

NECESSITY OF AUDIT SAMPLING IN THE AUDIT OF FINANCIAL STATEMENTS. NON-STATISTICAL SAMPLING VERSUS STATISTICAL SAMPLING

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Summary

To be necessary means to be useful, indispensable for a particular purpose. To what extent is the sampling method necessary in the audit of financial statements? This paper aims to answer the question, why is sampling important, following the advantages and disadvantages of the two known sampling methods: statistical sampling and non-statistical sampling. Using sampling saves time and effort for the team of auditors. Reduced costs for the auditors and for the audited entity, resulting from the use of procedures only for the selected units, is another advantage of using this technique. The auditors should use their professional judgment to assess audit risk and to establish appropriate procedures for accounts balances and class of transactions tested. Sampling should be used in order to give a correct opinion of the financial statements.

Key words: Sampling, statistical sampling, non-statistical sampling, ISA 530, audit risk, professional judgement

Classification JEL: M42

1. Introduction and background of the study

According to ISA 530, "Audit Sampling" involves the application of audit procedures to less than 100% of items within an account balance or class of transactions, so all items should have an equal chance to be selected [1].

This paper aims to answer the question, why is sampling important, following advantages and disadvantages of the two known methods of sampling: statistical sampling and non-statistical sampling.

Researchers all over the world have studied audit sampling.

Nathan D. Woods, 2011, deals with the validity of statistical samples used in the audit of U.S. public health institutions. He deals with the validity of this sample in terms of size and selection of elements as an appropriate statistical method [2].

Issues in audit sampling has been studied by GF Ungureanu, 2010 outlining the main methods of sampling, attracting attention to the choice of these sampling methods based on professional judgment and cost-benefit [3].

In their article, "Using Computerized Statistical audit sampling software to learn: an instructional resource", Robert Richardson and Timothy Louwers (2010) state that the use of non-statistical sampling method requires judgment to an extent greater than the use of statistical sampling method. The authors say that many U.S. public accounting firms were reluctant to use statistical sampling methods, reluctance which is caused by: the cost of the elements selection, cost of valuing elements and the cost of training [4].

Barnett, Haworth and Smith, 2001, discuss the problem of a two-stage sampling method applied by the National Audit Office of the United Kingdom. The Office has access to the results of a large number of tests performed by internal auditors of the audited entity. This method involves retesting a sample of transactions tested by internal auditors in order to reach a conclusion on an estimate of the error rate of the transactions [5].

John Wendell and Josef Schmee (1996) noted that statistical sampling auditing methods can create problems that do not apply to a large sample of items. Populations are usually small and the number of errors accepted, even in the case of a large sample of elements, is almost zero, setting aside the central limit theorem. Central Limit Theorem (CLT) is a statistical theory, which argues that, given a sufficiently large sample from a population diverse enough, the average of all results will be approximately equal to the average population. In addition, evidence will follow approximately a normal distribution model (eg, bell-shaped curve), with variations that reflect the source population variance divided by sample size. As a rule, a sample of 50 elements is necessary for the CLT to be applied [6].

2. Advantages of audit sampling

In the audit of economic entities auditors work with large data populations, given the fact that usually are audited the financial statements of a financial year. An ideal situation would involve auditing all the items component of populations within a class of transaction, account balance or documents, but this is impossible in our times. Entities

from the third millennium have sophisticated embedded operating systems with large databases, these entities are often subsidiaries of multinational companies, companies with market shares outside the country of residence or listed companies.

During the planning phase of the audit, the audit team gathers information about the entity's economic environment, the complexity of transactions and operations. In a financial year an entity that is bound by the existing rules to be audited has, in most cases, large populations of data. If the audit would require testing all components of the population, it would mean that the audit team would have to work a longer time and would have to make more effort for all tests done. In Romania, the majority of the entities' audits take a few weeks, weeks when the audit team works 10-12 hours each day.

Testing all population's elements would at least double the time and effort. Big Four companies have budgets for each client, calculating the profit and profitability of each customer. It is important to know the number of hours worked on each area, individually tested by a selected team member. In large audit firms the budget is calculated from the number of hours budgeted for each area individually, taking into account the level of experience of each team member and thus the cost per hour of that team member. A greater number of hours allocated to a manager, for example would mean higher costs budgeted for that project, compared to the costs implied by the same number of hours allocated to a junior, for example. There have been cases where the actual hours worked by the auditors were more than the budgeted hours, so the audit engagement took a larger period of time, assuming higher costs.

Without applying the sampling technique, the audited entity would pay much more than normally. In the article "Determinant of Audit Fees: Empirical Evidence from Emerging Markets", K. Naser et. al, 2007, study audit costs in an emerging economy like that of Jordan, namely audit costs incurred by the entities listed on the Amman Stock Exchange. In this emerging economy audit costs depend on the size of the audited entity, the audit firm status, the industry sector, the level of corporate risk and complexity of the entity [7].

Currently the costs practiced by the Big Four companies are high, if their employees would require more time for the audit, the prices of these services would be higher. To get a picture of costs and revenues, implicitly profits of large audit firms, we have selected the well known audit PricewaterhouseCoopers Audit SRL SC. The table below (Table 1) can be observed the evolution of costs, revenues and profit for 2010 and 2011, for PwC in Romania. PwC adopted in 2011 a new strategy regarding budgets for each client. The hours of each member of the audit team are budgeted for each area tested individually, taking strict control over them. It can be seen that the increase rate of revenues exceeds the growth rate of expenses. Costs are therefore very important for audit firms and their clients, any method that would decrease them being welcome. So, sampling becomes necessary in the audit of financial statements, from costs perspective.

Table no 1. Indicators from income statement PwC 2010-2011

INDICATORS	2010	2011
NET TURNOVER	61,300,697	68,701,522
TOTAL REVENUES	80,085,149	91,415,222
TOTAL EXPENSES	78,646,003	90,998,293
PROFIT OR LOSS		
-PROFIT	1,439,146	416,929

Source: <http://www.mfinante.ro/infocodfiscal.html>

The question arises whether applying audit procedures to the entire population would be an effective strategy, since this would require more time, effort and a higher cost. Audit sampling becomes necessary and essential in improving the engagement.

There is the risk that the audit evidence collected using sampling is not sufficient and appropriate. In this case, the sample should be increased, so that the audit evidence gathered have the following characteristics: quality, relevance and sufficiency.

Auditors must use their professional judgment and experience to ensure that opinion on the financial statements is a correct and fair one. If auditors using sampling do not obtain sufficient appropriate evidence, there is the risk that they do not identify errors or even fraud. This causes an inadequate opinion, opinion influencing the behavior of shareholders, investors, creditors and the public. Auditors may not only issue an incorrect opinion, but they can even lose the prestige of the audit firm and their own reputation.

3. Non-statistical sampling versus statistical sampling

Although ISA 530 recognizes both statistical and non-statistical sampling methods, the preferred approach used by large audit firms is the non-statistical sampling method.

The main advantages of non-statistical sampling are a statistically derived sample and a statistical valuation of sampling risk. One of the disadvantages of non-statistical method includes the use of formal techniques to determine the size of the sample, to select the sample and to evaluate the results.

The use of sample derived from non-statistical or statistical sampling techniques, do not directly affect decisions on audit procedures to be applied, the appropriateness of audit evidence obtained on the individual elements of the sample, or actions that could be taken due to nature and cause of distortion.

The principles, procedures and relevant issues underlying the planning and performance of the sample, are similar for both sampling techniques. Thus, while procedures and methods used in non-statistical method are less formal, they are nonetheless rigorous.

Typically, the application of non-statistical sampling will lead to a sample size, comparable to the size of the sample resulting from statistical methods, effectively and efficiently designed, taking into account the same parameters of the sample.

Due to the sampling risk and the fact that testing elements are chosen using a randomly selection method tests of detail are used primarily. Non-statistical sampling methods are usually used for populations consisting of homogeneous elements, in cases where their application is more effective than testing specific details, or when because of the nature of the elements that compose the sample population, there are no elements of the population suitable for adoption of specific non-statistical sampling methods based on risk. Using risk-based tests imply that the sample's items meet certain characteristics, for example to have a limited number of elements from the population that have high monetary value. By selecting these elements with high values, these tests cover a significant level of the population, thereby reducing the risk that population contains significant errors and reducing also auditors work, auditors which will obtain audit evidence for a limited number of items [8].

The main risk in audit sampling is overestimation of distortions. Audit evidence may reveal sample errors, which extrapolated to the entire population, will overestimate the errors in the population. However, the sampling can be a powerful technique for testing elements not shown, if the plan is to detect such distortions to select from a population that will provide adequate evidence if there is an underestimation. For example, when testing for undervaluation area accounts payable, the population tested is not represented by the suppliers detailed listing, but rather by subsequent disbursements, unpaid invoices, statements from suppliers, reports received where does not appear the same amounts as on the detailed listings, or other inadequate datas. The non-statistical sampling method is not appropriate for a population that includes non-homogenous elements. For example, an entity that develops software can create long-term contracts to develop customized solutions. If the terms and conditions of development contracts were non-standardized, non-statistical method is not appropriate for testing costs and revenues associated with these contracts.

Non-statistical sampling method is primarily a tool to obtain sufficient appropriate audit evidence to support the claim that the population is selected according to regulations. The method is not suitable for testing populations with high error rates or to estimate distortion in order to correct a significantly distorted account.

When non-statistical sampling method is not considered practical, because the sample size selected is too large, one should obtain audit evidence through other methods, such as tests of controls, substantive analytical procedures, statistical methods. In some cases, by adding or increasing the use of other procedures, the non-statistical sampling method may become practical, since the desired level of evidence samples can be reduced after testing by other procedures, thereby decreasing test sample population. In cases where a high percentage of misstatement is observed in the entire population to be tested, it may be necessary for entities to correct errors, reducing error rates or to perform control tests that can be tested in turn by the audit team in order to provide necessary audit evidence.

4. Conclusions

Sampling is widely used in market research, scientific analysis, market research, opinion polls and not least in the audit of financial statements.

The audit sampling is essential, is both desirable and necessary in some populations of a number of data.

The method is effective reducing the time, effort and cost of the engagement.

The principles, procedures and relevant issues underlying the planning and performance of the sample are similar for statistical and non-statistical sampling methods. The non-statistical sampling method is rigorous, being preferred by large audit firms, assuming the auditor's professional judgment.

5. Bibliography

- [1] ISA 530, Eșantionarea în audit și alte metode de testare - Audit Financiar, Editura Economică, Bucuresti, 2008;
- [2] **Nathan D.W.**, Assessing the Validity of Statistical Samples in Medicare Audits, Journal of Health Care Compliance, May-June, 2011;
- [3] **Ungureanu G.**, Metode de eșantionare statistice utilizate în audit, Romanian Statistical Review, nr.

5/2010, 2010;

- [4] **Robert R., Timothy L.**, Using Computerized Audit Software to Learn Statistical Sampling: an Instructional Resource, 2010;
- [5] **Barnett J., Haworth J., Smith T.**, A Two-Phase Sampling Scheme with Application to auditing or sedquis quotodiet ipsos, Journal of the Royal Statistical Society, Vol. 164, no 2, pp. 407-422, 2001;
- [6] **Wendell J., Schmee J.**, Exact Inference for Proportions from a Stratified Finite Population, Journal of the American Statistical Association, 825-830, 1996;
- [7] **Naser K.**, Determinant of Audit Fees: Empirical Evidence From Emerging Markets, Scientific Journal of Administrative Development, Vol. 5, 2007;
- [8] PwC Audit Guide;
- [9] ***<http://www.mfinante.ro/infocodfiscal.html>.

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