

# On the Analysis and Control of Audit Sampling Risk

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**Abstract:** Audit sampling technology is widely used in practical work due to its advantages of convenient and efficient efficiency, but it also has its disadvantages, producing audit sampling risk, which is divided into excessive trust risk and misuse risk. This paper borrows the accounts receivable data of Sichuan Star Electric Power Company, adopts the monetary unit sampling method to further understand and consider the audit sampling technology, and finally puts forward suggestions on the control means of audit sampling risk.

**Keywords:** Audit sampling, Audit risk, Risk control.

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## 1. Introduction

Due to the rapid development of social and economic environment, the audited units of business scope gradually expanding, the enterprise organization system is more complex, involved in more various business activities, using detailed inspection method for audit work is not practical, need to spend a lot of audit costs and consuming audit resources, audit sampling technology to comply with the requirements of The Times to produce and develop. However, while audit sampling brings convenience and efficiency, it also has its disadvantages. There are undoubtedly certain risks in the method of seeing the big ones. The results of the sample can not fully represent the overall results, which may lead to wrong conclusions and audit risks. Among them, the excessive risk of trust and accidental risk will cause the deviation of audit results, which is not conducive to the smooth progress of audit work. Therefore, it is necessary to analyze the causes of audit sampling risk and discuss the corresponding control measures.

## 2. Audit Sampling Risk

### 2.1. Emerge

When the sampling audit method is applied, all the samples can not be tested one by one. We should select the samples from the overall audit scope according to the principle of randomness, and then speculate on the overall situation based on the sample results. However, there is only one actual situation of the overall audit system, and the sample is random, and there may be a variety of situations. The error rate obtained by the sample alone cannot be determined to reflect the actual error rate of the overall sample system, thus resulting in the sampling risk.

Reliis reliability to understand this, such as 90% reliability, with a 90% chance that the true feature of the population is accurate and reliable, within established accuracy bounds. We can also estimate the likelihood that the sample does not represent the population, because there is still a 10% possibility not within the accuracy limit, and here the 10% is the risk degree, namely the risk of the sampling audit.

### 2.2. Classification

Certified public accountants may have the risk of insufficient trust in the implementation of the control test,

which refers to the auditors' distrust of the internal control of the audit unit because of the audit results. And excessive risk, which refers to the auditors' excessive trust in internal control because of the audit results. Similarly, the auditor may have the risk of misrejection in the substantive test, meaning that the audit results indicate that the book amount contains a material misstatement, which does not exist. And the risk of error, the audit results indicate that the book amount does not contain a material misstatement, but in fact exists.

The above four types of risks have adversely affected the audit work. However, the risk of insufficient trust and misrejection usually only make the risk of major misstatement high, which makes auditors need to carry out redundant audit work, consume audit resources, manpower and material resources, delay the audit efficiency, and does not affect the final audit results. However, excessive trust risk and false exposure risk are likely to reduce the risk of identified major misstatement, resulting in less audit evidence that auditors think is needed, and ultimately produce wrong audit conclusions, and express inappropriate audit opinions.

### 2.3. Influence

There are two sources of audit risk: the first, the risk of major misstatement implied by the auditee itself has occurred before the audit. Even if the auditor operates with the fixed audit process, it is not found by the auditor. the second, the inspection risk from the auditor is hidden in the financial statements.

One of the main means of auditors to perform their work tasks is audit sampling, which is undoubtedly an important factor affecting the risk of inspection.

## 3. Case Analysis

The experimental data is derived from the accounts receivable table of Sichuan Star Electric Power Company. Sichuan star electric power co., LTD., is one of the important energy industry enterprises in Sichuan province, with electric power, tap water, natural gas production and supply, the merger of real estate development, building materials production, material marketing, etc., is a diversified listed company, for Suining economic development provides electric power, natural gas and drinking water and other stable resources. Choosing this company as a case analysis has some significance.

For the receivables details of Sichuan Star Electric Power

Company are 1330 items, and the total book amount is 233213963.1 yuan. Assuming that the acceptable risk of misrepresentation set by the auditor is 5% and the estimated total misstatement is 0, then the tolerable misstatement (2% of the book amount) is RMB 4,664,279.3 yuan.

This test used the monetary unit sampling method to identify the receivables of the company. The sampling unit was the receivables amount of every 1 yuan, and the test was for the overvaluation error statement, and the overvalued wrong statement amount of each account should not be greater than its book balance.

**Table 1.** Accumulated book balance of certain accounts receivables

Overall item (physical unit)	book balance	Cumulative total	Related currency units	System sample selection amount
1	200000	200000	1-200000	
2	124228	324228	200001-324228	
3	409357	733585	324229-733585	500000
4	700000	1433585	733589-1433585	1000000
5	85100	1518685	1433589-1518685	1500000
.....				.....
		233213963.1		

Here, the system sampling method is applied, and the process is as follows:

(1) Sample selection spacing of the calculation system = book balance sample size ÷ 233213963.1150 = 1554759.8 (Yuan)

(2) Select a number from 1 yuan to 1,5,54,759.8 yuan, such as 500,000 yuan.

(3) Make clear the amount of sample selection in the system, which is equal to the selected one point plus the sample selection spacing multiplied by (0,1,2 ... 149).

As can be seen from the above process, the characteristics of monetary unit sampling are: the larger the book balance of an accounts receivable project, the more likely it is to be selected. If a certain balance is equal to or greater than the sample selection spacing, this method can actively identify all single major projects, and the project will inevitably be selected. Here, we assume that the balance of each account receivable is below 1554,759.8 yuan, that is, the physical units are not greater than the sampling spacing (if there are physical units are greater than the sampling spacing, they

### 3.1. Determination of the Sample Size (n)

The sample size was determined by evaluating the overall misstatement rate and the tolerable misstatement rate. Available, the sample size is n=150 when the expected overall error rate is at 0, and the tolerable misstatement rate is at 2%.

### 3.2. Select Samples

In the sampling, the cumulative book balance of certain accounts receivable is listed as follows:

should be fully checked respectively).

### 3.3. Assume

The auditor selected 150 samples through the systematic sample selection method, and then tested the related physical units, resulting in two misreports. Misstatement 1 is a sample with book balance of 200,000 yuan, with misstatement of 55,000 yuan higher, and misstatement rate is 27.5%. Misstatement 2 is a sample with book balance of 124,228 yuan, with misstatement of 46,000 yuan higher, and misstatement rate is 37%. Sort by size to misstatement ratio:

$$T1=46000 \div 124228=0.37 \quad T2=55000 \div 200000=0.275$$

### 3.4. Judge

Auditors rely on the content related to the sample misrepresentation, the overall budget misstatement critical value, to infer its relationship to the tolerable misrepresentation. The following calculate the bounds and increase above the Poisson distribution theory. The required Poisson coefficients required are as follows:

**Table 2.** Poisson coefficient table

Number of misreports	99%	95%	90%	80%	50%
0	4.61	3.00	2.31	1.61	0.7
1	6.64	4.75	3.89	3.00	1.68
2	8.41	6.30	5.33	4.28	2.68

Overall misstatement upper limit = basic misstatement limit + the upper limit increased by the first misstatement found + the upper limit increased by the second misstatement found

Basic misstatement limit = sampling interval sample when no error is found = 1554759.8 × 3.00 = 4664279.4 (yuan)

The upper limit of the first false statement = sampling interval based on sample false statement rate increment = 1554759.8 × (4.75 - 3.00) × 0.37 = 1006707 (yuan)

The upper limit of the second false statement added =

sampling interval based on sample false statement rate increment = 1554759.8 × (6.30 - 4.75) × 0.275 = 662716.4 (yuan)

Upper limit of basic error reporting + increased upper limit of error reporting for the first one + increased upper limit of error reporting for the second error reporting = 4664279.4 + 1006707 + 662716.4 = 6333702.8 (yuan) > 4664279.4 (yuan)

It can be seen from the above calculation that when the risk of misstatement is 5%, the overall misstatement has a great risk beyond the tolerable misstatement. The auditor should

not accept the book amount of the company's receivables, and should take measures to increase the sample range and implement the corresponding audit procedures.

### **3.5. Ponder Over**

The analysis of the above cases adopts the monetary unit sampling method, which can easily calculate the sample size and evaluate the sample results. However, although there are its drawbacks. For example, under the stratification mechanism of this method, it will inevitably make it difficult for a lower number of sample items to extract, and even more difficult to extract the items with zero or negative amount. If the company reports, the method cannot detect underreporting, largely posing audit risks to the company.

To reduce the audit risk of this sampling method, we can be as follows: (1) treat negative amount according to positive amount and calculate the error rate. (2) select zero amount samples in advance and summarize them separately. (3) make full use of computer technology to avoid human calculation errors.

## **4. Suggestions to Reduce the Risk of Audit Sampling**

After the analysis of the process and technology of audit sampling, it can be seen that the risk of audit sampling mainly comes from the sampling process, which is affected by human operation factors and data distortion factors. Therefore, the control of audit sampling risk should also focus on these two aspects.

### **4.1. Reduce the Risk of Human Factors**

#### **4.1.1. Improve Auditors' Awareness of Risk Prevention**

The reasons for forming the audit risk are very complex, involving a variety of factors, and the auditors must have enough understanding of this, and they need to improve their sensitivity to the risk. In addition, it is also necessary to have an in-depth understanding of China's relevant economic policies, timely find out the relevant links that produce risks, study the management and business structure of the specific audit objects, have a deep understanding of the audit objects, and timely identify and control the audit risks. This can be done by organizing seminars for experienced auditors to share their work experiences with newcomers and describe their effective skills in practice.

#### **4.1.2. To Improve the Quality of Auditors**

Develop standard quality standards for auditors, Improve the professional level of auditors, Auditors are required to understand the audit regulations, economic regulations, When selecting auditors, we can give priority to the combination of law and business talents. Familiar with accounting principles and related professional accounting knowledge, Experience in auditing and accounting practice, That is, while auditors learn professional knowledge, Also for professional trainee training, Ability to apply knowledge to practical work. Auditors must have relevant educational, organizational, analytical and writing skills, To express their own views clearly. Develop a training plan for the auditors, And according to the different levels of auditors, the relevant training content, During the training period, attention should be paid to expanding the scope of communication between auditors, Extensive access to knowledge in other industries, Such as law, economics, etc.

In addition to strengthening the theoretical knowledge of

auditors, it also includes the improvement of professional cultivation. Auditors should have firm self-control, solve problems from a professional perspective, and should not be tempted by the auditors, or make wrong judgments because of sympathy and other emotional colors. Finally, the quality assessment system can be formulated.

#### **4.1.3. Set up an Authoritative Suggestion Mechanism to Reduce the Audit Risk as Much as Possible**

Establish a professional guidance mechanism for auditors, because the knowledge of auditors alone may not solve some complex problems. Invite professionals in other fields, including law, technology, and economy, to act as consultants to get professional answers when auditors face thorny issues other than their ability level. It can also reasonably arrange the auditors to listen to the lectures of experts in various fields, and expand the learning scope of the auditors. Under the authority of professionals, auditors can be more secure when making decisions, and the results are guaranteed. This can improve the correct rate of audit conclusions, and reduce the audit risk.

### **4.2. Reduce the Risk of Data Factors**

#### **4.2.1. Accurately Determine the Sample Size**

In audit sampling, the size of the selected sample size is crucial to reduce the sampling risk. The small sample size is difficult to reflect the overall situation, while the large sample size will undoubtedly increase the audit cost, and even lose the significance of sampling. Reasonable to determine the overall, sample size, need auditors have sufficient professional knowledge, combined with the actual situation of the auditees, different scale enterprises can bear different risks, need to certified public accountants balance audit cost and possible risk losses, on the premise of ensuring the audit effect, take measures to improve the audit efficiency.

#### **4.2.2. Reasonable Use of Audit Sampling Methods**

In the audit sampling work, auditors must first clear the audit goal, with the goal can be clear about the direction of the work. Secondly, we should fully grasp each step of the sampling procedure, and analyze it specifically according to the actual problems, and then make the corresponding and appropriate plan, which can not be unchanged, but apply the previous method. Then there is some practical experience, which can comprehensively take into account all kinds of possible errors. Only after the final determination can the audit conclusion be expressed.

#### **4.2.3. Improve the Level of Computer Application**

In today's knowledge age, computer science has played an important role and is an integral part of daily life and office work. Office automation integrates the new generation of office and computer methods to upgrade the current management organization model. Can quickly help auditors to deal with some business, such as financial management, document management, business management, audit business, etc., can standardize the basic management, so that the whole audit work is more orderly. It can also help auditors to deal with some cumbersome problems, such as a large number of numbers, to avoid some low-level errors in the application of audit sampling technology. At present, the application level of computers in big cities is generally high, but the popularity of computers in some small cities is low. Attention should be paid to improve the office environment of auditors in small cities, and give them more opportunities to contact and use office automation.

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