Research on Enterprise Financial Management Supervision Mode Based on Data Mining

Bochuan Liu*
Jiangxi University of Applied Science, Nanchang, China

*Corresponding author: 365316631@qq.com

Abstract. In the current era of rapid development of digital global economy, facing fierce market competition, managers' decision-making behavior will directly affect the development of enterprises and determine the development direction. Under the background of big data era, it becomes more convenient and efficient for people to obtain data. However, people still face the confusion of complicated data and limited valuable information. People are eager to find a tool in order to realize effective processing of huge and complicated data in the shortest possible time. Through the application of data mining technology, it not only brings great convenience to the financial analysis of enterprises, but also can quickly obtain the required knowledge and information from a large number of data, providing important basis for enterprise decision makers. Data mining technology has many advantages, such as rapidity and accuracy, which opens a new development direction for enterprise financial analysis. This paper mainly discusses the application of mining technology in enterprise financial analysis in detail, which plays an important role in ensuring the competitiveness of enterprises in the market.

Keywords: Data mining, Financial analysis, Competitiveness

1. Introduction
With the rapid development of China's economy, people demand more and more data and information. However, in practical work, once faced with a large number of enterprise financial data analysis work, the work efficiency will be greatly reduced, making the existing enterprise financial analysis unable to meet the development needs of modern economy [1]. With the continuous development and change of information technology, it provides a new tool for the financial management of software enterprises. In the current era of rapid development of digital global economy, facing fierce market competition, managers' decision-making behavior will directly affect the development of enterprises and determine the development direction [2]. With the continuous development and change of social economy, the data collected and stored by enterprises gradually increase, and the shortcomings of traditional financial management methods are increasingly prominent, especially its lag and one-sidedness have been difficult to meet the development needs of modern enterprises, so it is particularly urgent and necessary to apply data mining technology to enterprise financial management [3]. The application of data mining technology enables users to fully dig out the required amount of information in a large number of information databases, and finally realize the rapid integration and efficient use of
information [4]. So as to meet their own needs for information integration, including information query, information processing and decision support. Data mining technology has many advantages, such as rapidity, accuracy, etc. It is widely used in enterprise financial analysis, which opens a new development direction for enterprise financial analysis [5].

The application of data mining technology in the financial management of software enterprises can effectively optimize the financial management of enterprises. The important performance is the application of data mining technology, which can fully analyze the financial operation status of enterprises and provide a variety of decision-making development basis for the financial management of enterprises [6]. At present, the common data mining technologies include statistical analysis, cluster analysis and association rules, which can realize various types of processing and analysis of large amounts of data [7]. Data mining is to mine hidden, unknown knowledge and rules that may be of interest to users and have potential value for decision-making from a large amount of data [8]. These rules contain specific relationships among a group of objects in the database, and reveal some useful information, which can provide basis for business decision-making, market planning and financial forecasting. Enterprise financial management faces many difficulties [9]. How to realize the innovation and application of data mining technology in enterprise financial management and improve the market competitiveness of enterprises is a subject to be further studied. Through the application of data mining technology, it not only brings great convenience to the financial analysis of enterprises, but also can quickly obtain the required knowledge and information from a large number of data, providing an important basis for enterprise decision makers [10]. Therefore, this paper mainly discusses the application of mining technology in enterprise financial analysis in detail, which plays an important role in ensuring the competitiveness of enterprises in the market.

2. Characteristics of Data Mining Technology in Enterprise Financial Management

With the development and transformation of the market competition pattern, the financial data generated in the business development is increasing day by day, and the enterprise decision-makers put forward more and more stringent requirements for financial decision-making information. The traditional financial management methods have been difficult to meet the financial management needs of enterprises today. Information is the basis of enterprise production and service. Like capital, raw materials and human resources, it has become an indispensible resource for enterprise production. Analyzing the collected information by using data mining technology is helpful for enterprises to establish unique competitive advantages in key areas, which is the key for enterprises to obtain core competitive advantages. Data mining technology realizes artificial intelligence and completes the evolution from data statistics to artificial intelligence and then to machine learning. For this reason, data mining technology plays an important role in enterprise financial analysis. Using data mining technology in software enterprises can effectively solve the cost and quality problems in the process of company management, strengthen the full analysis of enterprise financial accounting information, and realize the full adjustment of relevant financial information [11]. There is a big development difference between this data mining method and traditional accounting information processing, which can realize the timely update of data information, strengthen the timely update of database, prompt enterprises to know the latest financial status in time, and integrate all kinds of information effectively.

In the process of building the model, we need to use artificial neural network, regression analysis, decision tree and other methods to complete. The purpose of doing this is to find a reliable prediction model for the prediction results from the data. For a long time, enterprise financial management methods are inseparable from accounting data, and accounting is based on historical events, so traditional financial management only evaluates history or evaluates the future according to history.

Using data mining technology to process, analyze and infer a large amount of data in enterprise data warehouse, we can find the patterns, associations, rules and trends hidden in the data. Using these patterns, associations, rules and trends can help enterprises create unique new products and services. Before implementing data mining, it is necessary to select relevant databases according to the goal of data mining, and realize the sampling process by creating one or more data tables. However, in the
sampling process, the sampled samples not only require the data information to have practical significance, but also meet the processing requirements. When an enterprise crisis occurs, managers can use advanced data mining technology to control it, and at the same time publish relevant crisis management information to customers, communities and the press, and publish detailed risk prevention and crisis management plans of the enterprise in various media, especially on the company's website, so that all employees can obtain crisis management information and the latest progress of the crisis in time. Before data mining, Internet of Things and other technologies are included in enterprise financial management, the traditional financial management methods of enterprises have been unable to meet the needs of collecting, analyzing and storing business data, and the shortcomings of the traditional financial management mode have become increasingly prominent. As a result, the application of data mining technology in enterprise financial management becomes more and more urgent and particularly necessary.

3. Application of Data Mining in Enterprise Financial Management

3.1 Analysis of Profitability of Data Mining Technology in Enterprise Finance

Financial management is an indispensable part of enterprise development. However, with the continuous development of science and technology, compared with traditional financial management methods, data mining technology has been more and more widely promoted in enterprise financial management, providing valuable information for enterprise decision-makers and greatly expanding enterprise value. Profitability is not only the ability of a company to obtain profits, but also the comprehensive embodiment of the company's organization of production activities, sales activities and financial management level. At the same time, it is the fundamental guarantee for the company to remain invincible in the market competition. Decision-making refers to the process in which managers choose better economic behavior from multiple schemes based on their knowledge, experience and information, follow decision-making principles and adopt scientific methods to determine the future action goals of enterprises. In this process, information is the driving force for decision-making. Without information, no decision can be made. Under the current background of the times, enterprise financial management should follow the pace of the times closely, constantly develop and innovate, strengthen the study and introduction of successful financial management experience at home and abroad, and effectively promote the innovative application of data mining technology in enterprise financial management. The core content of enterprise financial management is the management of internal funds, including fund raising, investment and asset management. Its goal is to increase and maximize shareholders' wealth.

In the process of analyzing the investment management of enterprises, the scientific feasibility of investment projects should be analyzed, so it is necessary to introduce various statistical tools and models. In the meantime, data mining technology can provide real-time and dynamic data information such as investment environment, industry-related operating conditions, etc. Using this part of data information to build a data model can effectively dig out information that is helpful for enterprises to make investment decisions and provide a strong guarantee for the correctness and effectiveness of investment decisions. The technical process of data mining in enterprise financial analysis is shown in Figure 1.

The application of data mining technology in financial management of software enterprises includes building financial management system architecture, financial management system processing, establishing financial management system model, using data mining technology to effectively analyze the profitability and investment management ability of enterprises. It is also very important to choose the enterprise decision system. Through the analysis of data and the connection between data, relevant conclusions are obtained, which provides a basis for decision makers to make policies. The key point is that through this decision-making system, we can find hidden data relations and draw some forward-looking conclusions [12]. In order to raise the appropriate amount of funds effectively, enterprises must master the external environment and the characteristics of their own use of funds, and compare
the risks and costs of different financing methods. During this period, enterprises introduce data mining technology, rely on regression analysis model to evaluate the amount of funds raised by enterprises, and also rely on correlation model to analyze a series of financing methods and channels, and dig out the most ideal financing methods and channels.

![Data mining technology process in enterprise financial analysis](image)

**Figure 1** Data mining technology process in enterprise financial analysis

3.2 **Analysis of Data Mining Technology Investment Management in Enterprise Finance**

In enterprise financial management, it is necessary to apply mining technology scientifically to determine the financial analysis objects. The main reason is that the ultimate goal of enterprise financial management is to build a reliable analysis model and further determine the financial analysis objects. In the analysis of investment management, a large number of statistical tools and models must be used to analyze the feasibility of an investment project. However, data mining technology can provide a large amount of data such as investment environment and basic situation of industry in a timely and dynamic manner. The model established by these data can dig out useful information for enterprise investment decision. In the financial management of enterprises, the most important thing in applying data mining technology is to carry out good data collection. Generally speaking, data can be collected in accounting information system and enterprise business system. In order to raise the appropriate amount of funds, enterprises must understand the external environment and internal characteristics of the use of funds, and compare the risks and costs of various financing methods.

Enterprises use data mining technology and regression analysis model to predict the amount of funds that enterprises need to raise. They can also use correlation model to analyze various channels and methods, and find the most suitable channels, methods and deadlines for enterprises to raise funds. For enterprises, a recognized source of price advantage is enterprise scale. When there is significant economies of scale, the relationship between enterprise scale and cost is shown in Figure 2.

Generally speaking, most data mining structures have certain practical value, but some data mining structures do not have practical value. Therefore, systematic analysis of data mining structure is required. In the process of analysis, we should check whether the model is reasonable according to the actual situation and the actual data. If there are anomalies, we should effectively improve the mining model and carry out re-mining. Enterprises can use data mining technology to divide customers and deepen their understanding of the basic customers of each product, so as to adjust the release strategy of sales information [13]. As far as enterprise marketing management is concerned, based on the product life cycle value, high-value customers are identified and divided from the company's customer base, and they are usually users who frequently consume their products. Data mining tools often evaluate the patterns obtained by mining according to certain value standards, and use visualization technology to express knowledge. For enterprise decision-makers, they can analyze the data mining
results comprehensively according to the actual situation of enterprises, and then integrate the knowledge gained from analysis into financial management, so as to actively promote the healthy and stable development of enterprises. Because of the strong timeliness of marketing promotion, feedback information can help enterprises to better determine the acceptance of various products by different users in time, so as to accurately measure the role of data mining model in improving the effectiveness of promotion activities.

![Figure 2 The relationship between enterprise scale and cost](image)

4. Conclusions

With the acceleration of the marketization, informationization and integration of the global economy, it has become an important problem for enterprises to survive and develop continuously in the highly competitive market environment. The occurrence of enterprise financial risks is not a one-step process, but an accumulated and gradual process. Powerful data analysis function can provide a scientific data analysis model for enterprise decision-making, which is beneficial for enterprises to improve their ability of forecasting analysis and risk early warning. The most important role of data mining technology in financial management is to prevent and control financial risks. Managers can use data mining technology to establish an early warning model of enterprise financial risks. The application time of data mining technology is not very long, but it plays an important role in enterprise financial analysis, which not only provides more accurate data for enterprise financial analysis, but also greatly improves the efficiency of people's financial work. The application of data mining technology in enterprise financial analysis can reduce the cost of enterprise financial analysis, dig and summarize the accounting financial data of enterprises in depth, and promote good financial management and decision-making of enterprises. Enterprise financial management personnel must innovate their ideas, improve their effective understanding of the connotation and characteristics of data mining technology, strengthen the in-depth analysis of the main difficulties faced by enterprise traditional financial management, and effectively promote the innovative significance of data mining technology in enterprise financial management.

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