

# Audit Sampling

## A. What is Sampling?

Audit sampling is the application of an audit procedure (test of control or substantive testing) to less than 100% of the items within an account balance or class of transactions for the purpose of drawing a general conclusion about the account balance or the entire group of transactions based on the characteristics detected in the sample. Sampling allows an auditor to draw conclusions about transactions or balances without incurring the time and cost of examining every transaction.

## B. When is sampling used?

Sampling is generally used in field audits when it is not efficient to review 100% of the records. Sampling may also be used if records are missing or other circumstances make reviewing all of the records difficult.

Representative Sample A representative sample is one in which the characteristics in the sample of audit interest are approximately the same as those of the population. Two things cause a sample to be non-representative: a) non-sampling risk b) Sampling risk

- Non-sampling risk: It is the risk that the audit tests do not uncover existing exceptions in the sample. The two causes are: a) Auditor failure to recognize exceptions b) Inappropriate or ineffective audit procedure.
- Sampling risk: It is the risk that an auditor reaches an incorrect conclusion because the sample is not representative of the population. This can be controlled by: a) Adjusting the sample size b) Using an appropriate method of selecting sample items.

## C. Audit Risk Models:

- Audit Risk = Inherent Risk X Control Risk X Detection Risk
- Audit Risk = Sampling Risk + Non-Sampling Risk

## D. Statistical vs. Non-Statistical Sampling:

- a. Statistical (Probabilistic) sampling: Applies the laws of probability theory to assist the auditor in designing a sampling plan and subsequently evaluating the results of the sample.

Statistical sampling provides a means of mathematically evaluating the outcome of the sampling plan by applying the laws of probability to measure the likelihood that sample results are representative of the population.

Probabilistic sample selection selects a sample in a way that each population item has a known probability of being included in the sample and the sample is randomly selected.

- i. Simple Random Number Selection – All items of the population have an equal chance of being selected. Can use random number tables and random number generators.
- ii. Systematic Sample Selection – Auditor determines an interval and selects items on the basis of the interval.
- iii. Probability Proportional to Size – Probability of selecting an item is proportional to its recorded amount.
- iv. Stratified Sample – Divided population into subpopulations and use different selection criteria for each subpopulation. The process of dividing a population into subpopulations that have similar characteristics. Strata must be defined so that each sampling unit can only be in one stratum.

#### Example - Accounts Receivable Stratification

Stratum	Population	Composition of Stratum	Sample Selection	Sample Size
1	22	All Accounts > Rs. 50 L	100% examination	22
2	121	All Accounts > Rs. 10 L < Rs. 50 L	Random sampling	10
3	85	All accounts < Rs. 10 L	Systematic sampling	5
4	14	All accounts with credit balances	100% examination	14

#### Disadvantages of Statistical Sampling:

- Overvalue the evidence it provides
  - Reduces auditor scepticism
  - Increased sampling cost including staff training cost
  - Design samples
- b. Non-Statistical (non-probabilistic) Sampling: It is solely based on the auditor's judgment. In nonstatistical sampling, the auditor does not quantify sampling risk. Instead, those sample items that the auditor believes will provide the most useful information are selected. Since conclusions are based on a judgmental basis, non-probabilistic sample selection is normally conducted.

Non-probabilistic sample selection is a method of selecting a sample where the auditor uses professional judgment rather than probabilistic methods to select sample items.

- i. Direct sample selection – auditor selects items based on judgmental criteria such as likelihood of misstatement, characteristics such as different time periods, or large dollar amounts.
- ii. Block sample selection – selection of a number of items in sequence. Auditor must use several blocks to obtain a representative sample.
- iii. Haphazard sample selection – selection of items without any conscious bias on the part of the auditor.

#### **Rule #**

*When designing the size and structure of an audit sample, Auditors should consider the specific audit objectives, the nature of the population and the sampling and selection methods.*

## E. Applications of Sampling in the audit:

- a. Attribute Sampling (ToC) - The use of sampling for compliance testing (qualitative characteristic).

Sampling Risk in Attribute Sampling:

- Risk of Under reliance (Control Risk Too High) - Not relying on the internal controls when, in fact, the auditor should rely on internal control.
- Risk of Overreliance (Control Risk Too Low) - Relying on internal controls when it is not appropriate.

Factors influencing Sample Size - TOC:

Sl. No.	Factors	Effect on sample size	Explanation
1	An increase in the extent to which the auditor's risk assessment takes into account relevant controls.	Increase	The more assurance the auditor intends to obtain from the operating effectiveness of controls, the lower the auditor's assessment of the risk of material misstatement will be, and the larger the sample size will need to be. When the auditor's assessment of the risk of material misstatement at the assertion level includes an expectation of the operating effectiveness of controls, the auditor is required to perform tests of controls. Other things being equal, the greater the reliance the auditor places on the operating effectiveness of controls in the risk assessment, the greater is the extent of the auditor's tests of controls (and therefore, the sample size is increased).
2	An increase in the tolerable rate of deviation.	Decrease	The lower the tolerable rate of deviation, the larger the sample size needs to be.
3	An increase in the expected rate of deviation of the population to be tested.	Increase	The higher the expected rate of deviation, the larger the sample size needs to be so that the auditor is in a position to make a reasonable estimate of the actual E rate of deviation. Factors relevant to the auditor's consideration of the expected rate of deviation include the auditor's understanding of the business (in particular, risk assessment procedures undertaken to obtain an understanding of internal control), changes in personnel or in internal control, the results of audit procedures applied in prior periods and the results of other audit procedures. High expected control deviation rates ordinarily warrant little, if any, reduction of the assessed risk of material misstatement.
4	An increase in the auditor's desired level of assurance that the tolerable rate of deviation is not exceeded by the actual rate of deviation in the population.	Increase	The greater the level of assurance that the auditor desires that the results of the sample are in fact indicative of the actual incidence of deviation in the population, the larger the sample size needs to be.
5	An increase in the number of sampling units in the population.	Negligible effect	For large populations, the actual size of the population has little, if any, effect on sample size. For small populations however, audit sampling may not be as efficient as alternative means of obtaining sufficient appropriate audit evidence.

- b. Variables Sampling (ToD) - The use of sample for substantive test on the client's account balances (quantitative characteristic).

**Sampling Risk in Variables Sampling:**

Risk of Incorrect Rejection - Auditor's sample indicates that the account balance is materially misstated even though it is fairly stated.

Risk of Incorrect Acceptance - Auditor's sample indicates that the account balance is fairly stated even though the account balance is materially misstated.

**Factors influencing Sample Size - TOD:**

Sl. No.	Factors	Effect on sample size	Explanation
1	An increase in the auditor's assessment of the risk of material misstatement.	Increase	The higher the auditor's assessment of the risk of material misstatement, the larger the sample size needs to be. The auditor's assessment of the risk of material misstatement is affected by inherent risk and control risk. For example, if the auditor does not perform tests of controls, the auditor's risk assessment cannot be reduced for the effective operation of internal controls with respect to the particular assertion. Therefore, in order to reduce audit risk to an acceptably low level, the auditor needs a low detection risk and will rely more on substantive procedures. The more audit evidence that is obtained from tests of details (that is, the lower the detection risk), the larger the sample size will need to be.
2	An increase in the use of other substantive procedures directed at the same assertion.	Decrease	The more the auditor is relying on other substantive procedures (tests of details or substantive analytical procedures) to reduce to an acceptable level the detection risk regarding a particular population, the less assurance the auditor will require from sampling and, therefore, the smaller the sample size can be.
3	An increase in the auditor's desired level of assurance that tolerable misstatement is not exceeded by actual misstatement in the population.	Increase	The greater the level of assurance that the auditor requires that the results of the sample are in fact indicative of the actual amount of misstatement in the population, the larger the sample size needs to be.
4	An increase in tolerable misstatement.	Decrease	The lower the tolerable misstatement, the larger the sample size needs to be.
5	An increase in the amount of misstatement the auditor expects to find in the population.	Increase	The greater the amount of misstatement the auditor expects to find in the population, the larger the sample size needs to be in order to make a reasonable estimate of the actual amount of misstatement in the population. Factors relevant to the auditor's consideration of the expected misstatement amount include the extent to which item values are determined subjectively, the results of risk assessment procedures, the results of tests of control, the results of audit procedures applied in prior periods, and the results of other substantive procedures.

6	Stratification of the population when appropriate.	Decrease	When there is a wide range (variability) in the monetary size of items in the population, it may be useful to stratify the population. When a population can be appropriately stratified, the aggregate of the sample sizes from the strata generally will be less than the sample size that would have been required to attain a given level of sampling risk, had one sample been drawn from the whole population.
7	The number of sampling units in the population.	Negligible Effect	For large populations, the actual size of the population has little, if any, effect on sample size. Thus, for small populations, audit sampling is often not as efficient as alternative means of obtaining sufficient appropriate audit evidence. (However, when using monetary unit sampling, an increase in the monetary value of the population increases sample size, unless this is offset by a proportional increase in materiality for the financial statements as a whole (and, if applicable, materiality level or levels for particular classes of transactions, account balances or disclosures).)

**F. Sample Characteristics:**

- a. Confidence – A confidence level is a degree of assurance that material error does not exist. It is the converse of risk.
- b. Precision – It represents the closeness of the auditor’s sample estimate to the true (but unknown) population value.
- c. Reliability – It is the probability that the auditor’s sample provides a sample estimate that is of a specified precision.

**G. Steps in Sampling Process:**

- a. Planning the sample
  - i. State the objectives of the audit test.
  - ii. Decide whether audit sampling applies.
  - iii. Define attributes and exception conditions.
  - iv. Define the population.
  - v. Define the sampling unit.
  - vi. Specify the tolerable exception rate.
  - vii. Specify the acceptable risk of assessing control risk too low.
  - viii. Estimate the population exception rate.
  - ix. Determine the initial sample size
- b. Select the sample and perform the tests
  - i. Select the sample
  - ii. Perform the audit procedures
- c. Evaluate the results
  - i. Generalize from the sample to population.
  - ii. Analyze exceptions.
  - iii. Decide the acceptability of the population