

Visual Analysis of the Current Research Status of Financial Decision-Making Based on CiteSpace

Yuting Zong

Guangxi Normal University, Guilin 541006, China.

Abstract: The article takes the literature of financial decision topics from 2000 to 2023 included in CNKI core journals and CSSCI database as the research object. With the help of CiteSpace software, combined with bibliometric and visualization methods, the main research evolution path, core field and frontier hotspots in this field are revealed. The research found that the research in the field of financial decision-making showed a rapid growth trend at the beginning, but was relatively low and slow in the later stage. The research focus mainly focused on financial decision-making, financial management, financial governance, audit decision-making and decision support. On this basis, the existing research is reviewed and discussed, which provides some reference for the financial decision-making research in China in the future.

Keywords: Financial Decision; Citespace; Knowledge Graph

Foreword

Financial decision-making is an indispensable part of the process of enterprise operation, which is directly related to the profitability, growth potential and risk tolerance of the enterprise. Whether in new enterprises or in mature large enterprises, financial decisions are the key to making a wise choice of their future development direction and strategic goals. Financial decision-making is not limited to daily accounting activities, but a comprehensive decision-making process, covering many aspects, including resource allocation, capital structure, investment strategy, risk management, financial planning and so on. It needs to comprehensively consider the financial goals, market prospects, competitive environment and internal and external risks to achieve the long-term sustainable development of the enterprise. Therefore, the correctness of financial decisions directly affects the profitability, financial stability of the enterprise and the interests of shareholders and stakeholders.

With the advancement of economic globalization and digital transformation, financial decisions are faced with new challenges and opportunities. The rapid development of new technologies, such as artificial intelligence, big data analytics, and blockchain, has revolutionized the ways and methods of making financial decisions. At the same time, global economic uncertainty, market volatility and an increasingly complex regulatory environment also pose more challenges to financial decision-making.

This paper aims to explore the research status and hot issues of financial decisions, so as to provide a comprehensive and systematic understanding of the readers interested in financial decisions. This paper discusses the hot issues of the current financial decision research, and looks forward to the possible future development directions. Through in-depth study of the latest development and hot issues of financial decision, to better understand the complexity and challenge of financial decision, and to provide more scientific and effective decision support for enterprises, so as to improve the competitiveness and long-term development ability of enterprises. To sum up, as an indispensable and important link in enterprise management, financial decision-making has a decisive impact on the development and success of enterprises. Through in-depth research on the research status and hot issues of financial decision-making, it is expected to improve the accuracy and efficiency of financial decision-making, and create more favorable conditions for the long-term development of enterprises.

1. Research tools and data sources

1.1 Research methods

The main research tool of this paper is the CiteSpace software developed by Dr. James Chan from Drethel University, USA. CiteSpace is an information visualization software developed in the Java language, which can measure a collection of literature in specific fields to

explore the key path to the evolution of subject fields. CiteSpace is using bibliometric, literature system and bibliometric characteristics as the research object, not only can quantitative measurement profile distribution and a relationship between research and cluster, but also can describe and predict the development of specific research field. This paper adopts the scientific knowledge mapping method and literature analysis method, uses the chart drawn by CiteSpace6.2.R2 software as the way to analyze the research hotspot, cycle, content and frontier of digital transformation, classifies and summarizes the research status of domestic financial decision-making literature, and puts forward suggestions for improvement.

1.2 Data source

In order to ensure the quality and quantity of research data, in domestic research, this paper to “title =” financial decision “in Chinese academic journal network publishing database (CNKI) search, check the source category” core “and” CSSCI “, has nothing to do with this research literature and conferences, newspapers, books, results and other types of literature. The time is set from 2000 to the present, so the time span of this study is limited to 2000-2023. A total of 493 articles were obtained from academic journals and exported in RefWorks format, which constituted the literature sample of this study, named and processed by the CiteSpace recognizable file name.

2. Data Analysis

2.1 Number of posts

The amount of publications is an important reflection of the degree of attention paid to the field, which can be used to measure the dynamic development trend, the degree of attention and predict the future development of the field. A total of 493 articles were retrieved. The trend of the core research on financial decisions from 2000 to 2023 can be deduced according to the annual document volume curve drawing, as shown in Figure 1. From 2000 to 2023, the annual number of Chinese documents in the field of financial decision has fluctuated. Since 2000, the research stage of financial decision can be roughly divided into two parts: development stage (2000-2013) and low and slow stage (2013-2023). In the development stage, the number of articles published every year is 20-60, and the publication base has achieved a large increase, especially the number of articles increased in 2007, indicating that financial decisions began to attract the attention of scholars in the core circle, and show a trend of ups and downs. The number of papers published each year in the slow phase is 10-20, with a small base of publications, indicating that the core research circle is less concerned about financial decision making. This may be due to the rapid development of big data and information technology in recent years, as financial decisions have shifted to more data-driven approaches.

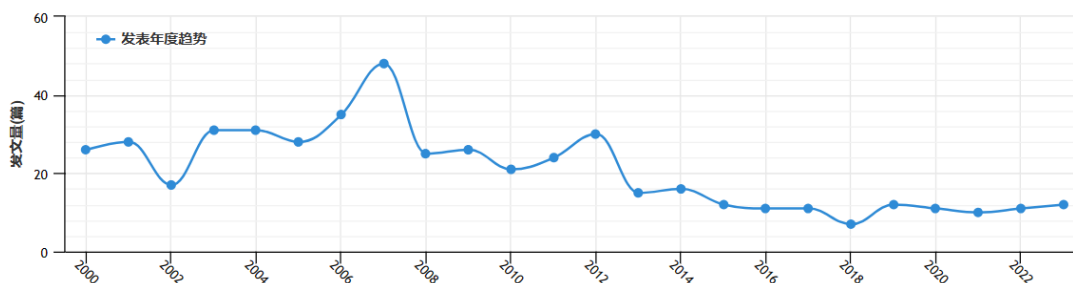


Figure 1 Number of documents related to financial decisions from 2000 to 2023

2.2 Researcher

Literature authors are the main body of scientific research and can reflect outstanding contributors to a field. The CiteSpace software was used to visually analyze the cooperation between the authors. In Figure 2, the data showed that 500 nodes and 212 lines were formed between the authors from 2000-2023, and the density Density was 0.0017. It can also be intuitively seen from the figure that some authors

have many connections and close connections, such as Wang Huacheng, Peng Wenwei, Zhang Shunbao, etc., while some authors have fewer connections. The distance between the network nodes is relatively distant, indicating that the academic cooperation in the field of financial decision-making is relatively scattered, and the researchers and institutions have not formed relatively close ties for the time being. At present, only a few researchers have formed a relatively weak cooperative relationship, and mainly in a small range of 3 to 5 people. Most scholars are single published. On the whole, the current research on financial decision-making in China is relatively scattered, without close research academic groups; specifically, Wang Huacheng, Bai Hua, Cheng Ping, Zhao Lei, Li Xinhe, Wu Zhongxin and Wang Minghu are the core groups in this field.

With the help of the analysis data of the relevant authors shown in CiteSpace, Wang Huacheng has published many articles, but also only 4 articles. The seven outside of the author of the author published literature number mostly in 1-2, combined with figure 2 domestic research on financial decision subject presents the development pattern of a single core, field core author output less, a few core members occupy the important position, post number of little difference, has not yet formed a perfect research system.



Figure 2 Atlas of financial decision research literature

2.3 Research institutions

Similarly, running CiteSpace yields the mechanism visualization Figure 3. Figure 3 shows that domestic institutions are widely distributed, and there is little cooperation and exchange between various institutions. Only several institutions have cooperated with School of Management of Nanjing University, School of Accounting of Zhongnan University of Economics and Law and School of Management of Huazhong University of Science and Technology, so cooperation still needs to be strengthened.

In order to better showcase important relevant research institutions, this article uses Citespace to analyze the top 7 research institutions in the CNKI database in terms of publication volume in this research field, and the Business School of Renmin University of China ranks first in terms of publication volume of 8 articles.

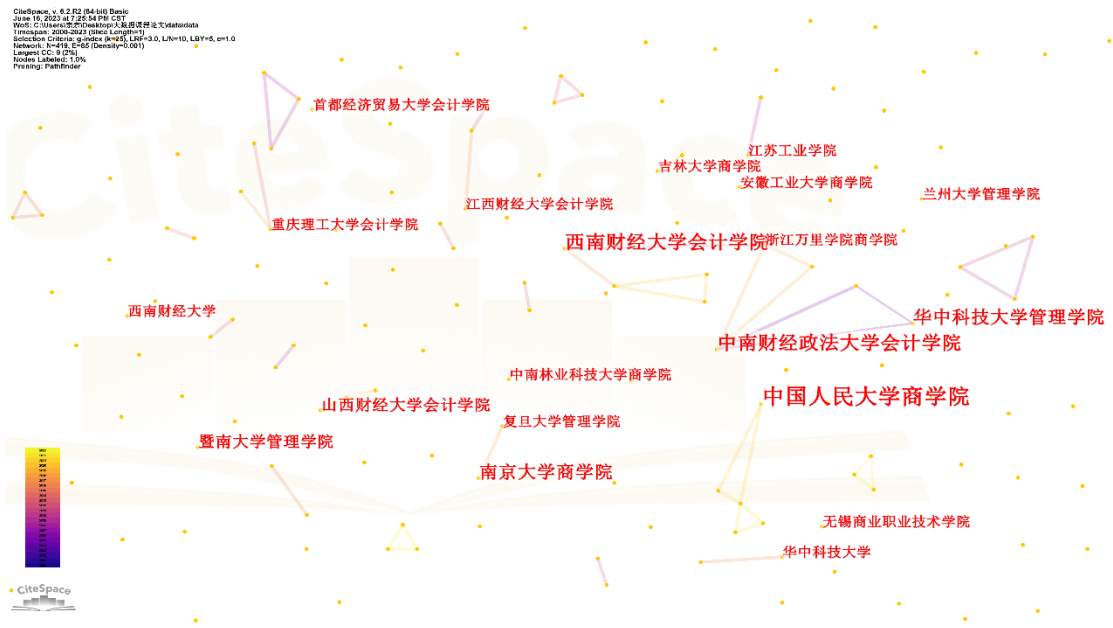


Figure 3 Atlas of financial decision research literature institutional cooperative network

2.4 Keywords

The key words are the concentration and summary of the content of the article, whose frequency, relevance and emergence are helpful to find the academic focus, internal connection and key degree of a certain aspect. The nodal type of the operation interface of CiteSpace is selected as keywords for visual analysis of the scientific map, and the keyword co-occurrence map as shown in Figure 4 below can be obtained. In Figure 4, keywords with large names, such as financial decision, financial management, financial governance, audit decision, decision support, accounting decision, financial risk and corporate value, which indicates that these keywords appear frequently in 493 articles.

The keywords in the map are summarized according to the relevant algorithm, and the keyword clustering map in Figure 4 is obtained. The data in the upper left corner of Figure 4 show Q value =0.8445 and S value =0.9662, so the cluster structure of this cluster map is significant and the results are convincing.

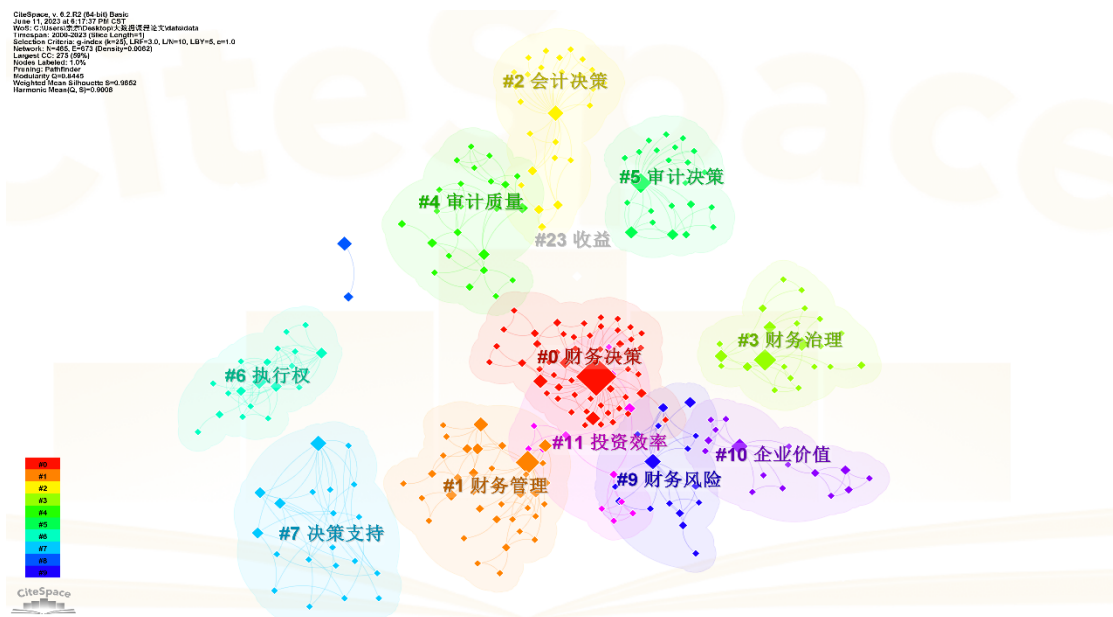


Figure 4 Keyword cluster analysis of financial decision research literature

The keyword co-occurrence analysis can reveal the correlation between high frequency keywords and high frequency keywords in a certain field during the statistical period, and reveal the current research hotspot. In Figure 4, each cluster decreases in the amount of literature from small to large. Centrality is the index to evaluate the importance of nodes in the network. In this paper, the top 4 keywords with relatively high heart in CiteSpace are intercepted and merged into Table 1. The use of these keywords helps to locate the core research circle on the research field of domestic financial decisions. Keywords with high intermediary centrality, including financial decision (0.51), agency cost (0.1), university finance (0.1), enterprise management (0.1).

Table 1 Central frequency table of financial decision research literature

| Order number | Occurrence number | Centrality | Start to appear in the year | Keyword |
|--------------|-------------------|------------|-----------------------------|-------------------------|
| 1 | 66 | 0.51 | 2000 | Financial Decision |
| 2 | 5 | 0.1 | 2001 | Agency Cost |
| 3 | 4 | 0.1 | 2011 | University Finance |
| 4 | 3 | 0.1 | 2002 | Business Administration |

Timeline View can deduce the evolution of the research field and predict future trends. To further analyze the first appearance time, active duration and sudden occurrence situation of keywords, the keyword time zone distribution Figure 5 was obtained. The cluster structure is considered significant with the module value Modularity $Q=0.8445$ and Q value > 0.3 , indicating the good cluster distribution of keywords. And the network homogeneity mean Mean Silhouette $=0.9662$, the S value > 0.7 indicates that the clustering result is very significant, indicating high homogeneity, allowing further analysis of the data.

In a mixed network of 486 nodes, 11 major clusters can be selected, which can be summarized into 11 hot topics, including: financial decision making, financial management, accounting decision making, financial governance, audit quality, audit decision making, execution power, decision support, financial risk, enterprise value and investment efficiency. As can be seen from the figure since 2000, high frequency keywords in the field are mainly concentrated in # 0 to # 11 clustering.

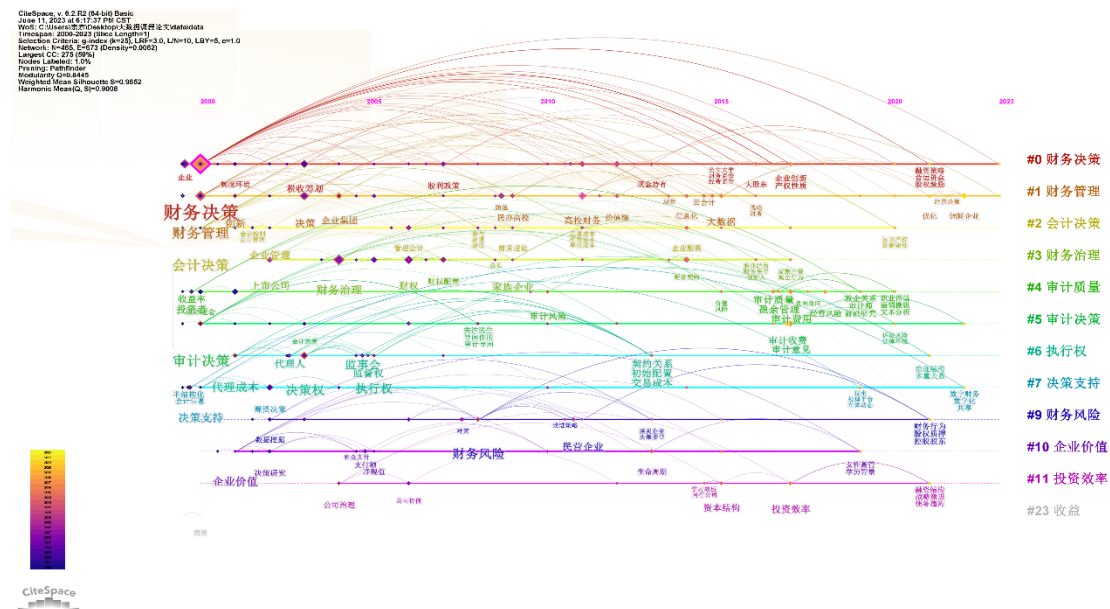


Figure 5 Visualization of keyword evolution trend of financial decision research literature

3. Research prospect

Through literature search and data import, the research literature on financial decisions was visually analyzed using CiteSpace soft-

ware, which revealed the main research evolutionary paths, core fields and frontier hotspots in this field. This paper provides a comprehensive understanding of financial decision research through the analysis of the research status, which helps to guide the selection of future research directions and the determination of key research areas. With the help of this analysis software, the following conclusions are drawn: there is a lack of teamwork between researchers and research institutions, the research is relatively scattered, no research cooperation group is formed, the communication and cooperation between scholars and institutions are very little, and the cooperation between researchers needs to be strengthened urgently. In the analysis of research fields and hot spots, it is found that the research on financial decisions shows a downward trend, but with the continuous advancement of scientific and technological innovation, financial decisions also benefit from new technology applications. For example, the emergence of blockchain technology has created new possibilities for financial decisions that can improve the transparency and security of transactions. At the same time, technologies such as artificial intelligence, cloud computing and the Internet of Things also provide more efficient and accurate tools and platforms for financial decisions. Companies need to adapt to these trends and constantly improve the efficiency and quality of financial decisions in order to achieve long-term sustainable development and competitive advantage.

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About the author:

Zong Yuting (1999-) female, Han Nationality, Tangshan, Hebei province, postgraduate student, research direction: Accounting.