The Construction and Application of the Financial Early-Warning Model of High-Tech Enterprises

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Abstract. In recent years, high-tech enterprises have developed rapidly, and their total economic output value has occupied an important proportion in the total output value of China's national economy. The high-tech enterprises to the contribution of China's science and technology and economy have the driving force of industrial upgrading, the promoting force of economic development and the leading role of science and technology development. The core employees of high-tech enterprises are one of their core competitive advantage resources. The competition among enterprises is increasingly fierce, and the talent competition between enterprises creates conditions for the loss of core employees. Therefore, the main threat facing the human resource management of high-tech enterprises is the loss of core employees, which restricts the survival and development of high-tech enterprises. According to the recent loss of employees, taking high-tech enterprises as the research object, this paper analyzes the loss of employees, and puts forward their own solutions for the relevant situation, aiming to reduce the loss of employees and establish a perfect early warning model.

Keywords: High-Tech · Early-Warning Model

1 Introduction

With the development of economic globalization, contemporary science and technology has developed rapidly, the dependence of social economy on science and technology is becoming higher and higher, and the status and role of high-tech enterprises relying on science and technology in the market economy are becoming more and more important. High-tech enterprises are an important platform for talent development, and their core talents master the specialized technology, core business and key resources within the enterprise.

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2 Financial Risk Forecast of High-Tech Enterprises

2.1 Concept

Financial risk refers to the financial activities of the enterprise, due to the enterprise financial managers in financing, investment, management, distribution and other decision-making failure, makes the solvency in a period of time, cash inflow is less than cash flow, turnover, profit and so on caused by the risk of enterprise investors expected yields. Financial risk is a risk that the financial managers, creditors and investors of an enterprise pay much attention to. Financial risk is an objective risk that is not transferred by human consciousness. The financial managers of enterprises can only predict and avoid the occurrence of financial risks through the professional knowledge learned, and it is impossible to completely eliminate financial risks. Financial crisis is the accumulation of financial risk to a certain extent, and in the process of financial risk into financial crisis, if the financial managers can recognize the causes of financial risk and timely control, consciously disperse and avoid the financial risk of the enterprise, so as to avoid the enterprise into financial crisis (Fig. 1).

2.2 Characteristics of the High-Tech Enterprises

High-tech enterprises are produced with the development of The Times. Whether the rapid development of high-tech enterprises is, to a large extent, measured by knowledge

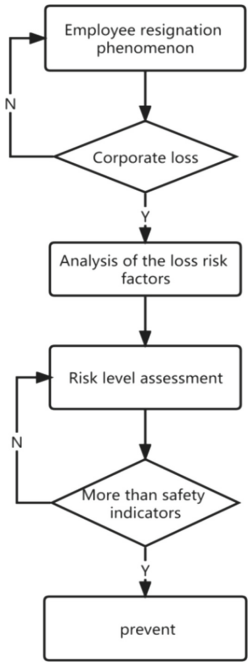

Fig. 1. Risk prevention process

creation ability and technical level. Therefore, high-tech enterprises have the following characteristics compared with traditional enterprises:

2.2.1 Talent-Intensive and Technology-Intensive

High-tech enterprises have integrated many scientific theories, pursued the application of the most cutting-edge, cutting-edge and advanced technologies, and gathered comprehensive knowledge talents, these technologies and talents can reflect the most core ability of high-tech enterprises.

2.2.2 High Capital Investment

The core function of high-tech enterprises is research and development, production and operation. In the process of development, enterprises have to carry out a large amount of research and development capital investment, in addition, in each stage, the enterprise's marketing, personnel training and other business activities need to invest a large amount of capital.

2.2.3 High Risk

The high risk of high-tech enterprises includes three aspects: first, the technical risk caused by technology failure in the process of new product development; the short life cycle of high-tech products, leading to saturation or product development risk; the market risk customers and high-tech products take market share.

2.2.4 High Yield and High Growth

High risk will inevitably bring high yield and high growth. Once high-tech products meet the market demand, they will quickly occupy the market and obtain economic benefits. The characteristics of fast change speed and short life cycle also cause the characteristics of high growth of enterprises (Wang 2021).

2.2.5 Strong Market Competition

High-tech enterprises face fierce market competition in the environment of scientific and technological development: one is both many and strong competitors in the market, it is difficult to grasp their information; the second is the fast product update speed, new products are better than the old products; third, the government to support the development policy of high-tech enterprises, making the competition more fierce.

3 How to Make a Risk Prediction

According to the current risk prediction phenomenon, factor analysis can be used to solve it. The principle of factor analysis is to describe the connection between many indicators or factors by a few factors, that is, the closely related variables in the same category, each variable becomes a factor (called it Factor, because it is unobservable), reflects most of the information of the original data by a few factors. Factor analysis (Factor Analysis) is a model analysis method to find these public factors. It is to construct several common factors with clear significance on the basis of the principal components, and decompose the primary variables as the framework, so as to investigate the connection and difference between the primary variables. Factor analysis is the process of representing multiple variables as fewer factors, its mathematical model is: n original variables as x1, x2, x3, xn. According to the requirements of factor analysis, assume that these scalars have been standardized (mean 0, standard deviation 1), assuming that n variables can have k factors f1, f2, …, fk as linear combination, namely (Fig. 2):

Where X is the n-dimensional variable vector, each component represents a variable or indicator; F is the factor vector, a factor, each component represents a factor, also becomes a common factor; matrix A is the factor load matrix, aij is the factor load; a special factor, representing the part of the original variable that cannot be explained by the factor, the mean is 0. The main steps of the factor analysis are as follows: standardize the data samples; the second, calculate the correlation matrix R; determine the characteristic root and feature vector of the correlation matrix R; the fourth, determine the number of main factors according to the cumulative contribution rate of the system; calculate

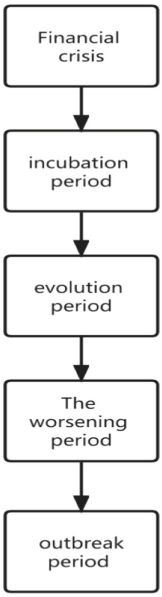

Fig. 2. Calculation formula

$$\begin{cases} x_1 = a_{11}f_1 + a_{12}f_2 + +a_{1k}f_k + \varepsilon_1 \\ x_2 = a_{21}f_1 + a_{22}f + +a_{2k}f_1 + \varepsilon_2 \\ \vdots \\ x_n = a_{n1}f_1 + a_{n2}f + +a_{nk}f_k + \varepsilon_n \end{cases}$$

Fig. 3. Property relation diagram

the factor load matrix A; the sixth, determine the factor model, and analyze the system according to the above calculation results (Fig. 3).

4 How to Prevent Employee Loss

4.1 Establish a People-Oriented Management Concept

Only by caring for and respecting employees can high-tech enterprises establish a people-centered management mode. Maslow's five levels of need theories show that different management measures should be taken according to the needs of core employees.

4.2 Implement the Comprehensive New Reward Strategy

High-tech enterprises should implement the internal and external comprehensive salary strategy according to the core employees' expectations and material and spiritual needs of the enterprise. External compensation strategy is monetary, including short-term salary incentives such as basic salary and bonus, long-term compensation incentives such as stocks and shares, pension and insurance benefits; internal compensation strategy is non-monetary incentives, including training opportunities, reputation opportunities, corporate recognition, personalized needs of each core employee, such as dormitory, car distribution or enterprise kindergarten. External and internal compensation strategies provide different incentive functions, which complement each other and jointly build a complete compensation system (Cui 2020).

4.3 High-Tech Enterprise Interpersonal Relationship

In the process of the business activities, the enterprise to the core staff personalized and humanized management, high-tech enterprise interpersonal management mainly between core employees and core employees, core employees and leaders, and production unit departments between groups, the whole and individual, enterprises to make important decisions to communicate with core employees, after investigation, listen, weigh the pros and cons, consider, vision, strategy and plan for the enterprise. Interpersonal relationship environment is very important for employees, the company should establish a harmonious interpersonal relationship environment that can make people happy, thus conducive to the coordination of interpersonal relationship, can take collective travel, department friendship, establish leadership mailbox, etc. Enterprises should shorten the distance between core employees and increase the frequency of mutual communication, but they should reflect complementarity in work. At the same time, each department within the enterprise should be connected with each other and be independent of each other, so that the individual can obey the whole and have a distinct personality.

5 Conclusion

In recent years, due to the state set up high-tech industry development zone for economic radiation and driving role, high-tech industry to the promotion of macro economy, the country increased the support for high-tech enterprises, the high and new technology enterprises, the development of high-tech enterprises to drive the "potential" of economic development. High-tech enterprises contribute to China's science and technology and economy with the leading force of industrial upgrading, the promoting force of economic development and the leading role of science and technology development (Di 2018). The core employees of high-tech enterprises are one of their core competitive advantage resources. The competition among enterprises is increasingly fierce, and the talent competition between enterprises creates conditions for the loss of core employees. Therefore, the main threat facing the human resource management of high-tech enterprises is the loss of core employees, which restricts the survival and development of high-tech enterprises.

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