Audit Sampling for Tests of Controls and Substantive Tests of Transactions
Chapter 15
Learning Objective 1

Explain the concept of representative sampling.
Representative Samples

A **representative sample** is one in which the characteristics in the sample of audit interest are approximately the same as those of the population.

**Nonsampling risk** is the risk that audit tests do not uncover existing exceptions in the sample.
Representative Samples

**Sampling risk** is the risk that an auditor reaches an incorrect conclusion because the sample is not representative of the population.

Sampling risk is an inherent part of sampling that results from testing less than the entire population.
Sampling Risk

1. Adjust sample size

2. Use an appropriate method of selecting sample items from the population
Learning Objective 2

Distinguish between statistical and nonstatistical sampling and between probabilistic and non-probabilistic sample selection.
Statistical Versus Nonstatistical Sampling

Similarities:

Step 1: Plan the sample

Step 2: Select the sample and perform the tests

Step 3: Evaluate the results
Statistical Versus Nonstatistical Sampling

Differences:

**Statistical sampling** allows the quantification of sampling risk in planning the sample (Step 1) and evaluating the results (Step 3)

In **nonstatistical sampling** those items that the auditor believes will provide the most useful information are selected.
Probabilistic Versus Nonprobabilistic Sample Selection

**Probabilistic sample selection** is a method of selecting a sample such that each population item has a known probability of being included in the sample.

**Nonprobabilistic sample selection** is a method in which the auditor uses professional judgment rather than probabilistic methods.
Probabilistic Versus Nonprobabilistic Sample Selection

Nonprobabilistic:

1. Directed sample selection
2. Block sample selection
3. Haphazard sample selection
Probabilistic Versus Nonprobabilistic Sample Selection

Probabilistic:

1. Simple random sample selection
2. Systematic sample selection
3. Probability proportional to size sample selection
4. Stratified sample selection
Nonprobabilistic Sample Selection Methods

Directed sample selection is the selection of each item based on auditor judgmental criteria.

- Items most likely to contain misstatements
- Items containing selected population characteristics
- Large dollar coverage
Nonprobabilistic Sample Selection Methods

*Block sample selection* is the selection of several items in sequence.

*Haphazard sample selection* is the selection of items without any conscious bias on the part of the auditor.
Learning Objective 3

Select representative samples.
Probabilistic Sample Selection Methods

A simple *random sample* is one in which every possible combination of elements in the population has an equal chance of constituting the sample.

- Random number tables
- Computer generation of random numbers
Probabilistic Sample Selection Methods

Systematic sample selection:

The auditor calculates an interval and then selects the items for the sample based on the size of the interval.

The interval is determined by dividing the population size by the number of sample items desired.
Probabilistic Sample Selection Methods

Probability proportional to size:

A sample is taken where the probability of selecting any individual population item is proportional to its recorded amount (PPS).
Probabilistic Sample Selection Methods

Stratified sample selection:

The population is divided into subpopulations by size and larger samples are taken of the larger subpopulations.
Learning Objective 4

Define and describe audit sampling for exception rates.
The occurrence rate, or exception rate, is the ratio of the items containing the specific attribute to the total number of population items.
Sampling for Exception Rates

Following are types of exceptions in populations of accounting data:

1. Deviations from client’s established controls
2. Monetary misstatements in populations of transaction data
3. Monetary misstatements in populations of account balance details
Learning Objective 5

Use nonstatistical sampling in tests of controls and substantive tests of transactions.
Terms Used in Audit Sampling

Terms related to planning:

- Characteristic or attribute
- Acceptable risk of assessing control risk too low (ARACR)
- Tolerable exception rate (TER)
- Estimated population exception rate (EPER)
- Initial sample size
Terms Used in Audit Sampling

Terms related to evaluating results:

- Exception
- Sample exception rate (SER)
- Computed upper exception rate (CUER)
I: Plan the Sample

Step 1: State the objectives of the audit test.

Step 2: Decide whether audit sampling applies.

Step 3: Define attributes and exception conditions.

Step 4: Define the population.

Step 5: Define the sampling unit.
I: Plan the Sample

Step 6: Specify the tolerable exception rate.

Step 7: Specify acceptable risk of assessing control risk too low.

Step 8: Estimate the population exception rate.

Step 9: Determine the initial sample size.
II: Select the Sample and Perform the Audit Procedures

Step 10: Select the sample.

Step 11: Perform the audit procedures.
III: Evaluate the Results

Step 12: Generalize from the sample to the population.

Step 13: Analyze exceptions.

Step 14: Decide the acceptability of the population.
Guidelines for ARACR and TER Tests of Control

**Factor**
Assessed control risk. Consider:
- Need to issue a separate report on internal control over financial reporting for public companies.
- Nature, extent, and timing of substantive tests.
- Quality of evidence available for tests of controls.

**Judgment**
- Lowest assessed control risk
- Moderate assessed control risk
- Higher assessed control risk
- 100% assessed control risk

**Guideline**
- ARACR of low
- ARACR of medium
- ARACR of high
- ARACR not applicable
Guidelines for ARACR and TER Tests of Control

Factor
Significance of the transactions and related account balances that the internal controls are intended to affect

Judgment
- Highly significant balances
- Significant balances
- Less significant balances

Guideline
- TER of 4%
- TER of 5%
- TER of 6%
Guidelines for ARACR and TER Tests of Transactions

<table>
<thead>
<tr>
<th>Planned reduction in substantive tests of details of balances</th>
<th>Results of understanding internal control and tests of controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>Excellent Good Not good</td>
</tr>
<tr>
<td>Moderate</td>
<td>Excellent Good Not good</td>
</tr>
<tr>
<td>Small</td>
<td>Excellent Good Not good</td>
</tr>
</tbody>
</table>
### Guidelines for ARACR and TER Tests of Transactions

<table>
<thead>
<tr>
<th>Planned reduction in substantive tests of details of balances</th>
<th>ARACR for substantive tests of transactions</th>
<th>TER for substantive tests of transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>High</td>
<td>Percent or amount based on materiality considerations</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>High</td>
<td>Percent or amount based on materiality considerations</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
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<tr>
<td></td>
<td>Medium-low</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>High</td>
<td>Percent or amount based on materiality considerations</td>
</tr>
<tr>
<td></td>
<td>Medium-high</td>
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</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Type of change</td>
<td>Effect on initial sample size</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>------------------------------</td>
<td></td>
</tr>
<tr>
<td>Increase acceptable risk of assessing control risk too low</td>
<td>Decrease</td>
<td></td>
</tr>
<tr>
<td>Increase tolerable risk rate</td>
<td>Decrease</td>
<td></td>
</tr>
<tr>
<td>Increase estimated population exception rate</td>
<td>Increase</td>
<td></td>
</tr>
<tr>
<td>Increase population size</td>
<td>Increase (minor)</td>
<td></td>
</tr>
</tbody>
</table>
Decide the Acceptability of the Population

- Revise TER or ARACR
- Expand the sample size
- Revise assessed control risk
- Communicate with the audit committee or management
Summary of Audit Sampling Steps

Plan the sample (Steps 1-9)

Select the sample (Step 10)

Perform the tests (Step 11)

Evaluate the results (Steps 12-14)

Number of exceptions in sample and actual sample size

Computed upper exception rate

To/From Step 6

To Step 14

From Step 12

To Step 12

To/From Step 6

Compare
Learning Objective 6

Define and describe attributes sampling and a sampling distribution.
The statistical sampling method most commonly used for tests of controls and substantive tests of transactions is *attributes sampling*.
Sampling Distribution

It is a frequency distribution of the results of all possible samples of a specified size that could be obtained from a population containing some specific parameters.

*Attributes sampling* is based on the binomial distribution.
Learning Objective 7

Use attributes sampling in tests of controls and substantive tests of transactions.
Application of Attributes Sampling

Use of the tables:

i. Select the table corresponding to the ARACR

ii. Locate the TER on the top of the table

iii. Locate the EPER in the far left column

iv. Read down the appropriate TER column until it intersects with the appropriate EPER row in order to get the initial sample size
Effect of population size:

- Population size is a minor consideration in determining sample size

- Representativeness is ensured by the sample selection process more than by sample size
Application of Attributes Sampling

- Select the sample
- Perform the audit procedures
- Evaluate the results