

CONSIDERATIONS UPON SAMPLING IN THE FIELD OF FINANCIAL AUDIT

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Abstract: : In view of complexity and extent, the development of companies changed in time the procedure of exhaustive examination of all registrations of the audited company into a procedure void of economic efficacy. Auditors deemed it necessary that the opinion upon the accuracy of financial statements should be expressed based on the examination of a part of the registrations and transactions – registrations and transactions selected by specific procedures. Not all audit tests are performed based on a sample and the decision whether to take samples or not should be a clear decision. The acceptance of certain uncertainties was justified by the disproportion between the costs related to the examination of all transactions and the significantly more reduced registrations and costs generated by the examination of one part of the transactions and book registrations.

ISA 530 “Audit sampling and other test methods” establishes and offers recommendations upon the use of audit sampling and of other methods of selecting testing elements in order to plan the audit procedures and to collect audit samples.

Within audit procedures, sampling is the procedure applied by the auditor further to carrying out:

- the risk assessment procedures using ISA 315 “Understanding the entity and its environment and the assessment of material misstatements risks”
- tests upon contracts by using ISA 330 “Procedures of the auditor as a response to assessed risks”.
- the professional reasoning of the auditor incorporating the accumulated experience.

The fulfillment of the previous stages enables the auditor to choose the suitable methods of selecting the test elements that shall supply proper and sufficient audit samples to issue the opinion.

JEL classification: M41, M42

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1. INTRODUCTION

Audit sampling, as defined by ISA 530 "Audit Sampling and other testing methods" - means the application of audit procedures to less than 100% of the account balance or class of transactions in order to draw conclusions about the population from which the sample was taken, by obtaining and evaluating some characteristic of the items selected. Sampling risk refers to the possibility that the selected sample is not representative for the general population and therefore the auditor may issue an incorrect conclusion about account balances or classes of transactions, based on audit evidences obtained using unrepresentative samples. Sampling risk confronts the auditor with the possibility of taking several wrong decisions, namely:

- the decision that the population tested is not appropriate when in reality it is;
- the decision that the population tested is appropriate when in reality it is not.

When selecting the audit sample the auditor should consider the objectives of testing and the features of general community that will made up the sample. First, the auditor considers concrete objectives and joint audit procedures by which these objectives can be achieved in the best way. Examination of audit evidence sought and of possible conditions for occurrence of error or other characteristics relating to these audit evidences will assist the auditor to determine what represents an error and what general community is going to be used for sampling. The auditor also considers the conditions contributing to the occurrence of error based on test's objectives. A clear understanding of the essence of error is of great importance so that all conditions relating to the objectives of testing, and only those conditions, to be taken into account when extrapolating errors on the general community. It is not right to consider wrong registering as sampling error in the evaluation of the sampling's results, although it may considerably influence on other areas of the audit such as assessing the likelihood of fraud or sufficiently sizing the corrections on certain items.

At the testing of internal control, the auditor usually performs a preliminary assessment of the rate of error, because he expects to discover the error rate in the general community being tested and to discover the control related risk. This assessment is based on prior knowledge of the auditor or the examination of a small number of items from the general community. Similarly, when performing substantive procedures, the auditor usually performs preliminary assessment of the error in the general collectivity. These preliminary assessments help developing the sample audit and determining sample size. For example, if the predicted error rate is unacceptably high, the internal control testing is not performed. However, at the performance of substantive procedures, when the total of predictable error is high, it is appropriate to carry out completely the verification or use a larger volume of sample.

2. STEPS TO ESTABLISH SAMPLES

In determining the samples required for application of audit procedures the following steps are met:

- Determination of sample size,
- Selection of sample elements and their testing,
- Evaluating the results.

DETERMINATION OF SAMPLE SIZE

Correct sizing of the sample is important because based on the sample the findings will expand on all items.

Tatiana Dănescu, in the book "Procedures and techniques of financial auditing", argues that the sizing involves the following steps:

- setting the objectives of audit tests;
- determining and estimating potential errors;
- identifying general collectivity and units of sampling;
- determining the sample size.

Setting objectives of audit tests, determined by sampling, refer to:

- evaluating the effectiveness of internal control system by control tests; for the good development of the assessment process is necessary to have documents showing the internal control system's manner of organization and functioning.

- obtaining evidences through substantive tests to prove lack of significant errors in account balances;

- obtaining evidences through substantive tests to check items which can not be verified by scoring with third parties.

These are needed for an estimate independent of the audited entity's management.

In determining and estimating potential errors, the objective of testing should be considered. A number and certain type of errors can be determined in this way, and the financial auditor in most cases discovers some errors he would not have been expected.

When substantial tests are made, registration errors are identified, and when control tests are made the deviation from expected behavior is identified.

To identify the whole lot and units of sampling, the auditor should make sure that there is consistency between the elements in the sample. Their collection must be done based on a well established criterion.

The most commonly used criterion is that of size, therefore the monetary unit will increase, the sample size will increase.

Another criterion is *the degree of risk*. In light of these facts, assets fall into two categories: assets with high risk of misappropriation and assets with low risk of misappropriation.

According to probability theory¹, the sample size can be determined as follows:

- For the crowds under 5000UM full lot of items is taken in;
- For he crowds over 5000UM sample size is determined by:
 1. associated insurance level and the precision level;
 2. margin of error;
 3. standard deviation of sets etc.

The associated insurance level refers to the probability that the sample is not representative.

¹ G.W.Cosserat - „Modern Auditing”, 2000

Relationship for the determination of insurance level (NA) is:

$$NA = 100 - RE$$
$$RE = \frac{RA}{RC \times RI \times RND}$$

Where:

- NA is the insurance risk
- RE is the sampling risk
- AR is audit risk
- CR is control risk
- RI is the inherent risk
- RND is the risk of detection

The precision level and the margin of error are related to materiality threshold. Sample size varies inversely with the margin of error and directly proportional with the associated insurance level. The precision level refers to how accurately sample must be sized to be sufficiently representative. The margin of error should be determined as accurately as possible.

Tatiana Dănescu in the paper "Financial Management of Business" defines the standard deviation as the dispersion compared to an average in a graph with two axes, one of the elements' values and the other of their frequency in the crowd.

The standard deviation is higher, the range of values and sample's size increases. Standard deviation² is a measure of risk, a measure of the probability distribution.

SELECTING ELEMENTS FROM THE SAMPLE AND TESTING THEM

The principle of selection is limited to an "equal chance for each element." The auditor should select items for the sample based on the assumption that all the elements of sample from the general community have the chance to be selected. Selection can be made using one or combining several sampling methods. Selection will not be denied to any item, even if it was selected for further testing.

Testing will be done according to the audit objectives commonly used. If it happens that for some items testing can not be made for various reasons

- either confirmation from customers are not received or documents are missing;

- the auditor will consider that those elements generate errors or remove them, considering them irregular, unrepresentative errors due to occurrence of isolated events.

Statistical method of sampling requires sample items to be selected randomly so that each person has a chance of being selected. Sample items can be physical or of monetary nature. Applying non-statistical method of sampling, the auditor performs the selection of items based on professional assessment.

Since the purpose of sampling is to draw conclusions about the entire population, the auditor attempts to select a representative sample by choosing sample items with characteristics specific for the entire population in order to avoid the

² Tatiana Dănescu – Gestiunea financiară a afacerii, Editura Dacia, Cluj-Napoca, 2003, pag 161-164

possibility of not being objective. Financial auditors are responsible for the selection of the sample items, testing application and results' evaluation. The principal methods of selecting sample elements are using random numbers tables or computer programs, as well as systematic and unsystematic selection.

The principal methods of selecting sample items are presented by Arens Loebbecke. Using the computer program that generates random numbers or random number tables. Systematic selection, which involves dividing the number of elements in the sample from the general community with the sample's volume and as a result a sampling interval is obtained, for example, 50. Determining the starting element of the sample of 50 elements of the general community, it is made by every 50-th element of the general community.

Although the starting element can be determined randomly, the sample will really have a random character if it is determined using the program, which generates random numbers or random numbers table. When using systematic selection, the auditor will determine that the sample elements of collectivity are not structured in such a way that the sampling interval corresponds to a particular structure of the general community.

Unsystematic selection, which involves selecting the sample without structured method. Although structured method is not applied, the auditor, however, must avoid conscious bias or predictability; for example, he should not avoid items whose placement is complicated to establish and to choose or avoid the first or last entry on the page, and therefore ensure that all items in the general community have a chance of selection. Unsystematic selection does not apply to statistical sampling.

Selection in group involves selecting groups of neighboring elements of collectivity. Typically, selection in group can not be used in audit scantlings because most general communities are structured in such a way that the elements in succession may have similar characteristics, but different from characteristics of the other elements of overall community. Although in some circumstances the examination of the group elements may be an appropriate audit procedure, if the auditor intends to draw valid conclusions about the entire population based on the overall sample, the method of selecting sample based on group elements is not always the best.

EVALUATION OF RESULTS

Evaluation of results is an important step in establishing samples and has the following objectives:

- determining the number of errors found as a result of testing;
- sizing the upper limit of the margin of error by the report *confidence factor/errors discovered*;
- reducing audit risk by decreasing control risk and non-detecting risk;
- further substantive procedures;
- changes to the audit program.

The auditor should evaluate the results of the sampling to determine whether the preliminary assessment of relevant feature of general community needs to be confirmed or revised. If the total sum of extrapolated errors and aberrant errors is low, but is close to that which the auditor considers acceptable, the auditor would consider the merits of sampling results based on other audit procedures, and the need to obtain

supplementary audit evidences Sum of extrapolated error and aberrant error represents the best assessment of error in overall collectivity.

Results of the sampling are influenced by the risk of sampling. Thus, when the best assessment of error is closer to the allowable error, the auditor recognizes the risk that another sample will lead to another better assessment which can exceed the allowable error.

Taking into account the results of other audit procedures helps the auditor to assess this risk, because the risk is reduced when the auditor obtains additional audit evidences.

If the evaluation of the sampling's results indicates that the preliminary assessment of relevant feature of general community needs to be revised, the auditor may use the following:

- requires management to investigate identified errors and the potential for subsequent errors, as well as to introduce the necessary corrections;
- modifies the planned audit procedures. For the testing of internal control the auditor may increase the sample's size, can test the alternative control procedure or change the procedures related to essence of the core mission;
- considers the influence of findings on the auditor's report.

3. CONCLUSIONS

Making an audit must take into account reasonable costs. For this reason, the technique of exhaustive verification of events, transactions, financial statement information has been replaced by survey technique (sampling). Sampling reduces the time necessary for formulating conclusions, opinions, and hence reducing costs. In determining the sample it shall be always taken into account the objectives of the audit and the total number of items audited.

The selection of sample's components is done by random selection (involving each item's equality of chance), systematic selection (a starting point is established from which elements are chosen) and hazard-based selection (selection of sample's items without a mathematical technique, but randomly according to certain criteria). Auditors use audit sampling for both internal controls and auditing transactions and account balances.

The objective of auditing is to identify errors. This is why test methods are used whose results are expressed in sampling methods that can be statistical methods are non-statistical methods.

Financial auditors may use statistical or non-statistical sampling. Sampling must be probabilistic for the statistical survey, sampling risk being calculated by statistical estimation methods. Non-statistical surveys can be made by probabilistic methods, but the results can not be evaluated like for a statistical sample.

In order to substantiate his opinion during and at the end of the financial audit, the auditor should gather sufficient appropriate audit evidences, fair and convincing, but in practice it is neither possible nor efficient to analyze each element.

Audit sampling is the application of audit procedures to a portion of the total population audited to obtain reliable audit evidences that characterize the entire population.

The use of audit sampling is essential and allows the auditor to draw more correct conclusions than those obtained using other methods, thus ensuring the efficiency of audit work.

Sampling requires a logical approach, involving a sequence of rational choices (determining sample size, its degree of accuracy, the confidence level, probable error etc.) that could eventually bring convincing evidence for the expression of the auditing opinion.

Sampling risk arises from the fact that it is possible for the auditor to reach a conclusion based on a sample that is different from the conclusion that would have been reached if the entire population would had been submitted to an identical audit procedure. When designing audit procedures, the auditor should determine the appropriate means of selecting items for testing. Means available to the auditor are:

- Selecting all items (100% examination);
- Selecting specific items
- Sampling.

The decision regarding which approach should be used will depend on the circumstances and applying any combination of the above mentioned available means may be appropriate in certain circumstances. Though deciding which means or combinations of means will be used is made on the basis of audit risk and audit's efficiency, the auditor should make sure, however, that the methods used are effective in providing sufficient and appropriate audit evidences to meet the objectives of the test.

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