

The Application of Financial Data Analysis in College Financial Management under the Background of the New Era

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ABSTRACT

Under the new era, with the rapid development of information technology and the advent of big data, college financial management is facing unprecedented opportunities and challenges. As a scientific and efficient management method, financial data analysis has gradually become an essential tool for college financial management. This article first elaborates on the basic concepts and characteristics of financial data analysis, emphasizing its importance in improving the level of financial management in colleges and universities. It then analyzes the current situation and challenges of financial management in the new era. Through this research, we aim to provide valuable references for college financial managers and promote the development of financial management towards a more scientific, refined, and intelligent direction.

KEYWORDS

New era; Financial data analysis; College financial management; Big data

Under the new era, with the rapid development of higher education in China and the continuous expansion of colleges and universities, financial management is facing an increasingly complex internal and external environment. As a scientific and efficient management method, financial data analysis can provide strong support for college financial management through the mining, analysis, and application of massive financial data. Therefore, exploring the application of financial data analysis in college financial management holds significant theoretical and practical value.

1 The Basic Concept and Characteristics of Financial Data Analysis

(1) Basic Concepts of Financial Data Analysis

Financial data analysis refers to the process of collecting, organizing, analyzing, interpreting, and reporting financial data using statistical, data mining, machine learning, and other technical means. The goal of financial data analysis is to reveal the patterns, trends, and associations behind financial data, providing decision-making support for managers. In college financial management, financial data analysis helps managers better understand the financial status, operational efficiency, and risk levels of institutions, offering a solid foundation for formulating scientific and reasonable financial policies and strategies.

(2) Characteristics of Financial Data Analysis

First, the volume of data is substantial. With the expansion of college operations, financial data has experienced explosive growth. The data that colleges need to process and analyze includes financial statements, budget implementation, cost accounting, asset management, and more, making the data both vast and complex.

Second, the types of data are diverse. College financial data includes not only traditional structured data (such as numbers in financial statements) but also semi-structured data (such as text reports) and unstructured data (such as images and audio). This diversity increases the difficulty of data processing.

Third, timeliness is crucial. College financial management requires timely insights into financial and operational situations to enable quick responses and decisions. Therefore, financial data analysis must provide accurate results promptly.

Fourth, the analysis needs are varied. The objectives of college financial management are diverse, encompassing budget management, cost control, risk prevention, performance evaluation, and more. Consequently, financial data analysis must employ different methods and tools to meet these varied needs.

2 The Importance of Financial Data Analysis for Improving College Financial Management

(1) Enhancing Scientific and Accurate Decision-Making

Financial data analysis helps college managers gain a comprehensive and in-depth understanding of the institution's financial status and operations, providing a strong basis for formulating scientific and reasonable financial policies and strategies. Through financial data analysis, managers can identify potential risks and problems early and take appropriate

measures to address them. Additionally, financial data analysis offers valuable decision-making support, enabling more informed decisions.

(2) Optimizing Resource Allocation and Improving Efficiency

Financial data analysis helps colleges optimize resource allocation and improve resource utilization efficiency. By analyzing financial data, colleges can understand the funding needs and usage of various departments and projects, allowing for more rational allocation of resources. Moreover, financial data analysis can identify wasteful or idle resources, prompting corrective measures. This not only improves fund utilization efficiency but also promotes the sustainable development of colleges.

(3) Strengthening Risk Management and Prevention

Financial data analysis enhances colleges' ability to manage and prevent risks. By analyzing financial data, colleges can identify potential risks and problems early and take appropriate preventive measures. Additionally, financial data analysis provides risk assessment and early warning information, helping colleges develop more scientific and reasonable risk prevention plans. This reduces operational risks and ensures steady development.

(4) Promoting Innovation and Transformation in Financial Management

Financial data analysis drives innovation and transformation in college financial management. By analyzing financial data, colleges can identify deficiencies and problems in traditional financial management and take measures to improve and optimize processes. Furthermore, financial data analysis introduces new financial management concepts and methods, promoting development towards a more scientific, refined, and intelligent direction. This enhances the efficiency and accuracy of financial management and strengthens the competitiveness and overall strength of colleges.

3 Current Situation and Challenges of College Financial Management in the New Era

(1) Current Situation of College Financial Management

Budget management is a core aspect of college financial management. Currently, many colleges face issues such as unscientific budget preparation, lax budget implementation, and inflexible budget adjustments. The lack of effective supervision and assessment mechanisms leads to low efficiency in budget fund utilization.

Cost control is another significant challenge. Colleges must invest heavily in teaching, research, and infrastructure, creating substantial cost control pressure. However, many colleges lack effective cost control methods, resulting in high costs.

Risk management is increasingly complex as colleges expand. Many institutions have weak risk prevention awareness and lack effective risk prevention mechanisms. Financial risks include funding shortages, debt risks, and investment risks.

Performance evaluation is crucial for assessing college operations, but many institutions face issues such as unreasonable evaluation metrics, unscientific methods, and unfair results. The lack of effective incentive mechanisms hinders improvements in operational efficiency.

(2) Challenges in College Financial Management

The low degree of data sharing among departments leads to a lack of integration between financial data and other business data, increasing data processing difficulty and reducing accuracy and timeliness.

Financial managers often lack data analysis skills, making it difficult to extract valuable insights from massive data. Additionally, colleges lack professional data analysis teams, hindering effective data analysis.

Data security is a critical issue in the era of big data. Colleges must protect financial data to prevent leaks and misuse. However, many institutions have inadequate data security measures, posing significant risks.

Financial management is constrained by policies and regulations. Data collection, processing, and analysis must comply with relevant laws, but some regulations impose strict restrictions, increasing the difficulty and cost of data analysis.

4 Application Path of Financial Data Analysis in College Financial Management

(1) Building a Financial Data Analysis Platform

To improve the efficiency and accuracy of financial management, colleges should build a financial data analysis platform that integrates data collection, processing, analysis, and reporting. This platform should connect with internal financial systems, business systems, and external data sources to ensure comprehensive and accurate data collection. Advanced data cleaning and integration technologies should be used to preprocess data, ensuring accuracy and consistency. The platform should offer various analysis tools, such as trend analysis and predictive analysis, to provide insights into financial conditions and support decision-making.

(2) Strengthening Data Security Management

Data security is paramount in financial data analysis. Colleges should implement classification and hierarchical management of financial data, using advanced encryption and storage technologies to protect data. Regular data backups and recovery drills are essential to ensure data integrity and availability. Additionally, colleges should enhance employee data security awareness and establish emergency response mechanisms for data security incidents.

(3) Improving Data Analysis Capabilities

Colleges should enhance the data analysis skills of financial managers through regular training and learning activities. Introducing professional data analysis talent and collaborating with external institutions can also improve data analysis capabilities. Encouraging financial managers to participate in data analysis research projects and practical activities can further enhance their skills.

(4) Optimizing Financial Data Analysis Processes

Clear and efficient financial data analysis processes are crucial for improving management efficiency. Colleges should define data analysis objectives and requirements, select appropriate tools and methods, and use advanced technologies like data mining and machine learning. Analytical results should be presented in an intuitive and understandable manner, with clear interpretations and actionable recommendations.

(5) Applying Financial Data Analysis Results

The application of financial data analysis results is key to driving innovation in college financial management. These results can inform budget preparation, cost control, risk prevention, and performance evaluation. By expanding the application of data analysis results, colleges can enhance decision-making in areas like investment, resource allocation, and asset management.

5 Conclusion

In summary, financial data analysis plays an increasingly important role in college financial management in the new era. By building financial data analysis platforms, strengthening data security, improving data analysis capabilities, optimizing processes, and applying analysis results, colleges can fully leverage the advantages of financial data analysis to enhance the efficiency and accuracy of financial management.

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