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Research on the Classification Reform and Its Effects of Public Welfare Centrally-Administered State-Owned Enterprises under the Background of Fully Implementing the New Development Concept

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Abstract: The performance of public welfare centrally-administered state-owned enterprises (SOEs) is affected by the implementation of classification reform. This study investigated the A-share listed enterprises of public welfare centrally-administered SOEs from 2012 to 2019 using an empirical research approach. The results indicate that the performance of public welfare centrally-administered SOEs improved after the implementation of classification reform compared to private enterprises. The accurate functional positioning of different types of SOEs and the adoption of different reform directions and measures for different categories of SOEs have to a certain extent rectified the "mission conflict" that arises in the development of SOEs. This study provided positive empirical evidence supporting the effectiveness of classification reform for SOEs. However, the study also suggested that further governance measures are necessary to consolidate and strengthen the reform impact.

1. Introduction

In November 2013, the Third Plenary Session of the 18th Central Committee of China put forward the imperative to deepen the reform of SOEs and to accurately define the functional attributes of different categories of SOEs. Nevertheless, there was yet no clear-cut implementation plan on how to define the functions of these SOEs. It was not until August 2015 that the State Council (PRC) of China, together with the State Council, issued the Guiding Opinions on Deepening the Reform of State-owned Enterprises. This document laid out the objectives and measures of the SOE reform, and became the emblematic guide for promoting and driving the reform of SOEs in the new era. Thus began the specific implementation phase of the classification reform, which was aimed at categorizing SOEs and implementing targeted reforms based on the functional positioning of different types of SOEs. The Guidelines on the Classification of State-owned Enterprises, jointly issued by the Ministry of Finance and other departments, were designed to promote the classification of SOEs and to implement reform measures that were

suitable for different categories of SOEs. Among them, commercial and public welfare centrally-administered SOEs were the main targets of classification reform. These enterprises were to be divided into commercial and public welfare sectors according to their main and core business scope, and to implement classification reform accordingly, which had a significant impact on relevant policies. The unclear functional boundaries of centrally-administered SOEs have been identified as a critical barrier to the deepening of SOE reforms. The introduction of the classification reform concept has become the fundamental prerequisite to improve the performance of centrally-administered SOEs, to continue to drive SOE reforms, and to maintain enterprise vitality[1]. The proposal of the new development concept has important implications for the classification reform as well. The innovative development concept is the fundamental driving force for deepening SOE reforms, while the coordinated development concept is the inherent requirement for deepening SOE reforms. The green development concept is the necessary path for deepening SOE reforms, and the open development concept is the only way to deepen SOE reforms. The shared development concept is also an important goal for deepening SOE reforms.

In November 2019, the third meeting of the SOE Reform Steering Group, presided over by Liu He, focused on the theme of "promoting SOE reform, with the next three years as a critical period". The goal is to comprehensively enhance the competitiveness, innovation, control, influence, and risk resistance of the national economy. The reform of SOEs has been underway for more than 40 years, and due to its extensive scope and complex process, it is facing many heavy burdens and difficulties. The underlying logic of SOE reform is to promote the orderly development of other reforms through the classification reform of centrally-administered SOEs and indirectly improve the performance of centrally-administered SOEs [2]. Public welfare SOEs have officially entered the historical stage of SOE reform with the title of "national certification". These enterprises operate under the control of the state and government-guided prices, while some public welfare industries have begun to operate normally, with appropriate market mechanisms being introduced [3]. For public welfare centrally-administered SOEs, on the one hand, they are assessed based on the performance indicators of private enterprises, while on the other hand, they are required to serve and maintain social interests, which may lead to conflicts. Although financial indicators alone are not sufficient to comprehensively evaluate their performance, financial indicators are still important.

Against the backdrop outlined above, this study seeks to examine whether the implementation of China's SOE classification reform policy in 2015 has had a positive impact on the performance of public welfare SOEs, and to examine the mechanisms through which the classification reform has affected the performance of these enterprises.

2. Theoretical Analysis and Research Hypothesis

The public welfare sector refers to industries comprising enterprises providing critical public products and services – industries that are essential to national development and people's livelihoods, are under the control of the national economy, and fulfill a national and economic security role. "As these enterprises are of a public service nature, they must yield social benefits. However, since enterprises are profit-driven, they must yield profits to sustain themselves, especially as most of these enterprises are listed enterprises and are accountable to their shareholders." As per the view of the Director of the Research Department of the State-owned Assets Supervision and Administration Commission (SASAC), Xu Baoli, public welfare enterprises cannot afford to have their vitality affected due to their social benefit responsibilities, nor can they rely on government subsidies to sustain themselves. He further emphasized that public welfare enterprises should be moderately profitable rather than excessively profitable, and that income

distribution within public welfare enterprises should be transparent and openly disclosed. Public welfare SOEs represent a counterpoint to commercial SOEs, given that public welfare enterprises offer social benefits that supersede economic benefits.

The concept of public welfare SOEs is not unique to China as major global economies have similar enterprise types responsible for the production and provision of public goods. The Organization for Economic Cooperation and Development (OECD) conducted a survey of its member countries to explore SOE corporate governance mechanisms in terms of the scale and scope of SOEs, relationships between state-owned shareholders and other shareholders, and stakeholder roles, among other aspects [4].Peda P used state-owned enterprises in Austria, Belgium, France, Italy, and other countries as examples to study the theoretical basis of state-owned enterprises, the scale and structure of state-owned enterprises, the operational environment of state-owned enterprises, and the management of state-owned enterprises [5]. Chen Meiying conducted research on public enterprise governance in Japan, and found that the business scope of public enterprises does not necessarily have a profit-oriented nature and that emphasizing commercial aspects alone may hinder the realization of public interest objectives. Simultaneously, prioritizing public interest goals alone may lead to inefficiency and high operating costs for these public enterprises, further compromising their capacity for delivering public benefits [6].

The Guiding Opinions on the Definition and Classification of State-owned Enterprises, issued in 2015, was a crucial move by the State Council to promote the reform, transformation, and competitiveness of China's SOEs. With the classification and reform of these enterprises, their business performance has correspondingly changed. Although most enterprises have established a modern enterprise system, SOE reform remains a continuous exploration process, as complex organizational structures make them susceptible to agency problems [7]. Agency relationships constitute a critical aspect of contract relationships in modern enterprises, with the rapid development of productivity rendering owners unable to manage all aspects of operation, leading to the separation of ownership and control. This has resulted in specialized management hierarchies and agency relationships. However, due to the inconsistent interests and asymmetric information between principals and agents, agency problems are commonplace in such arrangements. These problems are particularly pronounced in SOEs, as they are characterized by multi-level agency relationships. The higher the level of the agency relationship, the greater the level of information asymmetry, increasing the likelihood of agents pursuing their individual interests at the expense of shareholder interests, leading to exacerbated agency problems. Furthermore, as the majority of SOE managers are administrative personnel, compared to private enterprises, there are ineffective mechanisms for incentives and constraints for managers, resulting in a relatively low correlation between their income and business performance and a lack of a reasonable accountability mechanism. Thus, when managers make erroneous decisions, the losses they suffer are lower than those in private enterprises, and the punishment they receive is disproportionate to the losses their actions cause to the enterprise. Therefore, some corporate governance problems can affect business performance. To help improve the performance of SOEs, the classification reform supports the achievement of diversified equity structures, advocates for classified management of different types of SOEs, clarifies the principal-agent relationship between different types of SOEs, and formulates effective incentive mechanisms, all of which are conducive to the improvement of SOE performance. Therefore, based on the above analysis, the following hypothesis was proposed:

H1: The performance of public welfare centrally-administered SOEs increases after the classification reform.

3. Research Design

3.1. Selection of Research Samples

The comprehensive implementation of the new development concept was first proposed at the Fifth Plenary Session of the 18th Central Committee in October 2015. The specific policies of the classification reform were mainly issued in the second half of 2015. Therefore, this study took 2015 as the year of impact and selected total of eight years, including four years before and after the policy shock year, from 2012 to 2019 as the research period. The A-share listed enterprises of centrally-administered SOEs in China during this period were selected as the basic sample for the study, with corresponding private listed enterprises as the control group. Data for this study were obtained from the CSMAR database, and Stata 15.0 was used for data processing.

Regarding the industry classification standards for centrally-administered SOEs in the classification reform, this paper primarily refers to the classification table for SOEs provided by Wei Minghai, Cai Guilong, and Liu Jianhua [8], as well as Chen Xia's [9] research. These classification tables were combined with the 2015 Guiding Opinions on the Function Defining and Classification of State-owned Enterprises, as well as the main business of listed enterprises, to classify the enterprises based on the industry codes in the 2012 revised Guidelines for the Industry Classification of Listed Enterprises and the specific industry in which each enterprise operates. As a result, we identified public welfare centrally-administered SOEs as the research subjects for this section. The data on public welfare centrally-administered SOEs were relatively scarce, with a total of 184 observations in our sample.

3.2. Model Specification

The study employed the difference-in-difference model, with the variable "treat" serving as the policy dummy variable for public welfare centrally-administered SOEs. Public welfare centrally-administered SOEs affected by the classification reform policy were assigned a value of 1, while private enterprises unaffected by said policy were assigned a value of 0. The variable "time" serves as the time dummy variable, with 2016 selected as the year for policy implementation. The period before 2016 was considered the pre-reform period, with "time" assigned a value of 0, while the period after 2016 was the post-reform period, with "time" taking a value of 1. The interaction terms, treati, t*timei，t were used to compare the difference in the dependent variable among the experimental and control groups before and after the implementation of the policy, in order to determine the net effect of the policy among the control groups. The estimated coefficient of the interaction term, β1, constitutes the primary difference-in-difference estimand. Additionally, the study included the annual dummy variable "YEAR" and industry dummy variable "INDUSTRY" to control for differences among years and industry factors, respectively. The random disturbance term was denoted as ξi，t.

In order to verify the hypothesis that the performance of public welfare centrally-administered SOEs improves after the classification reform, the following model was constructed:

$$roa_{i,t} = \alpha + \beta_1 treat_{i,t} * time_{i,t} + \beta_2 treat_{i,t} + \beta_3 time_{i,t} + \beta_4 lnasset_{i,t} + \beta_5 Roaa_{i,t} + \beta_6 dual_{i,t} + YEAR + INDUSTRY + \xi_{i,t} \ldots\ldots \quad \ldots\ldots(1)$$

3.3. Definitions of Variables

The main research variables related to the public welfare centrally-administered SOEs were explained as follows:

Business performance (roa): Measured by the return on assets (ROA), which is commonly used by most scholars [10]. This indicator can reflect the overall performance of the enterprise in a timely manner.

Control variables

To ensure the accuracy of the research results, it is necessary to control for other influencing factors. Drawing from relevant literature on corporate performance, this study selected the following control variables:

Enterprise scale (lnasset), financial leverage (lev), Board size (lnboard), board independence (ind), and duality (dual). The specific definition of variables is shown in the Table 1:

Table 1: Definitions of variables.

Types	Names	Abbreviations	Definitions
Explainedvariable	Business performance	roa	Return on total assets =(net profit /(Total assets at the beginning of the year + total assets at the end of the year)/2) ×100%
Explanatory variable	Policy implementation time variable	time	1 after 2016 and 0 before 2016
	Enterprise scale	Inasset	Natural log of total assets
Control variables	Financial leverage	Lev	Asset-liability ratio
	Board size	Inboard	Natural log of the number of directors
	Board independence	Ind	Proportion of independent directors to the number of board members
	Enterprise scale	Inasset	Natural log of total assets
	Equity balance	Cr	The shareholding ratio of the 2nd-5th largest shareholder/the shareholding ratio of the 1st largest shareholder.
	Duality	Dual	The concurrent positions of chairman and general manager, 1 for the same person, while 2 for the different person.

4. Test and Analysis of Empirical Results

4.1. Descriptive Statistical Analysis

Overall, the descriptive statistics for the entire sample are shown in Table 2, where the mean and standard deviation of the return on assets (ROA) are 0.0329 and 0.0891, respectively, with a minimum value of -0.804 and a maximum value of 0.207, indicating a highly heterogeneous distribution of data and significant differences in performance between enterprises. The average values for Enterprise Scale (lnasset) are 22.27, with a standard deviation of 1.294, ranging from a minimum of 19.32 to a maximum of 26.08, revealing significant variation in scale among enterprises. The Leverage Ratio (lev) exhibits a minimum value of 0.0136 and a maximum value of 0.770, signifying pronounced differences in financial leverage between enterprises. The average values for Board Size (inboard) and the Proportion of Independent Directors (ind) are 2.231 and 0.370, respectively, with standard deviations of 0.189 and 0.0616 and ranges from 1.792 to 2.890 and 0.333 to 0.667, respectively, displaying reasonably uniform distributions. The Duality index (dua1) exhibits an average value of 0.109, indicating that the majority of enterprises do not have their chairman and general manager concurrently serving.

Table 2: Descriptive statistical analysis of the entire sample.

Variables	N	Mean	Median	Standard deviation	Minimum value	Maximum value
Roa	184	0.0329	0.0379	0.0891	-0.804	0.207
Inasset	184	22.27	22.38	1.294	19.32	26.08
Lev	184	0.355	0.3907	0.173	0.0136	0.770
Inboard	184	2.231	2.20	0.189	1.792	2.890
Ind	184	0.370	0.33	0.0616	0.333	0.667
Dual	184	0.109	0	0.312	0	1

Moving forward, a comparative analysis was performed on the sub-samples of public welfare centrally-administered SOEs and private listed enterprises. Based on tables 3 and 4, it is noted that the mean Return on Assets (roa) for public welfare centrally-administered SOEs is 0.0370, whereas private listed enterprises have an average roa of 0.0302, suggesting that the business performance of public welfare centrally-administered SOEs is lower than that of private listed enterprises. This could be due to the fact that private listed enterprises operate in a more open and competitive market, which may be more conducive to improving their business performance. Public welfare centrally-administered SOEs are generally found to be larger in scale (lnasset) and to have higher leverage ratios (lev) compared to private enterprises. In regard to Board Size (inboard), public welfare centrally-administered SOEs only slightly larger than private listed enterprises, while the Proportion of Independent Directors (ind) is slightly lower. The Duality index (dual) is decidedly different between public welfare centrally-administered SOEs and private listed enterprises, with the former having clear distinctions, especially public welfare centrally-administered SOEs, given their unique mission as wholly SOEs. Consequently, the chairman and general manager cumulating positions are held by different individuals. Conversely, private listed enterprises tend to have more flexibility, being able to select the chairman and general manager based on their industry and organizational strategies.

Table 3: Descriptive statistical analysis of public welfare centrally-administered SOEs.

Variables	N	Mean	Median	Standard deviation	Minimum value	Maximum value
Roa	72	0.0370	0.0315	0.0439	-0.0812	0.207
Inasset	72	22.51	22.66	1.112	20.33	25.05
Lev	72	0.390	0.4248	0.163	0.0931	0.770
Inboard	72	2.276	2.20	0.150	1.946	2.565
Ind	72	0.369	0.36	0.0553	0.333	0.556
Dual	72	0.0556	0	0.231	0	1

Table 4: Descriptive statistical analysis of private listed enterprises.

Variables	N	Mean	Median	Standard deviation	Minimum value	Maximum value
Roa	112	0.0402	0.0476	0.109	-0.804	0.183
Inasset	112	22.12	22.16	1.383	19.32	26.08
Lev	112	0.333	0.374	0.177	0.0136	0.730
Inboard	112	2.202	2.20	0.205	1.792	2.890
Ind	112	0.370	0.33	0.0655	0.333	0.667
Dual	112	0.143	0	0.351	0	1

4.2. Correlation Analysis

From Table 5, it can be concluded that there are significant correlations between the main explanatory variable, Return on Assets (Roa), and the other control variables. This suggests that the control variables used in this study were appropriately designed and can effectively control for differences affecting the explanatory variable. Furthermore, the absolute value of the correlation coefficients is between 0 and 1 and all are less than 0.6, indicating that there is no significant issue of multicollinearity among the explanatory variables. Among the control variables, Enterprise Scale (lnasset) is positively associated with business performance and is significant at the 1% level, while leverage ratio is negatively correlated with business performance and significant at the 1% level. These results suggest that larger enterprise scale and lower leverage ratio are beneficial for improving business performance. Board Size (lnboard) is also positively correlated with business performance and significant at the 1% level, indicating that a larger board size can be beneficial for improving business performance. In contrast, the Proportion of Independent Directors (Ind) is negatively correlated with Roa and significant at the 1% level with a correlation coefficient of -0.0980, indicating that a higher proportion of independent directors in the board may have a negative impact on business performance.

Table 5: Correlation analysis results.

	Roa	**lnasset**	**Lev**	**Inboard**	**Ind**	**Dual**
Roa	1					
lnasset	0.0102***	1				
Lev	-0.173***	0.335***	1			
Inboard	0.0442***	0.329***	0.127***	1		
Ind	-0.0980***	0.0356**	-0.0527	-0.242***	1	
Dual	-0.139***	0.0912**	0.088***	0.221***	-0.166***	1
**The correlation coefficient shows a significant correlation at the 0.01 level (bilateral). *The correlation coefficient shows a significant correlation at the 0.05 level (bilateral).						

4.3. Regression under DID

According to the regression results Table 6, the interaction terms between the policy dummy variable and time dummy variable are significant at the 1% confidence level, regardless of whether other control variables are included in the regression. This indicates that, compared to private enterprises, public welfare centrally-administered SOEs' business performance has significantly improved after the classification reform. Moreover, the value of the interaction term, c.treat#c.time, is 0.015 > 0, with the hypothesis being validated. This suggests that the business performance of public welfare centrally-administered SOEs has improved significantly after the implementation of the classification reform policy, supporting the positive effect of the classification reform policy on the business performance of public welfare centrally-administered SOEs.

Table 6: Verification results of research hypotheses.

	(1)
VARIABLES	**Roa**
c.treat#c.time	0.015**
	(0.55)
treat	0.000***
	(0.01)
time	-0.030**
	(-1.71)
Inasset	0.005***
	(0.90)
Lev	-0.091**
	(-2.24)
Inboard	-0.006
	(-0.16)
Ind	-0.131**
	(-1.17)
Dual	-0.030
	(-1.35)
Constant	0.024***
	(0.18)
YEAR	YES
INDUSTRY	YES
Observations	184
R-squared	0.072
F test	0.104
r2_a	0.0292
F	1.688

4.4. Robustness Test

4.4.1. Shortening the Time Period

To test the robustness of the business performance variable, the time interval was shortened to 2014-2017 for a further regression analysis, and the results are presented in the Table 7. It can be observed that, even with a shorter time interval, the coefficients of the interaction terms are significant at the 1% level, supporting the conclusion that the business performance of public welfare centrally-administered SOEs has improved after the classification reform. This suggests that the results of this study are robust to changes in the time interval, further validating the conclusion of this research.

4.4.2. Placebo Test

In the previous regression analysis, the policy implementation year was assumed to be 2015, and the time interval was 2012-2019. Now, the time interval has been moved back to 2011-2018, and the policy implementation year is assumed to be 2014. By changing the policy implementation year, we can perform another regression analysis to test the robustness of the results. The regression results for the new time interval and policy implementation year are presented in the Table 7. It can

be observed that, with these changes, the regression does not hold significant results. This suggests that changing the policy implementation year does not affect the conclusions drawn in the previous analysis, further supporting the robustness of the results in this study.

Table 7: Robustness test.

	(1)	(2)
VARIABLES	**Roa**	**Roa**
c.treat#c.time	0.012**	-0.014
	(-0.60)	(-0.92)
treat	-0.001***	0.006
	(-0.07)	(0.48)
time	-0.010*	-0.010
	(-0.84)	(-0.99)
Inasset	0.004***	0.002
	(1.01)	(0.67)
Lev	-0.051*	-0.052**
	(-1.69)	(-2.20)
Inboard	-0.041***	-0.034
	(-1.45)	(-1.50)
Ind	-0.093***	-0.132**
	(-1.06)	(-2.15)
Dual	-0.017***	-0.012
	(-1.04)	(-0.94)
Constant	0.096***	0.138
	(0.98)	(1.72)
YEAR	YES	YES
INDUSTRY	YES	YES
Observations	92	138
R-squared	0.116	0.126
F test	0.227	0.0234
r2_a	0.0306	0.0715
F	1.359	2.318

5. Conclusion and Enlightenment

The focus of this study was on public welfare centrally-administered SOEs, investigating whether the implementation of the SOE classification reform policy has improved their business performance. The empirical results demonstrate that, in comparison to private enterprises, the business performance of public welfare centrally-administered SOEs has improved after the classification reform. This suggests that through the classification reform, accurate functional positioning of different types of SOEs was achieved, and different reform directions and measures were adopted for different types of SOEs, to some extent improving the “mission conflict” issue in the development of SOEs. Given their secondary profitability and state-owned sole proprietorship, there is a lack of competition in the market, and the classification reform separates enterprises of different types and applies different management methods, which is beneficial for enhancing the business performance of public welfare centrally-administered SOEs.

For public welfare centrally-administered SOEs, considering their important roles in achieving policy objectives, the original “asset management” mode in SOEs supervision should be maintained.

It should be noted that the main business scope of SOEs should be clearly defined in accordance with the current process of SOE reform and the needs of business development, and the management level of main operations should be improved to enable SOEs to provide public products and services at a higher level.

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