Research on Intelligent Decision-Making Method of Enterprise Financial Crisis Early Warning

Ziyan Yuan*, Yan Hou
Yunnan Technology and Business University, Kunming, 651700
Corresponding Author Email: 237549328@qq.com

Abstract: Many situations in the crisis of enterprise development are caused by financial crisis. This situation not only makes the enterprise suffer great economic losses, but also affects the normal production and operation of the enterprise. Therefore, in the face of this situation, how can we timely and accurately warn the financial crisis of the enterprise? This is the problem we need to solve. This paper puts forward the enterprise finance. Intelligent decision-making method of crisis early warning is expected to provide theoretical support for dealing with financial crisis of enterprises.

1. Summary of Financial Crisis Early Warning System

1.1 Definition of Financial Crisis Early Warning System
Financial crisis early warning system is a financial emergency system established to solve the company's financial crisis. It mainly plays a role in the financial operation of the company: early warning - Alarm - warning of the organic management process system.

1.2 The Significance of Establishing Financial Crisis Early Warning System in Enterprises

1.2.1 Financial monitoring
For the normal production and operation process of enterprises, according to the content and standards...
of relevant plans formulated by enterprises, real-time analysis and comparison with the current production situation of enterprises are carried out. If problems arise, early warning should be carried out in time to remind financial personnel and relevant personnel to pay attention to them\cite{1}.

1.2.2 Financial diagnosis

According to the detection data of the financial early warning system, and then using the relevant content of enterprise management, the financial problems in the enterprise operation are diagnosed, and then the reasons are analyzed, and then the specific situation conclusions are drawn. To enable operators to clearly understand the financial situation, can make the development of enterprises more stable\cite{2}. (Fig. 3)
1.2.3 Financial Solutions

Faced with the financial problems of enterprises raised by the early warning system, according to the analysis of big data and relevant financial professionals, specific solutions are obtained according to the actual situation of enterprises. According to the solutions, the managers of enterprises can effectively control the financial crisis faced by enterprises.

2. Intelligent Decision-making Method for Enterprise Financial Crisis Early Warning

2.1 Multi-level Financial Crisis Early Warning System Framework
In order to realize the all-round early warning and management of enterprise financial crisis, the system designed in this paper mainly includes three aspects: real-time monitoring mode of single financial content, financial crisis early warning under the background of machine learning and expert experience. See Figure 4. These three systems are fully integrated and play their respective characteristics[3].

Figure 4 - Multi-level Financial Crisis Early Warning System Framework

Real-time monitoring of financial indicators, tracking the situation of enterprises in their daily operations, and monitoring of various financial data in the middle of enterprise operations. If there is a deviation between a certain financial indicators and the expected set financial indicators, the system will send it to the managers, and then the managers will deal with it according to the situation.

In the context of machine learning, financial crisis early warning, pre-set the relevant pattern recognition, and then deal with the related data of the performance characteristics of the financial crisis of enterprises, and then give the corresponding crisis early warning, which is to automatically and quantitatively early warning the financial crisis from the aspect of warning warning forecasting[4].

Under the background of expert experience, financial crisis early warning is to study various financial risks faced by enterprises according to relevant financial experts, and then use scientific evaluation methods to carry out relevant evaluation, so as to give prompts to the emergence of financial crisis of enterprises based on the aspect of alert source analysis, so as to enable managers to receive crisis early warning signals. In the meantime, we can know the causes of the crisis and make it easier for us to deal with the problem further.

The three levels of design are all the necessary links in the system. Give full play to the characteristics of each level, they can give a reasonable early warning and control to the financial crisis of enterprises. The sequence of execution of the three levels depends on the actual situation of enterprises. There is no specific sequence, which is based on the premise of timely early warning and control of the financial crisis of enterprises.

2.2 Financial Crisis Early Warning Based on Machine Learning

Based on the theory of enterprise early warning process and modern early warning system, combined with the specific characteristics of financial crisis, the framework of financial crisis early warning
based on machine learning is as follows:

The model of financial crisis early warning framework under the background of machine learning has the following contents:

1. According to whether the financial situation is normal, normal or crisis.
2. According to the actual situation of enterprises, set some specific financial indicators. If these financial indicators are abnormal, it is often one of the symptoms of financial crisis.
3. Establishing financial crisis early warning system is an important step to carry out financial crisis early warning under the background of machine learning, select the appropriate classifier algorithm, then study the quantitative relationship between warning financial indicators and warning indicators, and establish a financial crisis prediction model based on warning financial indicators to predict warning indicators.
4. Fig. 5 shows the forecasting alarm. The financial crisis warning device is to deal with the warning situation of the enterprises under monitoring, and then forecast the future warning indicators of the enterprises. If this indicator is a financial crisis, then it is necessary to put forward a dangerous signal to the managers of enterprises.

![Fig. 5 - Financial Crisis Early Warning Framework Based on Machine Learning](image)

The main content of financial crisis early warning model under the background of machine learning is the quantitative financial index system and the classifier algorithm and model of financial crisis prediction.[5]

2.3 Financial Crisis Early Warning Based on Expert Experience

Under the background of experts' experience, financial crisis early warning should be judged comprehensively by many professional financial or non-financial information materials. Among them, a professional number of personnel are needed to support and cooperate, and then give full play to their characteristics in their respective professional fields to analyze the information of enterprises. The research framework is as follows:

1. Establish the evaluation system of qualitative indicators, and the content of evaluation should include both financial and non-financial aspects. At the same time, the qualitative indicators should be converted into quantitative indicators in the design.
2. We should give them different weights according to the different situations of qualitative indicators, so that we can judge financial crisis early warning conveniently by qualitative indicators.
3. According to the weight content of qualitative indicators determined before, experts in many fields choose the appropriate comprehensive evaluation method of enterprise financial crisis early warning according to the actual situation of enterprises, then analyze and summarize the opinions of experts, and finally send out the relevant early warning signal content.

3. Summary

This paper adopts the real-time monitoring mode of single financial content, the financial crisis early warning under the background of machine learning and expert experience to carry out comprehensive early warning of enterprise financial crisis. The content of this system framework fully integrates quantitative and qualitative content, and then puts forward a new method of financial crisis early warning by integrating our traditional expert experience and machine learning. Way.

Reference

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