

The Application of Artificial Intelligence in Enterprise Financial Risk Warning under the Background of Big Data

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Abstract: Artificial intelligence is a product of the new era, and with the rapid development of technology, it has been widely applied in many fields, laying a good technological foundation for social development. In financial management, the popularity of ATM machines has verified that China has introduced artificial intelligence technology. Ordinary people can easily view their financial status and handle some simple financial transactions through online platforms, thereby enhancing the scientific nature of investment decisions. However, the rapid development of artificial intelligence has also brought some problems to traditional financial work, as traditional models face difficulties in matching new market demands. Therefore, integrating artificial intelligence into financial work as soon as possible has become an inevitable trend. By effectively applying artificial intelligence, enterprises can enhance the intelligence level of financial management in the rapidly changing market environment, ensuring its sustainable and healthy development. Based on this, the article conducted relevant research on the application of artificial intelligence in enterprise financial risk warning under the background of big data.

Keywords: Big Data Background; Artificial Intelligence; Financial Risk; Risk Warning; Application

1. Introduction

In today's rapidly developing digital world, with the widespread application of big data technology, massive financial data is constantly generated, collected, and analyzed, providing rich decision-making basis for enterprises. However, simple data accumulation is not enough to cope with the rapidly changing market environment, and enterprises urgently need to use artificial intelligence technology for in-depth analysis and intelligent management. Artificial

intelligence has powerful data processing capabilities and can improve the accuracy and timeliness of financial risk warning through learning and self optimization. Through comprehensive analysis of historical data, market dynamics, and external information, artificial intelligence has developed a new financial management mindset for enterprises, helping them more effectively identify, evaluate, and respond to financial risks, and ultimately achieve sustainable development. Therefore, in-depth exploration of the application of artificial intelligence in enterprise financial risk warning has important practical significance.

2. The Application Advantages of Artificial Intelligence in Enterprise Financial Risk Warning

2.1 Improving the Efficiency of Financial Information Processing

Artificial intelligence has significant advantages in improving the efficiency of financial information processing in enterprise financial risk management. Firstly, in terms of automated data processing, artificial intelligence can quickly identify and process financial data through machine learning algorithms, significantly reducing the time and cost of manual operations. For example, a large multinational company has adopted an AI driven financial management platform and achieved global integration and analysis of financial data. The platform can automatically process thousands of invoices with an accuracy rate of over 99%, as shown in Table 1. Secondly, in terms of data processing accuracy, artificial intelligence systems reduce the possibility of human errors and improve the accuracy of data processing. In financial data audit and accounting work, the application of artificial intelligence technology can ensure the accuracy of calculation methods and ranges, fundamentally enhancing the accuracy of audit and accounting results. Then, in terms of

optimizing financial workflows, artificial intelligence can optimize financial workflows and improve information sharing speed. For example, through technologies such as natural language processing, artificial intelligence can automatically read and process documents such as invoices and contracts, achieving automation in accounting processing. This greatly reduces the workload of manual input and improves the accuracy and efficiency of data processing. Finally, in terms of real-time monitoring and warning, artificial intelligence can monitor transaction and behavior data in real time, identify abnormal patterns, such as abnormal consumption in credit card transactions, false information in loan applications, etc. This real-time monitoring and automatic warning mechanism reduces the workload of manual review, improves the accuracy of fraud detection, and reduces financial losses. It can be seen that artificial intelligence has significantly improved the efficiency of financial information processing in enterprise financial risk management by automating the processing of large amounts of data, improving data processing accuracy, optimizing financial workflows, real-time monitoring and early warning, and rapidly generating financial reports. These advantages not only improve the operational efficiency of the enterprise, but also reduce financial risks, creating greater value for the enterprise.

Table 1. Artificial Intelligence in Automated Data Processing for Enterprise Finance

Advantage aspects	Compared to previous processing volumes
Automatically process invoice quantity	Over a thousand sheets
Invoice processing accuracy	More than 99%
Reduction rate of financial report generation time	Far higher than manual detection
Improved accuracy of fraud detection	Far higher than manual detection
Reduction rate of manual audit workload	Up to 50% or more

2.2 Improve Financial Risk Warning Capability

Traditional risk warning methods often rely on historical data and empirical judgment, making it difficult to cope with rapidly changing market

environments. Artificial intelligence can monitor the financial status of enterprises in real time and identify potential risks through data mining. Specifically, artificial intelligence can conduct in-depth analysis of a company's financial data by constructing complex predictive models. By using deep learning algorithms, companies can establish comprehensive risk assessment models and identify potential financial crises. According to research by iResearch Consulting, companies that adopt artificial intelligence technology have improved the accuracy of financial risk warning by over 30%. At the same time, AI technology can analyze external information such as market news, social media comments, etc. through natural language processing (NLP) technology to obtain external factors that may affect a company's financial situation. Taking Guangfa Securities as an example, in 2019, Guangfa Securities launched the construction of a digital compliance and risk monitoring system DCAR, with the goal of integrating new technologies such as AI, big data, and cloud native to achieve real-time/penetration/continuous risk tracking, gradually improving the compliance and risk control capabilities of various business lines/subsidiaries/branches.

2.3 Accelerate the Intelligent Development of Financial Work

The introduction of artificial intelligence has improved the financial information processing capabilities of enterprises and promoted the intelligent development of financial work. With the continuous development of artificial intelligence technology, more and more enterprises are paying attention to the construction of intelligent finance to improve overall management level and competitiveness. The application of artificial intelligence has shifted the financial work of enterprises from traditional manual operations to intelligent management. For example, intelligent robots can undertake financial tasks with high repetition and low complexity, such as invoice review, reimbursement processing, etc., freeing up the time of financial personnel and allowing them to focus on more strategic work. About 70% of corporate finance departments indicate that the introduction of artificial intelligence technology allows finance personnel to spend more time on strategic analysis rather than tedious daily tasks. At the same time, enterprises can use artificial intelligence technology for intelligent budget

management, analyze market trends using predictive models, and develop more scientific budget plans.

3. The Application of Artificial Intelligence in Enterprise Financial Risk Warning under the Background of Big Data

3.1 Data Mining and Analysis

According to the theme survey "The Impact and Response of ChatGPT Represented Large Models on the Functional Transformation of Accounting Personnel" launched by the Shanghai National Institute of Accounting in July 2023, the survey respondents have a relatively positive view of large models: on the one hand, the application of large models can cope with automated process work, thereby improving the efficiency of daily financial work; On the other hand, large models can achieve data-driven analysis and decision-making system output by loading data mining algorithms. As shown in Figure 1, in the large model, compared to traditional enterprise financial processing tasks, based on data loading mining algorithms, enterprise financial analysis has improved by 4.14%, accounting has improved by 4.09%, cost management has improved by 2.72%, and budget management has improved by 2.65%. Overall, under the financial risk management mode of applying artificial intelligence, the overall efficiency of the enterprise has reached 32.04%.

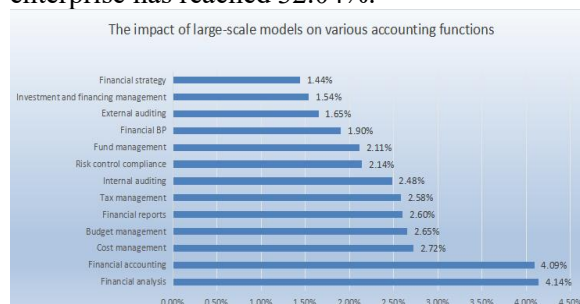


Figure 1. The Impact of the Large Model on Various Accounting Functions

Among them, data mining and analysis are the fundamental applications of artificial intelligence in enterprise financial risk warning. Through in-depth mining of massive financial data, enterprises can discover potential risk patterns and trends, providing strong support for decision-making. For example, many companies use data mining techniques to analyze their financial statements, sales records, and market data to identify factors that affect financial

health. Through cluster analysis and association rule mining, enterprises can identify the relationships between different factors and identify potential financial risks. For example, a retail enterprise discovered through data mining that there is a significant negative correlation between sales data and inventory turnover rate in a certain season. The enterprise adjusted its inventory management strategy in a timely manner to avoid the tight capital chain caused by inventory backlog. By analyzing abnormal patterns in transaction data, companies can promptly detect suspicious transactions and conduct in-depth investigations. According to a research by a consulting firm, companies that use data mining can improve the identification efficiency of financial fraud by more than 50%, effectively reducing financial risks.

3.2 Natural Language Processing

By analyzing a large amount of unstructured text data, natural language processing (NLP) technology can help businesses identify external factors that affect their financial situation, including market news, social media comments, and financial reports. For example, companies can use NLP technology to analyze financial news and market dynamics, extracting important information related to their own business. Through sentiment analysis, companies can assess the market's perception of their financial situation and better respond to potential risks. For example, Tencent uses NLP technology to monitor user feedback on social media, promptly detecting negative reviews from consumers of its new products, quickly adjusting its marketing strategy, and effectively reducing potential sales risks. By conducting sentiment analysis on the text of the management discussion and analysis section, companies can assess the management's confidence in future financial conditions, thereby providing a basis for risk warning. According to research, companies using NLP technology can increase the recognition rate of potential risk signals in financial reports by 40%.

3.3 Network Search

Internet search technology enables enterprises to quickly obtain information and make timely decisions. By obtaining real-time market data, industry trends, and competitor information, enterprises can comprehensively understand the external environment that affects their financial

situation. Enterprises can use online search technology to regularly monitor the financial status and market performance of competitors, and identify potential market threats. Furthermore, it provides strong data support for financial risk warning. Meanwhile, enterprises can obtain industry reports through online searches, conduct in-depth analysis of industry trends, and thus make good financial planning. A manufacturing enterprise tracked industry trends through network search technology, timely obtained information about fluctuations in raw material prices, adjusted its procurement strategy in advance, and avoided cost risks caused by price increases. According to market research, companies that make good use of online search have a 35% increase in response speed to market changes, significantly reducing financial risks.

3.4 Deep Learning

Deep learning, as a powerful machine learning method, provides a higher level of intelligent analysis capability for enterprise financial risk warning. By establishing deep neural networks, enterprises can conduct in-depth analysis of complex financial data and identify potential risk factors. Deep learning can process large amounts of data input, extract high-level features from it, and thus improve the accuracy of risk prediction. For example, companies can use deep learning algorithms to analyze historical financial data, market dynamics, and external factors, and build complex risk prediction

models. Enterprises can successfully build real-time risk warning systems by applying deep learning technology, enabling them to identify potential risks in a timely manner during market fluctuations and reduce financial losses.

4. Conclusion

In the context of big data, the application of artificial intelligence technology has provided unprecedented assistance for enterprise financial risk warning. Enterprises should actively embrace advanced technology and build a comprehensive financial risk warning system to achieve digital transformation and sustainable development of financial management. Only by continuously improving their risk response capabilities can enterprises stand undefeated in competition and achieve steady growth.

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