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Research Article

Data-Driven Intelligent Risk System in the Process of Financial Audit

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Financial auditing is an important part of government control, and monitoring the risks of the financial system helps maintain the stability of a country's financial system. This paper aims to study the operation of data-driven intelligent risk analysis system in the process of financial auditing. When the risk level of the financial system reaches a certain warning point, it needs to be adjusted, conduct strict audits on high-risk institutions, strengthen cooperation with financial audit institutions, and make them more systematic. Risk control within a reasonable range will neither have a significant impact on the financial system nor increase the impact on the industry. This paper proposes to integrate the internal and establish an internal control system for the financial system.. If the internal control of the financial system cannot be sustained, financial innovation will cause great damage to financial institutions if the compensation is not good. Especially in terms of access strategy, it has made a strong contribution to economic innovation. The experimental data in this paper show that more than 25% of data-driven intelligent risk analysis systems have begun to be used in the process of financial auditing. At the same time, its utilization rate is significantly increasing with the development of technology. This paper introduces the relevant content of financial auditing, analyzes the auditing systems in different fields, integrates resources, taps on multisectoral needs, establishes a cross-departmental governance system, and improves financial stability and the efficiency of a wide range of social services.

1. Introduction

The development and deep integration of information technology, artificial intelligence, big data, and various industries is inseparable from the rapid development of network information technology. How to effectively integrate data analysis into the control project and how to manage an excellent big data analysis team and effectively empower big data analysis management and control project services, improve management and control efficiency, and provide more questions and control signs that the application management process faces are the main challenges. Big data point analysis is like a "double-edged sword." If used well, it will get twice the result with half the effort. Improper use will bring about the negative impact of progress and audit results on the entire project. How to effectively avoid and control these risks, reduce the possibility of danger, and increase the frequency of performing effective database checks are the problems that need to be solved at present. In the context of the integration of capital and data technology, the empowerment of blockchain, cloud computing, artificial intelligence, and other technologies is based on value guidelines and standards. The contribution of digital solutions and intelligence to improve compliance and performance governance is collectively referred to as the regulatory technology or compliance in technology. Regulatory technologies used in the field of supervision are called regulatory technologies, and those used in financial institutions are called compliance technologies.

Auditing financial innovation is an inexhaustible driving force for the development of financial institutions. It can help financial institutions grow better through innovation and meet the financial growth needs of financial services. New dangers are inevitable. We must pay full attention to

new dangers and take necessary precautions. This is the basic requirement of the "Basic Principles of Effective Banking Supervision." Rural credit cooperatives need to build a complete business innovation management system, strengthen risk management and control, combine financial innovation with hedging, and standardize the operating behavior of rural credit cooperatives. The contradiction between innovation and risk is externally integrated into economic growth and integrated into the comparison of benefits brought about by innovation and innovation. In the past, financial audits usually focused on the traditional error control and fraud investigations of individual financial institutions. I still do not understand the overall situation of the previous research. This paper starts with the factors that may affect the risk of the financial system. And after empirical research and statistical analysis, the relevant parameters are estimated, and hypotheses are tested. This will determine the internal control of liquidity, the proportion of nonperforming assets, the proportion of nonperforming assets in financial institutions, and which debt ratio indicators have a significant impact on systemic risks. A systematic description of the impact mechanism of these indicators and finally how financial control should deal with finances will be summarized.

For this research topic, many outstanding experts and scholars at home and abroad have discussed it. From the perspective of sociolinguistics, Chen et al.'s article aims to test whether the honorific and real names used by Chinese auditors to address clients in audit reports imply the risk of differential financial misstatement. Specifically, the author assumes that auditors use honorifics to indicate that they have a lower social status relative to the client, which leads to the loss of auditor independence, lower audit quality, and higher risk of financial misstatement. The authors used a data sample of manually coded names from the audit reports of Chinese listed companies from 2003 to 2012 to conduct research. The authors found that the financial misstatement of a company called a respectable name is much greater in terms of likelihood and scale than a company called a real name. In addition, compared with the auditor's consistent use of honorifics, the use of casual honorifics has a stronger positive correlation with misstatements. The author further shows that when the accounting firm is one of the top ten accounting firms in China, the positive correlation between the usage of honorifics and the risk of misreporting by clients weakens [1]. Lee and Izbicki mentioned that a key issue of modern statistics is how to make quick and reliable inferences on complex high-dimensional data. Although people are very interested in sparse technology, current methods cannot be extended to data with nonlinear structures. In this work, they proposed an orthogonal sequence estimator for predicting complex aggregated objects, such as natural images, galaxy spectra, trajectories, and movies. Our series of methods link the ideas of nuclear machine learning and Fourier methods. They extend the unknown regression of the data according to the characteristic function of the kernel-based operator, and we use the orthogonality of the basis relative to the basic data distribution P to speed up the calculation and parameter adjustment. If the kernel is selected appropriately, the feature function will adapt to the inherent geometry and dimensions of the data. They provide theoretical guarantees for radial kernels with varying bandwidths, and they relate the smoothness of the regression function with respect to P and the sparsity in the feature base [2]. Garg et al. mentioned in their article that, in the past few years, we have witnessed exponential growth in the computing and storage capabilities of smart devices, which has led to the popularization of an emerging technology called edge computing. Compared with traditional cloud computing-based infrastructures, edge computing end users can use computing and storage facilities nearby. In addition, with the widespread popularity of unmanned aerial vehicles (UAV), a large amount of information will be shared between edge devices and unmanned aerial vehicles in the next few years. In this case, traffic monitoring using drones and edge computing devices is expected to become an integral part of the next generation of intelligent transportation systems. However, monitoring requires uninterrupted data sharing, collaborative decision-making, and stable network formation. Edge computing supports data processing and analysis closer to the deployed machine (i.e., data source). Rather than simply storing data and missing opportunities to exploit it, edge devices can analyze the data to gain insights before acting on it. The use of drones can facilitate the transmission of data from the vehicle to the edge for real-time analysis, and the drone can act as an intermediate air node between the vehicle and the edge node [3].

The above three scholars have a comprehensive understanding of the financial audit and data-driven intelligent risk analysis chart system, but they did not consider the two well. These are some of the shortcomings of the above article. Therefore, in this paper, these issues will be supplemented and studied in-depth, with a view to better applying the data-driven intelligent risk analysis system to the financial audit process. At the same time, this paper also looks forward to the future development of this field.

2. Method of Data-Driven Intelligent Risk Analysis System in the Process of Financial Audit

2.1. Financial Audit. Audit big data analysis is an advanced technology [4], and the demand for data analysts is quite high. It not only requires other types of interdisciplinary knowledge and experience of mathematics, financial, and accounting graduate students but also often uses unknown and unusual technical means and so on. The auditor should be based on project history and personnel, configure requirements, budgets, schedules, and so on and analyze big data, identify process risks in advance and take control measures, and check whether there are potential hazards during the inspection process to avoid losses and consequences caused by poor risk control. The current financial audit needs to solve the limitations of traditional research and rectification and grasp the risks from a macroperspective grade. Therefore, macro-indicators of financial institutions are needed to predict the overall level of systemic risk to determine deposits. All

institutions have a remindering about the risk; if it is within the safety range, the problems arising during the investigation process will be properly resolved [5]. Take care of it and prevent it from expanding further; in the final analysis, buildings must be renovated, and districts must be rebuilt from scratch. And the unit fills up the gap, perfects the system, strengthens internal control, and streamlines management. Financial audit research can effectively guarantee the security of the national financial system.

2.2. Data-Driven Intelligent Risk Analysis System. Numerical examples and data-driven methods are similar in many behaviors [6]. But the purpose of planning is different. The reason is that the idea behind this is different, even with data management. But the digital example also emphasizes the preset logic. The logic of form creation must be written by the architect. Although the logic of solving problems in a data-driven approach is programming, a data-driven approach is like a documented design based on the relationships found in analysis and processing. Instead of creating is a logic formula 11 first, and then using that logic to solve the problem, start from a large amount of available information. Enter the data and find out the logic to solve the problem. Then use this logic as a solution. The data-driven approach not only sprouts in the architectural design industry but also has a lot of practice in the field of data-intensive urban planning. Roads, road networks, pedestrians, traffic, and so on in cities naturally have big data characteristics due to the high density of cities. In our country, traditional urban planning is often based on the judgment of the government and experts [7]. This top-down planning method cannot take into account the actual needs from multiple subjects, and the technical means of big data are expected to solve such problems and achieve the fullest use of urban resources. There are many precedents for such data-based decision-making abroad. For example, the research group at Brown University uses big data analysis to determine the best construction location for engineering facilities and can find construction sites that can meet the full utilization of resources through data such as the flow of people on campus and the distribution of main functions of the campus is student and school results. Big data analysis based on history can also help to discover specific laws or construction risks, which helps avoid traps for new projects. Information management functions [8, 9] include customer management, space management, collateral management, warehouse management, quota management, early warning management, information release, ledger management, query, report platform, system management, job transfer, and data maintenance. The credit business management system specifically includes the following information management functions and customer management. Loan customer creation and information maintenance include the creation of new customers in the system, the design and implementation of a financial risk early warning analysis system based on Zhajishi data statistics, inquiries about existing customer information, basic information, and financial information, as well as changes and maintenance manufacturing. The content of customer management can provide business personnel and business managers with detailed and timely customer information and key data. Available client types include corporate client management, corporate blacklist management, corporate senior client management, group-related management, personal client management, personal blacklist management, personal senior client management, joint insurance team management, joint client management, and financial reporting [10].

2.3. Algorithms for Data-Driven Intelligent Risk Analysis in the Financial Audit Process. In the process of financial audit, when the financial risk early warning analysis system is in the automatic operation mode [11], the system will execute according to the following definition list, as shown in formulas (1) and (2):

$$u = \sum_{i}^{i-1} (n - i) + 1, \tag{1}$$

$$k = \sum_{i}^{k-1} (n - i) + 1 - (x, y). \tag{2}$$

According to its resource library [12], it can be concluded that a properly configured data algorithm is as follows:

$$t = \frac{n(n-1)}{2} + \frac{(x-1)}{(y-1)}. \tag{3}$$

Through the system materials of the resource database and the quantitative relationship between the indicators defined by the above model [13], the preliminary algorithm of the audit process can be obtained:

$$\begin{aligned} F\left(a_x, a_y\right) &= \vee F_k\left(a_1 - a_2\right) = 1, \\ A &= \left\{a_1 \mid F_2\left(a_x, a_y\right) = 1\right\}. \end{aligned} \tag{4}$$

According to the above formula, combining formulas (1) and (3), we can get

$$\begin{aligned} z^2(k) &= h^2[x(k)] + w^j(k), \\ E\left[w^i(k) w^2(j)^1\right] &= R^i \ell(k - j). \end{aligned} \tag{5}$$

The early warning model of financial audit risk is stored in a standard format file [14, 15], which contains the decision tree structure of the model and the data definition of each node.

$$x(k \mid k = 1) = \theta(k-1) x^2(k-1 \mid k-1). \tag{6}$$

Using the decision information data, data processing and conversion processing are performed, and the source data are converted into model result data. Thus, we can obtain formulas (7) and (8):

$$S(k) = H^1(k) P(k \mid (k-1)) H^2(k)^1 + R(k)^2, \tag{7}$$

$$x(k \mid k) = E\left(x(k) \mid Z^i\right) = \sum_{j=0}^{m\left(k^i\right)} \beta\left(k^i\right) x^2. \tag{8}$$

Related indicators and corresponding safety thresholds [16] can also be calculated by the above method:

$$p^2(k \mid k) = P^2(k \mid l)|Z^{2,k} = \sum_{i=0}^{m^2 k} \beta_j\left(x_o^i, k\right), \tag{9}$$

$$\sum_{j=1}^{r} \eta_k(x_1, y_1) = 1 - \sum_{j=2} \nu(j, k_0). \tag{10}$$

3. Data-Driven Intelligent Risk Analysis System Experiment in the Process of Financial Audit

When financial auditing and fiscal supervision policies or related laws fail, especially when local financial regulations encourage financial institutions to take high returns with high risks, the possibility of systemic financial risks will increase. This should arouse the attention of my country's macroprudential departments and incorporate the evaluation results of the effectiveness of financial policies and financial regulatory laws into the content of macroprudential supervision. To ensure that relevant policies are implemented in place, do not pose a hidden danger to the security and stability of the financial system [2, 17]. In addition, fluctuations in monetary and fiscal regulatory policies will also have a negative impact on the stability of the financial system, especially when these policy objectives are different. For example, the overall goal of my country's central bank's monetary policy is to maintain the relative stability of the RMB currency in order to stimulate the growth of the national economy. The purpose of policy-based fiscal supervision is mainly to focus on the overall smooth operation of financial institutions and protect the legitimate rights and interests of investors. The difference in the policy objectives of the central bank and other financial regulatory agencies makes it difficult to coordinate their respective policies effectively, which easily threatens the security of the financial system and even the operation of the entire macroeconomic system. Therefore, national macroprudential regulators should pay attention to and evaluate the overall stability of the financial system and financial institutions (including banks and nonbank financial institutions), as well as systematic risk management methods and micromanagement vigilance. These changes assess their impact on systemic risk.

3.1. Experimental Strategies and Experimental Procedures. The experimental process of this paper is to determine the experimental objects first, then collect data samples, then process and analyze the data, and finally get the results. Many experts and scholars analyzed the necessity of coordination between government fiscal planning and fiscal supervision and suggested that government fiscal regulation should give full play to its independence and comprehensive benefits [18], and fiscal supervision agencies need to reintegrate existing responsibilities. Management and contract risk monitoring functions establish a comprehensive coordination framework for government financial planning and auditing. The government financial planning emphasizes the supervision function, and the financial supervision emphasizes the management function. Government fiscal planning must maintain its unique independence, objectivity, and impartiality and expose obvious risks of hidden dangers to the stability of the financial system: in terms of responsibilities, government fiscal control supervises its supervision and supervision and punishment. Financial control does not participate in the regulatory law. The business activities of audited financial institutions have a transcendence status and support their performance of supervisory functions; financial accounting transactions are adjusted in accordance with the overall state of the national economic development. Therefore, financial management and control should pay more attention to the overall understanding of the financial system and its working mechanism and grasp the stability from the source; in terms of goals, the government emphasizes financial control, systemic risks, and financial supervision. Financial audit should focus on the comprehensive external performance evaluation of finance, internal reasons, related control management procedures and risk capabilities, timely and effective analysis, and early warning of systemic risks; in terms of objectives, government auditing requires new government supervision, and the regulatory agency designates direct control. Intensify the accounting of the performance of the audit institutions' related responsibilities, especially the control of the financial responsibilities of the main persons in charge of the audit institutions. The financial audit risk management of banks is mostly nonempirical analysis methods and subjective estimation. The overall level of using information technology and expert systems to strengthen management and prevent risks is not high. As the process of global economic integration accelerates [19] and market competition is becoming increasingly international and fierce, commercial banks urgently need to strengthen their own professional knowledge and core capacity building, improve their ability to predict and respond to market risks, and improve their profitability. At the WTO level, it is to improve the competitiveness of commercial banks after joining the WTO.

3.2. Sample Collection. The model represents the linear relationship between each independent variable and the dependent variable (system risk). The difference is the internal control state of the independent variable, which has a linear relationship with the dependent variable [20, 21]. Because of the data given in the model, the internal control has a larger value than the dependent variable and other independent variables, so it is determined. Use modular division for linear relationships. Discuss two situations of type and model. The next step will be to test which of these two models is more suitable for this study to make a choice. Determine whether the coefficient is significantly increased due to the input of the estimated value according to the test judgment, and finally determine the significance level. If the test significance level is high, accept the null hypothesis and accept that there is no nonlinear feature. Otherwise, we should try to introduce nonlinear variables. After logging in, if it fails, please

continue to check if there is a better model that can replace the original model. This requires adding nonlinear variables from the calculation results. For example, perform the same operation under three conditions, and finally get the corresponding data theory [22]. In the regression analysis, the difference between the measured value and the predicted value of the regression equation is shown. The difference obeys normal distribution. But it will be called the rest of the model. Follow the standard normal distribution. The probability is that the rest of the standard of the test point is out of range. If the standard balance of a given test point is outside this range, it is regarded as an abnormal test below the confidence level and is not included in the regression line adjustment. Artificial balance is the difference between actual observations and regression estimates.

4. Data Analysis of Experimental Results

4.1. Summary of Experimental Results. At present, in the asset-liability structure of my country's financial institutions, especially commercial banks, the above-mentioned liabilities are all absorbed by deposits, and the asset business is also dominated by loans. The proportion of total assets exceeds total assets, and interest income is higher than total income. The spread reflects the typical characteristics of traditional banks. In financial auditing, you can pay more attention to assets and liabilities than the capital adequacy ratio so as to avoid excessive debt ratios causing excessive financial burdens and agency costs to financial institutions [23]. Taking into account the inevitable high debt ratio of banks, insurance financial institutions should pay more attention to the risk factors of asset-liability ratio. Taking this insurance financial institution as an example, its asset-liability ratio is generally slightly higher than that of normal business, but its operating activities and asset ratio are closer to normal business than banks. Therefore, in the financial audit, the asset-liability ratio of insurance financial institutions may be very high relative to the debt level, which may cause systemic risks. For banks, the focus should be on short-term liquidity levels. The risk early warning model is based on the business database and is divided into information entry, model entry, and source data entry. The risk warning model is stored in a standard format file, which contains the decision tree structure of the model and the data description of each node. The source data is the indicator data source in the model calculated through the access rules in the risk assessment system of financial institutions [24, 25]. The user queries and maintains warranty-related information in the system and establishes the relationship between warranty information and confirmation. Carry out customer evaluation; the user enters the customer evaluation information into the system, performs customer credit evaluation, and completes the credit evaluation form. General credit line application users enter individual customer credit line survey information in the system and fill in and submit a single customer general credit line survey application form. The loan job application user enters the job application information into the system, evaluates the collateral according to the work status [26], and fills in the loan job application form. Edit group associations, that is, users query group information in the system, add, modify, delete, and approve credit group associations.

Connect the information of popular companies to the bank's customer management system. Taking the financial industry as an example, the customer management system of local commercial banks has complete and accurate financial business operations, finance, and related company data [27]. The relevant H department of the company will be adjusted downwards. The internal evaluation process of the bank's credit and risk department can translate the core business management and financial impact of a financial company into a downgrade of the company, an increase in the provision for bad debts, and an increase in risk investment; the bank's asset-liability management process can reduce risks and increase funds. Rising costs have led to flat estimates of bank revenue, asset value, and liquidity. Banks that have completed the microstress test can use the above system to measure the impact of a decline in the company's financial and governance ratios on their forecasts. Capital adequacy ratio and liquidity risk extend this method to many large banks. The stability of Chinese financial system is measured through the durability test of multiple banks and the aggregation of macro indicators.

4.2. Experimental Data Analysis. Auditors should predetermine the risks inherent in the big data analysis process according to the background, personnel, budget, and time requirements of the specific project, control the potential risks in the audit implementation process, and avoid insufficient risk control and in situ effects. Regarding how to effectively carry out project risk control, the author believes that four aspects should be focused on: one is to focus on the refined management of the project and to do a good job in project feasibility studies; the second is to pay attention to the quality requirements; the third is the organization and employee coordination of development; the fourth is to organize the budget and progress of the completion of the project. Will the on-site feasibility study play an important role in all project requirements? During the management development process and in the data analysis before starting the project, the auditor should identify the factors that may affect the progress and results of the project during the audit project review, as well as the information system and business information audited by the audited unit. The plan requires personnel requirements and so on to check the impact of project data analysis results and to check decision-making to avoid half of the losses caused by project failure.

4.3. Analysis of Data-Driven Intelligent System in the Process of Financial Audit. In the financial audit process, many agency processes need to cooperate with each other to complete a complete job, and the specific collaboration process is shown in Figure 1.

From the perspective of financial auditing, there are differences in monthly data analysis. Through Figure 2, we can see the cause of the equipment data error problem and analyze it.

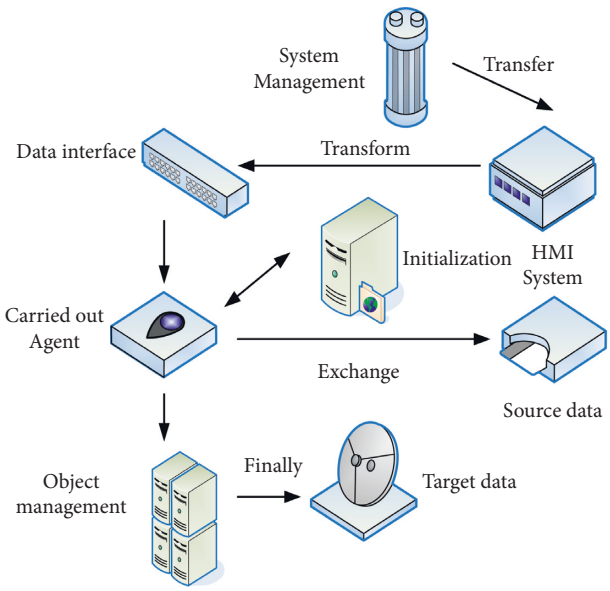

Figure 1: Flowchart of collaboration between multiple agents.

It can be seen from Table 1 that, through data processing, especially after intelligent processing, a high-precision fitting function of the speed can be obtained, and the results of the data fitting are as follows.

The fluctuation error of the same month's data (net consumption, etc.) exceeds 10%. A fluctuation error greater than 10% can easily cause the data link break strength index to fluctuate throughout the manufacturing process. Correspondingly, the fluctuation of the strong force index will increase the probability of the whole process being interrupted, which also means that there are many defects in the data statistics process, as shown in Figure 3.

Analyze the change trend between the data, and form the convergence trend shown in Table 2.

The time sequence of the financial risk early warning function based on data statistics of the samples involved in the experiment is shown in Figure 4. Through the sequence diagram, we can see that the arrangement of the device function of risk early warning is very necessary.

Certain related variables are sometimes involved in the model. Here, we will make specific explanations for some of these variables in order to better understand and analyze the conclusions brought about by the data, as shown in Table 3.

The relevant indicators of the risk warning function and the corresponding safety thresholds are listed in Table 4.

Different levels of the data layer will also produce different data classification results, as shown in Figure 5.

Preprocess and store structured data such as customer information and business data through technologies such as collection, cleaning, verification, conversion, and classification, and link all data to form a unified data view, as shown in Figure 6.

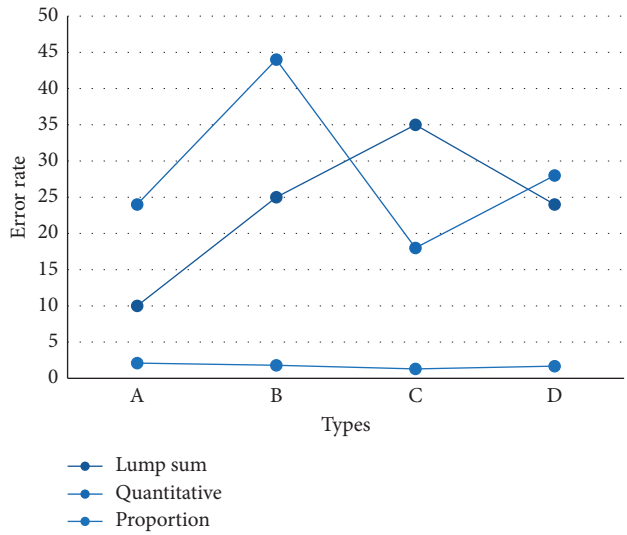

Figure 2: Data error analysis.

Table 1: Data fitting results.

Machinery code	Variety name	Rotating speed	Effectiveness	Total time
A025	001	520	87	31
A026	002	490	99	40
A027	003	610	106	54

Data are documents, visited magazines, emails, images, audio, video, and so on. Extract unstructured data such as natural language processing technology and machine learning technology. This can be seen in Table 5.

Table 2: Convergence curve table.

Number of iterations	Total actual consumption	Net usage	Net consumption	Back to spend
100	5	56	45	32
200	9	78	69	44
300	17	64	67	52

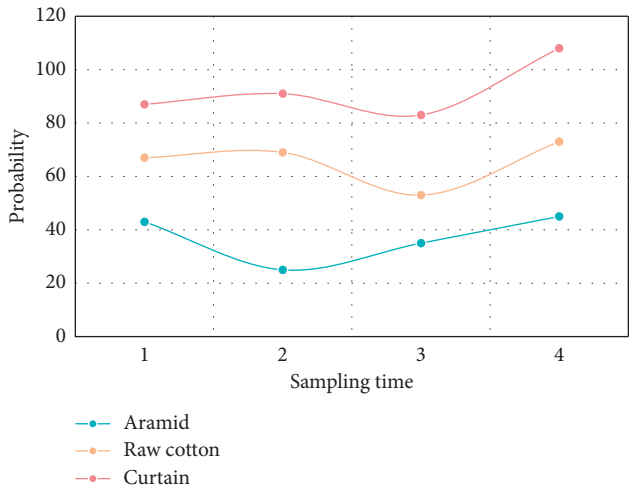

Figure 3: Data fragmentation impact.

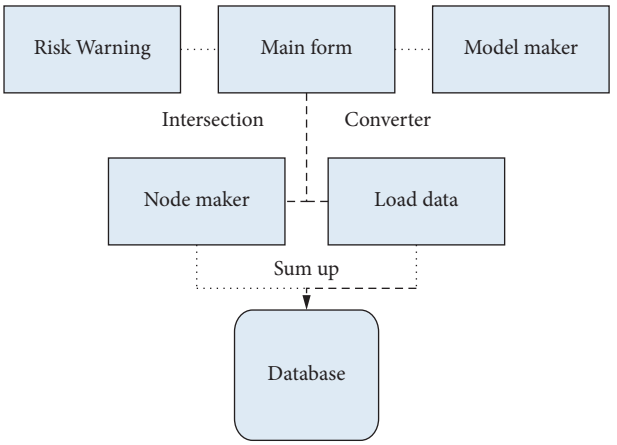

Figure 4: Timing diagram of risk warning function.

Table 3: Variable interpretation table.

Variable name	Nature	Significance
Risk	Dependent variable	Risk measurement
Liq	Dependent variable	Liquidity level
Inc	Independent variable	Debt level
Debt	Random variables	Proportion of unhealthy assets

Table 4: Regulatory index table.

Indicator type	First level indicator	Secondary indicators	Index value (%)	Risk level
Liquidity risk	Liquidity indicators	Debt dependence	25	6
Credit risk	Liquidity gap rate	Profit margin	30	5
Market risk	Nonperforming asset ratio	Cost to income ratio	33	3
Profitability	Correlation	Credit ratio	28	1

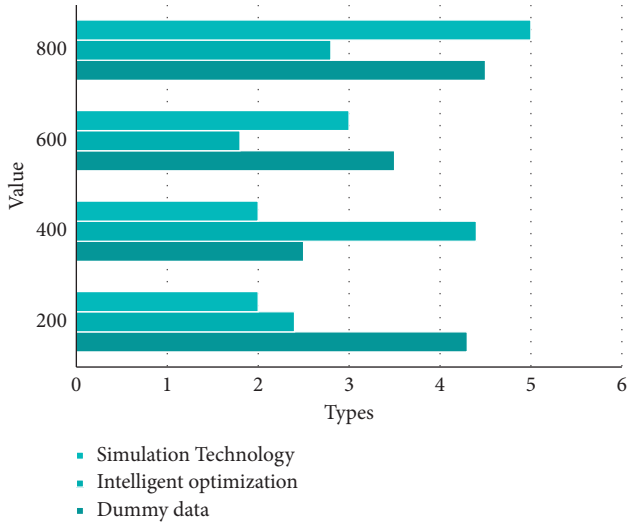

Figure 5: Schematic diagram of data tank problem.

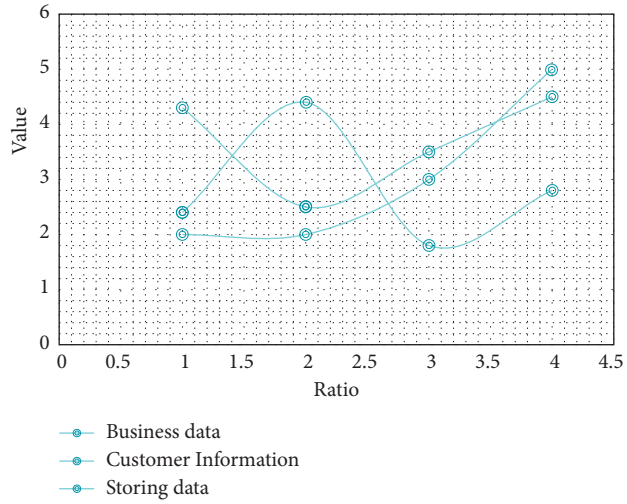

Figure 6: Data view.

Table 5: Structured data table.

Types	Skills	Ratio	Rank
Documentation	Natural language	1.2	A
Magazine	Structured data	2.01	A
Image	Machine learning	1.6	B

5. Conclusions

The calculation of the relationship between financial controlled entities based on multiple data sources mainly includes the calculation of the time weight of the relevant attributes of the entities. Calculate the weight of the data source and calculate the number of queries and each user at the same time for this application scenario. Because of each source, the calculation of the weight of the data source is based on the PageRank algorithm, using other data sources related to the data source to share the weight of the data source, which can adapt to the dimension, and the information is obtained through multiparty voting. It can better solve the problem of uneven data quality. Our country's fiscal treatment can conceal the design flaws of the United States, learn the new financial governance methods of the United States, and create efficient and diversified financial supervision methods suitable for my country's national conditions. It covers different areas of systems, resource integration, and multidepartmental requirements and establishes a cross-sectoral governance system to improve financial stability and the efficiency of a wide range of services to society.

Data Availability

No data were used to support this study.

Conflicts of Interest

The authors declare no conflicts of interest in this paper.

Authors' Contributions

All authors have seen the manuscript and approved to submit it to this journal.

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References

[1] F. Chen, X. Du, S. Lai, and M. L. Z. Ma, "Does the use of honorific appellations in audit reports connote higher financial misstatement risk? Evidence from China," *Asian Review of Accounting*, vol. 26, no. 4, 2018.

[2] A. B. Lee and R. Izbicki, "A spectral series approach to high-dimensional nonparametric regression," *Electronic Journal of Statistics*, vol. 10, no. 1, pp. 423–463, 2016.

[3] S. Garg, A. Singh, S. Batra, N. Kumar, and L. T. Yang, "UAV-empowered edge computing environment for cyber-threat detection in smart vehicles," *IEEE Network*, vol. 32, no. 3, pp. 42–51, 2018.

[4] E. I. Vlahogianni, K. Kepaptsoglou, V. Tsetsos, and M. G. Karlaftis, "A real-time parking prediction system for smart cities," *Journal of Intelligent Transportation Systems*, vol. 20, no. 2, pp. 192–204, 2016.

[5] J. Wonglimpiyarat, "What is it about strategic implications of using financial models in the process of technology management?" *The Journal of High Technology Management Research*, vol. 30, no. 1, pp. 82–90, 2019.

[6] N. Demong, J. Lu, and F. K. Hussain, "An adaptive personalized property investment risk analysis method based on data-driven approach," *International Journal of Information Technology and Decision Making*, vol. 20, no. 2, pp. 1–36, 2021.

[7] G. Barta, "The increasing role of it auditors in financial audit: risks and intelligent answers," *Business, Management and Education*, vol. 16, no. 1, pp. 81–93, 2018.

[8] X. Liu, Y. Zhou, and W. Zongrun, "Can the development of a patient's condition be predicted through intelligent inquiry under the e-health business mode? Sequential feature map-based disease risk prediction upon features selected from cognitive diagnosis big data," *International Journal of Information Management*, vol. 50, no. Feb, pp. 463–486, 2020.

[9] V. Mahajan, C. Katrakazas, and C. Antoniou, "Crash risk estimation due to lane changing: a data-driven approach using naturalistic data," *IEEE Transactions on Intelligent Transportation Systems*, pp. 1–10, 2020.

[10] H. Sun, Z. Liu, G. Wang, W. LIAN, and J. MA, "Intelligent analys, is of medical big data based on deep learning," *IEEE Access*, vol. 7, 1 page, 2019.

[11] K. C. Finch, K. R. Snook, C. H. Duke, K.-W. Fu, and Z. T. H. Tse, "Public health implications of social media use during natural disasters, environmental disasters, and other environmental concerns," *Natural Hazards*, vol. 83, no. 1, pp. 729–760, 2016.

[12] D. Fu, "Guest editorial: unlocking unconventional reservoirs with data analytics, machine learning, and artificial intelligence," *Journal of Petroleum Technology*, vol. 71, no. 1, pp. 14-15, 2019.

[13] X. Zhao, D. Lord, and Y. Peng, "Examining network segmentation for traffic safety analysis with data-driven spectral analysis," *IEEE Access*, vol. 7, pp. 120744–120757, 2019.

[14] Y. Beebeejaun, A. Athithan, T. P. Copeland, M. S. Kamath, I. Sarris, and S. K. Sunkara, "Risk of breast cancer in women treated with ovarian stimulation drugs for infertility: a systematic review and meta-analysis," *Fertility and Sterility*, vol. 116, no. 1, pp. 198–207, 2021.

[15] S. He, J. Yang, M. He, D. Yan, S. Tang, and L. Rong, "The risk of future waves of COVID-19: modeling and data analysis," *Mathematical Biosciences and Engineering*, vol. 18, no. 5, pp. 5409–5426, 2021.

[16] A. Tairi, A. Elmouden, and M. Aboulouafa, "Soil erosion risk mapping using the analytical hierarchy process (AHP) and geographic information system in the tifnout-askaoun watershed, southern Morocco," *European Scientific Journal*, vol. 15, no. 30, pp. 1857–7881, 2019.

[17] F. Corman, S. Kraijema, M. Godjevac, and G. Lodewijkse, "Optimizing preventive maintenance policy: a data-driven application for a light rail braking system," *Proceedings of the Institution of Mechanical Engineers - Part O: Journal of Risk and Reliability*, vol. 231, no. 2, pp. 534–545, 2017.

[18] R. Coulter, Q. L. Han, L. Pan, and J. Zhang, Y. Xiang, Data-driven cyber security in perspective--intelligent traffic analysis," *IEEE Transactions on Cybernetics*, vol. 50, no. 7, pp. 3081–3093, 2019.

[19] I. A. Rakhmanenko and R. V. Meshcheryakov, "Identification features analysis in speech data using GMM-UBM speaker verification system," *Tr Spiiran*, vol. 3, no. 52, pp. 32–50, 2017.

[20] R. O. Sinnott and W. Voorsluys, "A scalable Cloud-based system for data-intensive spatial analysis," *International Journal on Software Tools for Technology Transfer: International Journal on Software Tools for Technology Transfer*, vol. 18, no. 6, pp. 587–605, 2016.

[21] A. Gomes, J. Kibilda, A. Farhang, R. Farrell, and L. A. DaSilva, "Multi-operator connectivity sharing for reliable networks: a data-driven risk analysis," *IEEE Transactions on Network and Service Management*, vol. 18, no. 3, pp. 2800–2811, 2021.

[22] T. S. Kuldova, "Imposter paranoia in the age of intelligent surveillance: policing outlaws, borders and undercover agents," *Journal of Extreme Anthropology*, vol. 4, no. 1, pp. 45–73, 2020.

[23] Y. Fang, Z. Shan, and W. Wang, "Modeling and key technologies of a data-driven smart city system," *IEEE Access*, vol. 9, pp. 91244–91258, 2021.

[24] J. Y. Yeh and C. H. Chen, "A machine learning approach to predict the success of crowdfunding fintech project," *Journal of Enterprise Information Management*, 2020.

[25] C. A. T. Romero, J. H. Ortiz, O. I. Khalaf, and A. R. Prado, "Web application commercial design for financial entities based on business intelligence," *Computers, Materials & Continua*, vol. 67, no. 3, pp. 3177–3188, 2021.

[26] E. Copland, D. Canoy, M. Nazarzadeh et al., "Antihypertensive treatment and risk of cancer: an individual participant data meta-analysis," *The Lancet Oncology*, vol. 22, no. 4, pp. 558–570, 2021.

[27] L. Ogiela, M. R. Ogiela, and H. Ko, "Intelligent data management and security in cloud computing," *Sensors*, vol. 20, no. 12, p. 3458, 2020.