Problems and Countermeasures of Enterprise Internal Control in Big Data Environment

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Abstract. The rapid development of modern society, the flow of information has accelerated the communication between people, and big data is the product of this background. Big data technology has also begun to be widely used in enterprises, which will inevitably bring a major change. The internal control of an enterprise, as the basis of all the management mechanisms of the enterprise and an important means for determining whether an enterprise can survive and develop in the fierce market competition, has also ushered in a revolution because of big data. Therefore, in the context of big data, how to achieve the ultimate goal of internal control and the risk prevention of internal control has become the subject we need to study.

Keywords. Big data; Internal control; Questions; Countermeasure

1. Introduction
"Big Data" is also called "huge amount of data", which is the product of the information age with high-speed development. Big Data is huge, and the ability to analyze and sort out the characteristics of data has greatly improved the timeliness of data, therefore, in recent years, big data has been used more and more widely in all aspects of enterprises, and internal control, as an important means of enterprise management, naturally can’t be separated from the application of big data, each link of enterprise internal control has already begun to be closely connected with big data. In China, the effectiveness of internal control and control of enterprises has always been an important factor affecting whether enterprises can continue to develop in the long run, therefore, the development of enterprise's internal control will change the enterprise's existing mode to a greater extent under the background of big data. At this stage, most enterprises in our country still can’t grasp the application of big data correctly, and even if they apply big data technology, there will still be a situation where there is nothing, so in the context of big data, how to let enterprises really understand the current internal control problems and master solutions is very necessary.

2. Current situation of enterprise internal control in the big data environment
When the traditional computer can not meet the needs of work, the big data information platform can help to achieve more scientific data collection, memory processing, offline processing, distributed storage and data analysis. But nowadays, the internal control system of
Chinese enterprises is not perfect enough, and the sudden increase of data for the internal personnel of enterprises can not integrate information in a short time because of the lack of adaptability of enterprises, imperfect system implementation, insufficient awareness of management risk management, and other factors, so that effective information can not be obtained through data. Specifically, at present, as the internal control of enterprises in China is still in the primary stage, even if the internal control department is established, it cannot be updated in time according to the changes in external economic policies, and will not be changed according to the development trends of competitors in the same industry, so the internal control system is narrow and shallow. At the same time, due to the immature management mechanism of the enterprise and the lack of data risk awareness, the importance of data supervision, risk prevention and risk assessment is insufficient. Therefore, it is necessary to better integrate big data and internal control, improve the internal control environment, strengthen information and communication, as well as management risk management awareness, avoid the behavior of flouting the law in order to obtain higher profits, and completely get rid of the fixed mode of long-term transmission in order to achieve high-efficiency operation with big data technology.

3. Problems in internal control of enterprises under the background of big data

3.1. Increase of internal control risk coefficient
Although big data has developed rapidly, the internal control risk coefficient is also increasing synchronously, mainly because on the one hand, the current industry norms are not sound enough, the awareness of enterprise management is insufficient, the internal control information management department is missing, on the other hand, the network communication tools themselves will increase the risk of internal control.

For example, because many small and medium-sized enterprises are still confined by traditional ideas, with many doubts about the information sources of big data technology and unsound industry norms, so they rarely set up information management departments, or just put them in the shade. The difference in the management's awareness of big data in enterprises will bring a lot of potential problems. If the information management is not standard, it will cause the data to be leaked or even lost, and the internal decision-making of enterprises will lose the support of data and be unreasonable. Information tampering in this process will cause more serious losses, and may even lead to decision-makers to make decisions completely contrary to the development goals.

On the other hand, the progress of science and technology has changed the channel of information communication, making the carrier of internal control materials from paper-based to electronic, internal staff of enterprises choose QQ, e-mail or Wechat to transmit information. However, this communication tool itself has certain risks, such as file breakage or tampering during transmission, file loss or even theft caused by hacker intrusion, and financial information deletion caused by operator's own operational mistake, all of which will endanger financial information. Especially at this stage, all enterprises are practicing computerized accounting, which is highly dependent on the network, so that if the enterprise can not maintain and manage the computer system in time, the accounting information will be more easily lost and leaked, and the network crime will be more frequent. Therefore, the trend of gradually electronic information saves the enterprise labor, but at the same time, it also raises greater challenges and higher awareness requirements, which will lose its own efficiency advantages if not properly used.
3.2. Great difficulty in internal supervision
The supervision of internal control is the basis and premise for the sound operation of internal environment, risk assessment, control activities, information and communication, so it is very important for enterprises [1]. However, the big data environment is accompanied by the influx of a large amount of information and the complexity of computer system, together with the technical dependence of various networks in the big data environment, which requires enterprises to strengthen the prevention of network risks on the basis of traditional supervision. Internal auditing also requires professionals in information management to prevent operational errors and attacks, which makes auditing more difficult. In addition, when a large amount of financial data is processed through a computer processing system to record, it is possible that the flow of accounting vouchers and original vouchers will be significantly different from the flow of financial information. That is to say, the inconsistency between the speed of material flow and the speed of computer information updating in financial management will result in the situation that the system information has been updated but the original vouchers have not been recorded, so the supervision work can not be carried out on time, and the enterprise decision-making department may make wrong decisions as a result, resulting in increased risk [2].

3.3. Poor communication channel
Because of the complexity of enterprise setup in our country, there may be a situation that internal control department (if any) has poor information communication channel with the external or internal departments have poor information communication. The inefficient financial information transmission will bring considerable difficulties and challenges to the work and decision-making of enterprises, or the checking and signing procedures being shelved, or information errors of authorized approval. The internal control system can not update in time also partly because the information communication is not smooth enough. Traditionally, the internal control mode is to assign the general goal of internal control by the superior and then communicate to the lower level for further execution. The insufficient timely communication of information between the superior and the lower level or the error of information transmission will lead to the internal control update in time, which will pose a greater threat to the production and operation of enterprises [3].

3.4. Loopholes in risk assessment of enterprise internal control
Accurate risk assessment can help enterprises prevent risks, but there may be loopholes in the risk assessment system of internal control of enterprises in China. Accurate risk assessment can help enterprises to prevent risks, but at present, there may be loopholes in the internal control risk assessment system of Chinese enterprises, such as dishonesty of internal personnel, leakage of internal information, too much useless information, and so on, which, from internal and big data itself, will lead to inaccurate risk assessment of internal control. Cost-benefit principle requires that enterprises should strengthen internal control measures on important risks assessed so as to effectively reduce risks [4].

4. Effective strategies for enterprises to strengthen internal control in big data environment

4.1. Establishing and improving the information security management system to reduce the risk of internal control
Internal control risk affects the exertion of internal control and determines whether the
objectives of internal control can be achieved or not, which may lead to the failure of internal control. Therefore, reducing the risk of internal control is the necessary condition to ensure the normal implementation of internal control, and establishing and improving the information security management system is an effective way to reduce the risk of internal control.

Improving the information security management system needs to start from the following aspects: Firstly, according to all the information security risks that enterprises may face at this stage, multi-angle risk assessment should be carried out, not only from the perspective of enterprise managers, but also from the perspective of network intruders. Then, for example, from the perspective of competitors in the same industry in the market, only multi-angle analysis can ensure a comprehensive understanding of the information security risks faced by enterprises, and then discover the "weaknesses" of information security, so as to strengthen information security management.

Secondly, enterprises should set up a response mechanism for sudden risks to ensure that effective solutions can be implemented immediately when the risks occur. For example, when a sudden paralysis of the enterprise's internal control system affects the normal operation of the business, the enterprise should set up the automatic data backup program and the automatic system repair program in advance, so that it can automatically start the response mechanism, and avoid the impact on the operation of the enterprise. Similarly, firewall devices can prevent network intruders from attacking in advance and protect internal financial information from being disclosed. Multiple access mechanisms should also be established to prevent arbitrary tampering of information.

Information security management and control is very important, therefore, it must be implemented in the whole process of enterprise business to strengthen preventive control, ensure prevention in advance and avoid it as much as possible. Even if it happens, it must be controlled in the event and handled properly after the event, so that the whole process management mechanism can ensure the safety of business.

4.2. Optimizing the internal control environment of the enterprise

It is essential to establish a good information internal control environment for enterprises to achieve the goal of strategic development in the context of big data. A good information-based internal control environment should be optimized from the following two aspects: one is to improve the internal governance structure of enterprises, the other is to improve the cultural quality of employees.

Enterprises should optimize the current corporate governance structure. Many companies have complex and confused settings, unclear responsibilities or even fictitious status. Only by improving this structure, especially improving the status of information management organization in corporate governance structure, can employees truly value it and information management departments are not empty shells. At the same time, all departments should be reminded to strengthen the contact with the information management department, so that all departments can obtain information from the information management department in a timely manner. At the same time, it should be noted that the control of the internal control environment cannot be separated from the pre-control mechanism, and the firewall system can prevent hackers from intruding and ensure the security of information. In addition, enterprises should also monitor and assess the internal environment in real time to ensure that they can discover the loopholes in time and take preventive measures in advance. Ensuring the security of the network environment means that the internal control activities can be carried out in a
secure internal control environment.

Only if the three aspects of organization setup, power and responsibility distribution and internal auditing are improved first, the design and operation of subsequent control activities will be smooth, and the governance structure, human resources, social responsibility and enterprise culture can be improved synchronously with the operation of control activities. A good corporate culture, on the other hand, helps to build a good reputation. In the current information era [5], only enterprises that can enhance social awareness and goodwill can have a long-term foothold in the industry.

4.3. Strengthening dynamic risk monitoring and data monitoring
The development of big data requires the improvement of the traditional internal control and supervision model, so as to improve the internal control of enterprises. Establishing multi-level dynamic risk monitoring system is one of the means to comprehensively collect and supervise the information and transmission methods at the top and bottom of the enterprise as well as inside and outside of the enterprise, so as to achieve the effect that the enterprise management can effectively supervise and understand the specific situation of strategic objectives. In addition, enterprises can also conduct internal control audits on its finances or executives by entrusting external auditors to improve the risk supervision of internal control [6].

Similarly, the huge amount of data that big data brings is either valid or invalid. In the face of valid data, the internal control department can use tools such as data dashboard to visualize the data, which can control the probability of enterprise operation effectiveness comprehensively and in real time. The enterprise management can also observe the dynamic analysis and further analysis through these data, so as to master the working status and profitability of each department of the enterprise, which can not only facilitate the enterprise management to control the overall situation, but also provide help for the decision-makers. Of course, a large amount of data will inevitably bring a lot of useless low-quality data. When facing them, it is necessary to timely detect and clean up the potential hazards to financial information, and use big data technology to share and integrate data with various departments to reduce the spread speed of useless data.

In the context of big data, all kinds of data information are expanding rapidly, and so is accounting information. Some data in accounting information can also reflect the situation of enterprise culture and other aspects. Although it can help enterprise managers to provide more comprehensive data analysis, it has the possibility of tampering with and transforming fake data. Therefore, enterprises should pay special attention to other data in accounting information and carry out real-time supervision while focusing on accounting report information.

4.4. Improving the speed of information transmission
Big data technology has brought huge amount of data to people, and the sources of these data are also varied. At the same time, the faster speed of updating enterprise application information and network technology, and the strong commonality between the generated information and transmission media mean that data are shared, so fast transmission and processing of information will give enterprises an advantage in the fierce competition. Enterprises should improve the speed of internal information communication and external information disclosure by establishing effective internal and external information sharing platforms. One of the reasons for slow information transmission within enterprises is that at
present, some enterprises in China will establish various information management systems due to their needs, such as financial management system, production management system, internal market system, etc., but the settings of each system are different and completely independent, which hinders the speed of information transmission between departments. Enterprises should improve on this point by setting uniform standards and interfaces and working on the same cloud platform, so as to realize fast transmission of information from various departments. In terms of external information disclosure, the enterprise shall continuously improve the information sharing platform according to the requirements of enterprise stakeholders, society and government, avoid information asymmetry, ensure that all parties above can timely obtain relevant information of the enterprise, communicate smoothly, truly improve the communication of internal control information, and at the same time, ensure that the correct level of external information disclosure is improved.

4.5. Timely updating internal control system
With the rapid development and update of information technology, the internal control system of an enterprise can cope with all kinds of risks only by keeping up with the information update speed. Many enterprises have slow information transmission, low accuracy of information and low efficiency of internal control, all because the internal control system is not perfect enough. Therefore, enterprises should use new technology and big data system to update the internal control system in time to improve the accuracy of information and the efficiency of internal control; while updating the internal control system in time, they should also pay attention to updating various software of the internal control system to avoid the use of aging software and systems, because the new software is more conducive to improving the timeliness of internal control.

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