INTERNATIONAL STANDARD ON AUDITING 530

AUDIT SAMPLING

(Effective for audits of financial statements for periods beginning on or after December 15, 2009)

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International Standard on Auditing (ISA) 530, *Audit Sampling*, should be read in conjunction with ISA 200, *Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing*.

Introduction

Scope of this ISA

1. This International Standard on Auditing (ISA) applies when the auditor has decided to use audit sampling in performing audit procedures. It deals with the auditor's *use of statistical and non-statistical sampling when designing and selecting the audit sample, performing tests of controls and tests of details, and evaluating the results from the sample*.

2. This ISA complements ISA 500,[1] which deals with the auditor's responsibility to design and perform audit procedures to obtain sufficient appropriate audit evidence to be able to draw reasonable conclusions on which to base the auditor's opinion. ISA 500 provides guidance on the means available to the auditor for selecting items for testing, of which audit sampling is one means.

Effective Date

3. This ISA is effective for audits of financial statements for periods beginning on or after December 15, 2009.

Objective

4. The objective of the auditor, when using audit sampling, is to provide a reasonable basis for the auditor to draw conclusions about the population from which the sample is selected.

Definitions

5. For purposes of the ISAs, the following terms have the meanings attributed below:

   (a) Audit sampling (sampling) – The application of audit procedures to less than 100% of items within a population of audit relevance such that all sampling units have a chance of selection in order to provide the auditor with a reasonable basis on which to draw conclusions about the entire population.

   (b) Population – The entire set of data from which a sample is selected and about which the auditor wishes to draw conclusions.

   (c) Sampling risk – The risk that the auditor's conclusion based on a sample may be different from the conclusion if the entire population were subjected to the same audit procedure. Sampling risk can lead to two types of erroneous conclusions:

      (i) 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.

      (ii) 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 as it would usually lead to additional work to establish that initial conclusions were incorrect.

   (d) Non-sampling risk – The risk that the auditor reaches an erroneous conclusion for any reason not related to sampling risk. (Ref: Para. A1)

   (e) Anomaly – A misstatement or deviation that is demonstrably not representative of misstatements or deviations in a population.

   (f) Sampling unit – The individual items constituting a population. (Ref: Para. A2)

   (g) Statistical sampling – An approach to sampling that has the following characteristics:

      (i) Random selection of the sample items; and

      (ii) The use of probability theory to evaluate sample results, including measurement of sampling risk.

   A sampling approach that does not have characteristics (i) and (ii) is considered non-statistical sampling.

[1] ISA 500, *Audit Evidence*

(h) Stratification – The process of dividing a population into sub-populations, each of which is a group of sampling units which have similar characteristics (often monetary value).

(i) Tolerable misstatement – A monetary amount set by the auditor in respect of which the auditor seeks to obtain an appropriate level of assurance that the monetary amount set by the auditor is not exceeded by the actual misstatement in the population. (Ref: Para. A3)

(j) Tolerable rate of deviation – A rate of deviation from prescribed internal control procedures set by the auditor in respect of which the auditor seeks to obtain an appropriate level of assurance that the rate of deviation set by the auditor is not exceeded by the actual rate of deviation in the population.

Requirements

Sample Design, Size, and Selection of Items for Testing

6. When designing an audit sample, the auditor shall consider the purpose of the audit procedure and the characteristics of the population from which the sample will be drawn. (Ref: Para. A4–A9)

7. The auditor shall determine a sample size sufficient to reduce sampling risk to an acceptably low level. (Ref: Para. A10–A11)

8. The auditor shall select items for the sample in such a way that each sampling unit in the population has a chance of selection. (Ref: Para. A12–A13)

Performing Audit Procedures

9. The auditor shall perform audit procedures, appropriate to the purpose, on each item selected.

10. If the audit procedure is not applicable to the selected item, the auditor shall perform the procedure on a replacement item. (Ref: Para. A14)

11. If the auditor is unable to apply the designed audit procedures, or suitable alternative procedures, to a selected item, the auditor shall treat that item as a deviation from the prescribed control, in the case of tests of controls, or a misstatement, in the case of tests of details. (Ref: Para. A15–A16)

Nature and Cause of Deviations and Misstatements

12. The auditor shall investigate the nature and cause of any deviations or misstatements identified, and evaluate their possible effect on the purpose of the audit procedure and on other areas of the audit. (Ref: Para. A17)

13. In the extremely rare circumstances when the auditor considers a misstatement or deviation discovered in a sample to be an anomaly, the auditor shall obtain a high degree of certainty that such misstatement or deviation is not representative of the population. The auditor shall obtain this degree of certainty by performing additional audit procedures to obtain sufficient appropriate audit evidence that the misstatement or deviation does not affect the remainder of the population.

Projecting Misstatements

14. For tests of details, the auditor shall project misstatements found in the sample to the population. (Ref: Para. A18–A20)

Evaluating Results of Audit Sampling

15. The auditor shall evaluate:

(a) The results of the sample; and (Ref: Para. A21–A22)

(b) Whether the use of audit sampling has provided a reasonable basis for conclusions about the population that has been tested. (Ref: Para. A23)

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Application and Other Explanatory Material

Definitions

Non-Sampling Risk (Ref: Para. 5(d))

A1. Examples of non-sampling risk include use of inappropriate audit procedures, or misinterpretation of audit evidence and failure to recognize a misstatement or deviation.

Sampling Unit (Ref: Para. 5(f))

A2. The sampling units might be physical items (for example, checks listed on deposit slips, credit entries on bank statements, sales invoices or debtors' balances) or monetary units.

Tolerable Misstatement (Ref: Para. 5(i))

A3. When designing a sample, the auditor determines tolerable misstatement in order to address the risk that the aggregate of individually immaterial misstatements may cause the financial statements to be materially misstated and provide a margin for possible undetected misstatements. Tolerable misstatement is the application of performance materiality, as defined in ISA 320,[2] to a particular sampling procedure. Tolerable misstatement may be the same amount or an amount lower than performance materiality.

Sample Design, Size, and Selection of Items for Testing

Sample Design (Ref: Para. 6)

A4. Audit sampling enables the auditor to obtain and evaluate audit evidence about some characteristic of the items selected in order to form or assist in forming a conclusion concerning the population from which the sample is drawn. Audit sampling can be applied using either non-statistical or statistical sampling approaches.

A5. When designing an audit sample, the auditor's consideration includes the specific purpose to be achieved and the combination of audit procedures that is likely to best achieve that purpose. Consideration of the nature of the audit evidence sought and possible deviation or misstatement conditions or other characteristics relating to that audit evidence will assist the auditor in defining what constitutes a deviation or misstatement and what population to use for sampling. In fulfilling the requirement of paragraph 9 of ISA 500, when performing audit sampling, the auditor performs audit procedures to obtain evidence that the population from which the audit sample is drawn is complete.

A6. The auditor's consideration of the purpose of the audit procedure, as required by paragraph 6, includes a clear understanding of what constitutes a deviation or misstatement so that all, and only those, conditions that are relevant to the purpose of the audit procedure are included in the evaluation of deviations or projection of misstatements. For example, in a test of details relating to the existence of accounts receivable, such as confirmation, payments made by the customer before the confirmation date but received shortly after that date by the client, are not considered a misstatement. Also, a misposting between customer accounts does not affect the total accounts receivable balance. Therefore, it may not be appropriate to consider this a misstatement in evaluating the sample results of this particular audit procedure, even though it may have an important effect on other areas of the audit, such as the assessment of the risk of fraud or the adequacy of the allowance for doubtful accounts.

A7. In considering the characteristics of a population, for tests of controls, the auditor makes an assessment of the expected rate of deviation based on the auditor's understanding of the controls or on the examination of a small number of items from the population. This assessment is made in order to design an audit sample and to determine sample size. For example, if the expected rate of deviation is unacceptably high, the auditor will normally decide not to perform tests of controls. Similarly, for tests of details, the auditor makes an assessment of the expected misstatement in the population. If the expected misstatement is high, 100% examination or use of a large sample size may be appropriate when performing tests of details.

A8. In considering the characteristics of the population from which the sample will be drawn, the auditor may determine that stratification or value-weighted selection is appropriate. Appendix 1 provides further discussion on stratification and value-weighted selection.

[2] ISA 320, *Materiality in Planning and Performing an Audit*, paragraph 9

A9. The decision whether to use a statistical or non-statistical sampling approach is a matter for the auditor's judgment; however, sample size is not a valid criterion to distinguish between statistical and non-statistical approaches.

Sample Size (Ref: Para. 7)

A10. The level of sampling risk that the auditor is willing to accept affects the sample size required. The lower the risk the auditor is willing to accept, the greater the sample size will need to be.

A11. The sample size can be determined by the application of a statistically-based formula or through the exercise of professional judgment. Appendices 2 and 3 indicate the influences that various factors typically have on the determination of sample size. When circumstances are similar, the effect on sample size of factors such as those identified in Appendices 2 and 3 will be similar regardless of whether a statistical or non-statistical approach is chosen.

Selection of Items for Testing (Ref: Para. 8)

A12. With statistical sampling, sample items are selected in a way that each sampling unit has a known probability of being selected. With non-statistical sampling, judgment is used to select sample items. Because the purpose of sampling *is to provide a reasonable basis for the auditor to draw conclusions about the population from which the sample is selected*, it is important that the auditor selects a representative sample, so that bias is avoided, by choosing sample items which have characteristics typical of the population.

A13. The principal methods of selecting samples are the use of random selection, systematic selection and haphazard selection. Each of these methods is discussed in Appendix 4.

Performing Audit Procedures (Ref: Para. 10–11)

A14. An example of when it is necessary to perform the procedure on a replacement item is when a voided check is selected while testing for evidence of payment authorization. If the auditor is satisfied that the check has been properly voided such that it does not constitute a deviation, an appropriately chosen replacement is examined.

A15. An example of when the auditor is unable to apply the designed audit procedures to a selected item is when documentation relating to that item has been lost.

A16. An example of a suitable alternative procedure might be the examination of subsequent cash receipts together with evidence of their source and the items they are intended to settle when no reply has been received in response to a positive confirmation request.

Nature and Cause of Deviations and Misstatements (Ref: Para. 12)

A17. In analyzing the deviations and misstatements identified, the auditor may observe that many have a common feature, for example, type of transaction, location, product line or period of time. In such circumstances, the auditor may decide to identify all items in the population that possess the common feature, and extend audit procedures to those items. In addition, such deviations or misstatements may be intentional, and may indicate the possibility of fraud.

Projecting Misstatements (Ref: Para. 14)

A18. The auditor is required to project misstatements for the population to obtain a broad view of the scale of misstatement but this projection may not be sufficient to determine an amount to be recorded.

A19. When a misstatement has been established as an anomaly, it may be excluded when projecting misstatements to the population. However, the effect of any such misstatement, if uncorrected, still needs to be considered in addition to the projection of the non-anomalous misstatements.

A20. For tests of controls, no explicit projection of deviations is necessary since the sample deviation rate is also the projected deviation rate for the population as a whole. ISA 330[3] provides guidance when deviations from controls upon which the auditor intends to rely are detected.

Evaluating Results of Audit Sampling (Ref: Para. 15)

A21. For tests of controls, an unexpectedly high sample deviation rate may lead to an increase in the assessed risk of material misstatement, unless further audit evidence substantiating the initial assessment is obtained. For tests of

[3] ISA 330, *The Auditor's Responses to Assessed Risks*, paragraph 17

details, an unexpectedly high misstatement amount in a sample may cause the auditor to believe that a class of transactions or account balance is materially misstated, in the absence of further audit evidence that no material misstatement exists.

A22. In the case of tests of details, the projected misstatement plus anomalous misstatement, if any, is the auditor's best estimate of misstatement in the population. When the projected misstatement plus anomalous misstatement, if any, exceeds tolerable misstatement, the sample does not provide a reasonable basis for conclusions about the population that has been tested. The closer the projected misstatement plus anomalous misstatement is to tolerable misstatement, the more likely that actual misstatement in the population may exceed tolerable misstatement. Also if the projected misstatement is greater than the auditor's expectations of misstatement used to determine the sample size, the auditor may conclude that there is an unacceptable sampling risk that the actual misstatement in the population exceeds the tolerable misstatement. Considering the results of other audit procedures helps the auditor to assess the risk that actual misstatement in the population exceeds tolerable misstatement, and the risk may be reduced if additional audit evidence is obtained.

A23. If the auditor concludes that audit sampling has not provided a reasonable basis for conclusions about the population that has been tested, the auditor may:

- Request management to investigate misstatements that have been identified and the potential for further misstatements and to make any necessary adjustments; or
- Tailor the nature, timing and extent of those further audit procedures to best achieve the required assurance. For example, in the case of tests of controls, the auditor might extend the sample size, test an alternative control or modify related substantive procedures.

Appendix 1

(Ref: Para. A8)

Stratification and Value-Weighted Selection

In considering the characteristics of the population from which the sample will be drawn, the auditor may determine that stratification or value-weighted selection is appropriate. This Appendix provides guidance to the auditor on the use of stratification and value-weighted sampling techniques.

Stratification

1. Audit efficiency may be improved if the auditor stratifies a population by dividing it into discrete sub-populations which have an identifying characteristic. The objective of stratification is to reduce the variability of items within each stratum and therefore allow sample size to be reduced without increasing sampling risk.

2. When performing tests of details, the population is often stratified by monetary value. This allows greater audit effort to be directed to the larger value items, as these items may contain the greatest potential misstatement in terms of overstatement. Similarly, a population may be stratified according to a particular characteristic that indicates a higher risk of misstatement, for example, when testing the allowance for doubtful accounts in the valuation of accounts receivable, balances may be stratified by age.

3. The results of audit procedures applied to a sample of items within a stratum can only be projected to the items that make up that stratum. To draw a conclusion on the entire population, the auditor will need to consider the risk of material misstatement in relation to whatever other strata make up the entire population. For example, 20% of the items in a population may make up 90% of the value of an account balance. The auditor may decide to examine a sample of these items. The auditor evaluates the results of this sample and reaches a conclusion on the 90% of value separately from the remaining 10% (on which a further sample or other means of gathering audit evidence will be used, or which may be considered immaterial).

4. If a class of transactions or account balance has been divided into strata, the misstatement is projected for each stratum separately. Projected misstatements for each stratum are then combined when considering the possible effect of misstatements on the total class of transactions or account balance.

Value-Weighted Selection

5. When performing tests of details it may be efficient to identify the sampling unit as the individual monetary units that make up the population. Having selected specific monetary units from within the population, for example, the accounts receivable balance, the auditor may then examine the particular items, for example, individual balances, that contain those monetary units. One benefit of this approach to defining the sampling unit is that audit effort is directed to the larger value items because they have a greater chance of selection, and can result in smaller sample sizes. This approach may be used in conjunction with the systematic method of sample selection (described in Appendix 4) and is most efficient when selecting items using random selection.

Appendix 2

(Ref: Para. A11)

Examples of Factors Influencing Sample Size for Tests of Controls

The following are factors that the auditor may consider when determining the sample size for tests of controls. These factors, which need to be considered together, assume the auditor does not modify the nature or timing of tests of controls or otherwise modify the approach to substantive procedures in response to assessed risks.

FACTOR	EFFECT ON SAMPLE SIZE	
1. An increase in the extent to which the auditor's risk assessment takes into account plans to test the operating of effectiveness of 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 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.

Appendix 3

(Ref: Para. A11)

Examples of Factors Influencing Sample Size for Tests of Details

The following are factors that the auditor may consider when determining the sample size for tests of details. These factors, which need to be considered together, assume the auditor does not modify the approach to tests of controls or otherwise modify the nature or timing of substantive procedures in response to the assessed risks.

FACTOR	EFFECT ON SAMPLE SIZE	
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.

FACTOR	EFFECT ON SAMPLE SIZE	
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].)

Appendix 4

(Ref: Para. A13)

Sample Selection Methods

There are many methods of selecting samples. The principal methods are as follows:

(a) Random selection (applied through random number generators, for example, random number tables).

(b) Systematic selection, in which the number of sampling units in the population is divided by the sample size to give a sampling interval, for example 50, and having determined a starting point within the first 50, each 50th sampling unit thereafter is selected. Although the starting point may be determined haphazardly, the sample is more likely to be truly random if it is determined by use of a computerized random number generator or random number tables. When using systematic selection, the auditor would need to determine that sampling units within the population are not structured in such a way that the sampling interval corresponds with a particular pattern in the population.

(c) Monetary Unit Sampling is a type of value-weighted selection (as described in Appendix 1) in which sample size, selection and evaluation results in a conclusion in monetary amounts.

(d) Haphazard selection, in which the auditor selects the sample without following a structured technique. Although no structured technique is used, the auditor would nonetheless avoid any conscious bias or predictability (for example, avoiding difficult to locate items, or always choosing or avoiding the first or last entries on a page) and thus attempt to ensure that all items in the population have a chance of selection. Haphazard selection is not appropriate when using statistical sampling.

(e) Block selection involves selection of a block(s) of contiguous items from within the population. Block selection cannot ordinarily be used in audit sampling because most populations are structured such that items in a sequence can be expected to have similar characteristics to each other, but different characteristics from items elsewhere in the population. Although in some circumstances it may be an appropriate audit procedure to examine a block of items, it would rarely be an appropriate sample selection technique when the auditor intends to draw valid inferences about the entire population based on the sample.