

# *Research on the Reform of University Financial Supervision System Driven by Big Data*

Shunchao Hu<sup>1,2</sup>

<sup>1</sup> Linyi University, Linyi, Shandong, 276000, China

<sup>2</sup> Philippine Christian University Center for International Education, Manila, 1004, Philippines  
18853965341@163.com

**Keywords:** Big Data; University; Financial Supervision

**Abstract:** University financial supervision system refers to the arrangement and integration of financial management system and system, forming an institutional system that is interrelated, coordinated and restricted among the main systems of financial supervision, which mainly includes two parts: internal supervision and external supervision. The construction of university financial supervision system is closely related to the main tasks of university financial supervision and financial supervision system, which is gradually formed and perfected with the establishment and standardization of university financial supervision system. Driven by big data technology, the reform of university financial supervision system has ushered in a good opportunity. From the above perspective, this paper explores the reform of university financial supervision system driven by big data, analyzes the problems existing in university financial supervision system under big data, and lists the optimization measures of financial supervision system reform, hoping to help the development of universities.

## 1. Introduction

In the process of social development, the reform of university education system is deepening, and the external economic environment and internal economic composition are becoming more and more complicated. In order to ensure the effective reduction of university financial risks, it is necessary to build a feasible financial supervision system. The Ministry of Finance and the Ministry of Education have successively issued a series of major reform measures. The construction of internal control in universities, the reform of government accounting system, management accounting guidelines, the application of cost accounting, and the guidance of performance evaluation all reflect that financial supervision has changed from basic accounting and daily operation and maintenance to a deeper level [1]. For universities, the revision of the higher education law in recent years and the popularization and application of the official card and financial integration system are all institutional constraints on the internal power of universities. Driven by big data technology, the reform of financial supervision system in universities has ushered in a good opportunity. Therefore, universities need to actively make adjustments, use big data technology to maximize the application value of financial supervision, and promote the modernization of university governance capacity and governance system.

## **2. Overview of financial supervision system in universities**

University financial supervision system refers to the arrangement and integration of financial management systems and systems, forming an institutional system that is interrelated, coordinated and restricted among the main systems of financial supervision, which mainly includes two parts: internal supervision and external supervision [2-3]. The financial department of a university serves all departments and working systems of the whole school, so it is necessary to ensure the accuracy, efficiency and immediacy of the work in daily financial work. To sum up, it is the consciousness that the financial supervision system departments of universities should accurately grasp their own work responsibilities and priorities, which also lays the foundation for the development of universities.

Big data technology is not only the environmental constraint variable of internal audit innovation in universities, but also the driving factor of audit informatization process. We should be good at using new technologies and means, adhere to the strong examination of science and technology, strengthen the construction of audit information, and actively promote big data audit [4]. Financial supervision refers to the special monitoring of the activities related to capital movement and their effects in colleges and universities by the relevant departments of education, finance, auditing and other institutions of higher learning in the process of financial supervision according to the provisions of relevant national laws and regulations such as Budget Law, Accounting Law and Audit Law. Therefore, the construction of university financial supervision system is closely related to the main tasks of university financial supervision and financial supervision system, which is gradually formed and perfected with the establishment and standardization of university financial supervision system.

## **3. Problems existing in university financial supervision system under big data**

### **3.1. Confusion of responsible subject**

Before the financial supervision system realized informationization, the financial supervision system mode was generally a mode in which the reimbursement personnel took the bills and bills recognized by the unit to the financial department for reimbursement, and then showed the bills to the relevant personnel after their turn, and then the cashier paid the reimbursement expenses to the reimbursement personnel after approval [5-6]. In China's university supervision system, government cadres are mainly appointed. At the same time, in the process of daily supervision, the daily supervision work has not been put in place. There are loopholes in the ownership of property rights, and the basis of optimizing the allocation of resources is to realize the property rights system. At present, most universities do not have clear property rights arrangements. Many property rights arrangements are not clearly defined, which leads to the problems of asset departmentalization and departmental interests in specific work.

### **3.2. Weakening of internal accounting control**

In the open social environment, the opportunities for universities and enterprises to imitate and learn from each other are gradually increasing, especially in the construction of financial system. After the reform, university finance and enterprise finance have many similarities and commonalities, which determines the application value of financial governance theory in universities and enterprises, and they are facing many common problems. The vast majority of university presidents or vice presidents are not experts in finance and economics, and they are typical amateur leaders in university financial work. School leaders generally have a management

concept of attaching importance to social benefits and neglecting economic benefits, and have a weak concept of the cost of university education. The accounting control system is not perfect. At present, the construction of internal accounting control system in Chinese universities lags behind the development of internal accounting control practice, which leads to the incomplete content and coverage of internal accounting control system in Chinese universities.

### **3.3. Low degree of disclosure of financial information**

The essence of transparency is that the scope of information disclosure should be broad, and the scope of information disclosure should be expanded as much as possible, and it must not be limited by the subjective wishes of government officials [7]. The traditional university financial transparency system is based on information disclosure, but the implementation effect is not ideal. At present, the measures to improve the university financial transparency system are mainly to expand the public content, but the data are still mainly from the structured data in the budget and final accounts, without considering the more diversified information in the era of big data.

## **4. The reform path of university financial supervision system driven by big data**

### **4.1. Application of big data technology in internal control**

Big data refers to a kind of information asset with large scale, high growth rate and many types. This information asset can only play its role in making correct decisions and optimizing processes through new processing modes. The "value sparseness" feature of big data means that valuable data accounts for a small proportion in massive data, so it is necessary to integrate and analyze various types of data [8].

Internal control evaluation is an important part of university internal audit, which is an effective tool and means to ensure the legality and compliance of economic activities, prevent fraud and corruption, and improve the efficiency of resource allocation and use. Integrating big data technology into the internal control evaluation process can change the inefficiency of on-site audit and the negative impact of narrow audit scope.

On the premise of confirming that the internal control design meets the requirements, the paper documents such as meeting minutes, contracts and major changes are converted into electronic data by using big data technology, and the time points of meeting minutes and various recorded documents are checked on the big data platform, so as to check the re-implementation of the approval procedures for major changes and collect evidence of whether the internal control is effectively implemented. Locking in the risk points in university operation and the focus of internal audit provides an important basis for auditors to carry out the next substantive audit work, thus improving the audit efficiency.

### **4.2. Resource sharing of information systematization**

In the process of university construction, only by constantly strengthening communication and exchanges with various departments can the financial information be disseminated to all departments in time, so as to achieve the purpose of effectively utilizing and optimizing related resources, and thus improve the level of financial supervision and service quality. It is necessary to introduce the concept of big data-driven into the financial supervision of universities in China. The creative management mode of financial supervision system, which combines informationization with university finance, plays an important role in the upgrading of university financial supervision system [9]. In the big data-driven environment, the communication between various departments of

the university should be timely communication, but in terms of actual operation, the departments of teaching, scientific research, logistics, finance, assets and equipment are all separated, and the information between them is blocked, so it is impossible to communicate in time and effectively.

On the one hand, it is necessary for the management system of university financial supervision system to integrate the educational administration system, personnel department, scientific research system, enrollment office, salary accounting system, fixed assets system and so on into the management system of financial supervision system, so as to optimize and enhance the financial supervision system and further realize the purpose of data sharing of resources among all departments of the university.

On the other hand, universities need to constantly optimize their business and financial processes. On the basis of the above-mentioned process optimization, they should further develop an automatic service system with the help of the shared service center, so that when they need to handle related business, they can log on to the platform through the designated account and operate according to the designated process, which is not only convenient for university personnel, but also of great significance in financial supervision and high-level decision-making.

### 4.3. Establish an audit information platform for university big data

The development of internal audit informatization in Chinese universities is relatively backward, the processing method of audit data is relatively simple, the sharing degree of audit information is low [10], the application of internal audit informatization platform results is small, and the degree of resource integration is not high, which seriously restricts the construction of internal audit informatization in universities. Therefore, under the background of today's big data, how to promote the informatization construction of university internal audit faster and better is particularly important.

In order to improve the university's ability to strengthen the examination of science and technology and alleviate the contradiction between the lack of internal auditors' ability and limited manpower and the increasing audit tasks, universities should establish a unified internal audit information platform. The overall construction framework is shown in Figure 1.

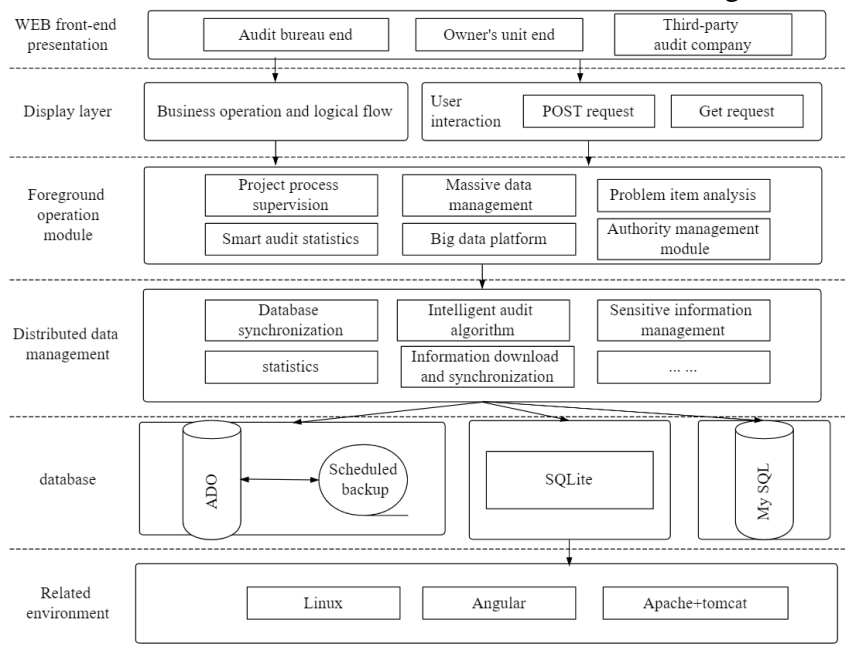


Figure 1: Overall framework of university audit information platform

The platform has many functions such as unified user authentication, audit data management, project management, job management, audit risk early warning analysis and audit knowledge management in data layer, application layer and decision layer. The university should establish an audit risk early warning analysis system. This involves cleaning, transforming, and verifying cross-platform data to create an audit intermediate library. The institution should establish an audit data analysis model base based on business rules, enabling intelligent doubt detection to reduce audit risk and cost. Furthermore, the school should solidify the audit business process through the information system, ensuring the standardization of internal audit practices. By conducting statistical data analysis and modeling for early warning indicators, the university can continuously enhance its audit's problem-finding capabilities.

Through homework management, we will further promote the implementation of audit rectification in schools and promote the use of audit results.

#### 4.4. Do a good job in security

The effective introduction of management accounting tools and the provision of original data or processed information tailored to stakeholders' needs are crucial steps. These measures can help mitigate potential conflicts that may arise during the disclosure process, depending on the specific application. Furthermore, the advancement of big data technology has rendered data sharing technology no longer a bottleneck that hinders transparency in universities. It is imperative for relevant departments to formulate standards and formats for data release as soon as possible so that university stakeholders can make better use of data.

First of all, universities should conduct a screening before uploading financial information to the sharing platform, and desensitize information involving personal privacy and company secrets; Secondly, it is essential to tailor a confidentiality system to meet specific requirements. This system should delineate the internal and external authorities within the university and allocate corresponding permissions for the information uploaded to the platform in accordance with stakeholders' needs. Finally, bolstering the relevant hardware and software infrastructure is crucial to ensure data security and minimize the risk of sensitive data breaches.

#### 5. Conclusions

Driven by big data technology, the reform of financial supervision system in universities has ushered in a good opportunity. Therefore, universities need to actively make adjustments, use big data technology to maximize the application value of financial supervision, and promote the modernization of university governance capacity and governance system. Big data technology is not only the environmental constraint variable of internal audit innovation in universities, but also the driving factor of audit informatization process. We should be good at using new technologies and means, adhere to the strong examination of science and technology, strengthen the construction of audit information, and actively promote big data audit. To implement the enhancement of the financial supervision system, it is imperative to put this initiative into action. This entails the proactive introduction of advanced concepts pertaining to the financial supervision system, and a continued effort to refine and advance the financial supervision framework. The digital construction of university financial supervision system will usher in new changes, promote the sharing of university financial information and realize campus intelligence.

#### References

[1] Wang Xuedong. *Construction of accounting supervision system in secondary vocational schools*. *Vocational and*

*technical education*, vol. 2010, no. 35, pp. 2, 2010.

[2] Liu Yanhua. *Research on the Internal Financial Supervision System of Colleges and Universities*. *Accounting Newsletter*, vol. 2011, no. 2, pp. 2, 2011.

[3] Jiang Hongqing, Wang Yulian & Sun Xiaoqi. *Research on the Construction of Financial Reporting System in Chinese Universities*. *Shandong Social Sciences*, vol. 2013, no. 11, pp. 5, 2013.

[4] Chu Yihong, & Wang Jingjing. *Research on Accounting Reform of Administrative Units Based on Public Goods Theory*. *Finance and Accounting*, vol. 2013, no. 011, pp. 62-64, 2013.

[5] Dong Muxin, Xu Huihong, & Yang Zhounan. *Construction of Intelligent Accounting Supervision System: Based on Intelligent Environmental Theory*. *Accounting and Economic Research*, vol. 36, no. 3, pp. 12, 2022.

[6] Shao Jun. *On the innovation of the curriculum system of financial management in application-oriented universities*. *Education and occupation*, vol. 2010, no. 24, pp. 109-111, 2010.

[7] Wang Jianying, & Wang Yan. *Thoughts on the application system of government comprehensive financial report*. *Finance and Accounting*, vol. 2016, no. 11, pp. 2, 2016.

[8] Wu Hui, & Wang Zhuquan. *Reconstruction of accounting supervision system under the framework of national governance*. *Accounting Research*, vol. 2019, no. 4, pp. 8, 2019.

[9] Zhang Kun, & Wang Zhuquan. *New ideas on the reconstruction of accounting supervision system*. *Finance and Accounting*, vol. 2020, no. 24, pp. 4, 2020.

[10] Hu Zhiqiang, & Yu Dongmei. *Positioning and remodeling of the economic responsibility audit system-based on the spirit of reforming the audit management system in the report of the 19th National Congress*. *Audit and Economic Research*, vol. 33, no. 1, pp. 8, 2018.