

Exploration of Application Strategies of Artificial Intelligence Technology in Enterprise Financial Risk Control

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Abstract: With the continuous increase in corporate financial data, relying solely on manual analysis and judgement falls far short of meeting enterprises' requirements for financial risk early warning and prevention. The application of artificial intelligence technology can enhance the efficiency of financial data processing, enable the timely identification of existing financial risks, achieve early warning of corporate financial risks, and provide countermeasures for risk prevention and control through decision-making recommendations. Consequently, this paper examines how artificial intelligence technology can be employed to achieve corporate financial risk prevention and control objectives, presenting corresponding countermeasures.

1. Introduction

With the rapid development of the economy, enterprises are handling increasingly larger volumes of business, resulting in a growing amount of financial data requiring processing. The current traditional financial model, constrained by its computational capabilities, is unable to conduct in-depth analysis of corporate financial data. Consequently, rather than providing decision-making support for financial risk prevention and control, it may actually increase the company's financial exposure. In this context, to better utilise existing corporate financial data through processing and analysis, thereby providing avenues for preventing and controlling financial risks and achieving intelligent risk management, this article analyses how artificial intelligence technologies can be employed to control corporate financial risks and proposes relevant recommendations^[1].

2. Current State of Financial Risk Control in Enterprises

2.1 Traditional Financial Models Hinder Enterprise Development

Presently, numerous enterprises continue to employ conventional accounting methodologies, which fail to meet contemporary demands for financial reporting. Within certain organisations' financial management structures, personnel exhibit a lack of initiative, operating solely according to pre-assigned tasks rather than proactively analysing and identifying financial data patterns. Moreover, the majority of corporate finance staff lack proficiency in big data analytics, rendering them incapable of comprehensively evaluating the organisation's financial datasets or promptly detecting potential

financial risk factors. Consequently, this deficiency exposes the enterprise to operational risks throughout its business activities.

2.2 Accelerated Growth in Financial Data

Presently, most companies employ traditional computerised accounting systems to manage and store financial data. Whilst the volume of stored financial data continues to increase, it remains largely unanalysed. Manual methods of financial data analysis are no longer sufficient to meet the demands of this expanding data. Consequently, enterprises must transform their existing financial data analysis approaches to enhance the efficiency of financial data utilisation, enabling the timely identification and prevention of financial risks.

2.3 Lack of Financial Risk Early Warning

As companies expand their business operations, corresponding financial transactions increase accordingly. However, many organisations remain fixated on pursuing business growth while neglecting risk prevention and early warning mechanisms. For instance, in internal risk control, companies continue to rely on traditional risk management approaches, utilising human resources to prevent and manage risks. Yet, as business activities grow, so too do the associated risk factors. Relying solely on manual methods to mitigate risks is no longer sufficient to meet corporate needs; intelligent equipment and technology must be employed to provide risk alerts. Presently, numerous enterprises pay insufficient attention to financial risk early warning systems. They lack awareness of the dynamic evolution of risks, relying solely on horizontal comparisons of financial data to analyse corporate financial issues and risks. This failure to recognise the dynamic transformation of risk factors consequently undermines the accuracy of financial risk early warning. Therefore, enterprises must commence by establishing financial risk prevention and early warning systems. Through intelligent methods, they should promptly analyse and issue alerts based on financial big data, thereby achieving effective risk prevention and control^[2].

3. Conceptual Framework for AI-Based Corporate Financial Risk Prevention Applications

3.1 Utilising Artificial Intelligence Technology for Financial Data Aggregation and Classification

Currently, the collection and classification of financial data represent the earliest applications of AI technology in financial risk prevention. During business operations, artificial intelligence can promptly gather financial data according to different transaction types and categorise it based on risk indices, thereby enabling financial risk early warning systems. For instance, during business activities, AI technology can collect user consumption-related financial data and classify user information according to spending levels, facilitating alerts for high-risk users and indicators.

3.2 Financial Data Verification and Audit

In today's era of rapid digital advancement, every enterprise generates an ever-increasing volume of financial data. Concurrently, the financial documentation associated with corporate operations has become highly complex, rendering manual verification methods inadequate for effective data validation and auditing. By harnessing artificial intelligence technology, organisations can leverage computational power for real-time data processing. Through the visualisation and recognition of data imagery, critical financial insights are extracted, thereby significantly enhancing the efficiency of

financial data verification. For instance, in 2023, Alipay integrated taxpayers' records through artificial intelligence. Its intelligent system computation enabled automated personal income tax filing and consolidated tax payments. By presenting financial data graphically, it minimised human misjudgements and substantially elevated the efficiency of financial data verification.

3.3 Financial Data Inference and Deduction

Artificial intelligence possesses significant computational advantages, enabling it to process vast volumes of financial data. During this operation, it identifies inferential patterns within the data, thereby facilitating the organisation and analysis of future financial information and enhancing analytical efficiency. For instance, Citibank in the United States launched an artificial intelligence customer service system as early as 2012. This system can conduct in-depth analysis of users' financial data and, through reasoning based on human logic, predict potential risks in future financial data. This enhances clients' decision-making capabilities and reduces financial risks.

3.4 Financial Management Decisions and Forecasting

Presently, an organisation's financial data constitutes a vital resource. However, due to a lack of analytical processing, this data remains underutilised in informing operational decision-making. The application of artificial intelligence enables in-depth analysis of corporate financial information, uncovering underlying correlations. By examining the company's operational characteristics and business projects, it provides a robust foundation for future strategic decisions^[1].

4. Analysis of Artificial Intelligence-Based Enterprise Financial Risk Prevention and Control Technologies

4.1 Data Mining and Analysis

Presently, with the continuous growth of corporate financial data, manual auditing and analysis often fail to provide timely financial data analysis. Furthermore, the subjective nature of manual review during the analysis process may lead to certain errors in data mining and analysis. Data mining and analysis technologies enable the processing of vast financial datasets, transforming complex financial information into vivid visualisations through charts and graphs. This enhances corporate efficiency in financial risk forecasting and mitigation.

4.2 Natural Language Processing

To establish an intelligent financial risk early warning system, it is necessary to enhance the system's capacity for intelligent assessment of financial data. This entails the ability to process new financial policies through intelligent alerts, organising and notifying financial personnel accordingly. Furthermore, the latest financial policies should be compiled into computational research language, transforming them into indicators for financial risk prediction. This provides a foundation for future financial risk early warning^[3].

4.3 Web Search

This web search capability enables continuous database enrichment through internet data collection. Simultaneously, it utilises retrieved financial data for horizontal comparisons, thereby enhancing the accuracy of financial risk warnings and achieving risk prevention objectives.

4.4 Deep Learning

Deep learning represents a crucial application of artificial intelligence within financial risk early warning systems. By discerning profound patterns within vast datasets, it constructs simplified analytical models. Subsequently, through the input of interconnected information streams, it performs multi-layered associative analysis. This enhances AI's financial analytical capabilities and deductive reasoning, thereby furnishing decision-making support for operational management.

5. Specific Applications of Artificial Intelligence-Based Enterprise Financial Risk Prevention and Control Technologies

5.1 Design Approach

The intelligent enterprise financial risk prevention and control mechanism designed herein fundamentally retains the traditional approach to financial risk management—combining risk early warning with risk control. However, against the backdrop of ever-increasing corporate financial data, relying solely on conventional risk prevention methods fails to adequately guarantee both the quality and timeliness of risk mitigation. Therefore, this paper employs artificial intelligence technology to transform and optimise the traditional financial risk prevention mechanism, thereby enhancing the quality and efficiency of corporate financial risk management (see Figure1). The primary optimisation approach is as follows:

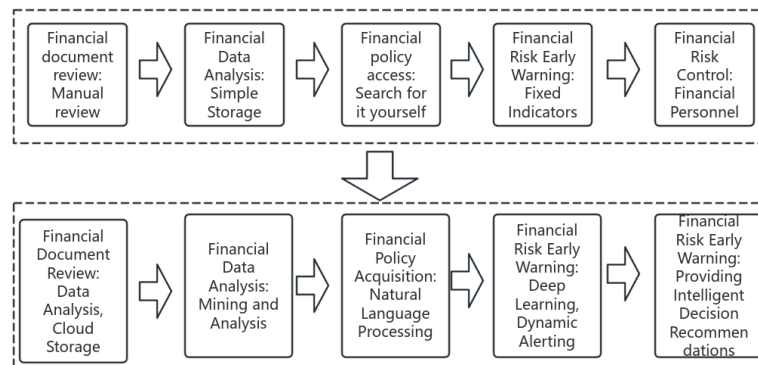


Figure 1: Approach to Enhancing and Optimising Traditional Financial Risk Control Models Using Artificial Intelligence Technology

5.1.1 Procedural Compilation of Financial Risk Identification Policies and Indicators

Financial risk identification strategies and metrics are codified into procedures and integrated into the financial risk early warning system. Upon importing a company's financial risk indicators via programmed code, the system employs deep learning technology to continuously capture financial metric policies relevant to the enterprise's industry sector and national context. Based on the operational logic of the established risk indicator recognition system, it dynamically updates the risk indicator framework in real time, ensuring the company's financial risk warning metrics remain aligned with its developmental trajectory^[4].

5.1.2 Screening, Classifying, Discerning and Analysing Corporate Financial Data

Enterprises may utilise artificial intelligence technology to screen, categorise, authenticate and analyse corporate financial data, subsequently visualising these analyses. Additionally, internet

retrieval techniques can be employed to capture the latest domestic fiscal conditions, enabling systems to promptly grasp current financial policies. Employing data mining and analytical techniques, raw data files from various business operations can be identified. These files are categorised based on authenticity, with alerts triggered for forged financial documents. Displayed financial files can be converted into corresponding financial materials using computer programming languages, subsequently classified and aggregated. A vertical risk assessment of the company's financial data is then conducted according to a predefined financial risk warning indicator system. Based on the assessment results, the current risk level of the financial data is determined. Simultaneously, through cross-sectional index comparisons within the database, the system benchmarks the company's financial risks against industry averages and peers at similar developmental stages, generating visualised comprehensive risk warning reports. Based on these warnings, the system references historical risk prevention measures and integrates nationally applicable policies retrieved via internet searches alongside risk control strategies from diverse enterprises to propose rational risk management approaches.

5.1.3 Visualised Financial Risk Reporting

Through the enterprise financial risk intelligent prevention and control system, visualised financial risk reports are dispatched to financial personnel, providing decision-making recommendations for risk mitigation (see Figure2). Based on the risk assessment outcomes delivered by the intelligent financial risk early warning system, financial staff may conduct manual verification of specific risk points to determine whether risks exist and whether the early warnings are scientifically grounded. This achieves a dual-layer verification process for risk alerts, ensuring risk accuracy. By integrating the risk prevention recommendations from the intelligent financial risk warning system with their own financial expertise, staff can formulate more scientifically sound proposals. These findings are then submitted to corporate management to facilitate more rational operational decision-making and mitigate risks throughout business operations.

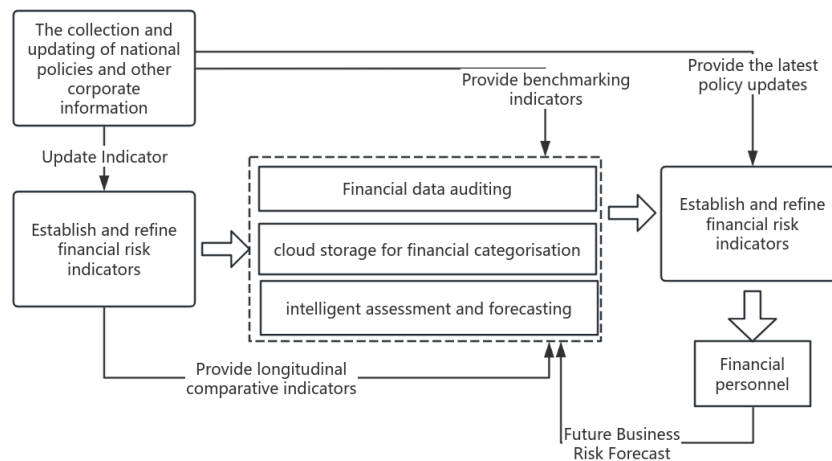


Figure 2: Intelligent Financial Risk Control Mechanism Based on Artificial Intelligence Technology

5.2 Design of the Intelligent Financial Risk Prevention Module

5.2.1 Establishing a Financial Risk Early Warning Indicator System

For each potential risk associated with a financial indicator, the possible scenarios where such risks may arise are programmed using specific computer languages and incorporated into the overall risk

early warning system. Simultaneously, leveraging the deep learning capabilities of artificial intelligence, the intelligent financial system will automatically collate and update the latest financial risk warning indicators. This ensures the indicators remain current and provides a basis for subsequent financial risk analysis and assessment. Each modification to the risk warning indicator system will be communicated to financial personnel via visual alerts. Only after confirmation of the changes by financial staff will the new financial risk warning indicator system become effective. Horizontal risk alerts primarily employ web-scraping technology to capture specific risk metric data from peer enterprises within the company's industry sector, alongside industry average data. Through natural language processing, this data is converted into comparable risk metrics. These serve as benchmarking references for specific financial risks within the enterprise, thereby informing risk alerting^[2].

5.2.2 Intelligent Processing of Financial Data

Employing artificial intelligence technologies to verify the authenticity of financial data, this process involves scrutinising original voucher documentation to assess data validity. Financial data is categorised and filtered based on characteristics such as the validity of supporting documents. This phase primarily employs web search, natural language processing, and data analytics to discern the authenticity of original financial documents. Approved financial data is then programmed into computer language according to intelligent financial risk warning system requirements, converting it into readily accessible formats. Financial data identified through AI is stored categorically by data type to facilitate subsequent analysis and assessment. Financial documentation audits are promptly stored in the cloud according to different data types. Fundamental logical relationships within the financial data are analysed and processed to construct a foundational analytical model and framework, thereby establishing the basis for intelligent logical reasoning in financial data assessment. Enterprises should incorporate existing financial data into risk warning models according to the financial risk early warning indicator system. By comparing the risk levels of various financial metrics, finance personnel should establish appropriate risk threshold indicators based on risk severity. These assessments should be presented to finance staff via visualised information terminals. Concurrently, finance personnel should leverage intelligent technologies to formulate corresponding countermeasures and recommendations. Furthermore, concerning future business operations, finance personnel shall input relevant budgetary data into the system. Employing both horizontal comparison and vertical analysis methodologies, they shall assess the potential risks associated with such operations. This process shall yield corresponding cost-benefit analysis outcomes and project implementation recommendations, thereby achieving intelligent forecasting objectives.

5.2.3 Risk Alert Feedback

The intelligent financial risk warning system captures changes in national financial policies in real time and promptly updates the system's policy database. Each data update triggers an information release alert, notifying financial personnel. Only after reviewing the alert and clicking confirmation can the operation be completed. Concurrently, the information release module provides query and search functions for relevant national policies, enabling financial personnel to promptly grasp the latest national policies through keyword searches and thereby prevent financial risks. Employing artificial intelligence to mine and analyse financial data, the system utilises deep learning methodologies to infer relationships between financial metrics. By comparing data vertically against historical records and risk warning indicators, and horizontally against peer company data, it deduces potential risks within the enterprise's current financial position. Key risk points are then presented to financial personnel through visualisation. Simultaneously, it assesses the probability of risk

occurrence and alerts to potential losses. Primarily based on AI-analysed financial risk indicators, it systematically outlines preventive measures for each risk point according to deep learning principles, proposing optimal financial strategies. It provides cost-benefit analyses for future measures, enabling financial personnel or managers to make informed decisions^[3].

5.3 Practical Implementation of Intelligent Financial Risk Prevention Mechanisms in Enterprises: A Case Study of Steel Company A

For Steel Company A, an analysis was conducted on the application of financial risk prevention mechanisms utilising artificial intelligence technology for early warning and mitigation of financial risks (see Figure 3).

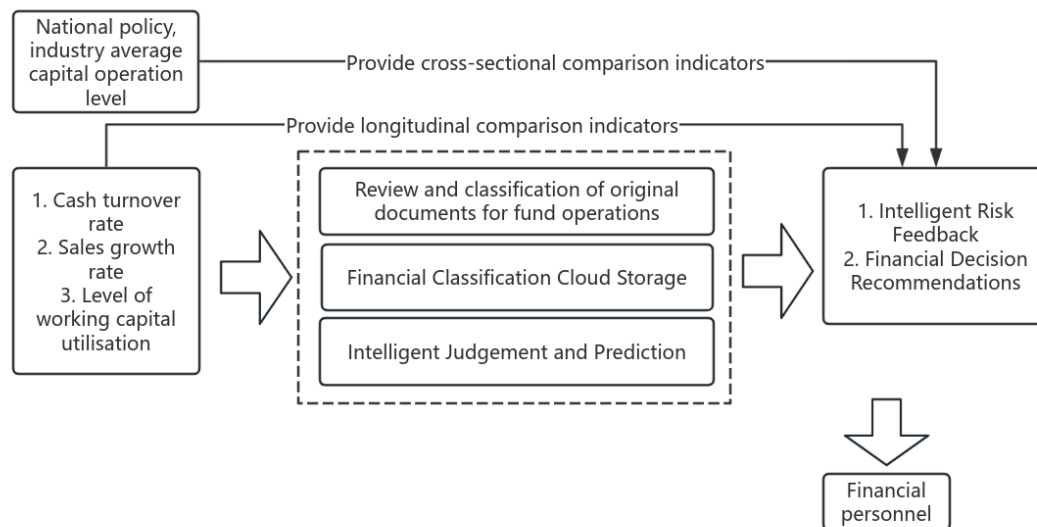


Figure 3: Artificial Intelligence-Based Corporate Financial Risk Early Warning Mechanism

Enterprises should establish a scientifically sound early warning indicator system for capital operation risks based on their current operational realities.

Considering that for enterprises in the steel industry, the primary indicators influencing current capital operation risks encompass three aspects: cash turnover velocity, sales scale expansion rate, and degree of working capital tied up. Enterprises may select specific secondary indicators based on these three primary metrics. For instance, under cash turnover rate, they might choose inventory growth rate, days sales outstanding, and days payable outstanding. For sales scale expansion rate, the ratio of sales scale to working capital is employed; for the degree of working capital tied up, the ratio of total assets (including fixed assets, intangible assets, and long-term external investments) to operating assets is used. These indicators are then compiled into computer language and integrated into the intelligent financial risk early warning system. Specific indicators undergo dynamic adjustment in accordance with the latest national policies to ensure scientific validity.

Through the financial data processing and analysis system within the intelligent financial risk early warning system, the specific operational capital data of Company A is verified and analysed to assess the authenticity of financial data. Data is categorised, filtered, and organised. The intelligent risk early warning system audits data on various capital flows during the company's fund utilisation process, identifies false financial data vouchers, and provides feedback via visualised reports. Simultaneously, authentic capital utilisation data is categorised and organised to form the enterprise's financial database.

Employing artificial intelligence, the system conducts comparative analysis of Company A's

current working capital-related financial data against vertical benchmarks within the capital operation risk warning indicator framework. and cross-references them against other enterprises' capital operation risk metrics. Based on risk tiers and the financial team's predefined alert levels for such risks, should a risk reach the corresponding alert threshold, the financial data analysis system generates a capital operation risk alert analysis and predictive recommendation report. This report visually presents key risk points within the current capital utilisation process, the potential economic losses from these risks, and provides corresponding decision-making recommendations. Financial personnel shall reassess risks based on the report generated by the intelligent financial risk warning system. Following the provided decision-making recommendations and drawing upon their professional experience, they shall implement appropriate risk prevention and control measures to minimise potential risks in fund utilisation.

6. Conclusion

With the rapid development of the economy, enterprises are handling increasingly larger volumes of business, and financial risk factors are gradually multiplying, posing considerable challenges to corporate financial risk control. Against this backdrop, this paper explores the application of cutting-edge artificial intelligence technology in corporate financial risk management. The article first elucidates the current state of corporate financial risk control, identifying issues such as traditional financial models hindering business development, accelerated growth in financial data volumes, and a lack of financial risk early warning systems. Subsequently, a conceptual framework and technical analysis for applying artificial intelligence to corporate financial risk prevention and control is proposed. Enterprises may utilise AI technologies such as data mining and analysis, natural language processing, web search, and deep learning to construct financial risk early-warning indicator systems, intelligently process financial data, and provide real-time risk alert feedback. Drawing upon the case study of steel enterprise A, the paper elaborates on the practical implementation of intelligent financial risk prevention mechanisms within enterprises, aiming to provide practical guidance for businesses in their operational contexts.

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