

Research Hotspot and Trend Analysis of Employee Stock Ownership Plan Based on CiteSpace

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Abstract:

Employee stock ownership plan, as a long-term incentive mechanism of corporate internal governance, plays an important role in the sustainable development of enterprises. Before 2014, it was suspended for many times due to the lack of supervision and system loopholes. In 2014, the issuance of the CSRC guidance set off the upsurge of the employee stock ownership system again, attracting wide attention from the academia and the industry. With the help of CiteSpace literature measurement tool, this paper takes the relevant literature on employee stock ownership in CNKI from 1998 to 2022 as the research object, and makes a visual analysis. This paper analyzes the research hotspot and future development trend of employee stock ownership plan from different angles in order to provide ideas for the in-depth study of employee stock ownership plan.

Keywords:

Employee Ownership, Visual Analysis, CiteSpace

1. Introduction

The research on employee stock ownership plans first started in the United States in the 1950s. In the early days, it was part of employee retirement benefits, but later it developed into an incentive system to strengthen corporate governance. In China, the employee stock ownership plan was first introduced in 1992. At the beginning, it received widespread attention from academia and industry, but due to institutional loopholes, inadequate supervision, and the proliferation of interest transfers, it was repeatedly suspended and had to be hastily brought to an end. It was not until 2014 that the China Securities Regulatory Commission issued the “Guiding Opinions on the Implementation of Employee Stock Ownership Plans for Listed Companies”, which revived the employee stock ownership plan. As a long-term incentive plan for internal governance, employee stock ownership plans can bind the interests of employees and shareholders, build a symbiotic relationship between labor and capital, and thus promote the goal of maximizing shareholder wealth. Therefore, it is

necessary to conduct in-depth research on the institutional design of employee stock ownership plans. This article uses the CiteSpace bibliometric tool to analyze the research hotspots and future development trends of employee stock ownership plans from different perspectives, based on the relevant literature on employee stock ownership in CNKI from 1998 to 2022. The aim is to provide ideas for further research on employee stock ownership plans.

2. Materials and Methods

The research data in this article mainly comes from the Chinese Knowledge Network (CNKI), with a search of core journals in CNKI. The search date is March 17, 2023, with “employee stock ownership” as the search topic, and the time range is set from 1998 to 2022. The source category is CSSCI. Through the search, a total of 413 documents related to “employee stock ownership” are obtained, and these 431 documents are exported in Refworks format as the research sample.

Draw on the research methods of Bian[1], Kong[2] and Chen[3], the CiteSpace bibliometric tool is used to visually analyze the research hotspots and development trends in the field of employee stock ownership through knowledge mapping in this article. At the same time, combined with keyword clustering and emergent word extraction methods, the cutting-edge research hotspots are analyzed. The specific research steps are as follows: firstly, the documents abstracted from CNKI are exported in Refworks format and put into the created input folder. Then, open the CiteSpace software, convert the CNKI format through clicking the input/output function in the data panel for subsequent visualization analysis. Next, set the time range from January 1998 to December 2022, with a time slice of 1, a threshold selection standard of Top50, and a trimming option of path search and trimming slice network selected. The remaining settings are default. Finally, set the node types to authors, institutions, and keywords for visualizing the research sample in the form of knowledge mapping. In addition, further analysis is conducted using emergent word capture and timeline chart functions on relevant research in the field of employee stock ownership.

3. Overall Analysis

3.1. Time distribution

Figure 1 shows the number and trend of articles related to employee stock ownership since 1998. Based on the publication time and quantity of literature, it can be found that the research on employee stock ownership plans has developed steadily over the past 25 years. The research on employee stock ownership can be divided into three stages: preliminary exploration stage (before 2004), gradual improvement stage (2004-2013), and mature stable stage (since 2014).

The first stage is the preliminary exploration stage (before 2004). Around the 1980s, the government proposed the implementation of internal employee stock ownership pilot work to solve the problem of financing constraints that were dragging down the vitality of enterprises. State-owned enterprises, as the main economic entities, responded enthusiastically to the national call, and the employee stock ownership system emerged. With the gradual advancement of the pilot work, the employee stock ownership system was fully promoted, which set off a new round of reform of employee stock ownership in state-owned enterprises. During this period, due to

various reasons such as imperfect institutions and regulatory loopholes, the healthy and orderly development of the employee stock ownership plan was seriously restricted. It was not until around the 1990s that relevant departments issued regulations to curb illegal activities, and with the promotion of various regions' governments, employee stock ownership further normalized and developed. Therefore, before 2004, scholars explored employee stock ownership plans under the influence of national policies, and the number of publications gradually increased.

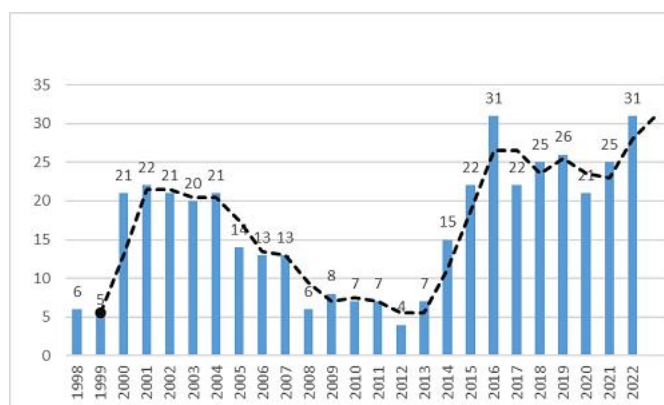


Figure 1. The number and trend of articles on employee stock ownership over the years.

The second stage is the gradual improvement stage (2004-2013). With the promulgation of policies such as the “Measures for the Management of Equity Incentives”, internal employee stock ownership gradually evolved into equity incentives for management, and many companies began to implement equity incentive measures for management and core technical employees. However, there were still many problems in practice due to institutional deficiencies, which made the relevant share reform implemented by enterprises gradually cooling down, and employee stock ownership once again fell into a standstill. Therefore, scholars gradually lost enthusiasm in studying employee stock ownership during this stage, and the number of publications showed a decreasing trend year by year.

The third stage is the mature stable stage (since 2014). After 30 years of repeated practice, the employee stock ownership system was restarted, and by summarizing the lessons learned in the previous suspension, it overcame the various disadvantages that had existed in the past and retained the superiority of employee stock ownership while improving and standardizing the implementation system. More and more scholars conducted research on employee stock ownership plans, and the overall number of published articles showed an upward trend, reaching a historical high in 2016. At the same time, research on employee stock ownership plans has become more in-depth and mature.

3.2. Distribution of authors

The authors of the literature are important subjects in various academic fields. The number of articles published by the authors has a significant influence on the research of the discipline to a certain extent, and also plays a leading role in the field. Visualize the author collaboration network using CiteSpace, with node type set to author and threshold selection criteria set to Top50. Check the Path Finding and Trim Slice Networks in the Trimming tab, and leave the rest at default settings. Statistics show that during the period from 1998 to 2022, there were 13 authors who published more than three articles related to employee stock ownership plans, with a total of 42 papers,

accounting for 10.17% of the total number of publications. The lines between the graphical nodes indicate the cooperation between the authors, while the thickness of the lines indicates the degree of cooperation. The image generated by CiteSpace can be obtained by the network density of the author of the article is 0.0022, with 556 nodes and 334 connections. This shows that there are many authors in the field of employee stock ownership in China, but they are widely dispersed and their cooperation is not close enough, which cannot promote the follow-up research on employee stock ownership plans in the long run.

4. Research Hotspots and Trend Analysis

4.1. Keyword collinearity analysis

A research hotspot in a field refers to the content of papers that have a high level of scholarly attention and a large number of publications. Keywords, as the research topic of a literature, can reflect the research hotspot of relevant fields to a certain extent. Through visual analysis of keywords using CiteSpace, set the node type to keywords, select the threshold criteria as Top50, check the Path Finding and Trim Slice Networks in the Trimming tab, and leave the rest at default settings. The results show that the network density of keywords is 0.0049, with 663 nodes and 1074 connections, indicating that the relationships between keywords are relatively close and highly correlated, which also means that the focus of research in the field of employee stock ownership is highly concentrated. Further research found that employee stock ownership (frequency: 78) is at the center of the keyword co-word map, and extends to both sides. State-owned enterprises (frequency: 35), equity incentives (frequency: 31), and human capital (frequency: 20) follow closely behind. This indicates that the employee stock ownership system has an important impact on the mixed ownership reform of state-owned enterprises, and that employee stock ownership plan, as a human capital incentive system [4], structures a harmonious relationship between employees and shareholders, thereby promoting enterprise value.

4.2. Keyword clustering analysis

The purpose of keyword clustering is to reflect the structure of keywords through clustering. Generally speaking, the smaller the cluster number, the higher the attention, and the more keywords it contains, the more important the research topic is in the field. Due to the large number of clusters, the number of clusters was changed to 8 for analysis. The results showed that the clustering module value in the keyword clustering map was 0.8317, which was much larger than 0.3, indicating that the clustering structure was highly significant. The average cluster contour value is 0.9548, which is close to 1, indicating that the results have strong credibility. For further research, Table 1 lists the top three keywords in terms of keyword quantity, uniqueness coefficient, and frequency of occurrence in each cluster. It is not difficult to observe that the research contents of most clusters are related and there is a certain degree of overlap. The research topics in the field of employee stock ownership can be summarized into the implementation subject, implementation motivation, and institutional design of employee stock ownership through the clustering keywords listed in Table 1.

Table 1. *Keyword Clustering Statistics of Employee Stock Ownership.*

Cluster ID	Cluster words	Singularity Coefficient	Keywords in the cluster (top three)
0	82	0.98	employee stock ownership; production relations; Allocation relationship
1	54	0.849	state-owned enterprises; backbone shareholding; Exit mechanism
2	47	0.93	human capital; employee stock ownership plan; Early stage of entrepreneurship
3	42	0.943	equity incentive; entrepreneurial incubation; Small and micro enterprises
4	33	0.99	employee stock ownership plan; listed companies; Closing risk
5	32	0.974	private equity fund; non-public offering; reform of the new share issuance system
6	26	0.971	enterprise innovation; employee stock ownership plan; Source of funds
7	18	0.976	the competent department at a higher level; operating guarantee; large and medium-sized state-owned enterprises

4.3. Research Trend Analysis

Keyword emergence analysis can help researchers explore the research process of the employee stock ownership field in a certain period of time, and discover the rise and decline of a certain theme word or keyword. Using CiteSpace software to create a keyword emergence list, with γ set to 0.2, 25 keywords were obtained. The results showed that the impact relationship between employee stock ownership plans and market value management, financial performance, enterprise innovation, internal control, etc. has become a hot topic in recent years.

Through time series, the research in the field of employee stock ownership can be divided into three stages. The first stage is the preliminary exploration stage (before 2003), where keywords such as employee stock ownership, incentive mechanism, leveraged buyout, and stock options appear frequently. This is mainly because before 2003, the employee stock ownership plan was still in its preliminary exploration stage, and the specific institutional design had not yet been perfected. Moreover, due to institutional loopholes, the employee stock ownership plan was repeatedly stopped by relevant departments, and there was a loss of control in practice. Therefore, this stage of research mainly discussed the implementation motivation of employee stock ownership and the standardization of specific institutional design. The second stage is the gradual improvement stage (2004-2013), where keywords such as property incentive and labor relations appear frequently. With the promulgation and implementation of a series of equity incentive policies, employee stock ownership plans regained hope. However, labor relations in this stage were mainly established between enterprise shareholders and senior management, with high thresholds. The third stage is the mature and stable stage (since 2014), where keywords such as state-owned enterprise reform, state-owned enterprises, financial performance, internal control, etc. appear frequently. In 2014, the CSRC introduced relevant guidance to restart employee stock ownership plans, providing a policy basis for the reform of mixed ownership in state-owned enterprises. In recent years, implementing innovation-driven development strategies has become a hot topic in both academic

and practical circles. In the future, employee stock ownership plans will be combined with enterprise innovation [5] and internal governance [6] for further research.

5. Conclusions

This article uses CiteSpace software to conduct a visual analysis of research results on employee stock ownership plans, and draws the following conclusions: (1) From the perspective of publication volume and time distribution, the overall publication volume of relevant literature is relatively small, and research on employee stock ownership systems needs to be enriched. In addition, taking the time distribution and trend of the number of publications as the starting point, the employee stock ownership system in China can be divided into three stages: preliminary exploration, gradual improvement, and mature stability. (2) From the perspective of the authors of the papers, the research strength of employee stock ownership in China is still in a relatively loose state, with weak academic connections. It can be seen that China has not yet established an academic collaboration network for research on employee stock ownership. (3) From the perspective of keyword analysis, research on employee stock ownership plans mainly focuses on topics such as employee stock ownership, equity incentives, state-owned enterprises, and human capital. The research mainly focuses on the implementation motivations, implementation methods, and practical experiences of employee stock ownership plans. (4) From the perspective of development path evolution, with the continuous guidance of national policies and the continuous introduction of relevant policies, employee stock ownership plans have been retained due to their own advantages, and academic research on employee stock ownership plans has also become increasingly diversified with the improvement of the system. Due to the late start of employee stock ownership plans in China, there is still a long way to go in the development and improvement of the employee stock ownership system.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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