 and H4 are proposed.

H3: The degree of separation of the two rights has no significant effect on the first type of agency cost.

H4: Equity incentive has no significant effect on the second type of agency cost.

The academic community generally agrees that equity incentive can inhibit managers' self-serving behavior to a certain extent, thus affecting the first type of agency cost. Compared with equity incentive, the separation of the two rights is not very operable, but the relevant departments can still ensure the interests of minority shareholders by supervising enterprises with a high separation of the two rights. Studies have shown that the second type of agency cost can be used to partially explain the impact of ownership concentration on corporate performance, and the actual controllers of enterprises with a high separation of the two rights will seek private interests by infringing on the interests of minority shareholders, which is believed to reduce corporate performance. Based on the above analysis, H5 and H6 are proposed.

H5: The first type of agency cost plays a significant intermediary role between executive equity incentive and corporate performance. Equity incentive will have a positive effect on corporate performance by reducing the first type of agency cost.

H6: The second type of agency cost plays a significant intermediary role between the degree of separation of the two rights and corporate performance. Companies whose degree of separation of the two rights is higher will have a higher second type of agency cost, thus reducing corporate performance.

4. Research Design

4.1. Research Samples and Data Sources

State-owned and non-state-owned listed companies in the A-share[8] market from 2014 to 2021 were selected as samples, and the data was taken from the Wind database and the CSMAR database.[9] After screening and processing, 589 companies and 4,176 observations were obtained based on the following criteria:

(1) According to the industry classification of the CSRC[10] 2001 edition, the samples of the financial industry were excluded. The operation mode and report data of the financial industry are different from other industries and should not be included in the analysis.

[7] Similarly, we assume that H2 has no endogeneity problem.

[8] A-shares are ordinary domestic shares issued by domestic companies for domestic institutions, organizations, or individuals to denominate and trade in yuan.

[9] The Wind database is a financial data service system developed by Wind Information Co., Ltd. in China, which provides various financial market data. The CSMAR database refers to the China Stock Market & Accounting Research database, which is an economic and financial database developed by Shenzhen CSMAR Data Technology Co., Ltd. based on the needs of academic research and China's actual conditions.

[10] CSRC refers to the China Securities Regulatory Commission.

(2) ST[11] companies were excluded.

(3) Data with empty values were eliminated.

(4) The variables were subjected to a 1% tail reduction to eliminate the influence of extreme variable values on the results.[12]

4.2. Variables

The goal of this paper is to determine whether changes in equity incentive and the separation of the two rights can affect the two types of agency costs and thus affect corporate performance, and if there is an intermediary effect. The main variables are as follows:

4.2.1. Explained Variable: Corporate Performance ($ADJEBIT_{jt}$)

Some scholars have suggested that equity incentive may induce executives to carry out earnings management (Cheng & Warfield, 2005; Peng & Röell, 2008). According to the method of Cornett, McNutt, and Tehranian (2009), after being adjusted by earnings management, the impact of equity incentive on corporate performance decreases significantly. Therefore, considering the earnings management behavior of executives, after adjustment by earnings management and the industry average, the adjusted earnings before interest and tax ($ADJEBIT_{jt}$) are used to represent corporate performance.

4.2.2. Explanatory Variables: Equity Incentive (BO_{jt}) and Separation of Two Rights ($DOSOP_{jt}$)

These two explanatory variables are corporate governance indicators, reflecting the means of governance. Considering that the scale of companies in different industries is quite different and the scale of companies in the same industry is also different, the incentive effect of the same proportion of executives' shareholdings among companies of different sizes will also be different, so the equity incentive (BO_{jt}) is set to the logarithm of the market value variable of the shares held by executives. At the same time, in order to avoid excessive zero values, the ratio of the actual control right and the ownership (cash flow right) of the actual controller is used to measure the degree of separation of the two rights ($DOSOP_{jt}$).

4.2.3. Mediator Variables: Two Types of Agency Costs (AC_{1jt} and AC_{2jt})

(1) The First Type of Agency Cost (AC_{1jt})

At present, there are three methods to measure the first type of agency cost: The first method is proposed by Ang et al. (2000), which uses the management expense ratio as a measurement index through empirical analysis. This type of agency cost can be measured to a certain extent by the ratio of office expenses, travel expenses, and other management expenses to the main business income. The second method is to use the ratio of main business income to total assets to measure the first type of agency cost from the perspective of asset turnover. In theory, asset turnover is inversely proportional to the first type of agency cost. The third is to use perquisite consumption indicators. Considering the universality of the application, the first method is adopted in this paper.

(2) The Second Type of Agency Cost (AC_{2jt})

At present, there are two methods to measure the second type of agency cost. The first method is to use the net occupancy rate of the controlling shareholder, that is, the ratio of the capital occupied by the controlling shareholder to the total assets of the listed company as a measurement index. The second method is to measure the proportion of other receivables of the total assets. Other receivables can reflect the capital encroachment of major shareholders to a certain extent. Although some large shareholders' plundering of small shareholders cannot be measured or even defined by currency, the second method is adopted considering the availability of data.

4.2.4. Control Variables ($CONTROL_{jt}$)

The control variables mainly include other factors of corporate governance, industry-level variables, and company-level variables.

(1) Other Factors of Corporate Governance Variables

Ownership concentration (CR_{jt}): higher ownership concentration will have an incentive effect, so the actual controller has the incentive to strengthen the supervision of management to promote the improvement of corporate performance.

(2) Company-level Variables

Company growth (AI_{jt}): it is generally believed that the higher the company's growth, the lower the agency cost.

Assets-to-liability ratio (LEV_{jt}): a higher leverage ratio will encourage creditors to increase supervision over management, thus inhibiting the growth of agency costs. Considering the impact of the assets-to-liability ratio on the first type of agency cost, this ratio is set as a control variable to remove endogeneity in the model.

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[11] ST is short for special treatment, which is a delisting risk warning issued by stock exchanges for listed companies with abnormal financial conditions.

[12] The interference of sample outliers during the Covid-19 epidemic period is eliminated.

(3) Industry-level Variables

Industry dummy variable ($IDV_{j,t}$): To study the impact of the industry level on the intermediary effect, according to the industry classification of the CSRC 2001 edition, 10 industry dummy variables are set after excluding the financial industry data.

Table 1. Explanation of the main variables.

Variable type	Variable name	Variable symbol	Variable definition
Explained variable	Corporate performance	$ADJEBIT_{j,t}$	EBIT refers to the earnings before interest and tax. Annual earnings before interest and tax adjusted by earnings management and the industry average are used to measure the corporate performance as follows: $ADJEBIT_{j,t} = EBIT_{j,t} - CA_{j,t} - ADJEBIT_{i,t}$
Explanatory variables	Equity incentive	$BO_{j,t}$	The logarithm of the market value of shares held by the board of directors, the board of supervisors, and other management personnel
	Degree of separation of the two rights	$DOSOP_{j,t}$	The ratio of the actual controller's control right to the actual controller's ownership
Mediator variables	The first type of agency cost	$AC_{1j,t}$	The ratio of main business income to total assets
	The second type of agency cost	$AC_{2j,t}$	The ratio of other receivables to total assets
Control variables ($CONTROL_{j,t}$)	Ownership concentration	$CR_{j,t}$	The sum of the top three shareholders' holdings
	Corporate growth	$AI_{j,t}$	The growth rate of corporate assets
	Assets-to-liability ratio	$LEV_{j,t}$	The ratio of total liabilities to total assets
	Classification of industry	$IDV_{j,t}$	Dummy variable: 11 industry classifications of the China Securities Regulatory Commission in 2001, except the financial industry

Note: t is the time, j is the company, and i is the industry. The 11 industries are (1) agriculture, forestry, animal husbandry and fishery; (2) extractive industry; (3) manufacturing; (4) production and supply of power, gas and water; (5) construction industry; (6) transportation and warehousing industry; (7) information technology industry; (8) wholesale and retail trade; (9) real estate industry; (10) social services industry; (11) communication and culture industry.

4.3. Model Design

4.3.1. Jones Model

To obtain the explanatory variable (corporate performance), we first need to calculate the key indicator—current accruals ($CA_{j,t}$). The Jones model proposed by Louis (2004) is used to calculate current accruals ($CA_{j,t}$) by Equation 1:

$$\frac{TCA_{j,t}}{A_{j,t-1}} = \omega_1 \frac{1}{A_{j,t-1}} + \omega_2 \left(\frac{\Delta REV_{j,t}}{A_{j,t-1}} - \frac{\Delta REC_{j,t}}{A_{j,t-1}} \right) + \xi_{j,t}, \quad (1)$$

Where $TCA_{j,t}$ is the sum of the increase in current assets and the increase in long-term liabilities due within one year after deducting the increase in current liabilities and the increase in cash in year t of company j; $A_{j,t-1}$ is the total assets of company j for year t-1; $\Delta REV_{j,t}$ is the increase in sales revenue; $\Delta REC_{j,t}$ is the net increase in accounts receivable; and the regression residual of Equation 1 is $CA_{j,t}$.

4.3.2. Testing Model for the Mediation Effect

To test the intermediary effect, the most commonly used method in academic circles is the stepwise method (Baron & Kenny, 1986). To verify whether there are intermediary effects in the transmission path of the two types of agency costs, we use the revised stepwise method proposed by Wen and Ye (2014). According to the hypothesis, Models I–V are established in Equations 2–6:

$$\text{Model I: } ADJEBIT_{j,t} = \alpha_0 + \alpha_1 BO_{j,t} + \alpha_2 DOSOP_{j,t} + \alpha_3 CONTROL_{j,t} + \mu_{j,t} \quad (2)$$

$$\text{Model II: } AC_{1j,t} = \beta_0 + \beta_1 BO_{j,t} + \beta_2 DOSOP_{j,t} + \beta_3 CONTROL_{j,t} + \varphi_{j,t} \quad (3)$$

$$\text{Model III: } AC_{2j,t} = \beta_0' + \beta_1' BO_{j,t} + \beta_2' DOSOP_{j,t} + \beta_3' CONTROL_{j,t} + \varphi_{j,t}' \quad (4)$$

$$\text{Model IV: } ADJEBIT_{j,t} = \theta_0 + \theta_1 BO_{j,t} + \theta_2 DOSOP_{j,t} + \theta_3 CONTROL_{j,t} + \theta_4 AC_{1j,t} + \sigma_{j,t} \quad (5)$$

$$\text{Model V: } ADJEBIT_{j,t} = \theta_0' + \theta_1' BO_{j,t} + \theta_2' DOSOP_{j,t} + \theta_3' CONTROL_{j,t} + \theta_5 AC_{2j,t} + \sigma_{j,t}' \quad (6)$$

Model I is used to test the total impact of equity incentive and the separation of the two rights on corporate performance. Model II and Model III are the regression equations of the first and second types of agency costs on equity incentive and the degree of separation of the two rights to verify their respective transmission pathways. In Model IV and Model V, the two variables of the first and second types of agency costs are substituted into Model I to test whether the impact of equity incentive and the separation of the two rights on corporate performance has changed to verify whether the first and second types of agency costs have intermediary effects.

Model II is used to test H1 and H3. If the coefficient β_1 is significantly negative, it indicates that equity incentive is negatively correlated with the first type of agency cost. Equity incentive can be used as a governance measure to reduce the first type of agency cost and to verify H1. If the coefficient β_2 is not significant, there is no significant correlation between the degree of separation of the two rights and the first type of agency cost. The impact of the separation of the two rights on corporate performance is not transmitted through the first type of agency cost, thus verifying H3.

Similarly, in Model III, if the coefficient of the degree of separation of the two rights is significantly positive, the H2 is verified. If the coefficient β_2' is not significant, it shows that there is no direct correlation between the separation of the two rights and the second type of agency cost. Combined with Model II, if the coefficient β_2 is not significant and the coefficient β_2' is significant, it shows that the separation of the two rights will only affect the second type of agency cost. If the coefficient β_1' is not significant and the coefficient β_1 is significant, it shows that equity incentive only affects corporate performance by acting on the first type of agency cost, thus verifying H4.

If all hypotheses are verified, according to the method of Wen and Ye (2014), we can further test the intermediary effect of the first type of agency cost between equity incentive and corporate performance and the intermediary effect of the second type of agency cost between the separation of two rights and corporate performance to verify H5 and H6.

5. Results

5.1. Descriptive Statistics and Preliminary Test

5.1.1. Descriptive Statistics

In order to avoid the spurious regression phenomenon and ensure the validity of the regression results, the unit root test was carried out on the main variables. The p-value results are all 0, indicating that the sample variables' sequence is stationary. An endogenous test of the main variables was then carried out, in which the p-value was less than 1%, indicating that the endogenous hypothesis is rejected and a subsequent analysis could be carried out. Table 2 shows the descriptive statistical results of the main variables, reflecting the mean, range, and distribution of the sample data. The average value of corporate performance ($ADJEBIT_{j,t}$) is -11.395, the maximum value is 26.728, and the minimum value is -21.369. These results indicate that the extreme difference in corporate performance is large not only between different industries but between different companies within the same industry, and the data are more distributed in intervals less than the average value of the industry. The lower quartile and median of equity incentive ($BO_{j,t}$) are both 0, indicating that the proportion of sample companies that do not choose equity incentive is relatively high. The lower quartile and median of the degree of separation of the two rights ($DOSOP_{j,t}$) are both 1, indicating that the proportion of sample companies without the separation of the two rights is relatively high. Compared with the second type of agency cost, the standard deviation of the first type of agency cost is significantly larger, indicating that the first type of agency costs among the sample companies are quite different.

Table 2. Descriptive statistics of the main variables.

Variable	Mean	SD	Min.	Max.	Q1	Median	Q3
$ADJEBIT_{j,t}$	-11.395	18.224	-21.369	26.728	-20.887	-19.653	17.014
$BO_{j,t}$	2.988	4.677	0.000	15.192	0.000	0.000	5.657
$DOSOP_{j,t}$	1.412	1.256	1.000	16.113	1.000	1.000	1.239
$AC_{1j,t}$	0.482	1.339	0.000	5.385	0.061	0.106	0.264
$AC_{2j,t}$	0.149	0.251	0.000	0.967	0.017	0.085	0.201
$CR_{j,t}$	51.377	16.540	10.259	98.785	33.640	50.112	60.319
$AI_{j,t}$	0.778	13.210	-0.755	10.863	0.015	0.097	0.236
$LEV_{j,t}$	0.505	0.244	0.000	8.890	0.347	0.512	0.684

5.1.2. Preliminary Correlation Test

According to the correlation analysis results of the main variables shown in Table 3, it is obvious that corporate performance is positively correlated with equity incentive but negatively correlated with the degree of separation of the two rights, indicating that equity incentive and management of the separation of the two rights may indeed be two effective corporate governance measures, which also preliminarily satisfies the basic premise of the establishment of the intermediary effect of both of agency costs. Similarly, the correlation coefficient between equity incentive and the first type of agency cost is negative, and the correlation coefficient between the separation of the two rights and the second type of agency cost is positive, which also preliminarily verifies that both of them are effective corporate governance strategies. The correlation coefficients between the two types of agency costs and corporate performance are both negative, indicating that the two agency costs have an inhibitory effect on corporate performance, confirming the conclusion of traditional theory. Also, since the correlation coefficient of each variable is less than 0.3, the influence of multicollinearity on the regression model can be excluded.

Table 3. Correlation test of the main variables.

Variable	$ADJEBIT_{j,t}$	$BO_{j,t}$	$DOSOP_{j,t}$	$AC_{1j,t}$	$AC_{2j,t}$	$CR_{j,t}$	$AI_{j,t}$	$LEV_{j,t}$
$ADJEBIT_{j,t}$	1.000							
$BO_{j,t}$	0.096	1.000						
$DOSOP_{j,t}$	-0.031	-0.071	1.000					
$AC_{1j,t}$	-0.028	-0.052	0.033	1.000				
$AC_{2j,t}$	-0.055	-0.020	0.018	0.008	1.000			
$CR_{j,t}$	0.178	0.177	-0.115	-0.019	-0.088	1.000		
$AI_{j,t}$	-0.003	-0.016	-0.010	0.004	0.031	-0.005	1.000	
$LEV_{j,t}$	0.061	-0.121	-0.011	0.012	0.270	0.031	-0.019	1.000

5.2. Empirical Test Results and Analysis

Considering that setting industry dummy variables may bring fixed effects to the models, the random effects panel regression method is used to ensure the reliability of the results.

5.2.1. Equity Incentive, Separation of the Two Rights and Corporate Performance

Table 4 contains the regression test results of Model I. The results show that the coefficient of equity incentive is 0.411 and is significant at the 1% level, indicating that equity incentive measures will promote corporate performance. The coefficient of the separation of the two rights is -0.759 and is significant at the 5% level, indicating that higher separation of the two rights is more detrimental to corporate performance, and reverse governance measures can improve corporate performance. The above results can be confirmed with the correlation results, which are consistent with traditional theory. It can also be seen that the regression coefficients of equity concentration and the assets-to-liability ratio are significantly positive at the 1% and 5% levels, respectively, with respective values of 0.211 and 2.035, indicating that increasing equity concentration and the debt ratio are also reasonable auxiliary corporate governance measures. The coefficient of growth is not significant, indicating that, to a certain extent, there is no significant correlation between the asset growth rate and corporate performance. In addition, different industries should also adopt different corporate governance measures: the coefficients of the construction industry, transportation and warehousing industry, and social service industry are not significant, indicating that for these three industries, equity incentive and separation of the two rights have no obvious correlation with corporate performance, so it is necessary to consider corporate governance measures from other perspectives.

Based on the above regression results, a preliminary conclusion can be drawn. Equity incentive will promote corporate performance, and corporate performance with a high separation of the two rights will be relatively low. These conclusions meet the preconditions of the assumptions established in this paper. Based on this, we can carry out further research, that is, the transmission path of equity incentive and the separation of the two rights and whether there are intermediary effects between the first type of agency cost and the second type of agency cost.

Table 4. Model I test results.

Variable	Coefficient	SE	T-value	P-value
$BO_{j,t}$	0.411***	0.089	4.146	0.000
$DOSOP_{j,t}$	-0.759**	0.297	-2.425	0.035
$CR_{j,t}$	0.211***	0.032	5.701	0.000
$AI_{j,t}$	-0.002	0.014	-0.035	0.957
$LEV_{j,t}$	2.035**	1.102	2.089	0.028
Classification of industry				
IDV_1	6.876*	4.125	1.851	0.089
IDV_2	-13.255***	3.077	-4.322	0.000

Variable	Coefficient	SE	T-value	P-value
IDV_3	-5.371***	3.225	-1.810	0.010
IDV_4	-6.701**	3.146	-2.134	0.033
IDV_5	-5.834	3.941	-1.705	0.112
IDV_6	-4.520	2.994	-1.419	0.134
IDV_7	-6.413**	3.105	-2.123	0.039
IDV_8	-1.059	3.309	-0.464	0.688
IDV_9	-8.127***	3.110	-2.877	0.003
IDV_{10}	-4.449	2.989	-1.441	0.121

Note: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. The R^2 value of the regression equation of Model I is 0.035, and the F-value is 6.945.

5.2.2. Equity Incentive, Separation of the Two Rights and the First Type of Agency Cost

Table 5 reflects the regression test results of Model II. The first and second lines are the effects of equity incentive and the separation of the two rights on the first type of agency cost. Specifically, the regression coefficient of equity incentive is -0.052, which is significant at the 1% level, indicating that equity incentive is negatively correlated with the first type of agency cost, thus verifying H1. Although the regression coefficient of the separation of the two rights is 0.081, it is not significant, indicating that there is no significant correlation between the separation of the two rights and the first type of agency cost, verifying H3. The above results show that the first type of agency cost can only act on corporate performance through equity incentive, showing a single transmission path.

In addition, the industry control variables show a high degree of consistency. The regression coefficients of the 10 industry dummy variables are similar. The standard deviations are close to 0.3 and almost all are significant at the 1% level. This shows that all industries can inhibit the first type of agency cost by taking equity incentive measures to improve corporate performance.

Table 5. Model II test results.

Variable	Coefficient	SE	T-value	P-value
$BO_{j,t}$	-0.052***	0.014	-3.220	0.001
$DOSOP_{j,t}$	0.081	0.046	1.531	0.126
$CR_{j,t}$	-0.003	0.004	-1.293	0.196
$AI_{j,t}$	-0.002	0.004	-0.138	0.890
$LEV_{j,t}$	0.109	0.220	0.463	0.643
Classification of industry				
IDV_1	-1.173***	0.385	-3.049	0.002
IDV_2	-0.982***	0.291	-3.376	0.000
IDV_3	-1.014***	0.299	-3.394	0.000
IDV_4	-1.086***	0.304	-3.577	0.000
IDV_5	-1.031***	0.339	-3.042	0.002
IDV_6	-1.052***	0.286	-3.680	0.000
IDV_7	-0.938***	0.292	-3.214	0.000
IDV_8	-1.087***	0.292	-3.722	0.000
IDV_9	-0.700**	0.281	-2.493	0.013
IDV_{10}	-0.886***	0.285	-3.102	0.002

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively. The R^2 value of the regression equation of Model II is 0.015, and the F-value is 2.912.

5.2.3. Equity Incentive, Separation of the Two Rights and the Second Type of Agency Cost

Table 6 reflects the regression test results of Model III. Among them, the first and second lines show the effects of equity incentive and the separation of the two rights on the second type of agency cost. The coefficient of equity incentive is not significant, which means that equity incentive has no significant effect on the second type of agency cost, thus verifying H4. The regression coefficient of the separation of two rights is significantly 0.008, which shows the separation of two rights will have an obviously positive impact on the second type of agency cost, thus verifying H2. The above results show that the second type of agency cost can only affect corporate performance through the separation of two rights, and also shows a single transmission path.

In addition, as one of the control variables, the regression coefficient of ownership concentration is significantly negative at the 1% level, indicating that companies with concentrated ownership have a higher inhibitory impact on the second type of agency cost than the companies with dispersed ownership, which also validates the results of existing studies. The coefficients of some industry dummy variables are not significant, such as agriculture, forestry, animal husbandry and fishery, indicating that for these industries, the decline in

the degree of separation of the two rights will not have a significant negative effect on the second type of agency cost. Therefore, reducing the second type of agency cost from other perspectives turns out to be necessary.

Table 6. Model III test results.

Variable	Coefficient	SE	T-value	P-value
$BO_{j,t}$	0.001	0.009	0.530	0.772
$DOSOP_{j,t}$	0.008**	0.004	2.257	0.019
$CR_{j,t}$	-0.001***	0.000	-4.930	0.000
$AI_{j,t}$	0.000	0.001	-0.681	0.533
$LEV_{j,t}$	0.001	0.010	0.859	0.497
Classification of industry				
IDV_1	0.057	0.035	1.412	0.171
IDV_2	0.046*	0.030	1.783	0.082
IDV_3	0.073**	0.028	2.159	0.034
IDV_4	0.008	0.033	0.169	0.891
IDV_5	0.081**	0.030	2.188	0.028
IDV_6	0.034	0.027	0.983	0.353
IDV_7	-6.449**	3.115	-2.401	0.039
IDV_8	0.213***	0.031	3.287	0.000
IDV_9	0.288***	0.029	9.440	0.000
IDV_{10}	0.064*	0.028	1.811	0.088

Note: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. The R^2 value of the regression equation of Model III is 0.089, and the F-value is 18.413.

5.2.4. The Intermediary Effect of the First Type of Agency Cost

Table 7 shows the regression test results of Model IV, which tests the intermediary effect of the first type of agency cost. The regression coefficient of equity incentive is 0.410, which is significant at the 1% level. According to the intermediary effect theory, when there is a complete intermediary effect, the regression coefficient before the explanatory variable should not be significant in the model with intermediary variables. However, the regression coefficient of equity incentive is still significant, indicating that there is no complete intermediary effect of the first type of agency cost. That is to say, the first type of agency cost has a partial intermediary effect or no intermediary effect, which needs to be further tested with the bootstrap method below.[13] The regression coefficient for the degree of separation of the two rights is -0.735, which is significant at the 5% level, and the coefficient is not much different from the coefficient result of Model I without the first type of agency cost, which again confirms that the degree of separation of the two rights has nothing to do with the first type of agency cost and its intermediary effect. In addition, the regression coefficient of the first type of agency cost is negative but not significant, and $\theta_4*\beta_1$ is not significant after the test with the bootstrap method, indicating that the first type of agency cost fails to meet the basic conditions of the intermediary effect. The above results negate H5, that is, for the relationship between equity incentive and corporate performance, the first type of agency cost does not play an intermediary role.[14]

Table 7. Model IV test results.

Variable	Coefficient	SE	T-value	P-value
$BO_{j,t}$	0.410***	0.098	4.134	0.000
$DOSOP_{j,t}$	-0.735**	0.299	-2.231	0.029
$AC_{1j,t}$	-0.055	0.076	-0.895	0.551
$CR_{j,t}$	0.129***	0.032	5.176	0.000
$AI_{j,t}$	-0.000	0.013	-0.029	0.919
$LEV_{j,t}$	2.183**	1.039	2.088	0.034

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively. The R^2 value of the regression equation of Model IV is 0.037, and the F-value is 6.799. According to the research content, the industry classification results are omitted in the table, similarly hereinafter.

5.2.5. The Intermediary Effect of the Second Type of Agency Cost

Table 8 reflects the regression test results of Model V, which tests the intermediary effect of the second type of agency cost. The regression coefficient of equity incentive is 0.408, which is significant at the 1% level,

[13] The bootstrap method is a uniform sampling method with returns from a given set. By comparing the signs and significance of $\theta_4*\beta_1$ and θ_1, it is judged whether there is a partial or no intermediary effect. After the test with the bootstrap method, the result is that the first type of agency cost does not play an intermediary role. The intermediary effect of the second type of agency cost is tested in the same way.

[14] The follow-up work is to examine whether there are other effects between equity incentives, the first type of agency cost and corporate performance, such as interaction. This will be examined in a separate paper.

and it is not much different from the coefficient results of Model I without the second type of agency cost, which again confirms that equity incentive has nothing to do with the second type of agency cost and its intermediary effect. The regression coefficient of the separation of the two rights is -0.613, which is significant at the 5% level. Similarly, according to the intermediary effect theory, the second type of agency cost does not have a complete intermediary effect. Further, the regression coefficient of the second type of agency cost is -5.576, which is significant at the 5% level, and the result of the test with the bootstrap method shows that the signs of $\theta_5{*}\beta_2'$ and θ_2' are the same, indicating that the second type of agency cost has a partial intermediary effect and the proportion of the intermediary effect to the total effect is: $\theta_5{*}\beta_2'/\alpha_2 = 5.877\%$. The above results partially verify H6, that is, for the relationship between the separation of the two rights and corporate performance, the second type of agency cost plays a partial intermediary role.

Table 8. Model V test results.

Variable	Coefficient	SE	T-value	P-value
$BO_{j,t}$	0.408***	0.095	4.445	0.000
$DOSOP_{j,t}$	-0.613**	0.332	-2.019	0.040
$AC_{2j,t}$	-5.576**	2.151	-2.556	0.012
$CR_{j,t}$	0.151***	0.032	5.134	0.000
$AI_{j,t}$	0.000	0.022	-0.005	0.989
$LEV_{j,t}$	2.133**	1.030	2.073	0.042

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively. The R^2 value of the regression equation of Model V is 0.039, and the F-value is 6.988.

5.3. Robustness Test and Further Analysis

5.3.1. Replacing the Explained Variable

To ensure the robustness of the results obtained in this paper, we replace the adjusted earnings before interest and tax ($ADJEBIT_{j,t}$) with the return on assets ($ROA_{j,t}$). The regression results for the robustness test after replacing the explained variables of Models I, IV, and V, respectively, are shown in the three columns in Table 9. In the first column, the coefficient of equity incentive is 0.005 at the 1% level of significance, and the coefficient of the degree of separation of the two rights is -0.008 at the 5% level of significance, which means that equity incentive measures will have a positive impact on corporate performance, and the degree of separation of the two rights is the opposite, thus confirming the results obtained before. The results in Column (2) show that when the first type of agency cost is added to test the intermediary effect, the coefficients of equity incentive and degree of separation of the two rights have no obvious changes compared with the results in Column (1), and the regression coefficient of the first type of agency cost is not significant, which means that the first type of agency cost does not play an intermediary role between equity incentive and corporate performance, showing no difference from the previous results. Column (3) shows that when the second type of agency cost is added to test the intermediary effect, the significance of the coefficients of equity incentive and degree of separation of the two rights do not have any obvious changes compared with the results of Column (1), and the regression coefficient of the first type of agency cost is significantly negative. After further testing with the bootstrap method, the signs of $\theta_5{*}\beta_2'$ and θ_2' are the same, indicating that the partial intermediary effect of the second type of agency cost between the degree of separation of the two rights and corporate performance is verified again, thus reaffirming the results obtained before. Also, the regression results of the control variables remain unchanged; therefore, the conclusion is robust.

Table 9. The robustness test results of replacing the explained variable.

Variable	$ROA_{j,t}$ (1)	$ROA_{j,t}$ (2)	$ROA_{j,t}$ (3)
$AC_{1j,t}$		-0.001	
		(-0.775)	
$AC_{2j,t}$			-0.061**
			(-2.732)
$BO_{j,t}$	0.005***	0.004***	0.005***
	(4.523)	(4.415)	(4.439)
$DOSOP_{j,t}$	-0.008**	-0.008***	-0.008**
	(-2.361)	(-2.255)	(-2.372)
$CR_{j,t}$	0.001***	0.002***	0.001***
	(5.554)	(5.422)	(5.747)
$AI_{j,t}$	0.000	0.000	0.000
	(-0.023)	(-0.030)	(-0.021)
$LEV_{j,t}$	0.030**	0.025**	0.024**
	(2.087)	(2.049)	(2.068)

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively. T-values are in parentheses.

5.3.2. Dealing with the Truncation of the Dependent Variables

Considering that the first and second types of agency costs partly have a value of zero, which may cause truncation of the dependent variable in the model, we use the Tobit method to perform regression tests on Model II and Model III. The results in columns (1) and (2) in Table 10 are the Tobit regression results for Models II and III, respectively. Column (1) shows that the coefficient of equity incentive is significantly negative and the coefficient of the separation degree of the two rights is not significant, indicating that the first type of agency cost is only affected by equity incentive and has no correlation with the separation of the two rights, which is consistent with the previous results. Column (2) shows that the coefficient of equity incentive is not significant and the coefficient of the separation of the two rights is significantly positive, indicating that the second type of agency cost is only related to the separation of the two rights, which is also consistent with the previous results. Based on the combined results of the two columns, it can be inferred that equity incentive only affects corporate performance through the first type of agency cost. Similarly, the degree of separation of the two rights only affects corporate performance through the second type of agency cost, which once again confirms the previous results. Therefore, the conclusion is robust.

Table 10. Robustness test results of the Tobit model.

Variable	$AC_{1j,t}$	$AC_{2j,t}$
	(1)	(2)
$BO_{j,t}$	-0.051***	0.001
	(-3.254)	(0.322)
$DOSOP_{j,t}$	0.069	0.005**
	(1.336)	(2.188)
$CR_{j,t}$	-0.002	-0.001***
	(-0.765)	(-3.179)
$AI_{j,t}$	0.001	0.000
	(0.313)	(-0.549)
$LEV_{j,t}$	0.153	0.016**
	(0.604)	(2.309)

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively. T-values are in parentheses.

5.3.3. Further Grouped Test

Jiang, Lee, and Yue (2010) and Jian and Wong (2010) both found that corporates with different ownership structures will have different situations of being tunneled by controlling shareholders, but draw opposite conclusions. Therefore, considering that the ownership structures will also have an impact on the intermediary effect of the first and second types of agency costs, we divide the sample companies into two groups – non-state-owned enterprises and state-owned enterprises – according to the ownership structures. Table 11 contains the grouped regression test results for Model I, Model IV, and Model V.

Table 11. The grouped regression test results for Model I, Model IV, and Model V.

Variable	$ADJEBIT_{j,t}$		$AC_{1j,t}$		$AC_{2j,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$BO_{j,t}$	0.733***	0.379**	-0.068***	-0.035**	0.000	0.002**
	(5.251)	(2.384)	(-2.933)	(-2.015)	(-0.346)	(2.291)
$DOSOP_{j,t}$	-0.859**	-0.110	0.051	0.004	0.009**	0.012*
	(-2.357)	(-0.222)	(0.688)	(0.035)	(2.233)	(1.741)
$CR_{j,t}$	0.017	0.320	-0.007	-0.001	-0.001***	-0.002***
	(0.374)	(1.531)	(-0.747)	(-0.394)	(-3.155)	(-2.946)
$AI_{j,t}$	0.005	-0.044	-0.001	0.000	0.000	0.001
	(0.141)	(-1.432)	(-0.088)	(0.038)	(-0.511)	(0.020)
$LEV_{j,t}$	6.585***	2.977**	0.714	-0.115	0.112***	0.023**
	(3.490)	(2.125)	(1.235)	(-0.657)	(4.988)	(2.168)

Note: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. T-values are in parentheses.

After taking enterprises with different equity ownership as the research object, the regression results of equity incentive and the separation of the two rights are obtained (see Table 11). The left column shows the regression results for the non-state-owned enterprises and the right column shows the results for the state-owned enterprises. As shown, the regression coefficient of equity incentive of non-state-owned enterprises is 0.733 and significant at the 1% level. This is the same in state-owned enterprises, with a coefficient of 0.379 at the 5% significance level. Therefore, it is concluded that equity incentive always has a positive effect on the performance of enterprises with different equity ownership. Regarding the degree of separation of the two rights,

the regression coefficient for non-state-owned enterprises is -0.859, while that for the degree of separation of the two rights in state-owned enterprises is not significant, indicating that the increase of the separation of the two rights will lead to a significant decrease in the performance of non-state-owned enterprises but will not significantly affect the performance of state-owned enterprises.

The regression results for enterprises with different equity ownership after adding the first type of agency cost in the model to test the intermediary effect are shown in the middle two columns, respectively, from which we can see that for enterprises with different equity ownership the first type of agency cost has nothing to do with the degree of separation of the two rights and is also negatively correlated with equity incentive, which verifies H1 and H3.

The regression results of equity incentive, the separation of the two rights, and the second type of agency cost in enterprises with different equity ownership are shown in the last two columns, respectively, after adding the second type of agency cost in the model to test the intermediary effect. For non-state-owned enterprises, the separation of the two rights will have a positive effect on the second type of agency cost but has nothing to do with equity incentive, which verifies H2 and H4. However, for state-owned enterprises, the coefficient of the degree of separation of the two rights is significant at the 10% level, while the coefficient of equity incentive is significant at the 5% level, which cannot confirm H2 and H4.

6. Conclusion and Suggestions

6.1. Conclusion

This paper incorporates equity incentive, the separation of two rights, two types of agency costs, and corporate performance into a unified research framework. Based on the intermediary effect model, this paper establishes five regression models to examine the impact of corporate governance on corporate performance, as well as the intermediary role of the first type of agency cost between equity incentive and corporate performance, and the intermediary role of the second type of agency cost between the separation of the two rights and corporate performance. The main conclusions are:

First, the equity incentives of executives can significantly reduce the first type of agency cost, indicating that equity incentive can inhibit the profit-seeking behavior of managers and reduce residual losses.

Second, the degree of separation of the two rights is significantly positively correlated with the second type of agency cost, indicating that companies with a high degree of separation of the two rights are likely to have serious "predatory" behaviors of major shareholders on minority shareholders, thus affecting the cash flow and hindering long-term stable development.

Third, the intermediary effect of the first type of agency cost between equity incentive and corporate performance is not significant, indicating that equity incentive mainly improves corporate performance by affecting other factors, but the impact of similar measures, such as reduction of the management cost rate on corporate performance, is not significant.

Fourth, the second type of agency cost has a partial intermediary effect between the degree of separation of the two rights and corporate performance, that is to say, in addition to the second type of agency cost, the degree of separation of the two rights also affects the corporate performance through other factors, such as other 'tunneling' behaviors that cannot be measured by the receivable ratio.

Fifth, based on the study of industry control variables, it is found that in terms of the construction industry, transportation and warehousing industry, and social service industry, equity incentive and separation of the two rights have no obvious correlation with corporate performance, and it is more difficult to involve the intermediary effect. It is therefore necessary to consider the means of corporate governance from other perspectives.

Sixth, based on the grouping of ownership property, it is found that for state-owned enterprises, the intermediary effect of the separation of the two rights is not significant; the inhibitory effect of executive equity incentive on the first type of agency cost is not as obvious as that of non-state-owned enterprises. That is to say, for state-owned enterprises, equity incentive and supervision of the separation of the two rights have not achieved significant governance effects.

In summary, the equity incentive of executives can significantly reduce the first type of agency cost and improve corporate performance. Although the impact path is clear, the intermediary effect of the first type of agency cost between equity incentive and corporate performance is not significant, the degree of separation of the two rights is significantly positively correlated with the second type of agency cost. The supervision and restriction of the degree of separation of the two rights can reduce the second type of agency cost to improve corporate performance. The impact path is clear and the second type of agency cost has a partial intermediary effect between the degree of separation of the two rights and corporate performance. The test results from different industries exhibit heterogeneous characteristics, and it is necessary to formulate governance measures according to different industries. By grouping companies based on ownership, it is found that non-state-owned enterprises can improve corporate performance through governance measures, while the means of equity incentive and supervision separation of state-owned enterprises have not achieved an obvious governance effect.

6.2. Suggestions

Given the difference in the operability of equity incentive and the separation of the two rights, corporations can implement dividend plans, but it is difficult to adjust the control rights of the actual controlling shareholder. For enterprises with a high degree of separation of the two rights, the regulatory authorities can only choose to strengthen the supervision of the macro market.Therefore, based on the two levels of corporate and government, the following suggestions are made:

First, regarding proposals for corporate governance, in addition to the enterprises in construction industry, transportation and warehousing industry, and social service industry, enterprises, especially non-state-owned enterprises, can implement equity incentives, improve the asset-to-liability ratio, and take other governance measures to improve corporate performance. Companies should reduce the information asymmetry between the management and shareholders and reduce earnings management behavior to encourage the management to truly reduce slack behavior, thus reducing the inhibiting effect of the second type of agency cost on corporate performance.

Second, regarding proposals for government policy, the authorities should strengthen the incentives for the management of state-owned enterprises and mobilize enthusiasm, improve relevant laws and regulations, strengthen the supervision and punishment measures for large shareholders' illegal encroachment on the interests of small shareholders, and strengthen the supervision of enterprises with a high degree of separation of the two rights.

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