

# A Review of Government Auditing Literature

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**Abstract:** It is found that most scholars have studied the relationship between government auditing, internal auditing and social auditing, while some scholars have analyzed and discussed the changes brought by the booming development of big data technology to government auditing in the context of the information age. In order to study the ideas of these scholars and summarize the current research status of domestic and foreign scholars in this field, this paper intends to comb through and read the literature and make some generalizations to discover the importance of synergy between governmental audit, internal audit and social audit, and the important role that big data technology plays in auditing at present.

## 1. Introduction

At the outset, auditing is essentially an act of supervision, evaluation and assurance. Our national audit system is administrative type, which is also caused by our national conditions, so the biggest characteristic of our audit is to have independence. Audit has the subject and object of the difference. Also, according to the different business audit is divided into different types of business. These different design types bring different audit objects, including party and government institutions, institutions, financial institutions, corporate units, engineering projects, natural resources, natural environment, leading cadres, public policies, etc. Because of its independent supervision and review function, it was affectionately referred to as the “watchdog” by former Auditor General Li Jinhua, and has an indelible role in protecting China's state-owned assets.

## 2. The Synergy of Government Audit with Internal Audit and Social Audit

Duan Huimin (2006) argues that although different audit bodies have different direct audit objectives, the ultimate goal of any audit is to promote the development of the national audit business, to ensure that resources are used rationally, and to make effective use of the fiduciary responsibility mechanism. Zhao Yanfeng (2009) said that although the audit methods under different audit subjects. Responsibility or objectives have certain differences, but all changes are the same, as different subjects of auditing can learn from each other's advanced methods and approaches to achieve common progress. Zhang Qifu (2011) argues that state audit has a certain guiding role for social audit and internal audit. Zhang Huiwen (2010) points out that the specific differences between the three different audit subjects are worth studying and suggests the path that makes the synergistic development of the three. Ma Xuehui (2019), on the other hand, is innovative in explaining a specific resource and environmental audit, from which he points out the possibility and feasibility of synergistic development of state audit, internal audit and social audit, and proposes certain mechanisms to make the three and better integrated[1-5].

As the leader among the three major auditing bodies, governmental audit has the authority and compulsion that internal audit and social audit cannot achieve, which is supported by the leadership of the party and government organs and the corresponding national policies. Internal auditing, on the other hand, mostly occurs in the internal control and management behavior of enterprises, and its purpose is more to promote the better development and operation of enterprises. Social audit also refers to the third-party auditors accounting firms. The auditors are independent and review and supervise the authenticity, legality and validity of the financial statement data of the audited entity.

The auditor has a standard code of practice and is certified to ensure the accuracy of audit results to a certain extent[6].

These three have their own advantages and limitations, so it is especially important to establish a mechanism that makes the three different audit subjects work together to better promote the prosperity of the national audit business. In fact, the government audit is similar to a certain degree of internal audit, as the internal audit body of the state organs, there are only some peer audit and the behavior of the upper audit, for some objects without the level of authority, win or lose the audit and there is no way to review its reasonableness[7].

### **3. The Government Audit in the Context of Big Data**

The State Council promulgated the Action Plan for Promoting the Development of Big Data, emphasizing the important role of big data technology methods in the national economic and social development embodied, for the country to deepen reform, social progress, and improve the quality of people's living standards, have an irreplaceable role. It can be seen that with the continuous development of the information age, the booming development of big data, cloud computing and other emerging technologies, the application of these emerging technologies to the audit work, has an inevitable trend[8].

In the field of auditing, the use of scientific processing methods and models for the analysis and inspection of audit results, timely detection of deficiencies and make up for them, the construction of a new model for the audit process of big data, the use of modern technologies such as modeling and visualization, and the continuous promotion of the application of big data auditing process is the key research direction of the audit work at present[9].

#### **3.1 Definition of Big Data Auditing**

First of all, to begin with, big data technology is a kind of data-oriented information technology, which marks another milestone in the information age we live in. In the process of integrating and analyzing data, more convergent conclusions can be obtained, which can promote the progress and development of all aspects of society, including concepts, models, technologies, and application practices[10].

As the value of data continues to emerge, people are making good use of it to discover the intrinsic value behind it. Moreover, the means of obtaining data are becoming more and more abundant and convenient, and the means of processing data are becoming more and more scientific, efficient and accurate, which makes data more and more frequently used in people's daily work. When data is constantly developed by people, the process of data production factorization becomes more and more significant, and people can easily classify and store the data reasonably according to certain rules and then by certain rules, and save it in the database for social development and use. And big data becomes a trend with the continuous development of data. People's daily life and work, socio-economic and political development, the requirements of national reform and deepening, the construction of wisdom management mode and other behaviors are becoming more and more inseparable from big data, big data is in full swing attacking all walks of life. At the same time, big data is a double-edged sword, there will be advantages and disadvantages. The correct and reasonable use of big data technology will make the operation of society more efficient, and how to find the right way to use it is the current problem we should think about.

Applying big data technology to audit work and forming an intelligent audit mode is also an inevitable trend of audit work nowadays. The audit authority actively learns the theoretical knowledge of big data, the methods and means of using big data, and through data analysis tools, digs out the truth that exists behind the data and analyzes it to draw audit conclusions. This not only improves the efficiency of audit work, but also improves the accuracy of audit conclusions, enhances the ability of macro analysis, and makes the level of intelligence and systematization of audit work continuously improve.

## **3.2 The Impact of Big Data Technology on the Traditional Audit Model**

As a product of the information age, big data audit is different from the previous audit mode. Compared with the traditional on-site verification audit mode, it can analyze and process multiple types of audit data from multiple units at the same time by computer means to build a shared platform, work quickly and efficiently, cover a wide range of results with high accuracy, avoiding the drawbacks of the original audit method of only partial sampling due to resource constraints, but also make the audit process more rapid and smooth, and the audit results more convincing. The audit process is faster and smoother, and the audit results are more convincing.

Data is the most basic and important element of big data technology, with the following characteristics.

### **3.2.1 Wide Range of Data**

Compared with the previous audit model, big data audit can build a platform for the joint analysis of data from multiple units of multiple types and platforms, which is no longer limited to the internal data of the audited unit, but can include the internal and external data of the audited unit that can be obtained by the system, the data available to the national audit authority and the massive data existing on the Internet. Its data volume is huge, audit coverage is wide, and audit verification is strong.

### **3.2.2 Data Types Are Complicated**

With the continuous progress of science and technology, data analysis technology is also breaking through, and the data selected for audit work is no longer restricted by the type. The emergence of technologies such as data visualization makes the auditors' work efficiency greatly improved, and the technology reconstructs different types of data so that a comprehensive analysis of the overall data can be obtained, which greatly enhances the reliability and accuracy of audit results.

### **3.2.3 Low Data Value Density**

The wide range of data and many types of data will also lead to the acquisition of mixed data, and the data with audit value and those without audit value are mixed together, which increases the difficulty of auditing and the content of audit work, resulting in a low density of data with directional value.

Therefore, auditors should now adopt smarter audit screening and analysis procedures to select valuable data for research processing, screening and identification, and study the intrinsic relationship between various data to derive information with audit value.

Compared with the traditional audit model, big data auditing has the following advantages.

Firstly, reduce audit risk. Traditional auditing relies on auditors to go into the audited unit, through the traditional letter, inventory, inspection, observation and other sampling audit methods, relying on partial professional judgment and the results of calculations to find audit evidence and issue audit reports, and the conclusions reached inevitably have a greater risk. In contrast, big data auditing uses big data technology to process a wider variety of raw data with the same audit cost and audit labor to obtain audit clues that help issue audit reports.

Secondly, change from after-the-fact auditing to continuous auditing. With the rapid development of the digital economy and the information age, audit systems are constantly being developed, and a series of improvements and fixes are made to determine the existence of risks and issue audit reports. This process has the role of continuous supervision and verification, and the production and operation status of the audited unit is continuously observed, monitored and judged, avoiding troublesome events due to time lag in economic activities during the audit process.

Thirdly, more inclined to the application of relevant relationship evidence. The emergence and development of technologies such as big data and cloud computing have led to the emergence of more diverse relationships between data. Through some data integration and processing procedures, more correlations between data have been developed and utilized, making the data analysis process

less dependent on the logical relationships between data and more able to discover or find more other types of correlations between data.

Fourthly, change from sampling audit to global audit. Based on the current audit status, achieving full audit coverage has become an inevitable requirement for China's audit work. In order to achieve full audit coverage, big data audit technology is bound to bear the brunt. The mode of comprehensive coverage of various types of data is adopted to replace the risk of sampling and avoid the existence of loopholes and hidden dangers. Big data, cloud computing and other means provide auditors with the possibility of achieving full audit coverage. Analyzing and studying data from many different perspectives and at many different levels makes it easy to discover more valuable content hidden beneath the surface, making it possible to reduce the risk of incomplete results due to sample audits and partial audits.

(1)Technology of Big Data auditing:

The process of applying big data for auditing is actually the process of auditing using the massive and complex, high-speed changing data, so the specific method of operation should also be implemented to how to use the data for auditing work.

(2)Key points of data analysis:

Data is essentially a kind of information, through the description of the facts or the results obtained from observation, the objective existence of things for classification, according to a certain logic to summarize, resulting in the information that people can easily use. There are various types of data, symbols, text, etc. can be data.

Database is a collection of unified and centralized integration and classification of data. In the database, data exists simply and efficiently, avoiding redundancy, and the independence, security and reliability of data can be guaranteed. Data is a necessary element for the development of the information age, and the use of data in the right way makes the result twice as good with half the effort.

(3)Key technologies for big data auditing:

The key technologies of big data auditing include on-line analytical processing, data mining, and complex data analysis. Online analytical processing technology refers to the unified integration and analysis of internal and external data from multiple angles and levels by combining multiple databases, which can obtain comprehensive data analysis conclusions. Data mining refers to discovering the inherent relationships implied behind various types of data and identifying potentially valuable content that can be used. Complex technical analysis is because auditors search for data using multiple information systems, multiple analysis procedures, and selecting multiple sources, so that the data obtained has many dimensions, wide coverage, large volume, fast updates, and diverse types, but the value density is relatively low, and the types of databases applied are also diverse, requiring us to use more advanced data analysis techniques - -complex data analysis. The main steps include the following.

The first is to collect data. There are various methods of data acquisition. You can use SQL statements to extract key information, implement them through Where statements, use web crawler technology to intercept audit-worthy data on the Internet, use simple replication techniques, or use specialized templates to collect large amounts of available data.

The second is data processing. After acquiring a large amount of audit data, data pre-processing and standardization procedures need to be performed. First, the data is constrained using the inherent integrity characteristics of the database, and the data that cannot be normally entered is directly screened out. The remaining data can then be used in a reasonable way. At this point, it is necessary to standardize the data according to certain rules and group them in a reasonable and orderly manner, so that they can be more easily analyzed and processed by the subsequent procedures, and here the Group by function of SQL statement can be used for weighting and classification statistics.

The third is data analysis. The common method of data analysis is statistical analysis, using statistical methods for qualitative and quantitative analysis. The main analysis techniques include:

hypothesis testing, significance testing, correlation analysis, t-test, other statistical analysis methods, such as analysis of variance.

The fourth is data modeling. Data modeling helps data to be viewed and used more intuitively. A unified model is constructed under an established standard, and then all the data owned are standardized and placed in the model, after which the algorithms of the model can be used to find out the intrinsic correlations and hidden valuable information among the data. The models of big data auditing can be continuously improved and eventually matured and solidified to be able to be generalized. The accumulation of these models will gradually form a systematic and standardized collection of big data auditing and analysis tools, which will help to achieve industry-wide coverage of audit business types.

#### (4) Data-based audit process:

Before conducting an audit investigation, first confirm that the audited object's information system allows access, and begin to search, find, and integrate massive amounts of data; then get valuable data available for review and conduct data pre-processing, which refers to a process of standardizing data that can be understood and used by auditors; then get the screened data, select content that meets certain audit criteria, and conduct formal analysis and processing, the content obtained helps the auditor to obtain audit leads and audit evidence; finally, on-site or off-site audit evidence is conducted, and audit reports are issued to obtain audit conclusions.

## 4. Outlook

Although governmental audit, internal audit and social audit are independent of each other, they have an inseparable relationship. The three must work together and develop together, and audit technology and audit resources need to be shared in order to promote the vigorous development of the national audit.

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