



Analysis on Behavior Characteristics of Enterprise Financing Investment Risk Data

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Abstract. The existing technical means cannot effectively determine the negative impact of horizontal and vertical data behavioral risk on the return of enterprise financing investment. In order to solve this problem, the behavior characteristics of enterprise financing investment risk data were analyzed. Through determining the subset of risk factors and selecting the redundancy degree of SMT (Securities Margin Trading) index, the risk coefficient evaluation of financing investment was completed. On this basis, through the calculation of investment risk data time expenditure behavior and space expenditure behavior, determine the constraints between various data behavior characteristics, complete the enterprise financing investment risk data behavior characteristics analysis. The results show that the negative influence of horizontal and vertical data behavioral risk on enterprise financing investment is effectively restrained after applying the new investment risk behavior analysis method.

Keywords: Enterprise financing · Investment risk · Data behavior characteristics · Due to the subsets · Redundancy

1 Introduction

Enterprise financing refers to the process of financing with enterprises as the main body to make the capital supply and demand between enterprises and their internal links from unbalanced to balanced [1]. When the capital shortage, with the minimum cost to raise the appropriate period, the appropriate amount of funds; When the capital surplus, with the lowest risk, the appropriate period to put out, in order to obtain the maximum return, so as to achieve the balance of capital supply and demand. Investment risk refers to the loss or bankruptcy risk borne by the investment subject in future business and financial activities, which is the main content of the prediction and analysis conducted by the investment subject before the investment [2]. There are many major factors that cause investment risks, such as changes in government policies, errors in management measures, significant price increases or price drops of important materials that form product costs, and sharp rise in borrowing rates. Investment risk is inevitable in the process of investment, but it can be controlled by relevant means [3]. Specifically, investment risk refers to the deviation between actual investment return and expected return due to uncontrollable or random factors from the beginning of investment

decision to the end of the investment period. The deviation between actual investment return and expected return is both higher than the latter and lower than the latter. In other words, both the possibility of suffering economic losses and the possibility of gaining additional gains are the manifestation of the form of investment risk [4].

Existing technical means measure the risk coefficients in the financing investment of enterprises by establishing a decision tree, and then introduce rigid financial indicators to carry out in-depth planning on these risk coefficients, so as to achieve the purpose of analyzing the behavioral characteristics of investment risk data [5]. However, with the progress of scientific and technological means, this method cannot effectively determine the negative impact of horizontal and vertical data behavioral risk on enterprise financing investment, which brings great limitations to the long-term development of enterprises. To avoid the occurrence of the above situation, while keeping the existing research methods on the basis of the application advantages, through the selection of investment risk evaluation index redundancy, conditionality, behavior characteristics on corporate financing and investment risks, analyzing data behavior characteristics and, by means of comparative experiments show that the new methods for analysis of practical value.

2 Evaluation of Risk Factor of Financing Investment

The risk coefficient evaluation of financing investment includes two key links: determining the subset of risk factors and selecting the redundancy of SMT index. The specific operation method can be carried out as follows.

2.1 The Determination of the Subset of Enterprise Financing Investment Risk

The subset of traditional investment risk assessment is excessively dependent on financial indicator factors, and quantitative factors account for too much. For the new enterprise financing investment risk subset, we need to optimize and perfect the traditional subset [6]. The selection of risk factors for financing investment of enterprises should be more dynamic and complicated, and should also be integrated into the characteristics of enterprises themselves [7]. If the selected indicators are not appropriate, the investment loss of enterprises will be caused, so each factor must be carefully screened. The subset of risk factors meeting the standard should meet the requirements of representativeness, feasibility and comprehensiveness [8]. Therefore, selecting investment risk factors with strong theoretical support can not only improve the financing level of enterprises to a certain extent, but also promote the qualitative development of enterprise credit factors [9]. The specific determination method of risk factors subset of enterprise financing investment is shown in formula (1).

$$Q = \sum_{i=1}^u (x_{1,2,3,\dots,n} - \frac{Ew}{P}) \quad (1)$$

Among them, Q represents the subset of enterprise financing investment risk factors, i represents the lower limit of enterprise financing quality, u represents the upper limit of enterprise financing quality, x represents the financial index factor, n represents the position of quantitative factor, E represents the enterprise credit factor, w represents the factor analysis accuracy, and P represents the theoretical constant term coefficient of the index.

2.2 Selection of Redundancy of SMT Evaluation Index

The redundancy of SMT evaluation index refers to the extra spare parameter to ensure the successful completion of the financing investment task [10]. SMT evaluation index redundancy factor refers to the factor that can express the index redundancy. When the redundancy factor increases with the total amount of risk data, the redundancy of SMT evaluation index can be expressed as follows:

$$R_1 = \frac{1}{|Q|} \sum_{d=1}^U I_d t \quad (2)$$

Among them, d represents the lower limit of information, U represents the natural number set, I_d represents the upper limit of enterprise financing investment task, and t represents the implementation time of investment. The lower limit of information determines the upper limit of financing and investment tasks, and it will affect the implementation time of investment. When the redundancy factor decreases with the increase of total risk data, the redundancy of SMT evaluation index can be expressed as follows:

$$R_2 = \frac{|Q|}{\sqrt{\sum_{d=1}^U I_d t}} \quad (3)$$

3 Analysis of Data Behavior Characteristics Based on Risk Factor Assessment

On the basis of enterprise financing investment risk coefficient evaluation, data time expense behavior, data space expense behavior and other steps are determined to complete the analysis of enterprise financing investment risk data behavior characteristics based on risk coefficient evaluation [11].

3.1 Time Cost

Time cost refers to the measurement of enterprise financing investment risk factor in unit time. The time cost can be analyzed from the perspectives of underlying communication and investment result invocation, among which the most basic is the

transmission cost of investment data [12, 13]. For enterprises with the most basic financing investment ability, the risk data delay is constant, and in terms of time structure, one data transmission can only realize one pair of minimum data transmission. The specific transmission mode is shown in Fig. 1.

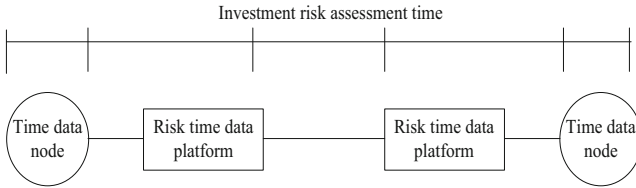


Fig. 1. Detailed diagram of transmission mode of time consuming behavior

According to Fig. 1, during the transmission of enterprise financing investment risk data [14], the transmission delay is not only constant but also equal to the access time of Shared data. If α represents the transmission delay, the time consumption behavior of enterprise financing investment risk data can be expressed as:

$$K = \frac{(R_1 + R_2)}{\alpha \prod_{a=1}^{a-1} \lambda f} \tag{4}$$

Where, K represents the time expense behavior of enterprise financing investment risk data, a represents investment result call constant, λ represents data transmission expense, and f represents the limit of enterprise basic financing investment ability.

3.2 Data Space Overhead Behavior

The cost of data space mainly comes from the risk factor of financing investment and investment consistency agreement [15, 16]. In addition, there is the risk of data transfer communication buffer overhead, maintenance of consistent investment results, and so on. According to the above knowable, in corporate finance investment risk under the condition of constant coefficient evaluation result, the data of time overhead transmission result and there is a proportional relationship between transmission delay, and in most cases, the specific value can be Shared by calculation time delay of the data access time way, this is also the result data timing is always the main reason for stable [17]. On this basis, let ζ represent the communication buffer of venture capital data transmission, and formula (4) can express the space expenditure behavior of enterprise financing investment risk data as follows:

$$G = \left| \frac{\log_{(R_1 + R_2)} \zeta \cdot l^2}{Mc} \right| \tag{5}$$

Among them, G represents the spatial expenditure behavior of enterprise financing investment risk data, l represents the consistent financing investment result, M represents the buffer coefficient of investment risk data [18], and c represents the constant communication buffer time.

3.3 Determination of Constraints Between Behavioral Characteristics

On the premise of the existence of investment risk coefficient, behavior characteristics of enterprise financing investment risk data are the main indicators to describe whether the investment results are feasible [19]. When the data time consumption behavior shows a gradually rising trend under the influence of risk delay, the data transmission communication buffer of venture capital will also increase, and the increase of data space expenditure behavior becomes an inevitable trend [20]. This is the result of the change of all indexes caused by the change of one physical quantity, which is called the restriction between the behavior characteristics of enterprise financing investment risk data. Let χ represent the synchronization index between time expenditure behavior and space expenditure behavior. With the support of formula (4) and formula (5), the restriction relationship between behavior characteristics of enterprise financing investment risk data can be expressed as:

$$C = \int_{G=1}^{K \rightarrow \infty} \chi \cdot (z + s)^2 \quad (6)$$

Where, C represents the restriction relationship between the behavior characteristics of enterprise financing investment risk data, z represents the specific value of the initial investment risk data behavior, and s represents the specific value of the last investment risk data behavior.

On the basis of determining the constraints among various data behavior characteristics, the behavior characteristics of enterprise financing investment risk data are analyzed.

4 Experimental Results and Analysis

In order to verify the practical value of the behavior characteristic analysis method of enterprise financing investment risk data designed in this paper, the following comparative experiment is designed. Taking a financing investment behavior of a certain enterprise as the experimental object, the change of the negative impact of the data behavior before and after the application of this method on the return of financing investment of an enterprise was recorded during the 5-month experimental period.

4.1 Horizontal Data Behavior on the Negative Impact of Enterprise Investment Returns

The figure below shows the change in the degree of negative impact of horizontal data behavior on enterprise investment returns during the 5 months of the experiment.

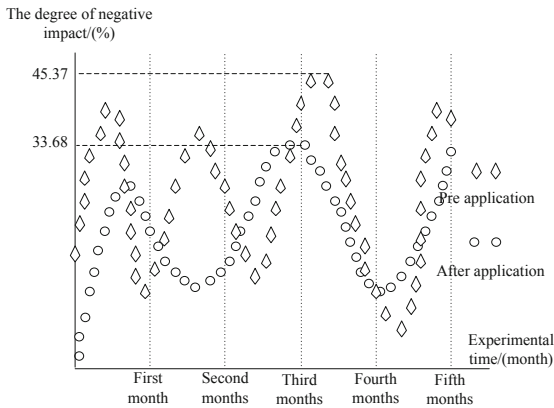


Fig. 2. Contrast chart of negative impact of horizontal data behavior on enterprise investment returns

Analysis Fig. 2 shows that with the increase of experimental time, application of new type of enterprise financing risk investment behavior characteristics data analysis method, the horizontal data behavior the negative effect on the enterprise investment income presents the tendency of rising and falling appear alternately, test time between 3 months to 4 months, the transverse data behavior of negative impact of enterprise investment income reached a maximum of 45.37%; Application of the new corporate finance investment risk behavior data analysis method, the horizontal data behavior the negative effect on the enterprise investment income also shows the tendency of rising and falling appear alternately, test time to three months when lateral data behavior on negative impact of enterprise investment income reached a maximum of 33.68%, far lower than that before using this method.

4.2 Comparison of Negative Impact of Longitudinal Data Behavior on Enterprise Investment Returns

The figure below shows the change in the degree of negative impact of longitudinal data behavior on the investment returns of enterprises during the 5-month experiment period.

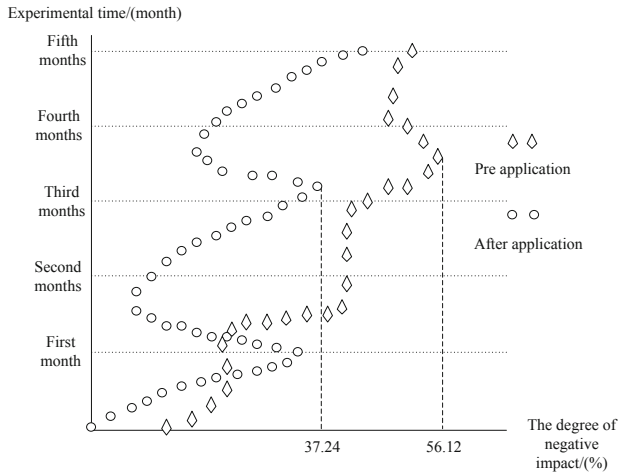


Fig. 3. Comparison chart of negative impact of longitudinal data behavior on enterprise investment returns

Analysis Fig. 3 shows that with the increase of experimental time, application of new type of enterprise financing risk investment behavior characteristics data analysis method, the longitudinal data behavior the negative effect on the enterprise investment income is gradually rising trend, the experiment time between 3 months to 4 months, the longitudinal data behavior of negative impact of enterprise investment income reached a maximum of 56.12%; Application of the new corporate finance investment risk behavior data analysis method, the longitudinal data behavior the negative effect on the enterprise investment income appear alternately trend of rise and fall, the time between 3 months to 4 months, the longitudinal data behavior of negative impact of enterprise investment income reached a maximum of 37.24%, far lower than that before using this method.

4.3 Comparison of Analysis Accuracy of Different Methods

In order to further verify the advantages of this method, this method and traditional methods are used to analyze the behavioral characteristics of enterprise financing investment risk data and compare the accuracy of different methods. The experimental results are shown in Fig. 4.

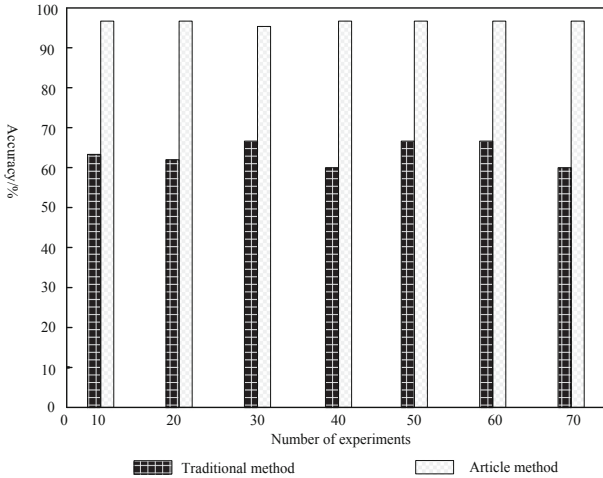


Fig. 4. Comparison of analysis accuracy of different methods

It can be seen from the analysis above that the analysis accuracy of the traditional method is between 61% and 70%, while the analysis accuracy of this method is always higher than 96%, far higher than the traditional method, so this method can realize the accurate analysis of enterprise financing risk. The main reason is that the method of this paper selects the redundancy of the index of securities margin trading and completes the evaluation of the risk coefficient of financing and investment by determining the subset of risk factors. On this basis, by calculating the time expenditure behavior and space expenditure behavior of investment risk data, the constraint relationship between various data behavior characteristics is determined. Through horizontal and vertical data behavior risk, the behavior characteristics of enterprise financing investment risk data are analyzed. Therefore, this method has high analysis accuracy.

4.4 Time Cost Comparison of Different Methods

On the basis of the above experiments, this paper uses the methods in this paper and traditional methods to analyze the behavioral characteristics of enterprise financing investment risk data, and compares the time cost of different methods. The experimental results are shown in Fig. 5.

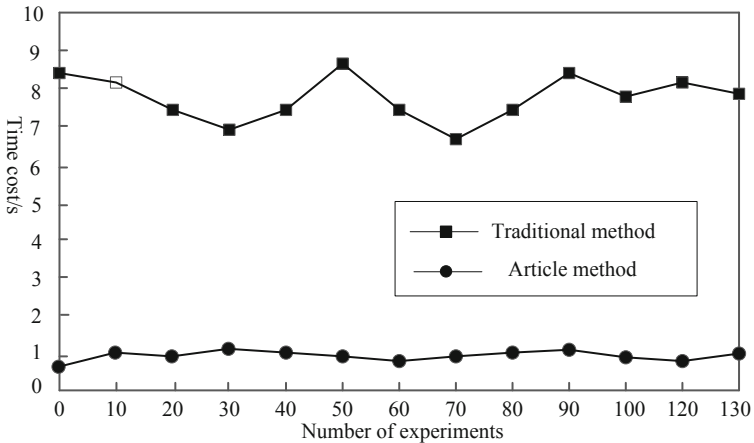


Fig. 5. Comparison of time cost

According to the analysis of Fig. 5, the time cost by traditional methods in analyzing the behavioral characteristics of enterprise financing investment risk data varies from 6.5 s to 8.8 s. The time cost by this method in analyzing the behavioral characteristics of enterprise financing investment risk data is always less than 1.5 s, which is far lower than that of traditional methods. It shows that this method can complete the behavioral analysis of enterprise financing investment risk data in a short time Feature analysis.

5 Conclusion

Although there are many studies on the risk of enterprise financing investment, the conclusions are often different and even contradictory. Due to the complexity of the problem, it is difficult to extract the behavior characteristics of enterprise financing investment risk data. Driven by interest and risk management, group companies and multinational companies often operate multiple projects at the same time. On the one hand, operators need to carry out effective investment and financing management of these projects; on the other hand, investors also need to understand the management level and moral hazard status of operators. Therefore, this paper analyzes and studies the behavioral characteristics of enterprise financing investment risk data. Under the influence of behavioral risks of horizontal and vertical data, the return of financing investment of enterprises will show a trend of gradual decline. In order to fully enhance the economic value of enterprises and reduce the risk of financing investment, this paper analyzes the behavior characteristics of enterprise financing investment risk data by determining the subset of risk factors. The comparison of experimental data shows that the influence of horizontal and vertical data behavioral risk on the return of enterprise financing investment is effectively controlled after the application of the new method for analyzing the behavioral characteristics of enterprise financing investment risk.

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