FOX | ITACS
Master of IT Auditing & Cyber Security

IT Audit Process

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Audit Sampling

First, What is Sampling?

A method to select a sample (a portion) of a whole in order to make general observations of the whole based on what we observe in the portion.

Audit Sampling is:

- the application of an audit procedure to less than 100% of the target population for the purpose of drawing a general conclusion about the entire population based on the characteristics detected in the sample.

Why Sample?

- It is not cost- or time efficient to examine 100% of the population
- We need corroborating evidence for control compliance and effectiveness

Audit Sampling

When is Sampling Used?

- When it is not efficient to review 100% of the records (population)
- 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:
  - Sampling Risk
  - Non Sampling Risk

Audit Sampling - Risks

Sampling Risk

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

How to control?

- Adjusting the Sample Size
- Using an appropriate method of selecting sample items

Non-Sampling Risk

The risk that the audit tests do not uncover existing exceptions in the sample.

Causes?

- Auditor's failure to recognize exceptions
- Inappropriate or ineffective audit procedures

Statistical and Non-Statistical Sampling

Statistical Sampling

- When you need to include measures of sampling risk, confidence levels, and precision.

Non-Statistical Sampling

- When you need flexibility
- Rely on Internal Auditor's judgement
- Reasonable reliability at reasonable cost

Statistical and Non-Statistical Sampling

Statistical Sampling

- Applies the laws of probability theory to assist the auditor in designing a sampling plan and subsequently evaluate the results of the sample.

- 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.

Non-Statistical Sampling

- Solely based on the auditor's judgement.

- In non-statistical 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.

Probabilistic (Statistical) Sampling Selection

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**.

- **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.
- **Systematic Number Selection** – auditor determines an interval and selects items on the basis of the interval.
- **Probability Proportion to Size** – probability of selecting an item is proportional to its recorded amount.
- **Stratified Sample** – divide population into subpopulations and use different selection criteria for each subpopulation.

Stratified Sample

The process of subdividing a population into subpopulations that have similar characteristics. Strata must be defined so that each sampling unit can only be one stratum.

Accounts Payable Example

Stratum	Size	Composition of Stratum	Sample Selection
1	22	All accounts over $5,000	100% examination
2	121	All accounts between $1,000 and $5,000	Random Number Table
3	85	All accounts under $1,000	Systematic Selection
4	14	All accounts with Credit balance	100% Examination

Statistical Sampling - Disadvantages

- Auditor may over value the evidence provided
- Reduces auditor skepticism
- Increased cost
  - Auditor Training
  - Design of Samples

Non-Probabilistic (Non-Statistical) Sample Selection

In non-statistical sampling risk is not quantified. 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.

- **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.
- **Block sample selection** – selection of a number of items in sequence. Auditor must use several blocks to obtain a representative sample.
- **Haphazard sample selection** – selection of items without any conscious bias on the part of the auditor.

Testing

- First… Testing

An audit test is a procedure performed by the auditor in order to assess the accuracy of various financial statements and the effectiveness of controls.

Testing

Compliance Testing

- Existence and Effectiveness of controls
- Good for testing General Controls
- Access, Change Management, Log Review, Software Licensing

Substantive Testing

- Integrity and accuracy of transactions
- Good for testing IS Controls
- Account balances, transactional integrity, complex calculations

Test Data

Client provides a copy of existing application software. The auditor only gains information as to how this version of the application works

Client Disruption/Data Corruption Risk	Information Systems Expertise Required	Reliance on Client
• Minimal • Using copy of the application	• Minimal but… • Requires test data preparation • Requires understanding of internal logic	• Client provides copy of the application • Is it an exact copy?

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Integrated Test Facility (ITF)

The ITF is designed into the application during system development.

Client Disruption/Data Corruption Risk	Information Systems Expertise Required	Reliance on Client
• High corruption risk • Test data and transactions must be removed from system	• Expertise on audit module design • Expertise so data does not affect actual data.	• Client Independent

Parallel Simulation

The parallel simulation can run alongside the client's application or can be executed at intervals using accumulated client data.

Client Disruption/Data Corruption Risk	Information Systems Expertise Required	Reliance on Client
• Minimal – simulation does not affect client processing	• System complexity dictates the level of expertise required. • Consider using GAS	• Client Independent

Embedded Audit Module (EAM)

Although due to disruption factors, the auditor may choose to turn the module on and off at different points in time, thus reducing the online effectiveness.

Client Disruption/Data Corruption Risk	Information Systems Expertise Required	Reliance on Client
• System performance may be greatly degraded when EAM turned on.	• Programming expertise required.	• Relies on Client to maintain EAM functionality during change management.

Generalized Audit Software (GAS)

Typically, the client's period-end data are accessed.

Client Disruption/Data Corruption Risk	Information Systems Expertise Required	Reliance on Client
• Minimal • Processing occurs within the auditor's system	• Relatively easy to use. • Little background for effective use of GAS • Complex data structures may require client support.	• Minimal reliance on client