

Chapter 1

Characteristics of Audit Sampling

1.01 This chapter defines audit sampling and illustrates the difference between procedures that involve audit sampling and those that do not involve audit sampling.

1.02 An auditor often does not rely solely on the results of a single procedure to reach a conclusion on an assertion relating to an account balance or a class of transactions, or the operating effectiveness of controls. Rather, audit conclusions are usually based on evidence obtained from several sources as a result of applying a number of procedures. The combined evidence obtained from the various procedures is considered in reaching an opinion about whether the financial statements are free of material misstatement.

1.03 The assertions described in paragraph .A114 of AU-C section 315, *Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement*,¹ should be considered when planning audit sampling (for example, what could go wrong or the correct population for sampling) as well as other audit procedures. In this guide, the guidance relating to balances and classes of transactions implies the consideration of relevant assertions for the particular account or class of transactions.

Observations and Suggestions

When indicating a best practice or providing guidance on the application of sampling procedures, this guide may use the terms *typically*, *normally*, *usually*, or *best practice*. These terms do not imply a requirement, but are suggestions to assist auditors in identifying the usual circumstance or application of a concept.

Audit Sampling Defined

1.04 According to paragraph .05 of AU-C section 530, *Audit Sampling*, *audit sampling* is "The selection and evaluation of less than 100 percent of the population of audit relevance such that the auditor expects the items selected (the sample) to be representative² of the population and, thus, likely to provide a reasonable basis for conclusions about the population." In other words, audit sampling provides the auditor an appropriate basis on which to conclude on a characteristic of a population based on examining evidence regarding that characteristic from a sample of the population. Procedures not involving audit sampling are not the subject of AU-C section 530 or this guide.

1.05 In many contexts in sampling, "representative" conveys the sense that the sample results are believed to correspond, at the stated risk level, to what would have been obtained had the auditor examined all items in the population in the same way as examined in the sample. *Correspond* does not mean

¹ All AU-C sections can be found in AICPA *Professional Standards*.

² Appendix G, "Glossary," contains further discussion regarding the term *representative* in the context of audit sampling.

that the projected misstatement from the sample will exactly equal the misstatement in the population (which the auditor does not know). Rather a sample is expected to be representative if it is free from selection bias. Statistical samples are designed to be representative, with the stated confidence that the true population misstatement is measured by the confidence interval. Nonstatistical samples generally are selected in a way that the auditor expects them to be representative. Representative relates to the total sample, not to individual items in the sample. Also, representative does not relate to the sample size, but to how the sample was selected. The sample generally is expected to be representative only with respect to the occurrence rate or incidence of misstatements, not their specific nature. A sample misstatement due to an unusual circumstance may nevertheless be indicative of other unusual misstatements in the population.

Procedures That May Not Involve Audit Sampling

1.06 Some auditing procedures by their nature may not involve audit sampling (unless the procedures are specifically designed as audit samples). In general, procedures that may not involve audit sampling may be grouped into the categories as discussed in the following paragraphs.

Inquiry and Observation

1.07 Auditors ask many questions during the course of their audits. Auditors also observe the operations of their clients' businesses and their controls. Both inquiry and observation provide auditors with audit evidence. Inquiry and observation commonly are used in the following procedures:

- Interviewing management and employees
- Obtaining an understanding of the internal controls
- Observing the behavior of personnel and the functioning of business operations
- Observing cash-handling activities
- Observing the operation of controls
- Performing walk-through procedures³
- Observing the existence of land and buildings
- Obtaining written representations from management

In some cases these procedures could be designed as sampling procedures, such as designing multiple observations of physical security controls.

Analytical Procedures

1.08 According to paragraph .04 of AU-C section 520, *Analytical Procedures*, analytical procedures are defined as

evaluations of financial information through analysis of plausible relationships among both financial and nonfinancial data. Analytical procedures also encompass such investigation, as is necessary, of identified fluctuations or relationships that are inconsistent with other

³ Walk-throughs may also include an examination of evidence and reperformance, depending on their design and performance.

relevant information or that differ from expected values by a significant amount.

In performing analytical procedures, the auditor "compares the recorded amounts or ratios developed from recorded amounts with expectations" developed by the auditor.

1.09 These procedures are not considered audit sampling because they do not result in projecting the result of the examination of a portion of the population to the total population. For similar reasons, scanning accounting records for unusual items is not audit sampling.

Procedures Applied to Every Item in a Population

1.10 In some circumstances, an auditor might decide to examine every item constituting an account balance or a class of transactions. Because the auditor is examining the entire population, rather than only a portion, to reach a conclusion about the balance or class as a whole, 100% examination is not a procedure that involves audit sampling. In some cases, the use of computer assisted audit techniques may allow the application of a test to all items in the population (for example, tests of clerical accuracy and comparison of invoices and shipments) and, thus, audit sampling does not apply.

1.11 A population for audit sampling purposes does not necessarily need to be an entire account balance or class of transactions. In some circumstances, an auditor might examine all the items that constitute an account balance or class of transactions that exceed a given amount (for example, more than \$25,000) or that have an unusual characteristic (for example, require dual signature approval for payment). The auditor might either (a) apply other auditing procedures (for example, targeted analytical procedures performed at a detailed level such as at the line-item or location level) to items that do not exceed that given amount or possess the unusual characteristic or (b) apply no detailed auditing procedures to them because there is an acceptably low *risk of material misstatement* existing in the remaining items. Again, the auditor is not using audit sampling when applying procedures in this manner. Rather, the auditor has segregated the account or class of transactions into two groups. One group is tested 100%; the other group is tested by analytical or other auditing procedures or remains untested based on the low level of *risk of material misstatement* in the portion not subjected to 100% testing.

1.12 For the same reason, cutoff tests often do not involve audit sampling applications. In performing cutoff tests, auditors often examine all significant transactions for a sufficient period surrounding the cutoff date and, as a result, such tests often do not involve the application of audit sampling. However, one could design cutoff tests by using audit sampling when the volume of transactions during the period of interest is high.

Some Tests of Controls May Not Involve Audit Sampling

1.13 Auditors choose from a variety of methods, including inquiry, observation, inspection of documentary evidence, and reperformance, in evaluating the implementation of controls. Although many procedures where documentary evidence is examined or where the auditor reperforms a control involve audit sampling, many of the other methods may not involve sampling. Certain types of tests of controls, because of the nature of the procedures used, do not normally involve audit sampling. For example, tests of automated application

controls are generally tested only once or a few times when effective IT general controls are present, and thus do not rely on the concepts of risk and tolerable deviation as applied in other sampling procedures. Sampling generally is not applicable to analyses of controls for determining the appropriate segregation of duties or other analyses that do not examine documentary evidence of performance. In addition, sampling may not apply to tests of certain documented controls or to analyses of the effectiveness of security and access controls. Sampling also may not apply to some tests directed toward obtaining audit evidence about the operation of the control environment or the accounting system, for example, inquiry or observation of explanation of variances from budgets when the auditor does not desire to estimate the rate of deviation from the prescribed control, or when examining the actions of those charged with governance for assessing their effectiveness.

1.14 In addition, when the performance of a control is not documented or evidenced, such as the performance of an automated control where no record of the control performance is retained, the concept of sampling such a control in the conventional sense may not be meaningful. For example, such a test may be performed contemporaneously with its occurrence or tested with a *test deck* of data with known properties that are designed to test the automated controls, and the extent of testing and the periods included in the test are determined based on the quality of the related IT general controls. Such tests often do not involve audit sampling.

Tests of Controls When Extrapolation Is Not Intended

1.15 Observation of a client's physical inventory count activities is a test usually performed primarily through the auditor's observation of the operation of controls over inventory movement, counting procedures, and other activities used by the client to control the count of the inventory. The auditor's test counts of client counts may not be for extrapolating results, but may be for determining the adequacy and accuracy of the count procedures. Nevertheless, the auditor considers the deviations and misstatements found. As such, when discrepancies in the count are identified, an assessment is made of the reasons for the discrepancy, and a recount may be indicated for some or all of the inventory items by a count team or in a location until the auditor is satisfied that the count is accurate. Using this procedure during the count may not involve the application of audit sampling. Even when extrapolation is not intended, the auditor still considers issues such as the extent of procedures performed and the possibility of bias in the selection of sample items.

Procedures That Do Not Evaluate Characteristics

1.16 Procedures from which the auditor does not intend to extend the resulting conclusion to the remaining items in the account balance or class of transactions do not require audit sampling. The auditor does not use audit sampling when he or she applies an auditing procedure to less than 100% of the items in an account balance or class of transactions as something other than evaluating a trait of the entire balance or class. For example, an auditor might trace several transactions through an entity's accounting system to obtain an understanding of the design of the entity's internal control. In such cases, the auditor's intent is to gain a general understanding of the accounting system or other relevant parts of the internal control, rather than to evaluate a characteristic of all transactions processed. As a result, the auditor may not be using audit sampling.

1.17 Occasionally, auditors perform such procedures as checking arithmetical calculations or tracing journal entries into ledger accounts on less than a 100% (test) basis. When such procedures are applied to less than 100% of the arithmetical calculations or ledger postings that affect the financial statements, audit sampling may not be involved if the procedure is not a test to evaluate a characteristic of an account balance or class of transactions, but is intended to provide only limited evidence that supplements the auditor's other audit evidence regarding a financial statement assertion or is designed to provide evidence only about the items tested.

Untested Balances

1.18 The auditor might decide that he or she need not apply any detailed audit procedures to an account balance or class of transactions if the auditor believes that there is an acceptably low *risk of material misstatement* existing in the account or class. Audit sampling is not relevant to untested balances.

Tests of Automated IT Controls

1.19 IT systems process transactions and other information consistently unless the systems or programs (or related tables, parameters, or similar items that affect how the programs process the data) are changed. Therefore, when testing the operations of automated controls, the auditor may adopt the strategy of testing one or a few of each type of transaction at a point in time and test general controls (for example, controls over implementation and changes to systems and programs, access and security, and computer operations) to provide evidence that the automated controls have been operating effectively over the audit period. When IT general controls are tested and determined to be effective, a single test of an automated control for each type of control operation may be sufficient to place reliance on the automated control during the period of the audit examination.

1.20 Because distinguishing between audit procedures involving audit sampling and procedures not involving audit sampling might be difficult, the next section of this chapter discusses the distinction between procedures that do and do not involve audit sampling.

Sampling and Nonsampling Audit Procedures Distinguished

1.21 An account balance or class of transactions may be examined by a combination of several audit procedures. These procedures might involve audit sampling. An illustration can help clarify the distinction between procedures that do or do not involve audit sampling. An auditor might be examining fixed asset additions of \$2 million. These might include 5 additions totaling \$1.6 million related to a plant expansion program and 400 smaller additions constituting the remaining \$400,000 recorded amount. The auditor might decide that the 5 large additions are individually significant and need to be examined 100% and might then consider whether to apply audit sampling to the remaining 400 items. This decision is based on the auditor's determination of tolerable misstatement for the sample and the assessment of the *risks of material misstatement* in the \$400,000, not on the percentage of the \$2 million individually examined (in this case, 80%). Several possible approaches are discussed in the following 3 situations.

1.22 *Situation 1.* The auditor has performed other procedures related to fixed-asset additions, including the following:

- Risk assessment procedures
- The consideration of related controls, which supported a low level of assessed control risk
- A review of the entries in the fixed asset ledger, which revealed no unusual items
- An analytical procedure, which suggested the \$400,000 recorded amount, does not contain a material misstatement

1.23 In this situation, the auditor might decide that sufficient audit evidence regarding fixed-asset additions has been obtained without applying audit sampling to the remaining individually insignificant items. Therefore, the concept of audit sampling would not apply unless a sample is selected.

1.24 *Situation 2.* The auditor has not performed any procedures related to the accuracy of the remaining 400 items, but, nonetheless, decides that any misstatement in those items would be immaterial. The physical existence of the assets was verified by other procedures. The only remaining exposure is assessed to be the *risks of material misstatement* in the accuracy of the recorded amounts, which, based on the simple cash based purchases and controls over disbursements, the auditor has assessed to be low. Therefore, the concept of audit sampling would not apply unless a sample is selected.

1.25 *Situation 3.* The auditor has performed some or all of the same procedures as in situation 1, but concludes that some additional audit evidence about the 400 individually insignificant additions will be obtained through audit sampling. In this case, the information in AU-C section 530 and this guide assists the auditor in planning, performing, and evaluating the audit sampling application.

Terminology Used in This Guide

1.26 The terms used in this guide are consistent with those in AU-C section 530 and other professional standards. Some auditors may be familiar with other terms, including *precision*, *confidence level*, *reliability*, *alpha risk*, and *beta risk*, which are often used in discussions of statistical sampling. AU-C section 530 does not use those terms because it applies to both statistical and nonstatistical sampling and, therefore, nontechnical terms are more appropriate. Also, certain statistical terms, such as *reliability* and *precision*, have been used with different meanings. Auditors may use various terms in their practice, as long as they understand the relationship of those terms to the concepts in AU-C section 530 and this guide. Terms used in this guide or found in various auditing literature are defined in appendix G, "Glossary." Some of those relationships follow.

Reliability or Confidence Level

1.27 AU-C section 530 and AU-C section 200, *Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance With Generally Accepted Auditing Standards*, use the concept of *risk* instead of reliability (or confidence level). However, statistical sampling literature often uses the terms *reliability* and *confidence level*. In addition, other auditing standards use the term *assurance*, a concept related to confidence or reliability. Additionally, some

auditors express the sampling guidance in their audit approaches in terms of *assurance*, and not *risk*. Risk is the complement of reliability or confidence level. For example, if an auditor accepts a 10% sampling risk, the reliability or confidence level is specified as 90%. The term *risk* is more consistent with the auditing framework described in the SASs. Audit professionals are advised to be familiar with the various terms that are relevant to audit sampling.

Sampling Risk

1.28 Paragraph .05 of AU-C section 530 defines sampling risk in terms of two types of erroneous conclusions:

- a. In the case of a test of controls, that controls are more effective than they actually are, or in the case of a test of details, that a material misstatement does not exist when, in fact, it does. The auditor is primarily concerned with this type of erroneous conclusion because it affects audit effectiveness and is more likely to lead to an inappropriate audit opinion.⁴
- b. In the case of a test of controls, that controls are less effective than they actually are, or in the case of a test of details, that a material misstatement exists when, in fact, it does not. This type of erroneous conclusion affects audit efficiency because it would usually lead to additional work to establish that initial conclusions were incorrect.⁵

Other sampling literature and paragraph .A13 in the "Application and Other Explanatory Material" section of AU-C section 530 term the risks in preceding subparagraph *a* as the *risk of overreliance* (for controls) and the *risk of incorrect acceptance* (for substantive testing). Formal statistical literature often terms this risk as *beta risk*. The risks described in preceding subparagraph *b* are also termed in prior AICPA and other sampling literature as the *risk of underreliance* (for controls) and the *risk of incorrect rejection* (for substantive tests). Formal statistical literature often terms this risk as *alpha risk*. Both *alpha risk* and *beta risk* (sometimes referred to as risks of type I and type II errors) are statistical terms that have not always been consistently applied in the auditing literature.

Precision

1.29 Precision might be used both as a planning concept and an evaluation concept for audit sampling. Rather than the term *precision*, AU-C section 530 uses the difference between the expected deviation rate or expected misstatement amount and the tolerable deviation rate or tolerable misstatement as a measure of precision.⁶

⁴ AU section 350, *Audit Sampling*, from the pre-clarified and now superseded auditing standards used the specific terms *risk of assessing control risk too low* (when sampling for tests of controls) and *risk of incorrect acceptance* (for substantive testing).

⁵ AU section 350 from the pre-clarified and now superseded auditing standards used the specific terms *risk of assessing control risk too high* (controls) and *risk of incorrect rejection* (substantive).

⁶ This edition of the guide, as well as prior editions, use the term *allowance for sampling risk* to represent precision. Precision is a term used in statistical sampling.

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