

Based on the Big Data Audit Risk Model Audit Process Research

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Abstract: With the gradual application of big data technology in enterprises, the way and connotation of audit have changed greatly. This paper is based on the impact of big data technology on auditing, Break down the audit risk into four risk elements, including inherent risk, control risk, big data technology risk and inspection risk, Building an audit risk model adapted to the big data environment, Summarize the new connotation of the four risk elements in the new model; Then, analyze and explore the impact of big data audit risk model on the audit implementation process from four stages: audit objective, audit risk identification and evaluation, audit plan and audit risk response, Combined with the audit practice, the big data audit process is sorted out again, Provide thinking guidance and solutions for big data audit.

Keywords: Big data, Audit risk, Risk management.

1. Introduction

With the gradual application of big data technology in enterprises, the way and connotation of audit have changed greatly, and the update demand of big data audit on the risk element identification and implementation process has been highlighted. Based on the impact of big data technology on the audit, this paper sorts out the big data audit process according to the implementation sequence of the audit implementation process, in order to provide thinking guidance and solutions for the actual situation faced in the big data audit [1].

1.1. The traditional audit risk model

Consists of three risk elements: audit risk, major misstatement risk and inspection risk. The relationship can be described as: $\text{audit risk} = \text{major misstatement risk} \times \text{inspection risk}$ [2].

The audit risk model provides direction guidance for the implementation of the audit work, and ensures that the audit work has clear objectives, reasonable planning, appropriate evaluation, accurate response, reliable evidence and reference value. Through the in-depth analysis of each risk element in the audit risk model, the key nodes of each audit process are identified, and a reasonable audit plan is formulated and the specific work is implemented. That is, the audit risk model is the basis of the overall framework and implementation process of the audit. Only after clarifying the impact of the audit risk model on the audit framework, can the audit work be carried out smoothly [3, 19].

1.2. The impact of big data technology on the audit risk model

In the current environment where big data is widely used, no both companies and auditors are influenced by big data technology. On the one hand, enterprises use big data technology to transform traditional paper vouchers into virtual electronic information, which affects the quality of audit objects; on the other hand, auditors also begin to use big data technology to organize and analyze data of audit objects. Therefore, this paper combs the traditional audit risk model again, and adds the fourth independent risk element, "big data

technology risk". At the same time, the risk of major misstatement is decomposed into fixed risk and control wind and risk again, and the big data audit risk model is reconstructed accordingly, namely [4]:

$\text{Audit risk} = \text{fixed risk} \times \text{control risk} \times \text{big data technology risk} \times \text{inspection risk}$

1.3. The new connotation of the four risk elements in the big data audit risk model

Based on the new characteristics and new changes of the "audit risk model" in the big data environment, it can be found that the big data technology enriches the connotation of the four risk elements, which are respectively [5-8, 20]:

First, the volume of business increased risk, wrong account hidden risk and other inherent risks. Second, information storage, reporting, maintenance and other control risks. Third, the risks such as data processing, forensics and application of big data technology. Fourth, information screening, audit target fuzzy, audit scope expansion and other inspection risks.

These new connotations directly affect the implementation process of big data audit work.

2. The Impact of The Big Data Audit Risk Model on The Audit Implementation Process

By constructing the big data audit risk model, this paper decomposes the audit risk from the perspective of four risk elements, and combines with the aforementioned "new connotation of the four risk elements", and further sorts out its impact on the audit implementation process. In detail, in accordance with the implementation order of the audit implementation process, there are four stages: the setting of audit objectives, the identification and evaluation of audit risks, the formulation of audit plans, and the response of audit risks. On this basis, we analyze and explore the specific impact of big data audit model on the four stages of the implementation process, and illustrate the corresponding changes in audit practice, so as to provide thinking guidance and solutions for the actual implementation of big data audit [9].

2.1. Big data audit target setting

The influence of big data technology on audit objectives is reflected in the "carrier of audit object", that is, "data". Due to the virtualization of traditional paper vouchers, the object of audit has gradually changed from paper vouchers to virtual data. This means that the object of the audit is no longer "first-hand evidence", but the electronic information converted and uploaded by the enterprise, making the audit has to consider the potential risks in the conversion process. This potential risk reflects: the authenticity of the data, the degree of reliability, the correlation with specific matters, and the security degree of the data storage and maintenance.

It can be said that the big data audit has added a new audit goal: to review the authenticity, reliability, effectiveness and security of enterprise data, and the application of enterprise big data technology. Make comments and make comments.details are as follows:

- (1) Authenticity and reliability mainly audit the source and process of data and give audit opinions.
- (2) Effectiveness is mainly used to audit the effect of data supporting information users and express audit opinions.
- (3) Security is to audit the security of enterprise big data flow and express audit opinions.

2.2. Identification and assessment of big data audit risks

2.2.1. Identification of big data audit risks.

According to the big data audit risk model, compared with the traditional three risk elements, the audit risk of big data technology needs to consider the risks brought by "big data technology" and the impact of "big data technology" on the other three risk elements [10].

As shown in the aforementioned model, the impact of big data technology on audit risks is not completely independent, and its risks are reflected in the other three risk elements [11-14].

(1) In terms of inherent risks, big data technology increases the business volume and data volume of enterprises, and makes the concealment of wrong accounts higher.

(2) In terms of risk control, big data technology enables enterprises to change the data control mode, and increase the process control risk of information storage, reporting and maintenance.

(3) In terms of risk inspection, big data technology reduces the efficiency of information screening and increases the cost of value purification. At the same time, the objectives and procedures of audit are dispersed, the scope of audit is expanded, and the audit accuracy is reduced.

It should be noted that the big data technology also directly leads to the difficulty of data analysis, processing and forensics. It can be said that the impact of big data technology on the audit process is comprehensive and comprehensive, and it affects the design and implementation of the whole audit process. Therefore, the risk identification of big data audit should be considered more than the traditional audit.

2.2.2. Assessment of big data audit risk.

If the focus of big data audit risk identification is on enterprises, then the focus of big data audit risk assessment is on the auditors, who need to consider whether the auditors have enough ability to deal with the identified risk points. From the perspective of audit target, because the audit target increased the assessment of information processing and maintenance, so in the assessment of audit risk, you need to

consider three factors: big data pretreatment process and effect, big data on other risk factors and auditors in the use of big data tools audit obstacles, the three comprehensive reflects the professional competence of big data audit auditors.

2.3. Development of the big data audit plan

2.3.1. Overall audit strategy.

The impact of big data on the overall audit strategy is reflected in the following aspects: audit scope, audit resource allocation, audit direction, audit tools and form.

(1) Audit scope and allocation of audit resources

The impact of big data on the overall audit strategy can be considered from two perspectives: one is the expansion of audit scope, the other is the increase of audit resource consumption. On the one hand, with the greater use of big data technology, the business scope of enterprises is expanded, and the amount of data generated by daily operation increases greatly; on the other hand, the audit target evaluates the application of big data technology and information security, which leads to the expansion of the audit scope. Compared with traditional audit arrangements, auditors have to think more about how to identify high-risk projects in plural audit objectives and more audit projects. Sort the importance level of each project and the level of risk assessment, and redistribute the audit resources [15].

Specifically, big data audit should consider data screening, where the audit resources consumed by selection and data purification should be allocated; how to allocate the audit resources needed for the analysis and processing of huge data; how to conduct qualitative analysis of unstructured virtual data, and whether to arrange professionals or big data to assist in the work. At the same time, big data technology weakens the internal connection between data, blurs the traces of audit matters, and hinders clue tracking and further investigation, which leads to the increase of resources for misreported sources. In addition, big data analysis technology expands the scope of sample selection for audit sampling, which directly increases the workload of risk response.

(2) Audit direction

Generally speaking, the audit is not only limited to the review of financial data, but also the in-depth investigation of the overall situation and environment of enterprises, so as to find out the hidden contradictions, misaccounting and fraud in the financial data. Traditional audit is limited by the difficulty in obtaining other relevant information other than paper vouchers, and often the audit direction is focused on structured financial data. However, big data technology also transforms the business information, contract transactions, management messages, and forms more comprehensive and easy to find unstructured data than before. Therefore, the audit direction should also be changed into a comprehensive analysis of the structured financial data and unstructured related information of enterprises [15].

(3) Audit tools and forms

The traditional form of audit is generally the firm dispatched the project team to the enterprise to conduct on-site audit. In theory, this advantage of the form of audit is that it can directly and quickly obtain the first-hand materials of enterprises and reduce the audit cost. However, it ignores the cooperation degree of enterprises and the enthusiasm of treating audit business. In practice, auditors are often hindered in the process of obtaining relevant enterprise materials, key information is difficult to obtain, control tests cannot be carried out, and the content and object of the confirmation are

controlled by the enterprise. In the big data audit, the project team can directly obtain the structured and unstructured data of enterprises from the database or cloud, which reduces the impact of enterprise obstacles, reduces the difficulty of obtaining evidence, and also makes the original on-site resident audit no longer necessary [16].

The use of big data technology to audit enterprises and transform the audit form into the centralized office of the firm can effectively reduce the attendance and dispatch cost of the audit project team. At the same time, the use of big data audit tools can also help auditors to carry out efficient and fast data analysis, and identify the contradictions and problems that are difficult to find in the traditional audit.

2.3.2. Specific audit plan.

The impact of big data on specific audit plans should also be considered from two perspectives: one is to increase the proportion of analysis procedures; the other is to emphasize the use of big data technology to investigate misstatement and fraud.

(1) More analytical procedures

In big data audit, structured and unstructured data pays equal attention to, and unstructured data has been standardized and format transformed by enterprises. Auditors process unstructured data more and deeper than traditional audit. Therefore, in the specific audit plan of big data audit should give full play to its advantages, more use of big data technology between structured information, structured and unstructured information link execution analysis program, effectively find audit clues, identify key items and unreasonable data trend, improve the accuracy of the audit plan and the reliability of the audit conclusion [17].

(2) Use big data tools to deal with misstatements and fraud

The process of data virtualization by enterprises using big data technology is equivalent to the formal and attribute reconstruction of the data generated by enterprises. In this process, the internal connection between data will be blurred and the source and trajectory of data will be diluted. At the same time, big data technology makes it easier to modify the information related to wrong accounts, increasing the concealment of wrong accounts, and it is difficult to find the problems through traditional audit investigation methods, which leads to the need for more resources and time to investigate relevant vouchers, find the causes of misstatement and fraud. In this case, auditors should also make "full" use of big data tools to establish a big data audit analysis model based on business logic, accounting relations and audit experience, so as to finance enterprise, a systematic and comprehensive analysis of the links between business data and business data, structured and unstructured data, and internal and external data to fully deal with misstatement and fraud overdone by big data [18].

2.4. Big data audit risk response

Compared with traditional audit, the impact of big data audit on risk response is reflected in three aspects: first, the selection of the overall audit plan, second, to improve the efficiency of value purification, and third, to increase the pertinence of audit communication matters.

2.4.1. Increase the proportion of control testing in the overall audit scheme

In the big data audit, both the enterprises and the auditors are using the big data technology. On the one hand, the use of big data by enterprises directly affects the way of generation and maintenance of data, namely "internal control". Therefore,

in the traditional audit, it is not advisable to judge whether to perform the control test solely based on the understanding of the internal control of enterprises, and it is more necessary to test the internal control realized with the help of big data technology. On the other hand, the scope of internal control tests depends on how much technology of big data is used in the internal control of each project. For example, for the audit of monetary funds, accounts receivable and other projects, with the large amount of data generation, high frequency of regular maintenance and more application of big data technology, the effectiveness of information reporting and maintenance; for the audit of production and manufacturing cycle, the complexity of the data is reflected in the distribution of products, products and manufacturing costs, so the effectiveness of information generation and regular checking.

It can be said that under the background of big data, the internal control of enterprises has a greater impact, and the control test during the audit is also more necessary. Compared with the traditional audit, more comprehensive plans should be formulated and implemented.

2.4.2. Improve the value purification efficiency of unstructured information

In the environment of big data, when enterprises convert paper information into virtual information, they do not spend special time and labor costs to screen "effective information" separately, resulting in a certain proportion of "invalid information" in the generated unstructured information. In risk response, it is often necessary to screen and track a certain kind of information. A large amount of invalid information involved reduces the value density of enterprise data and extends the necessary time of data processing and analysis. Therefore, separate data screening procedures should be designed to purify the data in a systematic way, and provide clues and directions without audit of forensics and substantive analysis procedures. For example, the accounts receivable and bank loan certificate, the selection of confirmation sample is different from the traditional audit amount size, and the unstructured information (such as whether regularly, whether mortgage, credit loan and special contract terms or borrowing conditions, etc.), more effectively screening the sample of high value.

2.4.3. Discuss the audit communication matters with the project team

The impact of big data audit on "communication matters" is reflected in two aspects:

One is "external communication". The volume of information available to auditors is larger than traditional audit, the matters identified and communicated with enterprises after professional judgment increase accordingly, and the importance of accurately distinguishing "matters communicated with the management" and "matters communicated with the governance layer" is highlighted. For example, for the internal control issues of information generation and maintenance, professionals should be consulted first see, if the problem is accidental internal control and not executed, communicate with management; if the problem is internal control or the design of information maintenance system is defective, communicate with the governance layer.

The second is "internal communication". Under the big data audit, the project team mostly adopts online remote audit, and the form of internal group discussion on key matters should be changed. The traditional audit project team

discussion requires the members of the group to register and extract the paper information of the enterprise in advance for communication during the discussion. Online audit only requires the index number and electronic source files shared among members to communicate smoothly. Therefore, the frequency and content of the design project team discussion should be updated in combination with the changes brought about by the big data audit. For example, to blur the time frequency of the discussion, instead establish online documents such as key matters, internal control matters, fraud traces and clues. Team members record and update the documents at any time according to the investigation situation, and the project team partners flexibly judge the group discussion time according to the nature of the matters.

3. Conclusion

To sum up, although reorganizing the audit implementation process based on the influence of big data technology has achieved remarkable results, it is not a sufficient condition for the audit business to achieve "reasonable guarantee", and the rationality of the design and the effectiveness of the implementation are indispensable. Even if there is a feasible big data audit implementation plan, the auditors with the big data foundation still need to implement it. This "big data foundation" is reflected in three aspects:

First, auditors should have a large number, according to the audit thinking, know and understand the characteristics of big data audit, can formulate an audit plan suitable for the big data audit, and implement appropriate and effective audit procedures according to the actual situation in the audit.

Second, auditors should master the big data knowledge basic framework and familiar with specific big data audit tools, to understand the enterprise using big data technology data generation and maintenance of principle and mechanism, on this basis to use professional judgment to identify key matters and major misstatement, meet the ability of large data audit tools, to ensure that the inspection risk in acceptable low level.

Third, the appropriate use of the work of experts. Although the audit process is affected by big data, the field of big data is still other professional fields. In the face of special circumstances that auditors are difficult to analyze and solve, the work of experts is also the key to ensure the smooth implementation of audit.

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