

Research Article

Financial Risk Assessment of Enterprise Management Accounting Based on Association Rule Algorithm under the Background of Big Data

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Under the background of the rapid development of data informatization, the evaluation and analysis of enterprise management accounting risk are the key link of enterprise sustainable development. Based on the theoretical basis of enterprise management accounting risk analysis, this paper selects 11 representative corporate financial risk indicators from financial risk indicators through correlation analysis and then selects 8 key indicators that affect corporate financial risk through association rules, to assess and analyze the company's financial risks. Finally, this paper takes 20 ST companies in China as the research object to carry out empirical research. According to the assessment and analysis of financial risks in the company's management accounting, it proposes measures from four modules to strengthen the company's ability to resist risks.

1. Introduction

At present, in an environment of shrinking global demand and economic decline, most companies have also entered a new normal of low profit margins and low growth rates. Enterprises not only face the difficulties of increasing operational risks but also face severe challenges such as increased financial pressure and rising comprehensive costs. In the process of operation, if an enterprise can accurately discover the potential risk factors around it, the sustainable development of the enterprise can be directly and strongly guaranteed. Therefore, the selection of corporate financial risk indicators and the construction of the overall model and other related theories have also played a promoting role and positive impact on the sustainable and healthy development of the company.

Data mining is to find the relationship and laws between information and data from massive, unstructured, and fuzzy

actual data and provide strong support for the decision-making of enterprise management. Introducing data mining technology into financial analysis strategy has become the mainstream development direction nowadays. With the help of risk analysis, enterprises will be able to understand financial risks more comprehensively and scientifically and take relevant defensive measures with a more active attitude. Under the background of market economic downturn, Chinese enterprises are under increasing competitive pressure. The advent of the digital age has ushered in a new approach that emphasizes the presentation of regularities in large-scale data analysis compared to traditional what-if analysis methods. Information data is also an important resource in management accounting. Therefore, this method has been fully applied in the management accounting financial risk evaluation of enterprises. The specific performance is, based on data mining technology, linking the dynamic nature of enterprise development, focusing on timeliness

and practicality, and establishing an enterprise financial risk analysis model. Ensure that potential risk factors existing in the operation of the enterprise can be discovered in time and be actively resolved and dealt with.

Under the background of the rapid development of big data, this paper uses association rule algorithm to mine the key indicators affecting the financial risk of enterprise management accounting. Then, this paper evaluates the financial risk of enterprise management accounting through key indicators, finds the root cause of enterprise financial risk, and puts forward relevant suggestions.

2. Literature Review

Management accounting is a branch of accounting with the goal of improving enterprise management and economic benefits. Scholars have carried out research on the development trend and method innovation of management accounting [1, 2]. Haka and Heitger expounded the opportunities and challenges faced by management accounting and proposed research on the role of management accounting based on an international management accounting framework [3]. Meng et al. conducted a research summary of 327 literatures in China and found that the research methods of management accounting are more diversified, which is mainly reflected in the significant increase in the proportion of database-based empirical research and survey research [4]. Lixia and Shishui sorted out the relevant research on management accounting tools and the typical problems existing in practical application and proposed to strengthen the research on the preliminary budget, production cost standard, business process, and internal assessment mechanism of management accounting [5]. In management accounting, the traditional cost calculation method can no longer meet the needs of managers. Ponisciakova et al. proposed an activity-based costing method to replace the traditional cost calculation method, so that the cost can be collected and calculated more accurately [6]. Yang et al. discussed the research hotspots of management accounting in China and proposed that more attention should be paid to the case studies of management accounting models in the future [7].

In the era of big data, data mining and analysis have improved the use value of data and information in the accounting industry and promoted the development of the accounting industry [8]. Minxia analyzed the impact of big data technology on management accounting from two aspects of opportunities and challenges and proposed strategies such as strengthening data storage technology and building analysis platforms to promote the development of management accounting in the era of big data [9]. Mihăilă proposed that enterprises need to develop management accounting business and develop a system for recording and mining data information according to the needs of enterprise management [10]. In the context of big data, Hua and Wang put forward a management accounting information application framework based on enterprise information fusion, which provides a reference for the application and development of management accounting [11].

Through empirical tests, Yigitbasioglu found that information system flexibility and management accounting adaptability have a significant positive correlation and deepened the connection between management accounting and information systems by exploring the role of factors that promote management accounting [12]. In order to make better use of business analysis data, Appelbaum et al. discussed the impact of business analysis on management accounting from the perspective of enterprise systems and proposed a management accounting data analysis framework [13].

In order to make better use of business analysis data, Al-Maolegi and Arkok discussed the impact of business analysis on management accounting from the perspective of enterprise systems and proposed a management accounting data analysis framework [14, 15]. Huayang and Xingxing used the association rule algorithm to mine and analyze the sales accounting data of enterprises and formulate corresponding sales plans according to the analysis results to provide managers with more decision-making information [16]. Wamba et al. proposed an explanatory framework to evaluate the business value of big data through case studies and other methods and determined the implementation value of big data strategy in management accounting [17].

To sum up, scholars at home and abroad have done a lot of research on big data and enterprise management accounting, but there are relatively few researches that combine big data and enterprise management accounting to really apply big data methods to management accounting applications. Therefore, based on the association rule algorithm, this paper evaluates and analyzes the financial risk of enterprise management accounting through specific financial indicators.

3. Risk Assessment and Analysis of Enterprise Management Accounting Based on Association Rules

Data mining can solve some technical obstacles in the implementation of management accounting by acquiring and utilizing the information with massive data, complex structure, and implicit knowledge [18, 19]. And association rules are a main form of data mining, looking for the correlation of different items in the same event [20]. According to the mining results of association rules, the key financial indicators are screened out to evaluate and analyze the financial risks of enterprise management accounting and put forward relevant suggestions. The specific process is shown in Figure 1.

3.1. The Selection of Financial Risk Evaluation Index of Enterprise Management Accounting. Most Chinese enterprises mainly focus on financial indicators in the management process. The traditional method of selecting financial indicators is to judge based on personal experience or cognition, which accounts for a large proportion of subjectivity. This paper selects all the financial indicators of the enterprise, uses the method of data mining to analyze the correlation between the financial indicators, and selects the most representative financial indicators. The financial risk assessment index system of enterprise management accounting is

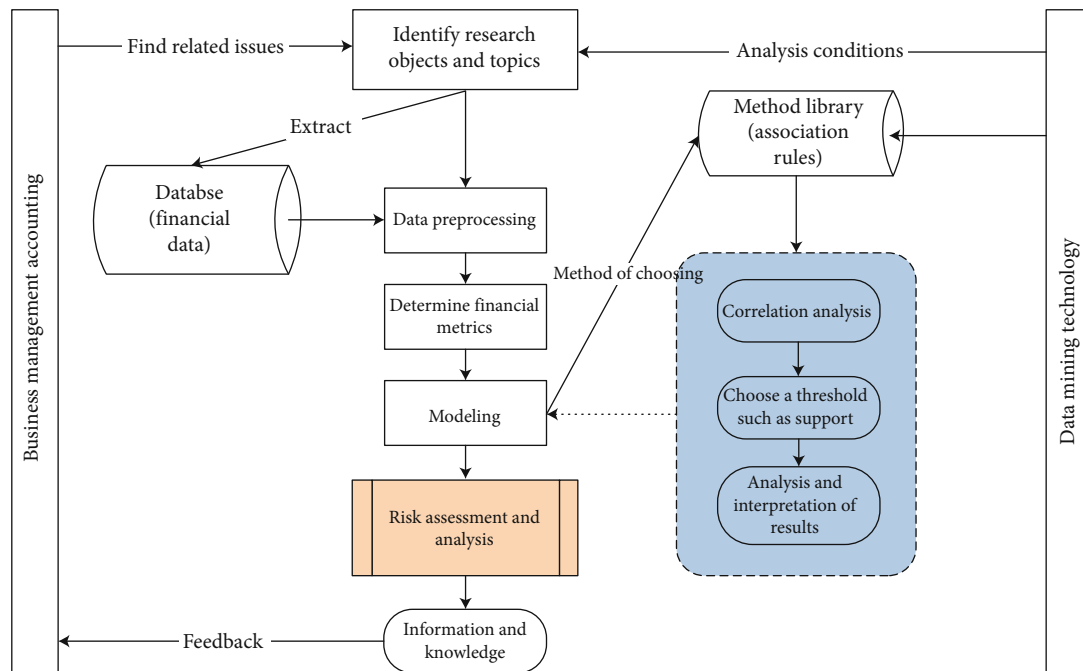


FIGURE 1: Enterprise management accounting risk analysis process based on association rules.

mainly divided into four aspects: enterprise profitability, enterprise solvency, enterprise operation ability, and enterprise growth ability. The specific indicators and meanings are shown in Table 1.

3.1.1. Corporate Profitability Indicators. Profitability is one of the most important core indicators in a company's financial statements, which reflects the company's ability to create profits. Among the profitability indicators, net profit margin and gross profit margin reflect the level of income created by the company's sales revenue within a certain period, and the level of profit margin reflects the strength of the company's capabilities. Basic earnings per share reflect the income created by each shareholder's equity, and the increase in total share capital will cause relative dilution of basic earnings per share. Total assets are composed of liabilities and shareholders' equity, and the return on total assets reflects the level of income generated by the funds invested by creditors and all shareholders. The return on total assets index is used to compare the relative levels of the same industry, and it reflects the level of the company's use of shareholders' equity and liabilities to create income. The level of return on total assets reflects the strength of the company's profitability.

3.1.2. Corporate Solvency Index. Corporate solvency indicators are divided into long-term solvency and short-term solvency. Insufficient solvency of the enterprise will affect the normal operation of the enterprise, causing the difficulty and cost of raising funds for the enterprise to increase and the decline of social reputation.

Short-term solvency indicators are generally measured by three factors: quick ratio, current ratio, and cash ratio. The company's quick ratio is an indicator to assess and measure the short-term solvency of a company. The stronger

the ability of an enterprise's quick assets to be realized in a short period of time, the stronger the short-term solvency of the enterprise. The current ratio reflects the relative level of the company's current assets and current liabilities. If the current ratio is too high or too low, it will have a greater impact on the company. The cash ratio reflects the ability of a company to cover short-term debt with its cash flow. The more cash on the company's accounts, the more conducive it is to repay the company's debt, but it also shows that the company's ability to use cash is insufficient.

The long-term solvency index is generally measured by the asset-liability ratio and the interest coverage ratio. The gearing ratio, also known as financial leverage, reflects the relative level of corporate liabilities and free assets. A reasonable level of assets and liabilities is conducive to the good operation of an enterprise. An excessively high asset-liability ratio will lead to higher risks for the enterprise, and a too low asset-liability ratio is not conducive to the expansion and rapid development of the enterprise. The interest coverage ratio measures whether the profit created by the enterprise can cover the level of interest expenses. The level of the interest coverage ratio indicates the strength of the long-term solvency of the enterprise.

3.1.3. Enterprise Operation Capability Index. The operational capability of an enterprise reflects the level of operational efficiency in the entire business process, including production, sales, and payment collection. The operational capability of the enterprise also reflects the operational efficiency and capability of the operator of the enterprise from the side. The higher the total asset turnover rate, the higher the market recognition of the products produced by the company, and the company's own assets can be quickly converted into sales revenue, bringing benefits to the company.

TABLE 1: Enterprise management accounting financial risk assessment indicators.

Financial indicator	Meaning	
Corporate profitability	Gross profit margin	The ratio of current net profit to current sales revenue
	Net interest rate	The ratio of current sales revenue less cost of sales to current sales revenue
	ROE	The ratio of net profit for the period to the average value of net assets
	Basic earnings per share	The ratio of net profit for the current period to the total number of shares
	Return on total assets	The ratio of net profit for the period to the average value of total assets
Corporate solvency	Quick ratio	Total current assets less inventory to current liabilities ratio
	Current ratio	Ratio between total current assets and total current liabilities
	Cash ratio	Ratio of all cash plus marketable securities to current liabilities
	Assets and liabilities	Ratio of total liabilities to total assets
	Interest coverage ratio	The ratio of the current operating profit to the interest expense of the enterprise
Corporate operation capability	Total asset turnover	The ratio of net sales revenue to the average of total assets
	Accounts receivable turnover	The ratio between the net credit income for the period and the average balance of accounts receivable for the period
	Inventory turnover	The ratio between the cost of sales for the current period and the average inventory balance for the current period
Corporate growth ability	Total asset growth rate	The ratio of the increase in total assets for the current period to the total assets at the beginning of the period
	Operating income growth rate	Operating income of the current period minus the ratio of operating income of the previous period to the operating income of the previous period
	Net profit growth rate	The ratio between the net profit of the current period minus the net profit of the previous period and the net profit of the previous period

The level of the total asset turnover ratio reflects the strength of the enterprise's operating ability. A higher accounts receivable turnover ratio not only means that the company can quickly recover the sales payment but also reflects the customer's recognition of the company's products and the overall competitiveness of the company. The higher the inventory turnover rate, the less the inventory of the enterprise, the less the amount of funds occupied by the inventory, and the reduction of the production cost of the enterprise occupied by the inventory.

3.1.4. Enterprise Growth Capability Indicator. Enterprise growth capability measures the development potential of an enterprise through its own production and operation activities. The rapid growth of enterprises is often positively related to the three factors of total assets, operating income, and market share of the enterprise. Total assets equal the sum of owners' equity and company liabilities. The increase in the growth rate of total assets indicates that the development trend of the enterprise is improving, but a reasonable asset-liability ratio is an indispensable factor in evaluating the growth rate of total assets. The higher the growth rate of operating income, the faster the growth rate of the enterprise. The increase in operating income is mainly composed of two factors: the increase in products sold by the enterprise and the increase in labor services provided. The level of net profit growth rate reflects the strength of the company's ability to generate income. The upgrade of the company's products leads to price increases and the increase in sales

cost, and the expansion of the company's scale will affect the growth of the company's net profit.

3.2. Correlation Analysis of Management Accounting Indicators. Use the traditional method of analyzing the correlation coefficient of variables to analyze the correlation of the selected financial indicators. The calculation formula of the correlation coefficient is as follows:

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\left(\sum_{i=1}^n (X_i - \bar{X})^2 \sum_{i=1}^n (Y_i - \bar{Y})^2\right)}}. \quad (1)$$

Equation (1) represents the correlation of two variables. Among them, X and Y represent two different variables, r represents the correlation coefficient of the two variables X and Y , and when r takes different values, the relationship between the two variables is different. When $r = 1$, the relationship between the two variables is completely positive; when $0 < r < 1$, the relationship between the two variables is linearly positive; when $r = 0$, the relationship between the two variables is completely uncorrelated; when $-1 < r < 0$, the relationship between the two variables is linearly negatively correlated; when $r = -1$, the relationship between the two variables is completely negatively correlated.

3.3. Definition of Risk Level of Enterprise Financial Indicators. In the association rule algorithm, the mined data is generally discrete, while the corporate financial data is

TABLE 2: Classification of risk levels of corporate financial indicators.

Financial indicator	Risk level				
	1	2	3	4	5
Gross profit margin	>0.6	[0.2,0.6]	[-0.2,0.2]	[-0.6,-0.2]	<-0.6
Net interest rate	>0.4	[0.1,0.4]	[-0.1,0.1]	[-0.4,-0.1]	<-0.4
ROE	>0.4	[0.1,0.4]	[-0.1,0.1]	[-0.4,-0.1]	<-0.4
EPS	>1	[0.3,1]	[-0.3,0.3]	[-1,-0.3]	<-1
Current ratio	>3	[2, 3]	[1, 2]	[0.5,1]	[0,0.5]
Cash ratio	>3	[2, 3]	[1, 2]	[0.5,1]	[0,0.5]
Asset-liability ratio	[0,0.2]	[0.2,0.4]	[0.4,0.6]	[0.6,0.8]	[0.8,1]
Accounts receivable turnover	>100	[50,100]	[20, 50]	[5, 20]	[0, 5]
Inventory turnover	>100	[50,100]	[20, 50]	[5, 20]	[0, 5]
Total asset growth rate	>1	[0.3,1]	[0.1,0.3]	[0,0.1]	<0
Net profit growth rate	>0.5	[0.1,0.5]	[-0.1,0.1]	[-0.5,-0.1]	<-0.5

generally continuous. Therefore, when using association rules, it is necessary to convert continuous data into discrete data by defining financial data indicators, so that it presents discrete distribution characteristics. In addition, there are large differences in the value of financial indicators. This paper divides the risk level of enterprise financial indicators based on five levels, as shown in Table 2.

3.4. Financial Risk Assessment Model of Enterprise Management Accounting Based on Association Rules. Through association rules, the relationship between the financial risk indicators of management accounting is excavated, and the financial risk indicators of management accounting of enterprises are analyzed and evaluated, to find the reasons for the risk of management accounting of enterprises.

3.4.1. Establish the Concept Hierarchy Tree of Enterprise Management Accounting Financial Risk. Constructing a risk concept hierarchy tree is the key to establishing an enterprise management accounting financial risk assessment model, and the relationship between indicators at different levels can be more clearly expressed through the hierarchy tree. Through the analysis of low-level financial indicators, it is extended to high-level concepts, and finally, the level of enterprise management accounting risk is found.

The financial risk index system of enterprise management accounting is mainly divided into four modules: profitability, solvency, operation, and growth. There are two levels in each module, mainly the specific indicators of related modules. Therefore, the entire financial risk concept hierarchy tree is divided into four levels, as shown in Figure 2. The first layer is the root node to manage enterprise financial risks. The second layer is the four major modules of the enterprise's profitability, solvency, operating ability, and growth ability. The third layer is the comprehensive index of enterprise financial risk evaluation. The fourth layer is the specific financial indicators under the four modules, including gross profit rate, net profit rate, and account receivable turnover rate.

3.4.2. Data Mining Strategies with Different Support Thresholds. When performing data mining on each level, the minimum support threshold for financial indicators needs to be established. Generally, the lower the level of financial indicators, the smaller the corresponding minimum support threshold. Taking the profitability indicator as an example, as shown in Figure 3, the minimum support threshold for the second level is 20%, the minimum support threshold for the third level is 10%, and the minimum support threshold for the fourth level is 5%.

3.4.3. Result Output and Interpretation. By gradually adjusting the support thresholds of different levels, using the association rule algorithm to mine the data of enterprise management accounting risk indicators, analyzing, and comparing the performance of financial indicators under different support thresholds, the final key indicators for evaluating financial risks are obtained.

4. Empirical Research on Financial Risk Analysis of Enterprises

4.1. Selection of Sample Companies. China's ST (special treatment) company refers to a listed company whose net profit has been negative for two consecutive years or the stock exchange considers that the financial situation is abnormal. The management accounting risk of ST company is relatively large, which has a certain representative significance. Therefore, this paper selects 56 ST companies in China's listed companies from 2016 to 2021, removes some abnormal data and incomplete data in ST companies, and finally selects 20 companies as sample companies. The enterprise data in this article comes from the CHOICE financial terminal software data.

4.2. Selection of Financial Risk Indicators in Enterprise Management Accounting. According to the actual situation of the enterprises selected in this paper and the commonly used indicator system, a total of 16 financial indicators have

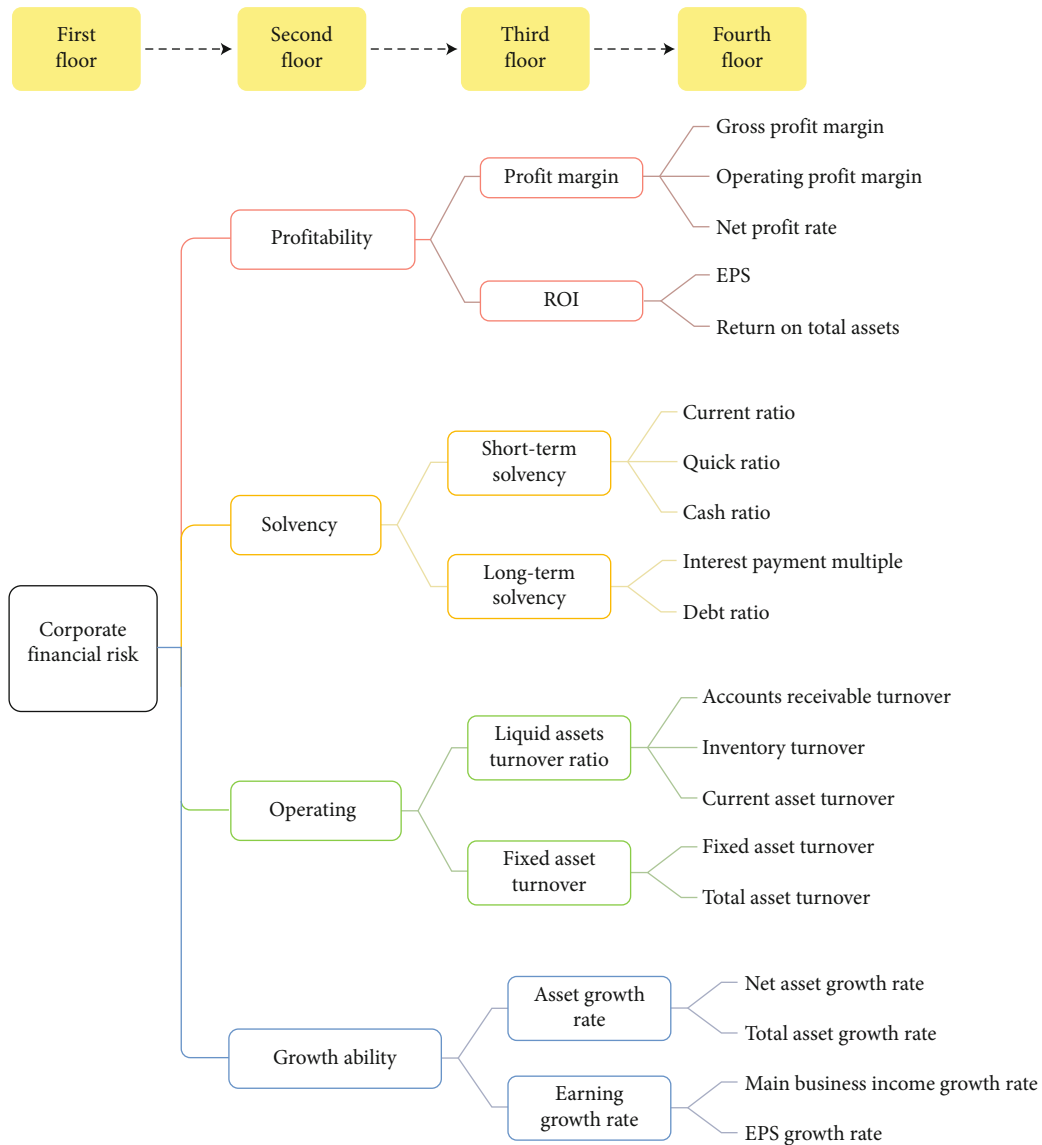


FIGURE 2: Concept hierarchy tree of enterprise financial risk.

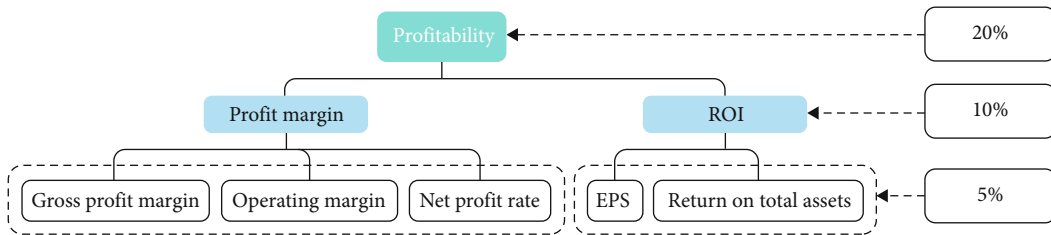


FIGURE 3: Profitability data mining strategy.

been collected, namely: (1) gross profit margin, (2) net profit margin, (3) return on assets, (4) basic earnings per share, (5) return on total assets, (6) quick ratio, (7) current ratio, (8) cash ratio, (9) asset-liability ratio, (10) Interest coverage ratio, (11) total asset turnover ratio, (12) accounts receivable turnover ratio, (13) inventory turnover rate, (14) growth rate

of total assets, (15) growth rate of net profit, and (16) growth rate of operating income. These enterprise management accounting financial risk indicators have a certain correlation. Running SAS software through the correlation coefficient calculation module, the correlation coefficient between the indicators is obtained as shown in Table 3.

TABLE 3: Correlation of financial indicators.

X Y	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1															
2	0.0912	1														
3	0.0754	0.112	1													
4	0.2413	0.2354	0.401	1												
5	0.1465	0.7512	0.805	0.7621	1											
6	0.1685	-0.063	0.0412	0.0846	0.06	1										
7	0.1896	-0.066	0.0385	0.0753	0.0587	0.948	1									
8	0.0621	0.0534	0.0432	0.1046	0.0824	0.3142	0.2764	1								
9	-0.342	0.2054	-0.231	-0.076	-0.129	-0.491	-0.509	-0.306	1							
10	0.343	-0.865	-0.045	-0.096	-0.12	0.1714	0.1611	-0.07	-0.031	1						
11	-0.514	0.1325	0.003	0.063	-0.014	-0.245	-0.246	-0.179	0.314	-0.182	1					
12	0.4321	-0.329	-0.013	-0.168	-0.087	0.0814	0.0943	0.037	-0.286	0.2468	-0.524	1				
13	0.5846	-0.682	0.0249	-0.121	-0.092	0.213	0.2198	-0.089	-0.364	0.8672	-0.423	0.4102	1			
14	0.0528	0.1954	0.191	0.4625	0.512	-0.012	-0.007	-0.041	0.1419	-0.12	-0.052	-0.129	-0.071	1		
15	-0.861	0.7658	0.5684	0.4895	0.547	-0.114	-0.142	0.021	0.213	-0.814	-0.005	-0.352	-0.698	0.5148	1	
16	-0.614	0.1103	0.0514	0.2147	0.171	-0.143	-0.153	-0.124	0.191	-0.068	0.314	-0.18	-0.104	0.1537	0.231	1

According to the correlation coefficient obtained by SAS software, the financial risk indicators with very high positive and negative correlation and the financial risk indicators with large correlation coefficient in the same module are screened and excluded. Finally, 11 financial indicators are obtained, namely: gross profit margin, net profit margin, return on equity, basic earnings per share, current ratio, cash ratio, asset-liability ratio, accounts receivable turnover ratio, inventory turnover ratio, total asset growth rate, and net profit growth rate.

4.3. Management Accounting Risk Assessment Based on Association Rules

4.3.1. Reconstruction of Financial Indicator Data Based on the Above Discretization Principles. After the correlation analysis of the sample data, the index values before the reconstruction of 11 financial indicators are obtained, and then the data is discretely reconstructed. The data of some indicators are listed in Table 4.

After the financial index values are reconstructed based on the above discretization principles, the continuous financial index data is converted into discrete financial index data as shown in Table 5.

4.3.2. Result Output and Interpretation. Run SAS software to perform association rule mining on the selected financial indicators through Apriori algorithm. Select different support thresholds and confidence values, and when the frequent itemsets of graded data under the corresponding thresholds are obtained, set the previous frequent itemsets as *A*, and recalculate the frequent itemsets under the new thresholds. Rescreening and recombining these data finally obtain frequent itemsets, looking for the number and rules of association rules between financial indicators.

The dataset is the financial indicator data of China ST company from 2016 to 2021, as shown in Table 6. When the support threshold is 0.6 and the confidence threshold is 0.3, 86 association rules are found. When the support threshold is 0.7 and the confidence threshold is 0.3, 34 association rules are found. When the support threshold is 0.8 and the confidence threshold is 0.7, 4 rule associations are found.

By mining and analyzing the association rules algorithm of the financial indicators of China ST Company and the relationship between the number of associations under different support thresholds and confidence thresholds, it is found that some key financial indicators always appear frequently when the enterprise management accounting crisis occurs. They are as follows: return on equity, basic earnings per share, current ratio, cash ratio, accounts receivable turnover ratio, inventory turnover ratio, total asset growth rate, net profit growth rate, and other eight financial indicators.

4.3.3. Analysis of financial risk in enterprise management accounting. Based on the data mining analysis of the association rules algorithm, the key indicators affecting the management accounting risk of the enterprise are obtained, namely: return on equity, basic earnings per share, current ratio, cash ratio, accounts receivable turnover ratio, inventory turnover ratio, total assets growth rate, and net profit growth rate. These key indicators fully reflect the degree of corporate management accounting risks from certain angles and provide a reference basis for investors to judge corporate profitability, debt repayment, operation, growth, and other aspects. According to the value of these key financial indicators, the risk level of financial indicators is judged, and the profitability, debt repayment, operation, and growth of enterprise management accounting risk are further obtained.

TABLE 4: Data related to corporate financial indicators.

Securities name	Financial indicator				
	Gross profit margin (%)	Roe (%)	Net interest rate (%)	Current ratio	Cash ratio
ST Ankong	11.8128	-65.4141	-13.5296	0.7021	0.0503
ST Antai	9.3034	14.8200	5.9253	0.8800	0.2719
ST Aoma	22.5387	-22.7944	-1.1148	1.3781	0.8882
ST Baling	17.9890	-63.4871	-43.6758	0.9167	0.0501
ST Bolong	29.1277	-14.1991	-10.2818	2.1525	0.1654
ST Beiwen	45.7802	-36.4305	-16.8846	1.0729	0.0200
ST Busen	21.0667	-57.5625	-30.7033	1.4024	0.3107
ST Dayou	24.0102	-15.1652	-6.1860	0.7627	0.3828
ST Dazhou	31.9129	-55.1888	-11.0538	0.3197	0.0707
ST Deihao	9.1568	-27.9654	-12.7340	0.8109	0.2234
ST Dongyang	2.1689	-18.9127	-8.5264	1.2101	0.1904
ST Fangke	17.3389	-70.1883	-9.7050	0.5785	0.1297
ST Furen	43.1257	-26.4360	-11.7530	1.0971	0.0088
ST Gaosheng	20.9308	8.6339	4.3154	2.5588	0.7544
ST Guanfu	3.7516	3.8607	1.2019	0.5642	0.0693
ST Guangyi	15.4920	-9.5168	-5.5269	1.8558	0.5211
ST Guiyi	35.9591	-181.2189	-10.2387	0.4686	0.0196
ST Guoyi	-9.2097	0.9112	0.3145	0.7442	0.4949
ST Haitou	14.4275	6.2299	6.3737	1.1255	0.5584
ST Haiyue	4.0741	2.2894	1.7331	4.3110	2.1075

TABLE 5: Discrete risk levels of corporate financial indicators.

Securities name	Risk level				
	Gross profit margin	Roe	Net interest rate	Current ratio	Cash ratio
ST Ankong	3	5	4	4	5
ST Antai	3	2	3	4	5
ST Aoma	2	4	3	3	4
ST Baling	3	5	5	4	4
ST Bolong	2	4	4	2	5
ST Beiwen	2	4	4	3	5
ST Busen	2	5	4	3	5
ST Dayou	2	4	3	4	5
ST Dazhou	2	5	4	5	5
ST Deihao	3	4	4	4	5
ST Dongyang	3	4	3	3	5
ST Fangke	3	5	3	4	5
ST Furen	2	4	4	3	5
ST Gaosheng	2	3	3	2	4
ST Guanfu	3	3	3	4	5
ST Guangyi	3	3	3	3	4
ST Guiyi	2	5	4	5	5
ST Guoyi	3	3	3	4	5
ST Haitou	3	3	3	3	4
ST Haiyue	3	3	3	1	2

TABLE 6: Number of association rules for corporate financial indicators.

Number of association rules		Support threshold		
		0.6	0.7	0.8
Confidence threshold	0.3	86	34	
	0.7			4

5. Conclusions

In the process of enterprise financial risk assessment, use association rules to screen financial risk indicators, find out key indicators that have a greater impact on enterprise financial risks, and improve the enterprise's defense ability against management accounting financial risks. It can be seen from the hierarchical tree of financial risk evaluation indicators established in this paper that enterprises need to systematically prevent financial risks. In the selection of specific financial indicators, enterprises should focus on the following aspects when preventing potential financial risks.

One is in the aspect of enterprise operation risk management. The focus should be on receivables turnover speed and inventory turnover. The turnover of accounts receivable is positively correlated with the flow rate of enterprise assets, which is directly related to the flow of enterprise assets.

The second is in the management of corporate profitability. The focus should be on earnings per share and return on equity, both of which are the focus of external investors. They are directly related to the company's profit rate of return, and they are positively correlated with each other. The higher the profit rate, the higher the earnings per share and the return on equity.

The third is in the evaluation of enterprise growth ability. We should focus on the growth of net profit and the growth rate of total assets, mainly because the growth rate of net profit is closely related to the business performance of the enterprise and is significantly related. Operational performance will primarily affect the evaluation and judgment of the company's future growth potential. The higher the operating efficiency of the enterprise, the greater the growth potential.

Fourth, in the evaluation of corporate solvency, the current ratio and cash ratio should be mainly concerned, both of which can realize a comprehensive judgment on the long-term and short-term solvency of the enterprise.

6. Discussion

In the process of this research, this paper still has some limitations. In the future, it is necessary to conduct in-depth exploration of data mining technology to improve the efficiency of data mining. And continue to explore data mining methods related to enterprise management accounting risk analysis. In addition, it will extend from enterprise management accounting risk analysis to research on enterprise management accounting risk early warning model.

Data Availability

The labeled dataset used to support the findings of this study is available from the corresponding author upon request.

Conflicts of Interest

The authors declare no competing interests.

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