Research Article

The Fusion Model of Financial Accounting and Management Accounting Based on Neural Networks

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The lines between management accounting and financial accounting are constantly blending as a result of the new economic norm, which is driving this relationship closer and closer. To increase the working effectiveness of financial departments, the two must be coordinated and integrated. The efficient fusion of FA and MA can significantly impact not only the actual effectiveness of accounting work but also the long-term success of businesses. This study develops a network structure that combines BPNN (BP neural network) and PLS (partial least squares), and it applies the structure to FA and MA. The financial data that has been gathered is preprocessed using PLS, which keeps the primary factors of the data processing outcomes and ignores the secondary factors. The findings indicate that this model has a 90 percent overall accuracy rate when assessing the financial health of the 50 test sample companies. The analysis in the conclusion demonstrates that this model can successfully examine the internal relationship between a company's capital structure and financial performance. It also serves as a guide for the company in terms of how to improve its current illogical financing structure system and improve financial performance.

1. Introduction

The market competitiveness of contemporary businesses is gaining strength as China's market economy continues to develop. Because it directly affects the company's ability to develop and its economic strength, the work of the financial department is particularly significant in this context. The work of FA (financial accounting) and MA must be continually strengthened as a result (management accounting). FA focuses on the accounting and management of business-related economic activities, whereas MA focuses on the management, operation, and decision-making of businesses. Despite the fact that each of them has unique qualities that they bring to the table when providing services to businesses, they are both part of the modern accounting discipline [1]. After investigating the mutual coordination mechanism between them, the integration of computerised financial management and MA plays an indispensable role in enhancing the overall quality of financial management and fostering the company's long-term development from the perspective of the strategic development of the organization.

In the era of big data, financial personnel need more advanced analytical techniques to transform massive irregular data into structured information to measure organizational performance and investment risks. Accountants need to make use of the advanced analysis technology of the Internet, transform the obtained information into the company's performance, and evaluate the risk of subsequent investment. Ding et al. introduced the multivariate early warning model into the financial crisis early warning field and got a wide range of applications. After that, many scholars built various multivariate models based on the Z-value model [2]. Iles et al. obtained by studying the common stocks in the securities market that the increase in financial leverage will cause the stock price to rise, and there is a positive correlation between them [3]. Koyuncugil et al. linked the value of the enterprise with the financing ratio, and through quantitative calculation, intuitively showed the capital structure when the enterprise performance reached the optimal level with data [4]. Zhu et al. put forward a two-stage parameter selection method using a multi-objective optimization method in the selection of RBF (radial basis

function) central variable parameters [5]. Firstly, GA (genetic algorithm) was used to minimize the prediction error and reflect the company's business activities through financial reports. The financial report produced by FA can also play a certain role in supervision and control of company management by reflecting business activities. Analyzing the current situation to predict the company's financial crisis will help us to make an early warning of the problems in time, which is of great practical significance to the development of listed manufacturing companies in China.

FA's work scope includes FA, MA, and accounting business. FA's accounting process is different in nature, content, and management methods. Only by innovating the way of accounting thinking and conforming to the trend of economic development can we better complete the accounting work of enterprises' economic activities under the new normal, which is the need for enterprises to adapt to economic development [6]. The integration of the two is still theoretically based, but there is no effective method. Therefore, it is necessary to establish an integration model according to the actual theory and take effective measures to promote the effective integration of the two. The main contributions of this paper are as follows:

(1) In this paper, a quantitative research model of the influence of multiobjective and multifactor capital structure on enterprise financial performance is established by using neural network technology, and a neural network prediction model is established for analysis.

(2) On the basis of the existing research, this paper combines PLS and BPNN, hoping to use PLS method to realize the screening of forecasting indicators, and BPNN to realize the construction of a financial crisis early warning model of Chinese companies. Through the above two steps, we can establish a financial crisis early warning which is suitable for Chinese companies and has a high prediction rate.

2. Related Work

2.1. The Influence of Capital Structure on Financial Performance.
Du et al. analyzed the influence of the capital structure on the financial performance of the company from the perspective of financial leverage, and the conclusion was positive [7]. High financial leverage corresponds to a high debt ratio. The higher the debt ratio, the greater the value of the enterprise in the capital market and the higher the stock price. On the contrary, the lower. Zhu et al. selected the data of ten nondeveloped economies as samples to conduct quantitative research on capital structure [8]. Among them, 90% of the national data are used for quantitative research, and the conclusion is that the company's debt level has a negative impact on financial performance. Niu et al. determined that there is a positive correlation between the asset-liability ratio and financial performance indicators through quantitative research, and pointed out the advantages of capital structure in corporate governance structure [9].

Lieu et al. found through quantitative research that an increasing function, that is, a positive correlation, can be established between the shareholding ratio of managers and the financial performance of enterprises [10]. Rieg et al. used the cross-sectional regression method to study the relationship between financial leverage and capital cost of listed companies. The article divided the liabilities into long-term liabilities and short-term liabilities, respectively, and concluded that the short-term financial leverage of companies and the weighted average capital of enterprises did not show a regular correlation [11]; Through quantitative research, Dou et al. concluded that the capital structure has a negative impact on the financial performance of enterprises, that is, when the debt ratio of enterprises increases, the value of enterprises decreases instead [12].

2.2. Research on Neural Network Application.
As an information technology, neural network play an important role in the establishment of nonlinear models, especially the BPNN (BP neural network) technology, which has been widely used in many researches in recent years.

Date et al. proposed the application of improved RBF algorithm based on GA in classification problems [13]. Yaseen et al. proposed a RBF optimization algorithm of neural network hybrid structure, which was obtained by using bacterial colony chemotaxis to obtain the network structure of hidden layer parameters [14]. Azadbakht et al. make full use of RBF orthogonal least squares regression and classification of complex numbers, and estimate kernel density by orthogonal forward regression. Multiobjective nonlinear detection algorithm is based on symmetric radial basis function [15]. Bangalore et al. optimized RBF by using the mixed pure theory, and applied the improved RBF algorithm to financial time series prediction [16].

The judgment model based on single variable has obvious limitations, and the factors that cause financial crisis are very complicated. In the follow-up research, relevant scholars have introduced the multivariate judgment model. Multivariate discriminant method makes up for the deficiency of univariate analysis, and can quantitatively measure the overall performance of the system. Kim et al. established a regression discriminant model by using Logistic [17]. Yang et al. established an artificial neural network model based on Kalman filtering method, and the prediction accuracy of this model reached more than 70%, which has more reference value for risk management [18]. Yu et al. put forward a BPNN model based on GA optimization, and the research results show that the optimized BPNN model can better predict the financial crisis [19]. Yi et al. used PLS and BPNN technology for empirical research, and the results confirmed that PLS and neural network were feasible in financial early warning research [20].

3. Methodology

3.1. Analysis of Capital Structure and Financial Performance.
Enterprise performance and capital structure might be correlated in a complex way. If a single equation is unable to fully explain the phenomenon, a series of equations should be

developed to do so; this is known as the simultaneous equation model. The Incomplete Contract Theory contends that the contractual relationship between the principal and the agent is incomplete, and that managers are the party with superior information of the company compared to shareholders. Managers are responsible for making operational decisions for the business, and their defensive behaviour will have an impact on how the business formulates its financial strategy, which will then have an impact on how well the business performs.

Typically, a company's financing strategy will determine its capital structure. The composition and proportion of a company's capital structure, whether broad or narrow, are determined by the financing strategy and allocation that the company selects. The Organization for Economic Cooperation and Development (OECD) shares the view that research and development (R&D) activities are creative work, and that their significance lies in enhancing our knowledge of human, cultural, and social life, as well as in utilising this new knowledge and technology to produce new inventions. In order to avoid paying the weighted capital cost, the increase in equity capital will completely cancel out the decrease in debt financing. As a result, the return on equity required by enterprise shareholders will also rise. The aforementioned analysis leads to the conclusion that there is no optimal capital structure and that the weighted capital cost of an enterprise stays constant. Additionally, the enterprise value is not inescapably related to the capital structure of the entity.

Performance is not a particular behaviour, but rather the outcome of a particular behaviour in order to meet the organizational goals. In accordance with Chinese accounting standards, performance rather than behaviour is what matters. Since operation refers to performance, this document takes that to be the case gains and returns that the business made while it was in operation. Defensive management motivation causes managers to make decisions that are advantageous to themselves but may not always maximise the interests of the company. This has an impact on how the business operates and puts the interests of shareholders at risk. Because the largest shareholder's shareholding relationship directly affects the company's control rights and corporate governance rights, it has a big effect on financial performance, especially for companies. Business managers can send signals to investors by selecting a capital structure, whereas firms with strong corporate performance can do the same by increasing their debt levels.

In this paper, a stepwise multiple regression analysis model is established to test the regulatory effect of capital structure on R&D investment and business performance. Whether low-level capital structure can improve enterprise performance is the explanatory variable of replacing enterprise performance with ROE. The control variables include enterprise scale, capital concentration, enterprise growth, enterprise nature, and shareholding ratio of executives. This document constructs a model:

$$ROE = \alpha + \beta_1 LEV + \beta_2 SIZE + \beta_3 CR_{10} + \beta_4 GROWTH \\ + \beta_5 IND + \beta_1 YEAR + \varepsilon. \tag{1}$$

Among them, ROE represents the return on net assets; LEV means capital structure; CR_{10} indicates the shareholding ratio of the top ten shareholders as an alternative variable of equity concentration; GROWTH represents the growth of the enterprise; IND represents the control variable; and YEAR represents the annual control variable.

The level of education and cultural background of managers may reveal some complex information. First of all, a person's level of education may be a good indicator of how well they can master and manage knowledge and skills. Second, a person's level of education may be a reflection of his or her values and mental capacity. For job security, high-performance R&D projects might be shelved. Because there are fewer owners involved in management and these agency issues may be more serious in state-owned holding companies. Solvency is negatively correlated with capital structure, which may be due to the high rate of return of small and medium-sized businesses, but it also carries some high risks. There is a significant positive correlation between company size and company capital structure, indicating that the larger the company size, the larger the external financing scale.

3.2. Fusion with FA and MA

3.2.1. Overview of Neural Networks. The goal of a neural network is to simulate and streamline the human brain so that it can perform some of the functions of the brain in a machine. As artificial intelligence has grown, it now performs a wider range of tasks, including the perception function. Because of its ease-of-use, lack of need for initial data and high prediction accuracy, BPNN has emerged as the most popular neural network. Neuron is the smallest unit of neural network. All kinds of neurons are used to form different hierarchical structures of neural network, and connect different hierarchical network structures to form the overall structure of neural network. Linear basis function is widely used in various neural network models, such as multilayer perceptron and Hopfield. Through the operation of the linear basis function, the u value of the intermediate calculation result of neurons is shown in the following formula.

$$u = g(X, W, \theta) = \sum_{i=1}^{n} \omega_i x_i \theta = X^T W - \theta. \tag{2}$$

In n-dimensional space, the linear basis function is the hyperplane shape of n dimension.

The BPNN model typically uses the reverse error propagation algorithm, which transmits errors from the number of input layer nodes to the number of hidden layer nodes before finishing the transmission from the hidden layer to the output layer. Figure 1 shows the BPNN structure.

In this process, the BPNN model will constantly adjust the initial weights and thresholds, hoping to make the error value within a reasonable expected range. When this goal is achieved, the learning process ends. Generally, the error function takes the sum of squares of the difference between the expected output and the actual output as follows:
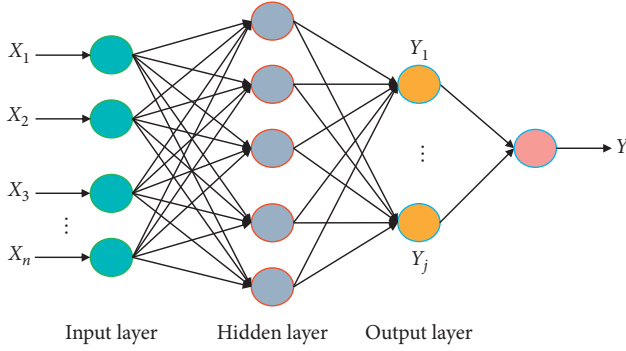
Figure 1: BPNN structure.

$$e = \frac{1}{2}\sum_i \left(X_i^m - Y_i\right)^2, \tag{3}$$

where Y_i is the expected value of our output; X_i^m is the actual output; and m represents the output layer.

For the output layer, there are

$$\begin{cases} o_k = f\left(net_k\right) \\ net_k = \sum_{j=0}^{m} w_{jk} y_j \end{cases} k = 1, 2, \cdots, n. \tag{4}$$

For the hidden layer, there are

$$\begin{cases} y_k = f\left(net_j\right) \\ net_j = \sum_{i=0}^{n} v_{ij} x_i \end{cases} j = 1, 2, \cdots, m. \tag{5}$$

BPNN technology has the following advantages: strong fault tolerance; strong memory recovery ability; outstanding nonlinear mapping ability, etc. Therefore, at present, this technology is mainly used in risk early warning and risk assessment.

3.2.2. Fusion Model.

In order to build a shared financial service centre, many supply chain businesses must reengineer their business processes, change their personnel structures, and reform their management systems and mechanisms. Although the integration of the two can significantly lower the occurrence of the aforementioned issues in the development of modern enterprises. However, because of their different roles and levels of authority, improper authority frequently arises in day-to-day work, which is the main cause of MA and FA's current integration challenges.

The ability of the human resource practise to align with the enterprise strategy, including the design of the overall human resource structure, directly determines whether the strategy can be successfully implemented during the strategy implementation phase. As a result, we can establish a solid institutional mechanism to emphasise the work functions of MA and foster a positive management environment. Professional accountants' duties and responsibilities within the company must strictly adhere to all rules, regulations,and laws, improve professional ethics, and undergo ongoing

professional development. Value-oriented financial information systems gradually merged with MA theory based on economic activity analysis, which on a deeper level deconstructed the chaos, resonance, and divergence between financial information and economic activities. While FA must work in this process, MA must also perform a number of analyses and predictions.

In the process of integrating the two, we can put forward solutions in time according to the problems in practical work, improve the corresponding accounting system, and also make use of existing resources. In essence, both of them are the confirmation, measurement, reporting, and control of the changes of property rights of various elements of enterprise resources and their transactions. The unification of objects is the objective reason for the merger of FA and MA. Under the background of computerization, the mutual integration of MA and FA is more obvious in financial statements. By designing a scientific, standardized, and reasonable computerization process, an exclusive way has been opened up for accounting executives, and the inter-action between MA and FA has been realized.

PLS (partial least square) is a new statistical analysis method of multivariate data. PLS is obviously superior to PLS and canonical correlation analysis. It can not only remove redundant information between data to achieve the purpose of dimension reduction, but also remove explanatory variables. The adverse effects of multicollinearity and response variables on the system can comprehensively apply a variety of multivariate statistical analysis methods, and has the advantages of simplicity, robustness, small amount of calculation, high prediction accuracy, etc. It can establish a better analysis model.

The training function we choose is the additional momentum method. In the case of correcting the weight, we adjust the changed weight (or threshold) to match the corresponding original previous value (or threshold). In the process of error reverse transmission, the formula for checking factor weights and thresholds is as follows:

$$\begin{aligned} \Delta w_{ij}(k+1) &= (1 - mc)\eta\delta_i p_j + mc\Delta w_{ij}k, \\ \Delta b_i(k+1) &= (1 - mc)\eta\delta_i + mc\Delta b_i k, \end{aligned} \tag{6}$$

where k stands for training times, mc stands for momentum factor, and $mc \approx 0.95$.

The symbol V represents the covariance matrix of the original data. After the original data are standardized, the covariance matrix obtained is equal to its correlation matrix, which is shown in the following formula:

$$V = R = XX'. \tag{7}$$

According to the mathematical model construction conditions of PLS, the parameter matrix A needs to be an orthogonal matrix, that is, the matrix A has the calculation satisfying the following formula:

$$AA' = I. \tag{8}$$

You can add a momentum term to the weight adjustment formula, where the weight matrix of a certain layer is

represented by W and the input vector of a certain layer is represented by X, and the weight adjustment vector expression containing momentum term is

$$\Delta W(t) = \eta \delta X + a\Delta W(t, 1), \qquad (9)$$

where a is called momentum coefficient $(0 < a < 1)$. Momentum is a comprehensive reflection of previous accumulated experience, which can reduce the sudden fluctuation of error surface and improve the training speed.

In order to speed up the convergence process, it is more reasonable to choose an appropriate learning rate for the whole training. An initial learning rate can be set. If the error E becomes smaller after weight adjustment, this adjustment is effective; otherwise, the adjustment is invalid.

Based on the combination of PLS and BPNN, a fusion model of FA and MA is constructed. PLS is used to process the data elements related to enterprise financial warning, and neural network model is used to predict enterprise financial situation. The structural design of the prediction model is shown in Figure 2.

According to the structure of FA and MA integration model, PLS and BPNN are used for enterprise financial early warning, which mainly analyses the following processes:

(1) According to the indicators required for business financial early warning, the data of each indicator element required by the model in the financial operation process of the company are obtained accordingly.

(2) PLS is used to calculate the original data according to the corresponding calculation steps. Several main directions of data items are calculated.

(3) The output is a linear combination of original data items, which can maximise the differences between different individual data items, while ignoring the data items with smaller differences.

(4) The training data group is used to train the constructed BPNN model, and the training of the model needs to reach the set precision, which can meet the requirements of enterprises for early warning of financial situation.

(5) The neural network model judges the financial situation of the company according to the calculation result, and generates the judgment result as the basis of the company's financial decision.

4. Experiment and Results

The analysis should start with the basic descriptive statistical analysis. This paper uses the filtered data and the indicators of the selected variables, and uses STATA to make descriptive statistics on the selected 500 samples, showing the general situation of the samples as shown in Figure 3.

It can be seen that the maximum enterprise performance of the sample companies studied is 32%, the average value is 11%, and the average value is greater than 0, which indicates that the company's overall operating performance is good. Of course, it may also be affected by the disclosure of R&D

data by enterprises, and the quality of the data obtained is poor, which leads to great differences in research results. The research results show that the average investment intensity of the research objects has reached 3%, which indicates that all the selected research objects are representative innovative R&D enterprises on the whole, and the research conclusions also have practical significance.

As for the nature of the company, that is, the nature of major shareholders, the average value is 22%, indicating that 22% of the samples are state-controlled companies and 77% are non-state-controlled companies. Combined with the overall good performance of sample enterprises, it shows that compared with state-owned enterprises, private enterprises have strong development ability, and China should improve the management mechanism of state-owned enterprises and enhance their performance. The purpose of this part of correlation analysis is to test the correlation between three measurement variables and capital structure in managerial entrenchment. See Table 1 for correlation analysis of managerial entrenchment measurement variables and capital structure.

It can be seen that the correlation coefficients among variables of managerial entrenchment measurement dimensions (manager characteristics, internal governance mechanism, and market environment) in this study are all less than 0.3, indicating that there is almost no multicollinearity between them. In each measurement dimension, R&D investment is also negatively correlated with capital structure. When the debt ratio of enterprises is high, the enthusiasm of enterprises to carry out R&D activities will also decrease.

Internal financing is the safest method of financing because it not only protects the interests of the original shareholders but also prevents the market value decline brought on by external financing. This is because management of the company is more knowledgeable about the actual situation of the company's operation than external investors. There is a certain correlation between the variables of company performance and the variables of each managerial entrenchment dimension. Among them, the performance of the company is negatively correlated with age, gender, working years, the allocation of two jobs, the cost of job switching, and the economic prosperity index. The size of the board, the salary of directors, the percentage of independent directors, and the excess operating profit rate are all positively correlated with a company's performance.

The 5-10-1 three-layer BP network is directly created by MATLAB language, and 50 training samples are used to train the network. The training company is based on the specific prediction results of BPNN model. The specific results are shown in Figure 4: 1 original data is put into the trained neural network to predict the financial status of 10 test samples, and the specific results are shown in Figures 4 and 5.

There is still a lot of competition. Among them, businesses want to support the launching of new projects and continuously expand the existing industrial chain, which raises the bar for their cash flow. A stable cash flow is hard to lose during a period of rapid expansion without capital
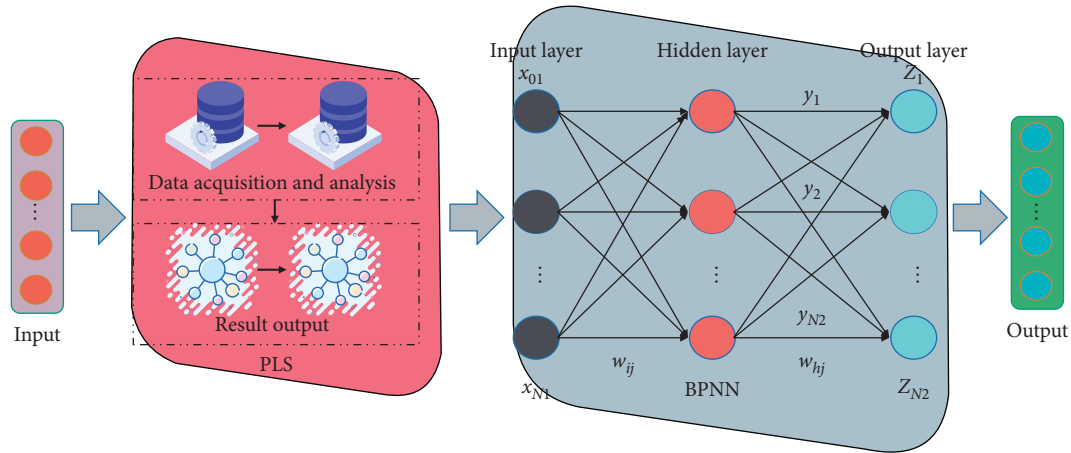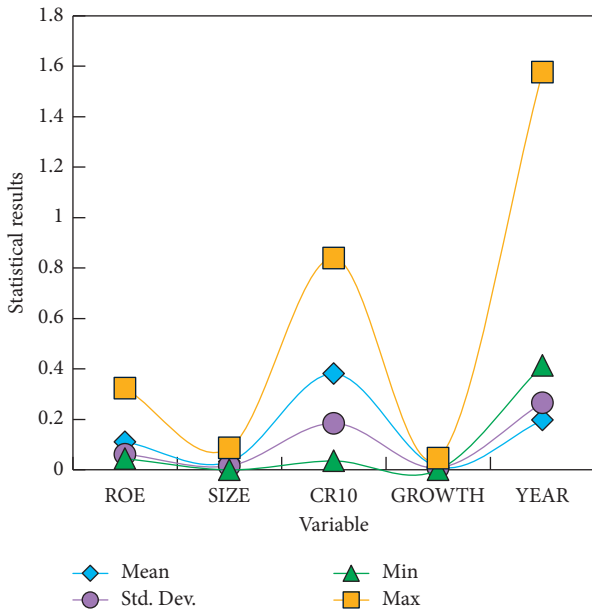
FIGURE 2: Fusion model structure diagram.

FIGURE 3: Descriptive statistical results.

chains, which would be almost fatal to the business. There may be a best training number for hidden nodes to improve generalisation in some circumstances. The root mean square error of each training is recorded in order to determine the best training time. Training samples and test samples are used alternately for training. We can plot the mean square errors of two different types as a function of training times using these two types of errors.

The ability of the company to manage itself in a sustainable manner over the long-term should be prioritised over the short-term economic benefits that are currently available. It is important to consider whether the business you invest in has long-term goals. Therefore, in order to prevent the phenomenon of excessive power of both parties, the company should first create an appropriate and effective accounting policy, specify the roles of the MA and FA, and carry out their respective responsibilities. Secondly,

businesses should create the necessary rules and regulations, analyse their work processes, and standardise them in response to specific issues. Through the use of MA information data, enterprise and MA integration can also be incorporated into FA in order to achieve real-time information and data sharing between them, cut down on unnecessary business operation links in the middle, and enhance processing effectiveness.

In this paper, using test sample data as test data for research can directly reflect the situation of survival of the fittest in the network. In addition, the researchers also use 80 sensing data sets to simulate the output of network sample data and compare the calculated errors. When the researchers use sim () function to investigate the output of network simulation, the error between the output value and the actual value is very small, which can explain the credit rating model to some extent. The predicted and actual values of some test samples are also studied in this paper as shown in Table 2.

It can be seen directly from the table that the error rate between the predicted value and the actual value of the sample data is getting smaller and smaller, which shows that the simulation ability of the evaluation index of asset management is very good as shown in Figure 6.

For most of the forecast data, the system can get the forecast effect that accords with the expected value. Part of the project is inconsistent with the expected results, mainly because the calculated values are at the boundaries of different evaluation grades. Due to errors in the calculation process, there will be evaluation errors. Generally speaking, they can be consistent, have the expected prediction effect and meet the requirements of the model. This requires enterprises to constantly explore in actual operation and reasonably build a quantitative system of nonfinancial indicators. Enterprises should take the financial early warning model as a management decision-making tool, fully understand the overall risk level, constantly overcome the limitations of existing models, improve the whole process of purchasing, production and sales with practical experience, and constantly improve their own unique financial risk early warning model to give full play to its early warning function.

TABLE 1: Correlation between variables.

	ROE	SIZE	CR10	GROWTH	YEAR
ROE	1				
SIZE	0.0325	1			
CR10	0.1893	0.1362	1		
GROWTH	0.2011	0.1257	0.2366	1	
YEAR	−0.1241	−0.0360	−0.0217	−0.0149	1
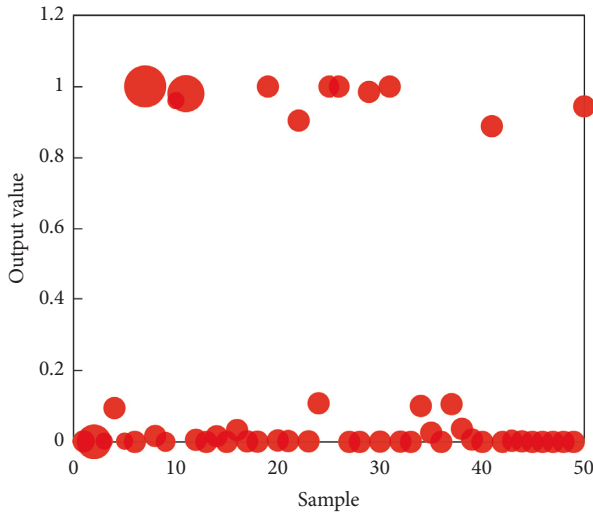
FIGURE 4: The BP training sample neural network model outputs specific results.

TABLE 2: The predicted value and actual value of the detected sample.

Serial number	Expectation value	Actual value	Prediction error value
1	1.7036	2.8639	−1.1603
2	4.1123	3.9121	0.2002
3	1.0369	1.0559	−0.3223
4	2.2459	2.2016	−0.019
5	3.3198	3.3125	0.0073
6	2.0166	2.0163	0.0003

FIGURE 6: Curve of predicted input value, expected output value, and predicted error value of the detected data.
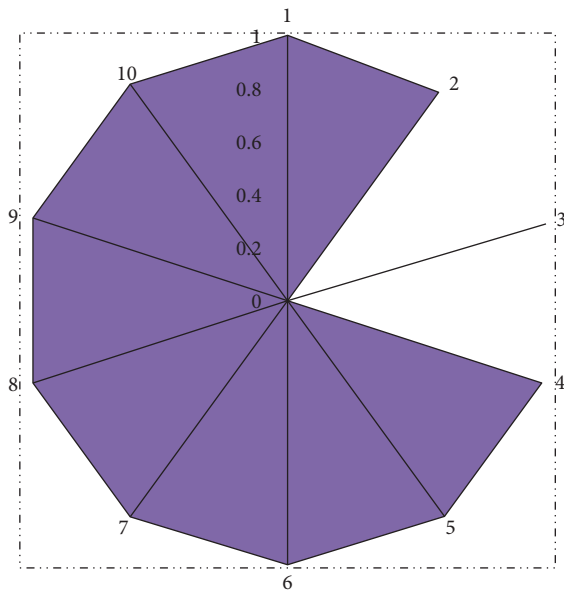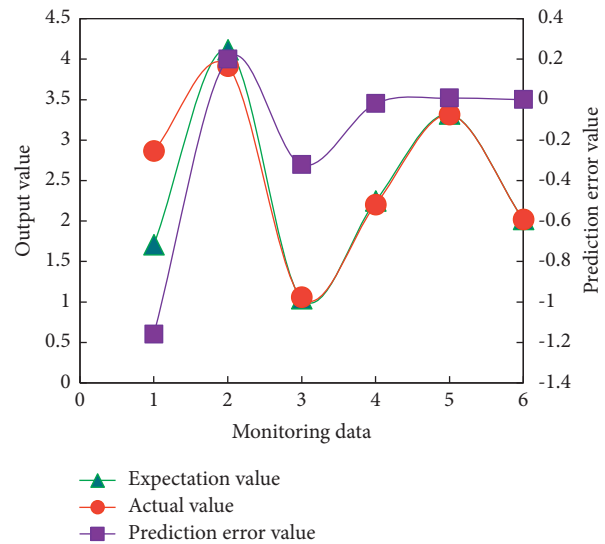

FIGURE 5: Test sample BPNN model to output specific results.

Among the sample enterprises, enterprises with low asset-liability ratio have a greater positive impact on ROE than those with high asset-liability ratio, that is, capital structure has a moderate impact on ROE. If shareholders choose debt financing, although it is possible to transfer some financial risks without affecting the ownership structure of the company, creditors will formulate protection clauses according to the capital risk assessment.

However, under the background of informatization, MA business objectives should strengthen the innovation of objectives, and improve the content of secondary objectives according to the overall objectives, so as to ensure the economic benefits of business operations. Under the background of information age, MA enterprise objectives should always focus on enterprise interests, and different MA business objectives should be formulated for different accounting entities to meet the development needs of economic interests of different economic entities. Using the data of 50 samples, the regression prediction, BPNN, RBF, and the neural network developed in this paper are used to predict the data, and the prediction results of different models are shown in Figure 7.
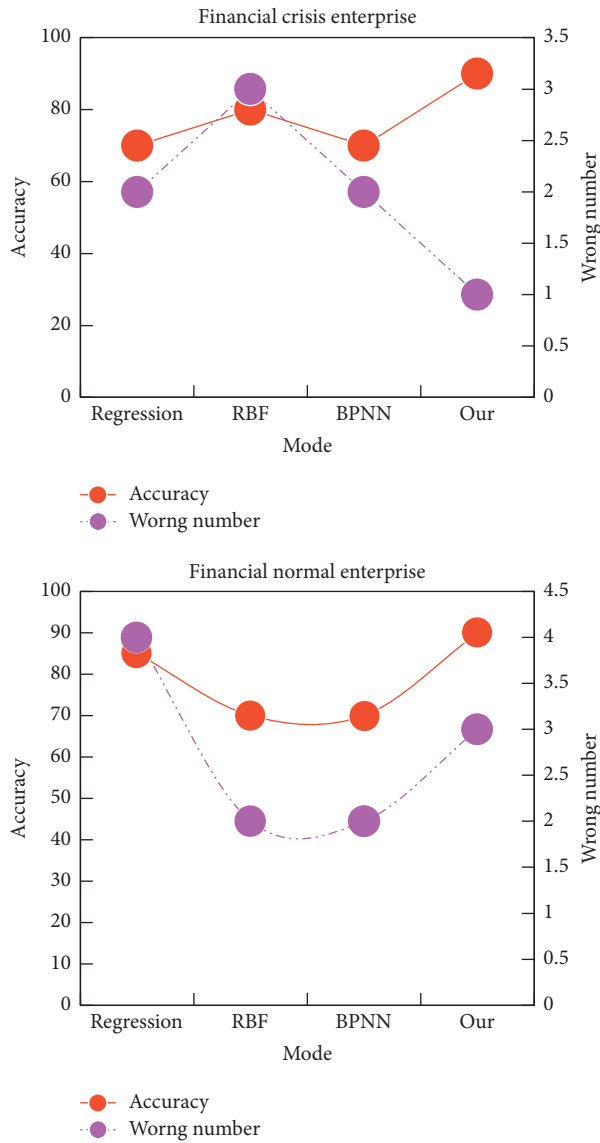
Figure 7: Comparison of model prediction results.

It is simple to see that, given the financial situation of the company, the regression forecasting model BPNN and this model's integration accuracy tests for differentiating the financial situation of 50 sample companies are 70%, 80%, and 90%, respectively. This indicates that all three of these models are appropriate for the two years prior to the company's financial crisis, with this model's accuracy being obviously higher. The internal design of a neural network and this nonlinear relationship are strikingly similar. In order to more accurately predict the financial crisis of the company, neural networks can approach the intricate internal structures of small and medium-sized businesses. There is a gap between the regression model and BPNN in the prediction of the financial crisis of enterprises because the regression model, in the traditional sense, belongs to the linear regression model and the linear model has obvious limitations in predicting the nonlinear relationship.

Financial analysts integrate and analyse the financial data produced by the established financial information data management system or system as part of their work in business financial analysis. They also continuously update and improve the financial management system in accordance with the advancement of information technology era or system. The straightforward accounting method of bookkeeping and reimbursement cannot meet the demands of enterprise managers to make decisions about enterprises in the current economic climate. Financial professionals should learn to adapt their thinking in the big data era and continuously improve their professional skills while ensuring adequate reserves of fundamental knowledge.

5. Conclusions

In the data age, the professional division of labor is constantly refined, the resource elements flow rapidly, the traditional role of enterprises will become blurred, and the positions will be more strategic and forward-looking. Therefore, according to the requirements of the development of market economy, enterprises should fully integrate the advantages of FA and MA on the basis of informatization, and establish a sound financial management system or management system. In this paper, PLS and BPNN models are selected as the forecasting methods, and FA and MA fusion models are constructed. On the premise of knowing the company's financial situation, the comprehensive accuracy rates of the regression prediction model BPNN and the model in this paper for the financial situation of 50 test sample companies are 70%, 80%, and 90%, respectively, which shows that these three models have little impact on the company's financial crisis, and the predictions of the previous two years are more accurate. Finally, the results also show that the neural network model in this study has good sample discrimination ability and can reflect the financial situation of enterprises more accurately. The expected evaluation results predicted by PLS and BPNN models are basically consistent with the actual results, but there are still some shortcomings in this study: due to the limited sample data, insufficient data of moderate risk and high risk, the training of BPNN is insufficient, and the sample results are misjudged. In further research, we will strive to achieve sufficient training and high accuracy of prediction.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author does not have any possible conflicts of interest.

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