Study on the Effectiveness of Employee Stock Ownership Plans' Impact on Enterprise Performance

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Study on the Effectiveness of Employee Stock Ownership Plans' Impact on Enterprise Performance

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Abstract

Employee Stock Ownership Plans (ESOP) is a fairly mature system in developed countries such as the USA and Japan, which plays an important role in attracting talented people and upgrading operating efficiency. With the development of China Market Economy, enterprises are committed to achieve a long-term sustainable development by improving the corporate system arrangement. Thus, ESOP rises in China. Since June 2014, with the implementations of several regulation policies such as <The Guidance On The Implementation of Employee Stock Ownership Plans by Listed Companies> issued by the CRSC, ESOP has entered into a standard and rapid developing period.

There are controversies regarding the effectiveness of ESOP's impact on enterprise performance. This paper uses samples of Chinese listed companies which have implemented ESOP between 2014-2018, and applies empirical analysis methods such as descriptive statistics, correlation analyses and regression analyses, to investigate ESOP's impact on enterprise financial and market performance. Then this paper further explores which factors may influence the implementation effect of the plan, for example, the enterprise attributes such as its property rights and the industry it belongs to, as well as the scheme design characteristics such as employee subscription ratio and duration period.

The results show that the implementation of ESOP can significantly improve the financial performance of enterprises. but there is no significant impact on the market performance. In terms of enterprise characteristics, after the implementation of ESOP in high-tech enterprises, the improvement effect of market performance is more significant than that of traditional enterprises. However, there is no significant difference between state-owned enterprises and non-state-owned enterprises. In the aspect of scheme design, the higher the proportion of ordinary employees subscribe , the greater the ESOP's promotion effect on the market performance will be. But the duration period of ESOP has no significant impact on the improvement effect. This paper explores the implementation effect and influencing factors of ESOP from multiple perspectives, broadens the research scope of samples, enriches the research results in the field of ESOP in China, and provides certain practical reference value for the scheme design of ESOP.

Key words: ESOP; financial performance; market performance; enterprise attributes; scheme design

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1. Introduction

1.1.Research Subject

Employee Stock Ownership Plan(ESOP) is defined as a system in which the employees buy partial or all of the company stocks and entrust a staff committee to exert centralized management. The purpose of this system is to connect employees and companies as a community of interests and enhance the enthusiasm of employees, thus improve the business performance of enterprises. At the same time, ESOP can help increase employees' income, provide more security for employees, and retain talents. Besides the incentive function, ESOP enables employees to become shareholders of the enterprise in addition to their original identity. Thus they can supervise the efficiency of enterprise operation and management from an internal perspective, and form a constraint mechanism for the management team. ESOP is a fairly mature system in developed countries such as the United States and Japan, which plays an important role in attracting talented people and upgrading operating efficiency. In China, ESOP system is constantly implemented in both listed and unlisted enterprises, and has been recognized by more and more market participants.

In practice, ESOP is usually divided into two types, i.e. leveraged and non-leveraged. The difference lies in the source of funds. Leveraged ESOP usually involves credit leverage, which is borrowed from the company or from banks with the company guarantee, so as to improve the profitability of ESOP.

Similarly, Equity Incentive is also a way to establish an interest sharing mechanism between enterprises and employees, which is often mentioned together with ESOP. Equity Incentive is a long-term incentive mechanism implemented by enterprises in order to encourage and retain core talents. Equity incentive is mainly to give employees part of the shareholders' rights and interests by attaching conditions to make them have the sense of entrepreneurship, thus forming a community of interests with enterprises, promoting the enterprises and employees to grow together, so as to help enterprises achieve the long-term goal of stable development.

There are differences between ESOP and equity incentive in terms of purpose, scope and source of stocks, as well as conditions of executive. Generally, ESOP is more suitable

for mature enterprises with stable development and small performance fluctuation, by covering the majority of employees to establish the interest linkage mechanism between enterprises and employees. Equity incentive is more suitable for growing enterprises, which encourages key employees and management team to improve efficiency and performance by setting conditions of executive.

	ESOP	**Equity incentive**
Purpose	Benefits sharing and resource allocation	To achieve a win-win strategy of the company, shareholders, incentive objects, etc., by continuously making the company greater. It' neither a game of interests, nor a short-term welfare plan.
Characteristics	The cost for employees to get shares is often not as low as the price of equity incentive	To establish a set of long-term incentive mechanism for the future, to link the company's performance with the employee's personal income, to form the transformation from enterprise interest community to business community, and to realize win-win strategy for both sides.
Scope	Inclusive, the coverage of attendance is wider, and even the whole staff	Only for a small number of people, such as high-level employees and a small number of key fundamental staffs
Source of stocks	Repurchase, private placement, transfer of old shares, secondary market purchase (including mass trading)	Repurchase, private placement, and transfer of old shares
Adaptive Period	The enterprise has been relatively mature and stable, and the business will not fluctuate in a large range.	During the growth period of the enterprise, when the business model is stable, the company is going to have profitability, and willing to achieve new development through equity incentive plan.

***Table 1**: Similarities and Differences between ESOP and Equity Incentive*

The discussion on the effectiveness of ESOP has never stopped in practice. Especially in the stock market, the operating information of listed companies is relatively transparent, which makes the effect of promoting ESOP clear. There are many excellent and efficient cases, while some other cases are not as good as expected. Considering that the goal of enterprise management should be to maximize the value of shareholders, this paper focuses on ESOP and analyzes the development and characteristics of ESOP, and uses empirical analysis methods to investigate its general impact on the companies' financial and market performance. And based on the research results, this paper summarizes and provides suggestions on ESOP design for Chinese companies.

1.2.Theoretical Basis

1.2.1 The Modern Enterprise Theory

Coase(1937) put forward the theory of modern enterprise in <The Nature of The Firm>. He thought that the essence of enterprise is the contract set concluded by stakeholders, and employees can obtain the ownership of enterprise by virtue of their human capital. Since then, the modern enterprise theory has been constantly improved, and revealed the internal logic of ESOP from macro and micro levels, which has become the theoretical basis for the development of the system. In the modern enterprise theory, the theory of enterprise property right is an important part. Its core idea includes the incompleteness of enterprise contract, residual claim and incomplete property right, the optimal arrangement of enterprise property right and enterprise governance structure.

(1) The incompleteness of enterprise contract. First of all, modern enterprise theory regards enterprises as a series of contracts between stakeholders, and a complete contract should be able to accurately describe all possible future situations related to transactions and their corresponding rights and responsibilities. However, due to the limited rationality of individuals, the uncertainty of external environment, and the asymmetry of information, a complete contract doesn’t exist in reality. Due to the incompleteness of the contract itself, the definition of property right is not perfect. Besides the rights divided by the contract terms, there are "residual rights". Because there are many difficulties in the description and implementation of residual rights, it has become a research focus of scholars.

(2) Residual rights and incomplete property rights. Residual rights include residual income rights and residual control rights. The former refers to the enjoyment of enterprise profits, while the latter refers to the control of some decision-making rights not indicated in the contract, such as major strategic decisions, appointment and dismissal. The incomplete property right is a phenomenon that the control right of economic resources is separated from the income right. It is particularly important to coordinate the relationship between corporate governance and residual rights.

(3) The optimal arrangement of enterprise property rights. Besides shareholders, managers and employees are also the owners of human capital. The optimal arrangement of enterprise property rights should be able to establish the benefit sharing mechanism between employees and shareholders. Among them, the issue of corporate governance is particularly important. It should be able to dynamically respond to the changes in the

external environment through the investment of human capital, so as to promote enterprises to achieve active creativity.

1.2.2 The Human Capital Theory

The human capital theory was brought forth by Schultz in 1960, which believed that human capital is the reason that makes the growth rate of output higher than that of input. Employees can generate economic value by virtue of their own human capital, and then obtain part or all ownership of the enterprise. According to this theory, comprehensive capital should include physical capital and human capital. Among them, human capital covers human physical strength, knowledge and skills, and its growth rate is faster than physical capital, which is the decisive factor for the growth of modern enterprises.

In practice, defining the surplus that employees should enjoy is the basis of human capital theory. During the development of the theory, there appeared several theories, such as Marx's Surplus Distribution Theory, that is, "labor employ capital", the ownership of the enterprise belongs to workers rather than capitalists. There is also Marshall's view of "capital employ labor", that is, workers have been paid, and the residual profits should be owned by capitalists. These views are all unilateral governance views. ESOP can be unified them into a common governance mechanism, and the enterprise surplus is divided according to the contribution of capital and labor.

1.2.3 The Two-Factor Theory

Kelso and Adler(1958) co-wrote the <Manifesto of Capitalism>, which elaborated the thought of two factor economic theory. They believe that labor (factors related to people) and capital (factors other than people) both belong to production factors and jointly create wealth. With the development of technology and industrialization, the contribution of capital to production results is greater than that of labor. If we let this trend go, the vast number of workers only rely on their labor to exchange for wages, and the gap between the rich and the poor will be widened and the purchasing power of the public will be reduced accordingly. Therefore, it is necessary to implement a system to enable workers to obtain the income of capital owners in addition to their labor income, so as to reduce the concentration of capital ownership.

In 1967, Kelso and others published the <Two-Factor Theory: Real Economics>, in which "the second income plan" was proposed to disperse capital ownership, which was also the embryonic form of ESOP. Kelso proposed that enterprises can provide employees

with funds to buy their own stocks through the credit of financial institutions, and then the loans will be repaid by the stock returns, and employees do not have to contribute. Under this mode, enterprises can obtain the long-term funding needed for capital development, and employees can also become the owners of enterprises.

The two-factor theory has laid a solid theoretical foundation for the launch of ESOP in America. Under the unremitting promotion of Kelso, the United States Congress passed the <Employee Retirement Income Security Act of 1974> (ERISA), which for the first time included provisions related to ESOP and set up tax incentives. Since then, the United States has issued a series of bills to provide institutional protection for ESOP.

The significance of the two-factor theory is not only to promote the implementation of ESOP, but also to reveal the reasons of the social stratification and the widening gap between the rich and the poor. It helps the employees to find a way to get rid of poverty, which has important social significance.

1.2.4 The Principal Agent Theory

The principal-agent relationship is the separation of ownership and management rights. With the improvement of productivity and the further refinement of division of labor, business owners can not effectively exercise all their rights, so they will choose to hire agents with relevant professional knowledge to better exercise their rights. At the same time, because the principal pursues the maximization of wealth and the agent pursues the maximization of wages and salaries, there is a conflict of interest between them. Therefore, an effective institutional arrangement is needed to solve this problem, and thus the equity incentive system emerges. The research on principal-agent relationship stems from the problems of information asymmetry and incentive in enterprises.

The principal gent theory is the theoretical basis of equity incentive system. In addition to the relatively fixed salary and bonus, the client designs a scientific equity incentive scheme and pays the agent additional equity under certain conditions, which can effectively motivate the management of the company, improve the operation efficiency and help the enterprise achieve strategic improvement.

1.3.Literature Review

The concept of ESOP first appeared in the United States. After that, western countries have applied and promoted this system. Weitzman (1984) proposed that the more

fixed wage system is decoupled from the fluctuating profitability of enterprises. Enterprises need to give employees a way to share profits, and ESOP is an effective mode. For decades, scholars around the world have done a lot of researches on ESOP, but there are still some arguments about ESOP's effects. Sangsoo Park and Moon H.Song (1995) believe that ESOP has a positive impact on business performance in the long run. According to the survey of 230 companies by Cramton, Mehran and Tracy (2007), 82% of the managers believe that ESOP can effectively improve the performance of enterprises, and 85% of the sample companies believe that the implementation of ESOP makes employees more motivated to understand the enterprise, and have more grasp of the financial information and development strategy of the enterprise.

From the quantitative point of view, the effect of ESOP is commendable. Blasi, Kruse and Conte (1996) believe that the implementation of ESOP has a positive effect on stock price. In 1991, the Standard & Poor's index fell by 26.3%, and the Dow Jones index fell by 20%. The share prices of 355 listed companies whose employee shareholding ratio was higher than 10% increased by 36% in the same period; in 1992, the two major market indexes rose by less than 4.5%, while the price index of these 355 listed companies increased by 23%. Huang Guitian et al. (2009) conducted an empirical analysis on the performance of ESOP in state-owned enterprises, and found that this system has a positive impact on enterprise performance, and can reduce financial leverage; at the same time, when the shareholding exceeds a certain proportion, it will have a negative impact on corporate business performance. Zhang Xiaoning (2002) analyzed the companies listed on the Shanghai Stock Exchange in 2000, and found that the stocks held by the managers and employees have a positive impact on the business performance of the enterprises, while there is no significant linear relationship between the executive compensation, the number of shares held by employees and the enterprise performance.

Also, some scholars believe that some enterprises have failed to achieve the expected results after implementing ESOP. Rosen (2013) conducted a study on 535 listed companies in the United States, and found that there was no significant correlation between the implementation of ESOP and the management performance of enterprises. Kruse et al. (2012) conducted a study on 250 listed companies that implemented ESOP, and found that 25% - 33% of the listed companies did not significantly improve their performance. Huang Minhui and Tang Maohuai (2013) selected 126 companies listed on Shanghai Stock Exchange, and found that there was no significant correlation between directors' and supervisors' shareholding and enterprise business performance.

In addition, some studies have found that the implementation effect of ESOP is affected by many factors such as industry, scheme design and corporate governance structure. Zhang Wangjun et al. (2016) believe that after the implementation of ESOP in technology&media companies, the growth rates of cash flow and profit of the company have significantly improved. Zhang Weidong et al. (2016) found that the effect of ESOP implemented by listed companies through private placement was significantly better than that through secondary market purchase. Chen Juhua and Chen Xueyan (2017) have studied cases of ESOP during 2014-2015, and found that ESOP can improve the company's performance in the short term, especially in state-owned enterprises.

2. Overview of the Development of Overseas Employee Stock Ownership System

ESOP system was first implemented in the United States. It has accumulated a lot of experience during the past few decades of development, and its product model has changed several times, which has made an important contribution to the economic growth and enterprise development of the United States. In addition, ESOP was successfully implemented in Japan. Understanding the overseas development experience of ESOP can provide helpful reference for China.

2.1.ESOP System in USA

The motivation of implementing ESOP in the United States is to solve the labor conflicts caused by the polarization between the rich and the poor, and to provide more welfare for employees. Also, a series of preferential tax policies have accelerated the promotion of this system. Specifically, the development of ESOP in the United States can be divided into three stages

(1) Before the 1950s

In the early 20th century and before, the system of wage labor was implemented in the United States. Business owners had absolute dominant position by providing physical production factors, while employees, as the providers of human resources, were only the subsidiaries in the development of enterprises. With the rapid development of economy, the gap between the rich and the poor was enlarged rapidly. Also the contradiction between the owners and the workers was intensified, which affected the normal operation and development of enterprises, and social instability factors appeared constantly.

In this context, in the 1920s, some American business owners began to implement a series of friendly policies to resolve this contradiction, including profit sharing, worker subsidies, trying share-holding system, giving employees holidays and better insurance and welfare policies. Among them, the employee purchasing stock plan was a common mode, in which the enterprise deducted part of employees' salaries to purchase company's stock. In the long run, the number of shares held by employees has been increasing. In the late 1920s, the Great Depression swept through, stock market collapsed, and the shares held by many employees were greatly devalued. The ESOP system was no longer popular, and employees turned to seek more definite salary promotion and welfare benefits.

(2) 1950s to Early 1970s

With the development and expansion of enterprises, the internal division of labor is becoming more and more complex. The separation of business operation rights and agency rights leads to the problem of principal-agent. In order to solve this dilemma and reconcile the interests of the management team and shareholders, in the 1950s, the United States began to implement the stock incentive plan for business managers, encouraging the senior management team to work hard to make the stock increase in value, which is beneficial to the long-term interests of shareholders. This system effectively solved the problem of principal-agent, but the number of people who could obtain shares was limited, and most employees were excluded from the corporate governance structure.

Social progress is often accompanied by pension problems. With the extension of life while the social security system is not perfect, ESOP system has become one of the tools of pension security. In the late 1950s, more and more employees paid attention to the stock incentive plan of senior management team. Under this "demonstration effect", some companies began to implement this system for blue collar and ordinary employees. In the 1960s, Kelso set up the "Employee Stock Ownership Plan Development Center", which attracted more and more people's attention, and got the government's support by giving preferential tax treatment. However, the plan was still mainly aimed at senior level employees. In the 1960s, ordinary employees held a very low proportion of shares, and the shares of middle and high-level teams accounted for 30% of total shares.

(3) After 1974

With the further polarization of the gap between the rich and the poor, and Kelso's continuous efforts to lobby, the United States passed <The American Employee Retirement

Income Protection Act> in 1974, and in 1984 passed <The Tax Reform Act of 1984>, and thus gave tax incentives to the employee stock ownership system from legal level, and effectively promoted the popularization of this system. At present, there are more than 25 federal laws to encourage ESOP. As of the end of 2016, the number of enterprises that have implemented ESOP in the United States has reached 17,800.

In this process of development, there are three characteristics of the ESOP system in the United States: the promotion of laws and regulations, tax incentives, and the diversification of program design. First of all, legislative support is an important guarantee for the development of ESOP in the United States. <The Regional Railway Reorganization Act> in 1973 formally referred to ESOP for the first time, and then <The Employee Retirement Income Security Act> in 1974 made detailed provisions on ESOP. In the following decades, the United States has promulgated a number of laws to provide various levels of tax incentives for ESOP. Among them, for employees, the tax of dividend income obtained through ESOP will only be paid when they receive it (usually after leaving or retiring); for enterprises, the implementation of ESOP can obtain a certain amount of tax incentives; for financial institutions, if loans are provided to ESOP, the interest income of banks can enjoy 50% tax-free treatment. In terms of scheme design, ESOP in the United States is also quite diverse, which is usually divided into leveraged and non-leveraged types. The operation mode of non-leveraged type is relatively simple, which is suitable for enterprises with sufficient funds; in the leveraged ESOP, the company obtains funds from loan institutions and then lends to the shareholding plan trust fund. At the same time, ESOP is the only employee benefit arrangement that can obtain loan support.

2.2.ESOP System in Japan

Japan's ESOP began in the 1960s when the domestic economy developed rapidly and the opening-up accelerated. Its development and promotion were deeply influenced by the American ESOP system, but at the same time, its system design also fused the features of oriental culture, reflecting the characteristics of Japanese enterprise management.

In the early 1960s, Japan joined the Organization for Economic Cooperation and Development (OECD) to promote capital liberalization. At the same time, restrictions on foreign investment were deregulated. Mergers and acquisitions between enterprises increased. In order to reduce the probability of acquisition, enterprises would choose to establish a stable team of shareholders. ESOP system is an excellent choice. Because the shares of Japanese enterprises are usually dispersed; although the share proportion of

ESOP is not high, which is usually about 2-3%, it can still be placed in top ten shareholders or even top three shareholders, which can stabilize the corporate governance system and improve the operation efficiency of enterprises. At the same time, high-speed economic growth also means that high-quality labor is in short supply. In order to improve employee retention rate and create a sense of belonging, ESOP has been widely used.

The core form of ESOP in Japan is the employee stock holding committee. Employees do not need to pay funds directly to the staff committee. Instead, they will deduct a certain amount from their monthly salary to purchase the shares of the enterprise. In the Japanese stock market, 1000 shares are the minimum amount to be bought and sold, and the stock price is usually several hundred and several thousand yen. That is to say, the purchase of a unit of stock will consume hundreds of thousands or millions of yen. Therefore, employees have a high threshold to purchase stocks. And ESOP will make it possible for employees to purchase the company's stock sporadically by pooling funds and purchasing them in a unified way. In the late 1970s, the intention of ESOP system changed from retaining employees and acquisition defense to helping employees improve assets and wealth, and preparing for pension. In order to encourage employees to actively participate in the program, enterprises usually give certain subsidies and financial support.

As of 2000, 92.5% of Japan's listed companies had implemented ESOP, and more than 40% of their employees had participated in ESOP. Japanese enterprises have accumulated abundant practical experience in ESOP through exploration.

2.3.Case Study : Northwest Airlines

Northwest Airlines is the third largest airline in the United States. It mainly operates the U.S. - Japan routes with more than 30000 employees. Northwest Airlines was on the verge of bankruptcy at the end of the 20th century, and then came back to life through a series of actions such as ESOP and its business operation was full of new vitality.

In the early 1990s, the restrictions on the aviation industry were deregulated in the United States, resulting in fierce market competition. In addition, with the rise of oil prices, most airlines suffered losses, of which Northwest Airlines was the most serious one. In 1992, the company's asset liability ratio reached 100%. In 1993, the company's net income was 160 million US dollars, and the due principal repayment amount alone was 330 million US dollars. The reasons why Northwest Airlines did not choose bankruptcy reorganization were mainly due to two factors. On one hand, the declaration of bankruptcy

would directly cause damage to the interests of creditors, and a large number of employees might lose their jobs; on the other hand, the bankruptcy of the enterprise would seriously affect the corporate image. The main routes of Northwest Airlines were in Asia, and once it went bankrupt, its business operation would be difficult to sustain.

Therefore, in order to save the enterprise, the shareholders, creditors and employees of Northwest Airlines formed a bankruptcy reorganization plan with ESOP as the core, which mainly included the adjustment of debt and equity. On the debt side, several major creditors refinanced the company and agreed to extend the outstanding debt for one year and cancel some payments for purchases. In terms of equity, employees of Northwest Airlines reduced their salaries to help the company repay debts within three years and obtain 30% equity. The specific proportion of salary reduction varied with the salary level of employees. After the implementation of ESOP, the ownership structure of Northwest Airlines has been significantly adjusted, with the original two shareholders accounting for 32.5% and employee shareholding accounting for 30%. ESOP also actively participated in the operation of the company, with three employee representatives on 15-member board. In addition, employee representatives have successfully promoted creditors to reconfirm the maturity date of loans and delayed the peak of debt repayment, thus winning time for the company.

After the implementation of the ESOP, Northwest Airlines promptly turned losses into profits, and its share price also went up. In this process, ESOP successfully broke the company's original operating difficulties, brought new mindsets and ideas, and effectively optimized corporate governance, achieving win-win results for employees, enterprises and creditors.

3. Overview of the Development of Employee Stock Ownership System in China

3.1.Five Stages of China’s Employee Stock Ownership System

The development of ESOP in China is closely related to the process of market economy reform, as well as the reform and development of property right system of state-owned enterprises. Since the 1970s, ESOP has experienced ups and downs in China. There are successful experiences as well as lessons of failure. Based on the development process in the past 40 years, the practice history of ESOP in China can be divided into five stages.

(1) 1978-1986: Embryonic Stage

The Third Plenary Session of the Eleventh Central Committee of the Communist Party of China in 1978 is an important node in China's development process. The conference opened a new era, making clear that the government's work would focus on economic development. After the meeting, the household contract responsibility system was widely implemented in rural areas of China. Part of the labor force was liberated from agricultural labor services, and a number of collective enterprises were founded, and the equity of these enterprises basically belonged to their employees. In operation and management, the management team is selected and employed by stock-holding employees. The shareholding methods of employees were very diversified, including cash, real estate, production tools, technology, etc.

The central government encouraged this phenomenon and introduced a series of policies during this period. In 1979, the State Council stipulated in the <Several Provisions On The Development of Social and Brigade Enterprises (Draft For Trial Implementation)> that, "An appropriate amount of share capital can be drawn from the accumulation funds of production teams, so as to solve the shortage of funds between social organizations and enterprises and expand production capacity." In 1984, the CPC Central Committee document No. 1 < Notice On Rural Work in 1984> pointed that, "Encouraging farmers to invest in all kinds of enterprises." In the same year, the State Commission of Structural Reform also proposed that employees should be allowed to invest in shares and pay dividends at the end of the year. In 1985, the State Commission of Structural Reform made it clear in <The Summary of The Forum On The Pilot Work of The National Urban Economic System Reform> that "the pilot enterprises can choose a few large enterprises to try to absorb their employees into shares, but they need to make appropriate provisions on the method of dividend distribution. Some small enterprises owned by the whole people can be converted into collective ownership by issuing shares, etc."

In this stage, the ESOP system rapidly sprouted and developed, spread across the country with the momentum of a single fire, improved the production efficiency, and laid the foundation for the development of market-oriented system construction.

(2) 1987-1991: Exploration Stage

At this stage, the implementation of ESOP and the reform of shareholding system are complementary and synchronous. In 1987, the 13th National Congress of the Communist Party of China was held. At the meeting, it was proposed that "The joint-stock system emerging in the reform, including state-controlled shares, shares held by departments,

regions and enterprises, and individual shares, are an organizational form of socialist property, which can be continued for trial implementation." This stimulated the rapid growth of joint-stock enterprises, and many local governments have designated corresponding policies and measures to develop the joint-stock system. Among them, Shenzhen promulgated <The Interim Provisions on the Pilot Shareholding of State-owned Enterprises in Shenzhen Special Zone>, allowing individuals to purchase shares of state-owned enterprises; and Shanghai issued <The Interim Measures of Shanghai Municipality On Stock Management>, which opened a door for public issuance and trading of stocks. There were explorations in the system of joint-stock enterprises all over the country. At the same time, there were some extreme situations, such as the free distribution of state-owned shares to employees, resulting in a certain loss of state-owned assets. To this end, the State Commission of Structural Reform stopped this phenomenon in time.

According to statistics, by the end of 1991, there were more than 3200 joint-stock enterprises in China, 85% of which had implemented ESOP, and the scale of employee stock ownership accounted for 20% of the total share capital.

(3) 1992-1994: Pilot Stage

After more than ten years of brutal development, China's employee stock ownership system ushered in a more standardized development period. In 1992, Comrade Deng Xiaoping's South Talk accelerated the process of China's reform and opening up, and affirmed the joint-stock system, which laid the general tone for more enterprises to transform into market-oriented development. In 1992, the State Commission for Structural Reform proposed "a planned and step-by-step expansion of the shareholding system for employees in enterprises". In the same year, laws and regulations were issued, such as <The Pilot Measures for Joint Stock System> and <The Normative Opinions of Joint Stock Limited Liability Companies>. It also stipulated the issues related to the internal issuance and public offering of enterprises shares. In particular, it clarified the problems regarding enterprises issuing new shares to internal employees. Also, a series of requirements were put forward, such as the transfer of internal staff shares to social public shares should be completed at least three years from the date of allotment, and the shares issued by public companies to employees should not be transferred until 6 months after listing. However, at the same time, the system was still incomplete to a certain extent, which led to the chaos of ESOP, such as internal share socialization, black market trading, etc. The implementation of ESOP was once overheated. In order to control this problem and strengthen macro-

control, the Commission suspended the examination and approval of the directional raising of employee shares in 1994. However, the exploration of laws and regulations at this stage still laid a good foundation for more standardized development in the future.

(4) 1994-2013: Normative Development Stage

In 1994, <The Company Law> was promulgated, which laid the foundation for the improvement of enterprise system and market-oriented development in China. Some local governments formulated specific regulations on employee stock ownership according to local development needs and enterprise reform practice. In 1994, Shenzhen issued <Several Provisions On The Internal Employee Stock Ownership System (Implementation)>, and completed the pilot work of ESOP in 57 enterprises within three years; in 1997, Shenzhen issued <The Interim Provisions On Pilot Employee Stock Ownership of State-owned Enterprises in Shenzhen> after summing up the pilot experience to fully implement the system. In 1998, Shanghai issued <Some Opinions On Gradually Improving and Standardizing the ESOP in Shanghai>. In addition, Beijing, Jilin, Tianjin, Shandong, Shanxi and other places issued corresponding regulations on ESOP.

Since 1999, equity incentive represented by stock option has been paid attention to and practiced in some state-owned enterprises. In 2002, China Securities Regulatory Commission (CSRC) issued <The Administrative Measures for The Acquisition of Listed Companies>, and MBO began to rise, but at the same time, there were some chaos. In 2005, SASAC and the Ministry of Finance jointly issued <The Interim Provisions On The Transfer of State-owned Property Rights of Enterprises To The Management>, which made more systematic provisions on the management shareholding. Due to the strict requirements of laws and regulations, the related employee stock ownership and equity incentive work has also slowed down. In 2012, CSRC issued <The Interim Measures For The Management Of Employee Stock Ownership Plans of Listed Companies (Draft for Comments) >, which set strict restrictions for the holding period, source of funds, and shareholding scale, which also affected the further promotion of ESOP to a certain extent.

In this stage, ESOP in China summarized a set of experience from the previous exploration and pilot, and constantly expanded the scope, applied to more enterprises; at the same time, the regulatory departments were also constantly checking and making up for deficiencies, issued a series of policies to standardize the development of the industries, and managed some chaos. At the same time, due to the high threshold, the implementation of ESOP has been stagnated.

(5) 2013 to present: Increasing Attention Stage

In 2013, the Third Plenary Session of the 18th CPC Central Committee raised the mixed ownership economy to the level of basic economic system, and ESOP was one of the most important tools. In 2014, CSRC issued <The Guidance On The Implementation of Employee Stock Ownership Plans by Listed Companies> (hereinafter referred to as <The Guidance>), which broke the ice on ESOP and vigorously promoted its development. In 2016, the State Council issued <The Opinions On The Pilot Implementation of ESOP in State-owned Enterprises With Mixed Ownership>, which has become an important way of mixed ownership reform. In recent years, with the promotion of top-down attention, ESOP has developed rapidly in China, especially in listed companies, which effectively improves the efficiency and cohesion of internal management.

3.2.Typical Cases

In the development of ESOP system in China, there have been many successful cases, such as Conch Group and Shanghai International Port Group(SIPG). State-owned enterprises, private enterprises, listed companies and non-listed companies are all involved. The development of the system has brought opportunities for reform and efficiency improvement of enterprise operation, and different enterprises can improve the system by summing up experience in practice and bringing reference.

3.1.1 Conch Group

Anhui Conch Cement Co., Ltd. was established on September 1, 1997. It was restructured from Ningguo Cement Plant in Anhui Province. In the same year, it was listed in Hong Kong, creating a precedent for overseas listing of China's cement industry. In 2002, the company completed A-share listing and became an A+H listed company. Conch Group, the controlling shareholder of Conch Cement, is subordinate to the State-owned Assets Supervision and Administration Commission of Anhui Province. It holds two listed subsidiaries, Conch Cement and Conch Profile, and holds shares of Qingsong Jianhua, Chaodong Cement and Jidong Cement. It has become the largest building materials production enterprise in China.

Conch Group is in the forefront of the industry in terms of ESOP. In the early 21st century, in order to prevent the economy from overheating, the country formulated a strict macro-control policy and tightened liquidity. At the same time, the bank judged that the operation risk of cement industry was high, and its loan approval was extremely strict. The

operating debt ratio of Conch Group was high, which faced great business pressure at that time. In 2002, with the approval of Anhui government, the reform of ESOP of Conch Group began. In order to better carry out the relevant work, Conch Group established Conch Venture Capital Co., Ltd. The labor union of Conch Group holds 31% of its shares. The other shareholders include three labor unions and eight natural people. Among them, the shareholding union covers more than 7700 employees. Conch Venture Capital held 49% of Conch Group's shares in 2003 and completed the mixed ownership transformation of Conch Group. Accordingly, employees hold shares of Conch Venture Capital through labor unions, and then indirectly hold shares of Conch Group and its subsidiaries.

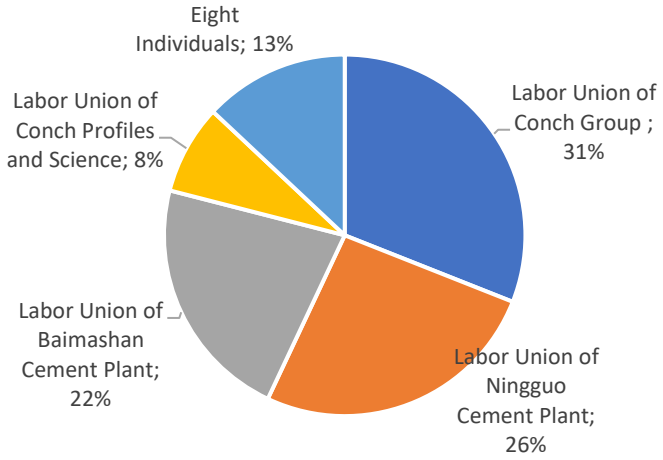

Figure 1: *Composition Structure of Conch Venture Capital*

(Source: Conch Group Announcement)

In 2007, in order to strengthen its control over core subsidiaries and reduce the proportion of related transactions, Conch Cement decided to issue shares to Conch Group and Conch Venture to purchase minority shares of some holding subsidiaries of Conch Cement. After the completion of the additional issuance, Conch Venture directly held 18.39% of the shares of Conch Cement. In addition, it indirectly held 19.76% of the shares, which further deepened the mixed ownership reform at the subsidiary level, increased the proportion of ESOP, further bound the common interest relationship between employees and enterprises, which became part of the company's long-term incentive system.

The employee stock ownership system of Conch Group has played a good incentive role. When the company's operating performance not only affects shareholders and executives, but also affects the vital interests of the majority of employees, the enthusiasm of employees is fully stimulated, and the corporate governance structure is constantly improved, which makes the company's profitability continue to rise. The cash dividend per share of Conch Cement has also been surgically increased, from 0.05 RMB/ share in 2003

to 0.43 RMB/ share in 2015, which not only brings real income improvement to the employees, but also drives the continuous improvement of the core competitiveness of the enterprise, becoming a leading enterprise in the domestic cement industry.

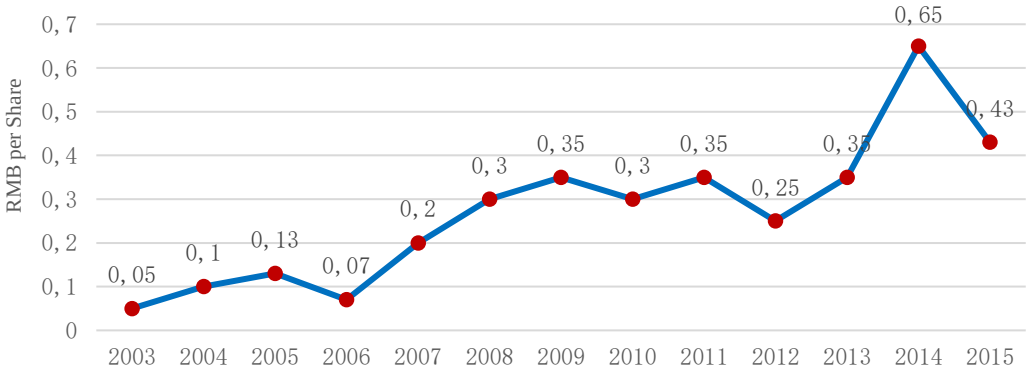

Figure 2: *Cash Dividend Per Share of Conch Cement*

(Source: WIND Database)

Conch Group, as an early company to carry out ESOP and equity incentive, has remarkable successful experience. The ESOP scheme of Conch Group has a wide range of participation, covering the company's senior executives, professional and technical staff and some ordinary employees. The shareholders of Conch Venture Capital are mainly from various trade unions. After the establishment of Conch Venture, Conch Group has carried out several equity incentives. So far, more than 20,000 employees have participated in the scheme. Its ESOP mode takes the ordinary employees as basis, the excellent key staff as main body, and the management team as leading factor. It designs targeted shareholding proportion and scheme for different talents, which effectively promotes the rapid development of the enterprise. In addition, by setting the shareholding unlocking requirements, the company has achieved the goal of long-term incentive and successfully retained excellent employees.

3.1.2 Shanghai International Port (Group) Co., Ltd. (SIPG)

Shanghai International Port (Group) Co., Ltd. is the largest port enterprise in mainland China. The group was established by Shanghai State-owned Assets Supervision and Administration Commission(SASAC), China Merchants International Group and other three organizations as initiators. With the approval of the Ministry of Commerce of the People's Republic of China, the group was formally established on June 28, 2005 and officially listed on the Shanghai Stock Exchange on October 26, 2006. At the end of 2014, Shanghai SASAC directly and indirectly held 65% of the shares of SIPG, with more than 19,000 employees. As a human capital intensive state-owned enterprise, enhancing

employee cohesion is an important means to improve business efficiency, which is related to the business development prospects of the enterprise. In 2014, CSRC issued <The Guidance>, which broke the ice on ESOP. SIPG actively seized this policy opportunity and launched the first phase of ESOP at the end of 2014.

The stock source of this ESOP was non-public shares, with a total of 418 million shares, which price was 4.18 RMB per share. The pricing rule is no less than 90% of the average trading price of the company's stock, 20 trading days before the announcement date of the resolution of the 33rd meeting of the second board of directors. A total of 1.749 billion RMB was raised, all of which were used to repay bank loans and optimize the company's asset liability structure. A total of 16,082 employees participated in the ESOP, accounting for 72% of the total number of employees, including 12 senior executives which equaled to 1% of senior executives.

On May 5, 2015, the company obtained the approval of its non-public offering shares from CSRC, and the company subsequently completed the share issuance. The duration of the ESOP is 60 months, including 36 months of lock-in period, and the disposal period is from June 4, 2018 to June 2, 2020.

Element	**Description**
Number of Shares	418 million
Total Subscription Amount of ESOP	1.749 Billion RMB
Issue Category	A-Share Market
Source of Shares	Non-public Offering Shares
Issuance price	4.18 RMB / share
Use of funds	Pay Bank Loans
Distribution Object	16,000 employees in the headquarters and related units of SIPG, including 12 senior executives
Source of Funds	Legitimate salary of employees and the self-raised funds
Lock-in period	36 Months
The Management Agency	Changjiang Endowment Insurance Co., Ltd., is entrusted to set up the "Yangtze River Pension - SIPG ESOP Special Product" for management

***Table 2**: Elements of SIPG's ESOP*

(Source: SIPG Announcement)

From the perspective of stock price, employees can get positive benefits by participating in the plan. During the disposal period, the average share price of SIPG was 5.81 RMB, which was around 40% higher than the cost price. Meanwhile, since the implementation of the shareholding plan, the share price of the company has been basically above the cost price of holding shares. It can be seen that the implementation of ESOP can convey the enterprise's confidence and positive information to the capital market. Employees can also gain actual returns by participating in the plan, which helps to enhance the recognition and sense of belonging to the company.

Figure 3: *Stock Price Fluctuation of SIPG*

(Source: WIND Database)

From the perspective of performance, after the implementation of ESOP, the company's basic earnings per share increased from 0.30 RMB/share in 2014 to 0.39 RMB/share in 2019, and reached 0.50 RMB/share in 2017. Performance improvement is the result of many factors. On one hand, the company's operation is closely related to the external environment such as macro-economy, import and export, and the fluctuation of the business cycle also affects the performance of the company. On the other hand, as a human capital intensive industry, the implementation of ESOP effectively improves the company's operation and management efficiency, thus driving the performance improvement.

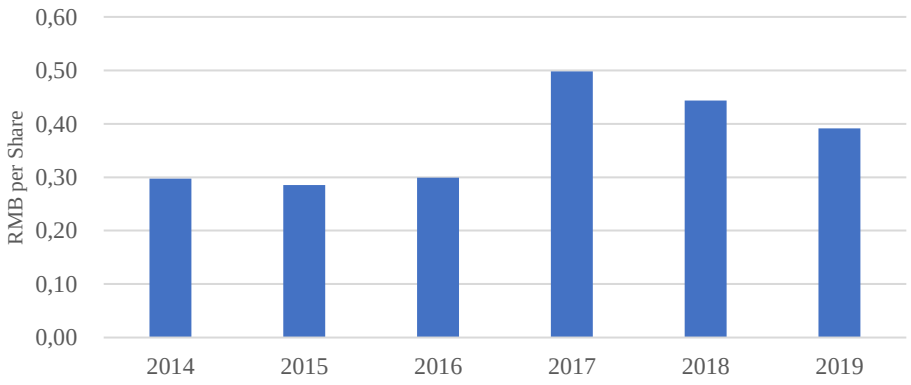

Figure 4: Earnings Per Share of SIPG

(Source: WIND Database)

Generally speaking, the ESOP case of SIPG has the following characteristics: (1) As a key case of deepening the reform of state-owned enterprises in the whole country, SIPG has made rich and beneficial explorations in the design and implementation of ESOP. (2) If the project lasts for a long time, it can better establish a community of interests between the enterprise and its employees, give full play to the incentive role of the plan, stabilize the talent team, and enhance the cohesion of the enterprise. (3) The project has a large number of participants and a wide coverage, which reflects the universality and fairness of ESOP. At the same time, the pricing is discounted, and the proportion of senior executives' participation is only 1%, which reflects the protection of employees' interests. (4) The source and use of funds are clear. The source of funds of SIPG's ESOP is employees' own funds, and it is clearly stipulated that the funds should be used to repay the loans. With the high debt ratio of the group, the financial structure has been effectively adjusted to provide assistance for the development of the enterprise.

4. Methodology and Data Description

4.1. Hypotheses

According to the theoretic basis discussed above, the implementation of ESOP enables employees to share interests and risks with the enterprise, which makes employees have stronger motivation to promote the development of enterprises, and eventually has a positive impact on the business performance of enterprises. Referring to the researches of domestic and foreign scholars in the past, the impact of ESOP on enterprise performance can be measured from two dimensions, one is the financial performance, the other is the market performance. Therefore, this paper uses empirical analysis methods to study the effectiveness of ESOP's impact on enterprise performance from these two aspects.

4.1.1 Hypothesis of ESOP and Enterprise Performance

According to the two-factor theory, ESOP enables enterprises to obtain the long-term funding needed for capital development, and employees can also become the owners of enterprises. When employees are both workers and shareholders, their personal development will be more closely related to the development prospects of the company, which will stimulate their enthusiasm in work and increase their sense of responsibility in the production and operation of enterprises. Employees will be more motivated to do a good job, have more responsibility and willingness to make efforts, promote the

development of enterprises towards a better direction, and improve the scale and quality of income and profit. While improving the financial performance of the enterprise, employees can also share the economic benefits of the enterprise's growth in a variety of ways such as wage income and dividend. On the other hand, ESOP is expected to enhance the participation of employees in business decision-making process, to form supervision and constraint on the management team; at the same time, the binding of the interests of employees and companies helps to stabilize people's minds and is expected to reduce staff turnover rate. These will help to improve the level of corporate governance and stability, thereby enhancing the capital market's confidence in the company. The improvement of financial performance and the optimization of corporate governance level can jointly improve enterprise market performance such as the company's share price, and the employees can also obtain benefits from the rise of the stock price as they are shareholders.

Based on these analyses, this paper proposes hypothesis 1:

Hypothesis 1: The implementation of ESOP has a significant positive impact on enterprise financial and market performance.

4.1.2 Hypotheses of Enterprise Characteristics and Attributes and Enterprise Performance

Enterprises have different characteristics and attributes. For example, they can be divided into state-owned and non-state-owned according to their property rights, which will lead to differences in the corporate governance structure, operational efficiency, employee salary and incentive system. They can also be divided into high-tech and traditional enterprises according to their industries, which will lead to differences in asset scale and profitability. Therefore, the enterprises with different characteristics and attributes may have different degrees of improvement after implementing ESOP.

In terms of property rights, Pei Pei (2018) believes that China's ESOP mainly originated in state-owned enterprises, and there are certain regulatory or non market-oriented tendencies in the employee compensation system of state-owned enterprises, and the implementation of ESOP can effectively solve this problem and make the state-owned enterprises obtain better improvement effect.

In terms of the industry of enterprises, it's generally believed that high-tech enterprises have a greater demand for human capital, and need to deeply bind core talents by means of ESOP to attract, stabilize and motivate them. Zhang Wangjun et al. (2016)

and Pei Pei (2018)'s researches found that ESOP can help high-tech enterprises to stimulate employees' enthusiasm for work, improve the efficiency of material capital transformation, and obtain an obvious effect on improving the profitability.

Based on these analyses, this paper proposes hypothesis 2 and 3:

Hypothesis 2: The performance of state-owned enterprises is better improved than that of non-state-owned enterprises after the implementation of ESOP.

Hypothesis 3: The performance of high-tech enterprises is better improved than that of non-high-tech enterprises after the implementation of ESOP.

4.1.3 Hypotheses of ESOP's Scheme Design and Enterprise Performance

According to the human capital theory, human capital is the decisive factor of modern enterprises' growth. Zhang and Luo (2016) believe that one of the most effective ways for enterprises to retain talents is to give them certain equity. According to the principal-agent theory, because the principal pursues the maximization of wealth and the agent pursues the maximization of wages and salaries, there is a conflict of interest between them. Therefore, it is necessary to take measures such as ESOP to encourage employees to actively participate in the management of the company, and to provide suggestions for the long-term development. In the practice of ESOP at home and abroad for many years, the scheme designs of each enterprise's ESOP are not completely the same, because many factors need to be considered comprehensively, such as the personnel structure, capital situation, development goal, expected effect after implementation, etc. Different scheme designs may lead to different implementation effects.

Many scholars have studied the influence of employee subscription ratio in ESOP. For example, Miao Yue (2018) found through empirical analyses that the larger the subscription scale of ordinary employees in ESOP, the greater the improvement of financial and market performance. Because the employee subscription ratio can reflect the participation of ordinary employees. If the subscription ratio is too low, then the ESOP is fundamentally closer to equity incentive. It can not reflect the company's long-term and effective incentive for ordinary employees, nor can it stimulate the loyalty and sense of belonging of ordinary employees to the enterprise, which may not improve the willingness of ordinary employees to actively help improve enterprise performance.

In addition, the lock-in and duration period of ESOP is also an important factor in the

scheme design. Gao Liu (2016) found that most of China's listed companies set the lock-in period of the scheme according to the minimum holding period stipulated by the CSRC (basically divided into 12 months and 36 months depending on the stock source), and the duration period after unlocking is generally short. This situation may lead to the short-term behavior of the company and the management. On the one hand, it is not conducive to the employees to focus on the company's longer-term development goals. On the other hand, after the lifting of the stock ban and the end of the duration period, employees may focus on selling stocks, which will exert downward pressure on the stock price of the enterprise.

Based on these analyses, this paper proposes hypothesis 4 and 5:

Hypothesis 4: The higher the proportion of ordinary employees is in ESOP, the better the effect of improving enterprise performance is.

Hypothesis 5: The longer the duration period of ESOP is, the better the effect of improving enterprise performance is.

4.2.Description of Sample Data and Resources

This paper uses A-share listed companies that have announced and completed ESOP for the first time since the issuance of <The Guidance>, i.e., from June 20, 2014 to December 31, 2018, as the research samples. If an enterprise has implemented multi-period ESOP, in order to avoid duplication of financial data, only the first period of data is taken as the research object. The sample deadline is the end of 2018 instead of 2019, which is to ensure that there is at least one full fiscal year of data to analyze after the implementation of the plan. The samples are screened according to the following criterias:

1. Eliminating ST*(i.e. special treatment) enterprises because their operating conditions may be unstable.

2. Financial enterprises are excluded because of their special accounting standards and low comparability with other enterprises' financial data.

3. Excluding foreign-funded enterprises. Only those enterprises with property rights of state-owned, private, public and collective property rights shall be retained

4. Excluding the enterprises listed in B shares and H shares at the same time, because different listed markets follow different accounting standards

5. Eliminating the enterprises that have carried out major asset restructuring during the period from the announcement to the completion of ESOP, because it may have a significant impact on financial data, market value and other data.

6. Eliminating observations that have incomplete or abnormal data and information.

From 2014 to 2018, a total of 596 enterprises issued and implemented ESOP for the first time. After screening, 420 A-share listed companies are finally obtained, which are recorded as the samples of the experimental group. This paper takes the year of the first announcement of the plan as the base year t.

In order to test hypothesis 1 and compare the performance differences between the enterprises that have implemented ESOP and those haven't, this paper uses the method of paired samples to select the control group samples based on the practice of Kim and Ouiment (2014). The reason why the paired sample method is used instead of the event study method is that the financial and market valuation data before and after the base year may be interfered by external factors such as macro-economy and stock market fluctuation. And the enterprises in the experimental group are from multiple industries, and the overall levels of finance and valuation among industries are different, which will also cause interference to the results. Therefore, this paper uses the method of paired samples to match 420 groups of control group samples for the experimental group according to their industry attribute and enterprise scale, so there are 840 groups of data in sample 1.

In order to verify hypothesis 2, 3, 4 and 5, 420 experimental groups that implemented ESOP are selected as the research objects, so the data volume of sample 2 is 420 groups.

The sample data are mainly retrieved and summarized through WIND database, and some information is manually extracted and supplemented from the announcements of listed companies. The statistical tools used are Excel (2019) and EViews 7.2.

4.3. Model Designs

This paper uses the research methods of Gu (2014), Shi (2016), Miao (2018)'s studies on ESOP and business performance for reference, and analyzed the sample data through descriptive analysis, correlation analysis, regression analysis and robustness test.

This paper measures the business performance of enterprises through financial and market performance. There are many indicators commonly used by domestic scholars to measure financial performance, such as earnings per share, growth rate of net profit

attributable to parent company, return on equity, return on total assets, etc. Different indicators have different emphasis on financial performance measurement. This paper uses return on equity (ROE) as the dependent variable of financial performance. In terms of market performance, many empirical studies at home and abroad have used Tobin-Q as a measurement index (Wu Mengmeng, 2012), and this index is also used as the dependent variable of market performance in this paper. In addition, referring to the research models of Shi Hongwei (2016), Miao Yue (2018), Lu Zhuanling (2018) and Li Sha (2019), company size, financial leverage, growth, and cash flow are all variable factors that have a greater impact on the business performance of enterprises. Therefore, indicators of total assets (TA), asset liability ratio (ALR), revenue growth rate (GROWTH) and cash recovery rate of assets (CRR) are added to the models as control variables.

Based on the research hypotheses and research purposes discussed above, this paper constructed the following regression models to verify the hypotheses :

Model 1-1 and **Model 1-2** are used to test hypothesis 1:

Hypothesis 1:The implementation of ESOP has a significant positive impact on enterprise financial and market performance.

$$ROE_{t+1} = \alpha + \beta_1 ESOP_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (1\text{-}1)$$

$$TOBIN - Q_{t+1} = \alpha + \beta_1 ESOP_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (1\text{-}2)$$

Model 2-1 and **Model 2-2** are used to test hypothesis 2:

Hypothesis 2: The performance of state-owned enterprises is better improved than that of non-state-owned enterprises after the implementation of ESOP.

$$ROE_{t+1} = \alpha + \beta_1 TYPE_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (2\text{-}1)$$

$$TOBIN - Q_{t+1} = \alpha + \beta_1 TYPE_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (2\text{-}2)$$

Model 3-1 and **Model 3-2** are used to test hypothesis 3

Hypothesis 3: The performance of high-tech enterprises is better improved than that of non-high-tech enterprises after the implementation of ESOP.

$$ROE_{t+1} = \alpha + \beta_1 HITECH_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (3\text{-}1)$$

$$TOBIN - Q_{t+1} = \alpha + \beta_1 HITECH_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (3\text{-}2)$$

Model 4-1 and **Model 4-2** are used to test hypothesis 4:

Hypothesis 4: The higher the proportion of ordinary employees is in ESOP, the better the effect of improving enterprise performance is.

$$ROE_{t+1} = \alpha + \beta_1 ESR_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (4\text{-}1)$$

$$TOBIN - Q_{t+1} = \alpha + \beta_1 ESR_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (4\text{-}2)$$

Model 5-1 and **Model 5-2**are used to test hypothesis 5:

Hypothesis 5: The longer the duration period of ESOP is, the better the effect of improving enterprise performance is.

$$ROE_{t+1} = \alpha + \beta_1 DP_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (5\text{-}1)$$

$$TOBIN - Q_{t+1} = \alpha + \beta_1 DP_t + \beta_2 TA_t + \beta_3 ALR_t + \beta_4 GROWTH_t + \beta_5 CRR_t + \varepsilon \quad (5\text{-}2)$$

4.4.Definitions of Variables

4.4.1 Dependent Variables

(1) Return On Equity (ROE): The return on equity (ROE) is often used to measure the financial quality of an enterprise. According to DuPont's financial analysis system, ROE includes multiple information of enterprise's profitability, operation ability and debt paying ability, and reflects the investment return rate of shareholders. Therefore, this paper uses ROE as the measurement index of financial performance, and takes the ending value of one year after the base year (i.e. t+1).

(2) Tobin-Q: Tobin-Q value is the ratio of the market value of an enterprise to its replacement cost, which can be used to measure whether the market value of an enterprise is overestimated or undervalued, and reflects the relationship between the internal value and the market value of an enterprise. Generally, the higher the Q value is, the better the public's expectation of the company's growth is, indicating that investors prefer the enterprises' stocks. Therefore, this paper uses Tobin-Q value as the measurement index of market performance, and takes the ending value of one year after the base year (i.e. t+1).

4.4.2 Independenet Variables

(1) ESOP: Refers to whether the enterprise has implemented ESOP or not. In this paper, ESOP is used as a dummy variable. Those enterprises that have implemented ESOP are recorded as 1, and those haven't are recorded as 0.

(2) Enterprises' Property Right Attribute (TYPE): According to the enterprises' property right attribute extracted from WIND database, enterprises are divided into state-owned (central state-owned enterprises, local state-owned enterprises) and non-state-owned enterprises (private enterprises, public enterprises, collective enterprises). In this paper, as a dummy variable, state-owned enterprises are recorded as 1 and non-state-owned enterprises are recorded as 0 according to the property rights of enterprises at base year t.

(3) High-Tech Enterprise (HITECH): According to the industry classification of listed enterprises by the CSRC, enterprises in the seven categories (second level) of industries, including medicine manufacturing, special equipment manufacturing, professional technical service, instrument、meter and stationery manufacturing, software and information technology service, internet and related services, computer、communication and other electronic equipment manufacturing, are classified as high-tech enterprises. In this paper, as a dummy variable, high-tech enterprises are recorded as 1 and other traditional enterprises as 0.

(4) Ordinary Employee Subscription Ratio (ESR): Refers to the proportion of shares subscribed by ordinary employees in the ESOP.

(5) Duration Period (DP): Refers to the effective period of ESOP. Generally, at the expiration of duration period, the listed company or its designated trustee will sell the shares of ESOP as soon as possible, and return the cash to the employees who subscribe.

4.4.3 Control Variables

(1) Total Assets (TA): According to the researches of Han Fang (2014) and Song Yang (2013), the scale of enterprises will affect their market and financial performance. Generally speaking, the larger the scale of an enterprise, the more abundant the available resources, the greater the brand effect and market influence, which will have a positive impact on its sales and profitability. But on the other hand, the larger the scale of the company, the more difficulty and cost of its operation and management will increase, and some negative events that may damage the interests of the company may occur. Therefore,

the scale of enterprises has a great impact on the market and financial performance of enterprises. In this paper, the total assets of the enterprise is used as the control variable representing the enterprise scale, and the ending value of the base year t is taken.

(2) Asset Liability Ratio (ALR): The asset liability ratio is an important indicator to measure the financial leverage of an enterprise, which can reflect its capital structure. Proper use of financial leverage can help enterprises expand their business scale and improve the return on investment of shareholders. However, if the financial leverage is too high, it may increase the risk of enterprise operation and affect the performance of financial and market performance. Therefore, this paper takes the asset liability ratio as the control variable and takes the ending value of the base year t.

(3) Revenue Growth Rate (GROWTH): The growth ability of an enterprise is an important basis to measure the development speed of an enterprise, and it is also an index that the capital market pays close attention to when evaluating the investment value of an enterprise. The growth ability of an enterprise depends on many factors, including external factors such as macro-economy and industry prosperity, as well as internal factors such as competitive advantage, financial situation and governance level. This paper uses the revenue growth rate as the control variable representing the growth ability of the enterprise, and takes the ending value of the base year t.

(4) Cash Recovery Rate of Assets (CRR): Cash flow is an important aspect to measure the quality of an enterprise's income. When the operating net cash flow is high, it often means that the enterprise's cash recovery is good and the income quality is relatively healthy, which will have a positive impact on the financial situation and market value of the enterprise. Miao Yue (2018) believes that the cash recovery rate of assets reflects the cash earning ability of all assets of an enterprise. Therefore, this paper uses the cash recovery rate of assets as the control variable representing the quality of cash flow of the enterprise, and takes the ending value of the base year t.

To sum up, the definitions of all variables in this paper are shown in **Table 3** below:

Types of Variables	Names of Variables	Symbols of Variables	Definitions and Calculation Methods	Data Sources and Basis
Dependent Variables	Return On Equity	ROE	Net profit attributable to the parent company / Average owner's equity	Financial analysis data from WIND database

			at the beginning and ending of the period	
	Tobin-Q	TOBIN-Q	(Market value + net debt) / Total assets at the end of the period	Referring to the calculation method of Tobin Q value by Xu and Fang(2015). Calculated from the financial data in WIND database
Independent Variables	ESOP	ESOP	Dummy variable, enterprises that implemented ESOP as 1, other enterprises as 0	From the statistics of ESOP in WIND database
	Enterprises' Property Right Attribute	TYPE	Dummy variable, state-owned enterprises as 1, other enterprises as 0	Enterprise information from WIND database
	High-Tech Enterprise	HITECH	Dummy variable, high-tech enterprises as 1, other enterprises as 0	Enterprise information from WIND database, classified according to industry categories (second level) of CSRC
	Ordinary Employee Subscription Ratio	ESR	Proportion of ordinary employees' subscription in ESOP	From the statistics of ESOP in WIND database
	Duration Period	DP	Duration Period of ESOP (in years)	From the statistics of ESOP in WIND database

Control Variables	Total Assets	TA	Natural logarithm of total assets at the end of the period	Calculated from the financial data in WIND database
	Asset Liability Ratio	ALR	Total liabilities at the end of the period / Total assets at the end of the period	Financial analysis data from WIND database
	Revenue Growth Rate	GROWTH	Increase of revenue in current operating period/ Total operating revenue at the end of the previous period	Financial analysis data from WIND database
	Cash Recovery Rate of Asset	CRR	Net operating cash flow of current operating period / Total assets at the end of the current period	Financial analysis data from WIND database

***Table 3**: Definitions of All Variables*

5. Results And Analyses

5.1. Descriptive Analyses

As described above, after screening, this paper obtained 420 A-share listed companies that announced and implemented ESOP for the first time during 2014-2018. According to the industry categories (first level) of the CSRC, those 420 enterprises could be divided into 15 industry categories, of which 290 are manufacturing enterprises, accounting for 68.8%; followed by information transmission、 software and information technology service industry, and construction industry, with 35 and 23 enterprises respectively, accounting for 8.3% and 5.5% respectively. The number of enterprises in other industries accounted for less than 5%. This distribution proportion is basically consistent with the industry distribution of all listed enterprises in China's capital market.

In order to have a more intuitive and comprehensive understanding of the variable data of the experimental group samples and the control group samples, the descriptive statistics of sample 1 and sample 2 are carried out, as shown in **Table 4** and **Table 5.**

Variables	Mean	Median	MIN	MAX	S.D.	Observations
ROE	0.086	0.079	-1.832	0.638	0.111	840
TOBIN-Q	2.396	1.858	-0.046	24.710	2.090	840
ESOP	0.500	0.500	0.000	1.000	0.500	840
TA	3.670	3.532	1.156	8.540	1.171	840
ALR	0.398	0.373	0.035	0.975	0.200	840
GROWTH	0.176	0.115	-0.767	6.784	0.411	840
CRR	0.049	0.048	-0.261	0.454	0.072	840

Table 4： *Descriptive Statistics of Sample 1*

Variables	Mean	Median	MIN	MAX	S.D.	Observations
ROE	0.098	0.090	-0.082	0.627	0.075	420
TOBIN-Q	2.425	1.992	0.103	24.710	1.979	420
TYPE	0.081	0.000	0.000	1.000	0.273	420
HITECH	0.357	0.000	0.000	1.000	0.480	420
ESR	0.703	0.749	0.000	1.000	0.224	420
DP	3.269	3.000	1.500	8.000	1.266	420
TA	3.699	3.558	1.278	8.540	1.135	420
ALR	0.396	0.382	0.056	0.868	0.191	420
GROWTH	0.254	0.166	-0.390	6.784	0.464	420
CRR	0.043	0.045	-0.261	0.315	0.066	420

Table 5： *Descriptive Statistics of Sample 2*

It can be observed from the data in the two tables that the mean value and median value of each variable have little difference, and the standard deviation is small, indicating that the difference and degree of dispersion of the variables are not very large.

In terms of the dependent variables, sample 2 contains all the experimental group data, and the mean value of ROE is 9.8% and Tobin-Q is 2.425, which is higher than the mean values of sample 1's ROE and Tobin-Q (i.e. all the enterprises that have implemented and not implemented the ESOP). This indicates that after the implementation

of ESOP, the financial and market performance indicators of the experimental sample enterprises have been improved.

In terms of independent variables, **Table 5** shows that the mean value of property right attribute (TYPE) is 0.081, which means that there are 34 state-owned enterprises in sample 2, accounting for only 8.1%, which is far lower than the proportion of about 25% of the total A-share market; on the other hand, there are 366 private enterprises in sample 2, far more than state-owned enterprises, which shows that private enterprises are more inclined to use ESOP as an incentive driver. This is also consistent with the willingness of private enterprises to attract and retain talents.

The mean value of HITECH is 0.357, which means that 150 out of the 420 enterprises are high-tech enterprises, accounting for 35.7%, slightly higher than the proportion of high-tech enterprises in all A-share enterprises (32.9%). To a certain extent, it reflects that China's high-tech enterprises favor ESOP as an incentive tool.

The mean value of ordinary employee subscription ratio (ESR) and duration period (DP) is 0.703 and 3.269 respectively, which indicates that in the scheme design of ESOP in China, ordinary employees have relatively higher subscription proportion, and their participation and incentive degree are higher than senior executives' in the ESOP, and the average effective period of the plan is about 3 years.

In the following sections, this paper will further test whether ESOP has statistical significance in improving enterprise performance through correlation analysis and regression analysis, and explore the effect of different independent variables on enterprise performance.

5.2.Correlation Analyses of ESOP and Enterprise Performance

Table 6 shows the correlation test results of sample 1. The results indicate that there is statistically significant correlation between ROE and ESOP ($P<0.01$) and the coefficient is a positive number. That means the implementation of ESOP has a significant effect on improving the financial performance of enterprises, which is consistent with the expectation. Tobin-Q and ESOP don't have a statistically significant correlation ($P>0.1$), indicating that the implementation of ESOP has no significant effect on the improvement of enterprise market performance.

In terms of control variables, corporate asset size (TA) has a statistically significant

positive correlation with financial performance (P<0.01), and a statistically significant negative correlation with market performance (P<0.01). Asset liability ratio (ALR) only has statistically significant negative correlation with market performance (P<0.01), while revenue growth rate (GROWTH) only has statistically significant positive correlation with financial performance (P<0.01). Asset cash recovery rate (CRR) has statistically significant positive correlation with both financial and market performance (P<0.01).

	ROE	TOBIN-Q	ESOP	TA	ALR	GROWTH	CRR
ROE	1						
TOBIN-Q	-0.048	1					
ESOP	0.115***	0.014	1				
TA	0.106***	-0.539***	0.025	1			
ALR	-0.018	-0.339***	-0.011	0.504***	1		
GROWTH	0.195***	0.031	0.189***	0.022	0.026	1	
CRR	0.286***	0.117***	-0.083**	-0.02	-0.233***	0.092***	1

Notes：***、**、* indicate statistical significance at the 1%、5%、10% level respectively.

Table 6: *Correlation Test Results of Sample 1*

Table 7 shows the correlation test results of sample 2. The results show that there is no statistically significant correlation between the independent variables ESR, DP, TYPE, HITECH and the financial performance index ROE (P>0.1). It indicates that different enterprise attributes and different scheme design factors may not have significant differences in the effect of improving the financial performance of enterprises. In terms of market performance, there is no statistically significant correlation between ESR, DP and TOBIN-Q. That is to say, different scheme design factors have no significant difference in the promotion effect of enterprise market performance. However, TYPE and HITECH respectively have statistically significant negative correlation and positive correlation with Tobin-Q (P<0.01). That means the market performance of state-owned enterprises is not as good as that of non-state-owned enterprises, which is contrary to the hypothesis expectation; the market performance of high-tech enterprises is improved more than that of traditional enterprises, which is consistent with the expectation.

	ROE	TOBIN-Q	ESR	DP	HITECH	TYPE	TA	ALR	GROWTH	CRR
ROE	1									
TOBIN-Q	0.101**	1								
ESR	0.065	0.009	1							
DP	-0.012	-0.077	0.042	1						
HITECH	-0.002	0.324***	-0.033	-0.033	1					
TYPE	-0.055	-0.151***	0.137***	0.111**	-0.148***	1				
TA	0.132***	-0.498***	0.181***	0.088*	-0.284***	0.279***	1			
ALR	0.118**	-0.408***	0.048	0.022	-0.291***	0.208***	0.566***	1		
GROWTH	0.161***	0.008	-0.004	-0.058	0.021	-0.084*	0.031	0.044	1	
CRR	0.23***	0.107**	0.044	0.035	0.065	-0.007	-0.025	-0.244***	0.05	1

Notes：***、**、* indicate statistical significance at the 1%、5%、10% level respectively.

Table 7: *Correlation Test Results of Sample 2*

In addition, the correlation coefficients in **Table 6** and **Table 7** show that there is statistically significant correlation between some independent variables and control variables, but the values of correlation coefficients are not large. Therefore, multicollinearity tests are carried out for each variable by using the variance expansion factor (VIF). The test results show that the VIF values of each variable are significantly less than 10, so there is no obvious multicollinearity and each variable can be used as a separate variable for further study. The specific VIF test values will be listed in the regression analysis results tables below.

5.3.Regression Analyses of ESOP and Enterprise Performance

Table 8 shows the regression analysis results of ESOP and enterprise financial performance (**Model 1-1**). According to the results in the table, the adjusted-R-Squared of the model is 0.128, and the F-statistic is 25.676, which means that the fitting degree is low, but the model is statistically significant (P<0.01). The regression coefficient of ESOP and ROE is 0.024 and is statistically significant (P<0.01), indicating that there is a significant positive correlation between ESOP and ROE.

Among the control variables, the coefficients of TA, GROWTH and CRR are all positive numbers and are all statistically significant (P<0.01), which indicates that the larger the enterprise's asset scale, the faster the growth and the better the cash recovery quality, the more positive impact they will have on the improvement of financial performance, which is also consistent with the correlation analysis results in 5.2 above.

ROE	Coefficient	T-Statistics	P-Value	VIF
ESOP	0.024	3.266	0.001	1.052
TA	0.011	2.961	0.003	1.363
ALR	-0.006	-0.302	0.763	1.445
GROWTH	0.04	4.433	0.000	1.053
CRR	0.435	8.318	0.000	1.098
Intercept	0.009	0.698	0.485	NA
Multiple R	0.365	**F Statistic**	25.676（Prob.<0.01）	
R^2	0.133	**Observations**	840	
Adjusted-R^2	0.128			

Table 8: *Regression Analysis Results of ESOP and ROE (Model 1-1)*

Table 9 shows the regression analysis results of ESOP and enterprise market performance (**Model 1-2**). According to the results, the adjusted-R-Squared value of the model is 0.302, and the F-statistic is 73.641. The fitting degree is medicore, but the model is statistically significant (P<0.01). The coefficient of ESOP and Tobin-Q is 0.116, which fails to pass the significance test, indicating that the implementation of ESOP will not significantly improve the market performance. The reason for this result may be that there are many factors influencing the market performance, such as macro policies, economic environment and other factors, which will cause disturbance to the market valuation system. In addition, a large part of investors in A-share market are individual investors. Compared with institutional investors, their professional judgment ability and information access resources are relatively weak, and they are more vulnerable to the emotional impact of stock market fluctuations, which will also cause disturbance to the market valuation system of enterprises. In addition, the market performance index selected in this paper is the ending value of the next year of the first announcement year, so the time interval from the first announcement date is fairly long (at least one year). However, the market investment style of the A-share market is short-term, and many events may occur within this period and affect the stock price, which will weaken the impact of ESOP on market performance. Therefore, if we adjust the time interval of index selection, we may get different analysis results.

Among the control variables, the coefficients of TA and CRR are statistically significant (P<0.01) and the coefficient of ALR could also be considered as statistically

significant (P<0.1). There is a negative correlation between TA and Tobin-Q, because the calculation formula of Tobin-Q is the enterprise market value minus its net debt and then divided by the total assets; so the larger the enterprise, the smaller the Tobin-Q value. There is a negative correlation between ALR and Tobin-Q, and there is a positive correlation between CRR and Tobin-Q, which is consistent with the correlation test results in 5.2. It shows that the less the debt and the higher the quality of cash recovery, the more attention and favor an enterprise can gain from the share-market.

TOBIN-Q	Coefficient	T-Statistics	P-Value	VIF
ESOP	0.116	0.936	0.350	1.052
TA	-0.904	-15.047	0.000	1.363
ALR	-0.652	-1.804	0.072	1.445
GROWTH	0.151	1.002	0.316	1.053
CRR	2.695	3.061	0.002	1.098
Intercept	5.758	26.577	0.000	NA
Multiple R	0.553	**F Statistic**	73.641（Prob.<0.01）	
R^2	0.306	**Observations**	840	
Adjusted-R^2	0.302			

Table 9: *Regression Analysis Results of ESOP and Tobin-Q (Model 1-1)*

In summary, hypothesis 1 is partially true. The implementation of ESOP can better bind the interests of enterprises and employees, improve the enthusiasm and sense of responsibility of employees, and enhance the management level of enterprises, so as to improve the financial performance of enterprises. However, there is no significant improvement effect on the market performance of enterprises, which may be related to many factors affecting the stock price, and needs to be further studied in the future.

5.4. Regression Analyses of Enterprises' Characteristics and Attributes and Enterprise Performance

Through regression analyses of **Model 2-1** and **Model 2-2** using sample 2, the results show that the regression coefficients of enterprise property right attribute (TYPE) in two models both fail to pass the significance test. This means that there is no statistically significant difference between state-owned enterprises and non-state-owned enterprises in terms of financial and market performance improvements after the implementation of

ESOP, and hypothesis 2 is not tenable. (The table of regression analysis results can be found in the **Appendix**.)

Through regression analyses of **Model 3-1** and **Model 3-2** using sample 2, the results show that the regression coefficient of HITECH in **Model 3-1** has not passed the significance test, that indicates there is no statistically significant difference between high-tech and traditional enterprises in improving enterprise financial performance. (The table of regression analysis results can be found in the **Appendix**). As shown in **Table 10**, the regression coefficient of HITECH in **Model 3-2** is 0.726, and is statistically significant (P<0.01). This means that the implementation of ESOP in high-tech enterprises can gain more recognition and attention from the market than traditional enterprises. High-tech enterprises have a stronger demand for high-end talents. As an incentive and welfare measure, ESOP can help enterprises better attract and stabilize talents. It is more conducive for enterprises to develope core technologies and R&D capabilities, strengthen their competitive advantages, and therefore can be more recognized by the stock-market for the valuation of enterprises. Hypothesis 3 is partially true.

TOBIN-Q	Coefficient	T-Statistics	P-Value	VIF
HITECH	0.726	4.049	0.000	1.120
TA	-0.647	-7.285	0.000	1.537
ALR	-1.406	-2.576	0.010	1.639
GROWTH	0.082	0.468	0.640	1.007
CRR	1.565	1.220	0.223	1.089
Intercept	5.025	15.577	0.000	NA
Multiple R	0.550	**F Statistic**	35.935（Prob.<0.01）	
R^2	0.303	**Observations**	420	
Adjusted-R^2	0.294			

Table 10: *Regression Analysis Results of HITECH and Tobin-Q (Model 3-2)*

5.5. Regression Analyses of ESOP's Scheme Design and Enterprise Performance

Through regression analyses of **Model 4-1** and **Model 4-2** using sample 2, the results show that the regression coefficient of ESR in **Model 4-1** has not passed the significance test, indicating that the proportion of ordinary employees' share subscription has no statistically significant impact on the improvement of financial performance. (The table of

regression analysis results can be found in the **Appendix**). It can be observed from **Table 11** that the regression coefficient of ESR in **Model 4-2** is 0.808. and is statistically significant (P<0.05). This means that the higher the degree of ordinary employees' participation in the ESOP, the higher the market's expectation of the positive effect of ESOP and the recognition of the enterprise's value will be. Hypothesis 4 is partially true.

TOBIN-Q	Coefficient	T-Statistics	P-Value	VIF
ESR	0.808	2.151	0.032	1.040
TA	-0.736	-8.142	0.000	1.553
ALR	-1.685	-3.078	0.002	1.604
GROWTH	0.112	0.629	0.530	1.006
CRR	1.544	1.187	0.236	1.090
Intercept	5.153	14.229	0.000	NA
Multiple R	0.532	**F Statistic**	32.688（Prob.<0.01）	
R^2	0.283	**Observations**	420	
Adjusted-R^2	0.274			

Table 11: *Regression Analysis Results of ESR and Tobin-Q (Model 4-2)*

Through regression analyses of **Model 5-1** and **Model 5-2** using sample 2, the results show that the regression coefficients of DP in two models both fail to pass the significance test. This means that the length of ESOP's duration period has no statistically significant influence on improving the enterprise financial and market performance, and hypothesis 5 is not tenable. (The table of regression analysis results can be found in the **Appendix**.)

5.6. Robustness Test

As analyzed above, the implementation of ESOP has a statistically significant promotion effect on enterprise financial performance, but has no statistically significant effect on market performance. Thus, hypothesis 1 is partially true. In order to test whether the regression results of **Model 1-1** and **Model 1-2** are robust or not, this paper uses the return on total assets (ROA = net profit attributable to the parent company / (the average total assets at the beginning and the ending of the period)) as the substitute dependent variable of financial performance indicator ROE, and uses the price to book ratio (Pb (LF) = the total market value of the enterprise / shareholders' equity at the ending of the period (excluding minority shareholders' equity and preferred shares)) as the substitute dependent

variable of market performance indicator Tobin-Q.

The results of robustness test are shown in **Table 12** and **Table 13**. According to the test results, the coefficient of ESOP and ROA is 0.009, and is statistically significant (P<0.01); while the coefficient of ESOP and PB is -1.856, which fails to pass the significance test. This result is consistent with the regression conclusion in 5.3, so the regression results of **Model 1-1** and **Model 1-2** are robust. The implementation of ESOP has a statistically significant promotion effect on the financial performance of the enterprise, but has no significant impact on the market performance.

ROA	**Coefficient**	**T-Statistics**	**P-Value**	**VIF**
ESOP	0.009	2.801	0.005	1.052
TA	0.001	0.712	0.476	1.363
ALR	-0.058	-6.250	0.000	1.445
GROWTH	0.026	6.671	0.000	1.053
CRR	0.293	12.887	0.000	1.098
Intercept	0.009	0.698	0.485	NA
Multiple R	0.544	**F Statistic**	70.258（Prob.<0.01）	
R^2	0.296	**Observations**	840	
Adjusted-R^2	0.292			

Table 12: *Regression Analysis Results of ESOP and ROA (Model 1-1)*

PB	**Coefficient**	**T-Statistics**	**P-Value**	**VIF**
ESOP	-1.856	-0.855	0.393	1.052
TA	-5.911	-5.603	0.000	1.363
ALR	31.203	4.915	0.000	1.445
GROWTH	-0.405	-0.153	0.878	1.053
CRR	-6.789	-0.439	0.660	1.098
Intercept	15.954	4.196	0.000	NA
Multiple R	0.217	**F Statistic**	8.251（Prob.<0.01）	
R^2	0.047	**Observations**	840	
Adjusted-R^2	0.041			

Table 13: *Regression Analysis Results of ESOP and PB (Model 1-2)*

6. Conclusions and Suggestions

6.1. Conclusions

This paper summarized the relevant theories of ESOP and the history and typical cases of ESOP at home and abroad. On this basis, this paper put forward several hypotheses, and used descriptive statistics, correlation analyses and regression analyses to study the successful implementation of ESOP in A-share listed enterprises between 2014 and 2018. This paper discussed the overall impact of ESOP on the financial and market performance of enterprises, and then explored the factors influencing the implementation effect by combining various attributes of the enterprises and characteristics of ESOP scheme. The emperical analysis results of the hypotheses are summerized in **Table 14**.

Hypotheses	**Empirical Analysis Results**	
	Financial Performance	**Market Performance**
Hypothesis 1: The implementation of ESOP has a significant positive impact on enterprise financial and market performance.	Strong Support Positively related	No Support
Hypothesis 2: The performance of state-owned enterprises is better improved than that of non-state-owned enterprises after the implementation of ESOP.	No Support	No Support
Hypothesis 3: The performance of high-tech enterprises is better improved than that of non-high-tech enterprises after the implementation of ESOP.	No Support	Strong Support Positively related
Hypothesis 4: The higher the proportion of ordinary employees is in ESOP, the better the effect of improving enterprise performance is.	No Support	Weak Support Positively related
Hypothesis 5: The longer the duration period of ESOP is, the better the effect of improving enterprise performance is.	No Support	No Support

Table 14: *Summary of Hypotheses and Empirical Analysis Results*

According to the results of empirical analyses, the conclusions are as follows:

1. **The implementation of ESOP can significantly improve the financial performance of enterprises.** The implementation of ESOP enables the sharing of interests

and risks between employees and enterprises, promotes the enthusiasm and sense of responsibility of employees, improves the participation of employees in the operation and management activities of enterprises, and effectively promotes the improvement of enterprise financial performance

2. **After the implementation of ESOP in high-tech enterprises, the improvement effect of market performance is more significant than that of traditional enterprises.** The core competitiveness of high-tech enterprises is technology R&D capability, which largely depends on top talents. Therefore, high-tech enterprises often have a stronger desire to attract and retain talents through the long-term incentive and welfare measures such as ESOP, so as to provide long-term and stable human resource capital for the development of enterprises. At the same time, the capital market also agrees with this decision of high-tech enterprises, and is more optimistic about the stability of enterprises after the implementation of ESOP and the development potential of high-tech enterprises. Therefore, the analysis results show a significant positive correlation between high-tech enterprises and the market performance indicator.

3. **The higher the proportion of ordinary employees subscribe , the greater the ESOP's promotion effect on the market performance will be.** The proportion of ordinary employees' subscription represents the participation degree of ordinary employees in the ESOP. When the higher the subscription proportion is, the higher the participation degree of ordinary employees will be, the greater the degree of incentive will be, and the stronger the sense of belonging and loyalty of employees will be. For the capital market, on the one hand, it conveys the enterprises' willingness to stabilize talents and improve employees' welfare benefits, which is conducive to establishing a good corporate image. On the other hand, it also gives the share-market positive expectations, that is, the future stability, development speed, profit quality and other financial indicators of the enterprises are expected to be comprehensively improved. Therefore, the market is willing to give such enterprises a higher valuation level, which leads to the significant positive correlation between the ordinary employee subsbcription ratio and the market performance indicator.

6.2. Suggestions and Prospects

Based on the research conclusions, this paper makes the following suggestions for the development and scheme design of ESOP in China :

1. **Strengthen the promotion of ESOP in China, improve the supporting system**

through policy support, tax preference, legal protection and other aspects to help the promotion and application of this long-term incentive mechanism. Through the empirical research and analyses of this paper, we can see that the implementation of ESOP can improve the financial performance of enterprises, which is worthy of promotion and application in more enterprises. At present, there are only few current policy documents about ESOP in China, mainly <The Guidance> issed by the CRSC in 2014 and <The Opinions On The Pilot Implementation of ESOP in State-owned Enterprises With Mixed Ownership> issued by the State Council in 2016. If the government can improve the relevant regulatory system and legal system promptly, and provide corresponding tax incentives for enterprises, financial intermediaries which provide services, and individual employees participating in the plan, it will help to encourage more enterprises to choose ESOP as a long-term incentive mechanism.

2. **Encourage high-tech enterprises to implement ESOP.** The results of this paper show that the market performance of high-tech enterprises is improved more significantly. Therefore, encouraging the promotion of ESOP in high-tech industries can help enterprises boost the capital market's confidence in their development, enhance the financing potential of enterprises by increasing the level of valuation, and then provide capital for enterprises' operation and development. On the other hand, the financial performance improvement effect of high-tech enterprises is not significantly better than that of traditional enterprises. This may be because high-tech enterprises need to invest a lot capital expenditure in R&D, production line construction, and other operational acitivities in the early stage of development. As a resutl, enterprises can not make profits or get higher return on investment in the short term, so the financial indicators do not show a significant improvement compared with traditional enterprises. However, if the selection time interval of financial performance indicators is prolonged, for example, after two or three years, there may be obvious improvement, which is also one of the research directions that can be extended in the future. According to the conclusions of this paper and the research results of other scholars, the implementation of ESOP in high-tech enterprises does have a positive impact on enterprise performance in general. In the face of fierce competition all over the world, high-tech enterprises can attract and bind high-end technical talents by means of ESOP, so as to provide guarantee for their long-term development.

3. **Enterprises should reasonably design the subscription proportion of ESOP based on their own situation, and explore the appropriate subscription scale under the condition of ensuring the participation of ordinary employees.** The results of this

study show that the higher the proportion of ordinary employees, the more significant the promotion effect of enterprise market performance, but no significant effect on financial performance. This result may be related to the total scale of ESOP. If the proportion of the total scale of ESOP in the total share capital of the company is too low, even if the ordinary employees subscribe for a high proportion, the scope of employees who can benefit from it is still very small, and most of the employees can not share the profits from the growth of the enterprise. Therefore, the enthusiasm for work is reduced and the financial performance of the enterprise cannot be promoted. On the contrary, if the scope of employees involved in the ESOP is too large, there may be a "free rider" phenomenon. Therefore, enterprises should reasonably design the subscription scale and proportion of ESOP according to their own situation. For example, the number, structure, subscription ratio and overall subscription scale of employees that participating in the ESOP should be reasonably arranged while taking the factors such as the employees' working qualification and performance contribution into account. And under the appropriate total scale of subscription, the proportion of ordinary employees should be increased as much as possible. This paper has not make specific research and analysis on the impact of the total scale of ESOP (i.e. the proportion of enterprise's total equity) on enterprise performance, which is also a research direction that can be explored in depth in the future.

4. **Enterprises can enhance the ability of timing selection when implementing ESOP.** Generally, the shares of ESOP are bought back from the secondary market, so the cost of stock repurchase will affect the return of ESOP. If an enterprise chooses to buy back when the stock price is relatively low, on the one hand, the employees' share holding cost is low, and the possible return rate when selling the stock in the future will be higher, which is beneficial to stimulate the employees' willingness to participate; on the other hand, the listed company's stock repurchase at a low price can also show the enterprise's confidence in its own development to the capital market, transmit a positive signal, and help to improve its market performance.

In addition, there are some limitations and deficiencies in the research methods of this paper, which can be improved and explored from the following aspects in the future:

1. This study uses two statistical methods: correlation analysis and regression analysis. There is a significant correlation between some independent variables and the dependent variables, but their regression coefficients fail to pass the significance test in the regression analyses. This may be due to the fact that there are many factors influencing

enterprise performance, the control variables in the model may not be perfect and comprehensive, and all factors affecting financial or market performance are not included in the model, so the two results are inconsistent. In the future research, we can read more literature, summarize more influential factors, and further improve the model design.

2. The results of this study show that ESOP has no significant effect on improving the market performance of enterprises, and the two factors of enterprise property right attribute and duration period have no significant correlation with business performance. On the one hand, it may also be due to the imperfect design of the models and the incompleteness of independent variables and control variables as discussed above, so the regression results are not significant. On the other hand, it is also possible that the selected independent variables can not fully represent the performance of the enterprises. For example, Huang Lei et al. (2009) believes that Tobin-Q has limited applicability in China's stock market, and can not fully reflect the market value of enterprises. Therefore, if we choose other indicators, such as stock yields, we may have different analyses results.

3. The financial and market performance indicators in this paper are the ending value of the year after the first announcement year. In terms of market performance, the market influence of ESOP may be weakened due to the long time interval, which is disturbed by other internal and external factors. If the time interval is shortened, such as the market valuation data of 30 or 60 days after the announcement date, more significant research conclusions may be obtained. In terms of financial performance, while ESOP is a long-term incentive means, the observation period of one year can only represent the short-term improvement effect. If the time interval is extended, such as 2 or 3 years, or even 5 years after the announcement year, the improvement of financial performance may be more obvious. However, due to the short development history of ESOP in China, extending the observation period will lead to a decrease in the number of observable samples. Therefore, this problem can be further studied after the increase of sample size in the future.

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Appendix: More Regression Analysis Results

ROE	Coefficient	T-Statistics	P-Value	VIF
TYPE	-0.026	-1.952	0.052	1.100
TA	0.005	1.272	0.204	1.562
ALR	0.061	2.631	0.009	1.607
GROWTH	0.021	2.817	0.005	1.016
CRR	0.297	5.421	0.000	1.089
Intercept	0.040	3.222	0.001	NA
Multiple R	0.338	**F Statistic**	10.693（Prob.<0.01）	
R^2	0.114	**Observations**	420	
Adjusted-R^2	0.104			

Table A1: Regression Analysis Results of TYPE and ROE (Model 2-1)

TOBIN-Q	Coefficient	T-Statistics	P-Value	VIF
TYPE	-0.013	-0.041	0.967	1.100
TA	-0.700	-7.677	0.000	1.562
ALR	-1.748	-3.173	0.002	1.607
GROWTH	0.107	0.597	0.551	1.016
CRR	5.611	18.799	0.000	1.089
Intercept	5.758	26.577	0.000	NA
Multiple R	0.524	**F Statistic**	31.412（Prob.<0.01）	
R^2	0.275	**Observations**	420	
Adjusted-R^2	0.266			

Table A2: Regression Analysis Results of TYPE and Tobin-Q (Model 2-2)

ROE	Coefficient	T-Statistics	P-Value	VIF
HITECH	0.006	0.809	0.419	1.120
TA	0.004	1.014	0.311	1.537
ALR	0.060	2.586	0.010	1.639
GROWTH	0.022	2.985	0.003	1.007
CRR	0.293	5.343	0.000	1.089
Intercept	0.040	2.862	0.004	NA
Multiple R	0.328	**F Statistic**	9.988（Prob.<0.01）	
R^2	0.108	**Observations**	420	
Adjusted-R^2	0.097			

Table A3: Regression Analysis Results of HITECH and ROE (Model 3-1)

ROE	Coefficient	T-Statistics	P-Value	VIF
ESR	0.013	0.839	0.402	1.040
TA	0.003	0.734	0.463	1.553
ALR	0.059	2.533	0.012	1.604
GROWTH	0.023	3.025	0.003	1.006
CRR	0.292	5.325	0.000	1.090
Intercept	0.037	2.418	0.016	NA
Multiple R	0.328	**F Statistic**	9.999（Prob.<0.01）	
R^2	0.108	**Observations**	420	
Adjusted-R^2	0.097			

Table A4: Regression Analysis Results of ESR and ROE (Model 4-1)

ROE	Coefficient	T-Statistics	P-Value	VIF
DP	-0.001	-0.443	0.658	1.014
TA	0.004	0.936	0.350	1.513
ALR	0.057	2.479	0.014	1.600
GROWTH	0.022	2.982	0.003	1.010
CRR	0.295	5.363	0.000	1.090
Intercept	0.048	3.264	0.001	NA
Multiple R	0.327	**F Statistic**	9.885（Prob.<0.01）	
R^2	0.107	**Observations**	420	
Adjusted-R^2	0.096			

Table A5: Regression Analysis Results of DP and ROE (Model 5-1)

TOBIN-Q	Coefficient	T-Statistics	P-Value	VIF
DP	-0.061	-0.924	0.356	1.014
TA	-0.694	-7.737	0.000	1.513
ALR	-1.761	-3.206	0.001	1.600
GROWTH	0.098	0.547	0.585	1.010
CRR	1.675	1.282	0.201	1.090
Intercept	5.790	16.518	0.000	NA
Multiple R	0.526	**F Statistic**	31.648（Prob.<0.01）	
R^2	0.277	**Observations**	420	
Adjusted-R^2	0.268			

Table A6: Regression Analysis Results of DP and Tobin-Q (Model 5-2)