

ESOP and Corporate Sustainable Growth

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Abstract—The Employee Stock Ownership Plan (ESOP) is a long-term corporate welfare policy that allows employees to share the profits and growth benefits of the enterprise by owning the ordinary share of the enterprise. It has always been a research hotspot at home and abroad. Sustainable growth refers to the healthy and sustained growth of enterprises. ESOP has been re-implemented in China since 2014. Using dual fixed effects model, this paper empirically analyzes 6940 observations of Chinese listed companies from 2014 to 2018. We study whether ESOP can improve the sustainable growth rate of enterprises by allowing employees to hold equity, linking their personal interests to the interests of enterprises, and thus playing an incentive and supervisory role to effectively reduce enterprise agency costs. In the research process, we find that the data can help us objectively analyze the economic management problems of enterprises. However, when using the data for analysis, the correlation coefficient and significance should be analyzed together.

1 Introduction

Employee stock ownership plan (ESOP, the following are expressed with ESOP) is a long-term welfare policy that allows employees to share the company profits and corporate growth benefits by owning ordinary share of the enterprise. It has always been a research hotspot at home and abroad. Domestic and foreign research mainly focuses on the motivation of ESOP, like maintaining control over enterprises, avoiding tax or other motivations, and the economic consequences of ESOP, like whether it has played a role in enhancing corporate financial performance or improving the governance mechanism. Many scholars explore the impact of ESOP on corporate performance, but few study on whether ESOP can promote sustainable growth of enterprises.

The sustainable growth rate of enterprise is an important way to realize the view of scientific development and achieve the transformation from extensive management to intensive management. As a part of Chinese market reform, ESOP aims to increase the value of enterprises, stimulate their vitality and provide impetus for their sustainable growth. Therefore, whether ESOP has effectively improved the sustainable growth rate of enterprises? This is the direction of this paper.

We choose empirical analysis in order to study this problem in this paper. Following previous literature, we collect data of ESOP, financial operation data of corporate sustainable growth and corporate governance data of Chinese listed companies from 2014 to 2018 from CSMAR and WIND database, and get a sample containing

6,940 data, then we analyze the data to verify our hypothesis.

In order to explore whether there is a positive correlation between ESOP and SGR, this paper uses the two-factor fixed effect model and fix time effect and industry effect to analyze it. In this paper, ESOP is designed as a dummy variable, and the Higgins Model is adopted to calculate SGR on two different bases. We control the basic situation of the enterprise, profitability, leverage, operating capacity, corporate governance and other factors, to eliminate the effect of interference as far as possible.

The empirical result shows that our hypothesis is valid, the implementation of ESOP has a significantly positive correlation to the sustainable growth rate of enterprises, but the positive correlation is negligible since the correlation coefficient is small. The reasons for the result in this paper are discussed in the part Discussion, and future improvement and further research directions are proposed.

2 Literature Review

2.1 Employee Stock Ownership Plan

Employee stock ownership plan (ESOP) stems from the idea of expansion of capital ownership put forward by Louis Kelso in 1958. Existing research on employee stock ownership plan mainly focuses on the motivation of implementing employee stock ownership plan and its economic consequences.

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The implementation of employee stock ownership plans is mainly based on considerations of control, incentives and tax avoidance motives. Kim and Ouimet (2014) find that the large-scale implementation of ESOP can help the establishment of worker-manager alliances, which can win employee support to resist acquisitions and maintain corporate control[1]. Investors expect that when the ESOP is announced, the possibility of the company being acquired to be smaller(Beatty,1995; Gordon L A, Pound Jjol 1990)[2], [3]. Meanwhile, Kim and Ouimet (2014) suggest that companies that are lack of cash are more inclined to launch ESOP which aims to save cash wages and avoid the loss of corporate control caused by liquidity risks[1]. Blasi, Freeman and Kruse. (2016) find that the purpose of using ESOP is to motivate employees to participate in company decisions and share internal information, which can improve corporate performance[4].

Moreover, Beatty (1994) finds that external investors believe that ESOP can help companies obtain higher tax deductions, which indicates that tax incentive can also be the initial motivation for companies to implement ESOP[5].

The economic consequences of ESOP are also the focus of academic and practical research. Most scholars find that ESOP can improve corporate performance. Fang H, Nofsinger J R, Quan J (2015) indicate that companies implementing ESOP have higher net interest rates[6]. Rosen (1990) finds that ESOP can increase the company's cash flow and enhance corporate value by providing tax benefits[7]. From the perspective of Principle-agent Theory, ESOP can alleviate the problem of principal-agent, and help improve corporate performance (Ding and Sun, 2001)[8]. However, some scholars put forward different views from the perspective of Free-ride. The ESOP provides management with the possibility of evading the supervision of the board and shareholder, and using the authority to turn incentives into benefits for personal gain, which may lead to a decline in corporate performance and a reduction in shareholder wealth (Armstrong and Vashishtha, 2012)[9]. In addition, Blasi J, Kruse CD (1996) find ESOP is beneficial to small-scale companies[10].

2.2 Sustainable Growth Rate

The sustainable growth of an enterprise refers to the expansion of an enterprise to maintain a healthy and appropriate growth rate that can not only keep reasonable development in present, but also will not damage the interests of the future development. Higgins (2001) proposed Sustainable Growth Rate, which refers to the maximum growth rate that an enterprise can achieve only by selling products without exhausting its financial resources[11]. Existing research of domestic and foreign scholars on sustainable growth is mainly focused on exploring and developing the econometric model of sustainable growth which is more in accordance with the real environment of enterprises, and the influencing factors of sustainable growth of enterprises.

The sustainable growth models of enterprises mainly include Higgins Model(1977), VanHorne Model (2000), Rabapotte Model(2002) and Colley Model(2003). Higgins

Model is proposed on the basis of accounting identities and setting financial indicators unchanged. Its purpose is to measure the maximum growth rate achieved by enterprises only relies on their retained earnings and the retention of internal earnings rolling. On the basis of Higgins Model, James C. VanHorne(2000) further points out that the sustainable growth rate is the maximum sales growth rate calculated according to the enterprise target financial ratio, and it focuses on planning and decision-making. Van Horne model abandons the assumption of not issuing new shares and adds a dynamic model after issuing new shares. After taking cash flow into consideration, Alfred Roppaport(2002) and John L. Colley(2003) propose that sustainable growth rate is the growth rate when cash flow was zero, they point out that the key factor that restricts enterprise growth is free cash flow of enterprises. They put forward Roppaport sustainable growth model and Colley sustainable growth model respectively. Roppaport sustainable growth model uses operating profit margin,a relative indicator to calculate, and Colley uses an absolute indicator which is the EBIT of the enterprise.

The sustainable growth of enterprise is influenced by the internal financial factors, and also influenced by corporate governance. Jiang(2012) finds that the relationship between the age of senior managers and the enterprise sustainable growth is inverted U-shaped. The education level of senior managers is positively correlated with the sustainable growth of enterprises, and the professional background and social background of senior managers are negatively correlated with the sustainable growth of enterprises[12]. Su and Wang(2016) find that the degree of control of actual controllers of listed companies has a significant positive impact on the sustainable growth rate[13]. Lv(2005) finds that early implementation of equity incentive plans have a negative impact on the company sustainable growth. However, with the accumulation of experience, the later equity incentive plan has a positive impact on the sustainable growth of the company[14].

Through literature review, we believe that ESOP can indeed play its incentive role to a certain extent and improve the financial performance of enterprises. ESOP can promote enterprise innovation (Zhou, Huang, Zhao, 2019)[15]. Besides, innovation is one of the ways to achieve sustainable growth of enterprises. Therefore, can ESOP encourage enterprises to improve their sustainable growth rate? There is little research focusing on this area currently, so this paper intends to use data for empirical analysis to explore this.

3 Theoretical Analysis and Research Hypothesis

According to the Principal-agent theory, ESOP gives equity to managers, which links their personal interests with the company benefits, thus alleviates the first type of agency problem, and motivates managers to improve the corporate performance. Moreover, ESOP also gives equity to ordinary employees, so the personal interest of employee is consistent with the goal of enterprise, which

will motivate employees to improve corporate performance. At the same time, ESOP also enables ordinary employees to participate in the supervision of managers and further improves the corporate governance structure.

Generally speaking, ESOP is mainly granted to core employees of management or knowledgeable and skilled core employees who have made certain contribution to the company. These core employees are the important human capital of the company(Drucker,2009). The incentive to them can improve their sense of belonging and identity of the enterprise, thus reduce their behaviors of infringing the interests of the company and reduce the agency cost, which is conducive to improving the efficiency of capital operation and providing more available funds for enterprise innovation. Enterprise innovation is an important core of the sustainable growth ability of the enterprise, and improving the innovation ability of the enterprise will help to improve its sustainable growth. Besides, the reduction of agency cost can also reduce resources waste, the rent-seeking cost and the hidden cost caused the in-service consumption of senior executives, which can effectively reduce the internal communication cost and organization cost, enhance the overall strength of the enterprise, and it is conducive to the sustainable growth of the enterprise.

Therefore, we put forward the following hypothesis:

H1: The implementation of ESOP can improve the sustainable growth rate of the enterprise.

4 Data and Research Design

4.1 Data Sources and Variable Selection

To test our hypothesis, we collect Chinese listed firms' financial performance and governance performance information from CSMAR database, and Chinese listed firms' employee stock ownership plans data form WIND database. Since China re-implemented the employee stock ownership plans from 2014, we collect ESOP data from 2014 to 2018. Then we match ESOP data collected from WIND with financial and governance data of the companies from CSMAR. Simultaneously, we exclude datasets in financial and insurance industry, considering the peculiarities of the financial and insurance industry. Taking in account that the abnormal transaction status may generate some abnormal data, we exclude the datasets of ST companies. After excluding the missing values, we analyzed the sample, which includes 6940 observations.

Due to the consistency of analysis results and the difficulty of data acquisition, we choose Higgins model to calculate the sustainable growth rate of enterprises. In the model, sustainable growth rate is the maximum growth rate that an enterprise's financial indicators (profitability, asset operation ability, capital structure, dividend policy) do not change for many years.

$$SGR = \frac{I}{Y} \times \frac{C}{E_0} \times \frac{q}{C} \quad (1)$$

Where, I represents net income, Y represents sales revenue, E represents equity and q represents retained earnings. According to the model, the basic measurement formula of SGR as following:

$$SGR = \frac{\frac{I}{E_1} \times \frac{q}{I}}{\left(1 - \frac{I}{E_1} \times \frac{q}{I}\right)} \quad (2)$$

Where, I represents net income, E represents equity and q represents retained earnings. In the real capital market, listed companies will distribute dividends, and the retained earnings ratio can be calculated as 1-dividend payment ratio. Meanwhile, dividend payout ratio equals to dividend per share divided by yield per share. Therefore,

$$\frac{q}{I} = 1 - \frac{D}{I/X} \quad (3)$$

I represents net income, q represents retained earnings and D represents earning before interests and tax per share. X can be explained by two ways, the closing value of paid-up capital or the latest capital stock. Thus, we will use two methods to measure sustainable growth rate.

According to previous research, we set dummy variable ESOP to measure whether the enterprise implements ESOP or not. When the ESOP dummy variable values 0, it means that the company does not implement ESOP. If the company implement ESOP this year, the ESOP dummy variable equals 1.

Table1. Variable Symbol and Definition

Variable symbol	Variable definition
Sgr1	Sgr1 is measured on the basis of the closing balance of paid-up capital. (Net profit/ closing balance of Equity) * [1 - Dividend per share before tax / (Net profit/ closing balance of Paid-up Capital)] / (1 - the numerator)
Sgr2	Sgr2 is measured in terms of issued share capital. (Net profit/ closing balance of Equity) * [1 - Dividend per share before tax / (Net profit/ new capital)] / (1 - the numerator)
ESOP	Dummy variable, when the ESOP dummy variable values 0, it means that the company does not implement ESOP. While, if the company implement ESOP this year, the ESOP dummy variable equals 1.
Asset	Ln (the amount of assets)
growth1	(Operating income for the current year - Amount of operating income for last year) /ABS operating income for the same period last year)
roa1	Net income / Total asset
profit1	Net income + Income tax expenses + Financial expenses) / Long-term expenses
tobinq4	Market value B/ (Total assets - Intangible assets - Net goodwill)
Indep	Number of independent directors / Number of directors
sh1	Ln (Number of shares held by directors, supervisors and senior management)
Liquidity	Current assets / Current liabilities
Cash	Cash and cash equivalents/ Current liabilities
stockc1	Shareholding ratio of the company's largest shareholder
Leverage	Total Liabilities / Total Assets
age1	Years since listing

Variable symbol	Variable definition
Cashreinvest	(Net cash flow from operating activities) / (Net fixed assets + net investments held to maturity + net long-term debt investments + net long-term equity investments + total current assets - Total current liabilities)
turnover1	Operating income / Total assets

4.2 Model Design

Considering that the database is a panel database, in order to test our hypothesis, we controlled the time and industry effects when designing the model. So, we apply a double fixed model to analyze the relationship between sustainable growth rate and SGR.

$$SGR_t = \beta_0 + \beta_1 ESOP_t + \beta_x Controls_t + YE + FE + \gamma \quad (4)$$

Controls includes various other variables that may affect the sustainable growth rate of the enterprise. We use assets to measure the size of the enterprise; roa and tobinq to measure the short-term profitability of the company and profit to measure long-term profitability. As for the company's solvency, in terms of short-term debt capacity, we choose liquidity and cash as proxy variables, and in terms of long-term debt capacity, we choose leverage as proxy variable. The turnover is used to capture the operating capacity of the enterprise, and cashreinvest is used to capture the reinvestment cash flow of the enterprise. We pick shareholding, stock concentration, and independent to reflect corporate governance capabilities from different perspectives, and pick age and soe to control the impact of different basic conditions of the enterprise.

5 Empirical Results and Analysis

5.1 Descriptive Statistics and Analysis of Main Variables

Table2. Descriptive statistics of main variables

Variable	N	Mean value	Sd	Min	Max
Sgr1	6940	0.067	0.066	-0.309	1.341
Esop	6940	0.079	0.269	0	1
Asset	6940	22.23	1.288	19.20	28.10
Growth	6940	0.552	5.728	-2.726	434.6
Roa	6940	0.054	0.042	-0.245	0.379
Profit	6940	0.115	0.079	-0.353	1.155
Tobinq	6940	3.523	2.659	0.685	31.43
Indep	6940	0.375	0.055	0.231	0.800
Shareholding	6940	16.02	3.400	3.045	21.93
Liquidity	6940	2.740	3.227	0.079	78.41
Cash	6940	0.904	1.583	0.007	29.00
Stockc	6940	33.64	14.21	3.622	85.04
Leverage	6940	0.388	0.194	0.009	0.965
Soe	6940	0.255	0.436	0	1

Age	6940	8.655	7.029	0	28
Cashreinvest	6940	0.081	1.319	-92.31	9.533
Turnover	6940	0.595	0.433	0.001	11.27

Table2 presents the summary of descriptive statistics. Our sample contains 6940 observations. We could see that the fluctuation of the sustainable growth rate between enterprises is small, with a standard error of 0.066, and the extreme value has a large difference, the minimum value is -0.309. It means that some companies might have a negative sustainable growth rate. ESOP is only measured with 0,1. But its average value is low, only 0.079, reflecting that so far less than 400 of the 3928 companies in the Chinese stock market(after excluding financial, insurance and ST companies) have implemented the ESOP. At the same time, Table2 also shows that there are large differences between Growth, shareholding, liquidity, and stockc. Their standard errors are 5.728, 3.400, 3.227, and 14.21, respectively.

5.2 Analysis of Regression Result

Table3. Regression Result

Variable	Sgr1		Sgr2	
	coefficient	T-stat	coefficient	T-stat
Esop1	0.005***	(2.645)	0.005***	(2.742)
Asset	-0.000	(-0.171)	0.000	(0.043)
Growth1	0.000***	2.825	0.000***	3.407
Roa1	0.340***	10.439	0.366***	11.337
Profit1	0.530***	33.287	0.505***	31.944
Tobinq4	0.000	0.355	0.000	0.063
Indep	0.005	0.530	0.004	0.496
Sh1	0.000	1.625	0.000	0.944
Liquidity	0.000	1.095	0.000	1.168
Cash	-0.000	-0.080	-0.000	-6.784
Stockc1	-0.000***	-6.340	-0.000***	-6.784
Leverage	0.054***	10.862	0.056***	11.384
Soe	0.005***	3.001	0.005***	3.199
Age1	0.000***	2.175	0.000	1.110
Cashreinvest	-0.001***	-3.379	-0.001***	-3.351
Turnover1	-0.009***	-7.354	-0.009***	-7.247
Constant	-0.025*	-1.868	-0.023*	-1.773
Year FE	Yes		Yes	
Industry FE	Yes		Yes	
Observations	6940		6940	

Pseudo R2	0.643		0.638	
*** p<0.01, ** p<0.05, * p<0.1				

Table 3 reports the empirical results of our double fixed-effects models of sustainable growth rate and ESOP. In the above, we have measured SGR in two ways. Column 1 and Column 2 show the regression results (correlation coefficient, P value and T value) of SGR calculated with paid-in capital. Correspondingly, columns 3 and 4 show the regression results (correlation coefficients, P-values, and T-values) of the SGR calculated using the latest equity. We can confirm and draw our conclusions that sustainable growth rate is positively associated with ESOP (strongly significant). Because under two measurement methods of sustainable growth rate, the P value of ESOP is less than 0.01 and the T value of ESOP is greater than 2.58. However, due to the small correlation coefficients, the impact of ESOP on sustainable growth may not be particularly obvious.

6 Conclusion

6.1 Research conclusion

This paper takes ESOP as the entry point and explores the relationship between the implementation of ESOP and the sustainable growth rate of enterprises. We select Chinese listed companies from 2014 to 2018 excluding the financial and insurance industry as observation samples, eliminate the missing data, and obtain 6,940 data sets. Through empirical analysis, we find that the implementation of ESOP has a positive correlation to the sustainable growth rate of enterprises as the data results are significant, but the positive correlation is slight and negligible, as the correlation coefficient is small.

6.2 Discussion

Although the empirical results are consistent with the hypothesis, the correlation coefficient is small. It could be for the following reasons.

First, the ESOP selected in this paper is a dummy variable with a value of 0 or 1, and the SGR is a fraction, its average value is only 0.067 and the standard deviation is 0.067, the value itself is small. Due to the influence of units, the improvement of SGR by the implementation of ESOP is relatively small.

Second, there is a lot of missing data, resulting in the deviation of data results.

Third, the significance of data is greatly affected by the sample size, and the larger the sample is, the greater the possibility of significance. Besides, SGR is affected by multiple factors such as profitability, asset operation capability, capital structure and dividend policy, so the implementation of ESOP has little effect on the improvement of SGR.

Next, we can study the effect of the actual number of ESOP exercise on SGR by changing variables. We can also explore whether the implementation of ESOP actually affects the sustainable growth of enterprises or the result

is affected by the data volume, by supplementing the missing values and changing the sample range. This also reminds us that when we use data to analyze the economic management problems of enterprises, we should guard against false significance that have no practical importance.

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