CHAPTER 25 OTHER SUBSTANTIVE PROCEDURES

INTRODUCTION

25.1 This chapter considers the use of other substantive procedures (OSPs) as audit procedures designed to detect material misstatement at the assertion level. OSPs may be the sole procedures designed or may be designed in conjunction with other audit procedures such as chapter 23 - Tests of Controls and chapter 24 - Substantive Analytical Procedures. The process of gathering audit evidence is cumulative. The auditor is required to obtain sufficient appropriate audit evidence to reduce audit risk to an acceptably low level, so that the auditor is able to draw reasonable conclusions on which to base the auditor's opinion. (BDO)

25.2 As detailed in chapter 18 - Design Audit Response, the auditor designs and performs further audit procedures whose nature, timing and extent are based on and in response to the assessed risks of material misstatement at the assertion level (i.e., inherent risks of material misstatement or IRMMs). This chapter applies when the auditor determines that the audit response to an IRMM contains one or more OSPs. (BDO)

25.3 This chapter sets out the following:

(1) The types of OSP that may be performed;
(2) Determining the assurance gained from OSPs;
(3) Determining which OSPs to perform;
(4) Sampling methods;
(5) Evaluating the results of OSPs; and
(6) Documentation of OSPs. (BDO)

25.4 Appendix One to this chapter provides guidance as to techniques available to the auditor when obtaining audit evidence in respect of OSPs. (BDO)

TYPES OF OSPS THAT COULD BE PERFORMED

25.5 Below are examples of types of OSPs that can be performed, either in isolation or combination:

(1) Proof in total (paragraphs 25.19 to 25.23);
(2) Other tests of detail (paragraphs 25.24 to 25.45); and
(3) Representative sampling (paragraphs 25.46 to 25.197). (BDO)

DOCUMENTATION

25.6 Given the broad range of potential procedures that may be performed as OSPs, a prescribed format for performing these procedures is generally not appropriate. However, documentation for all OSPs would ordinarily include the following where applicable:

(1) Objective of the OSP (IRMM(s) and the FSA(s) and assertion(s) being responded to);
(2) Level of assurance to be obtained;
(3) Details of the procedure to be performed;
(4) The appropriate sampling method, and the resultant sample size;
(5) The method of selecting items to test;
(6) The items selected for sampling;
(7) Results of the procedure;
(8) Evaluation of discrepancies and misstatements (including projecting misstatements where applicable); and
(9) Conclusion as to whether the objective has been met and the level of assurance obtained. (BDO)

25.7 Where the auditor has performed sampling procedures, the auditor records the considerations the auditor has taken into account including the rationale for using a particular sampling method, design of the sample, the sample size and the selection methods applied. (BDO)

UNCORRECTED MISSTATEMENTS

25.8 Regardless of the type of OSP described above, all factual, judgmental and projected misstatements found, that are not clearly trivial, are to be included on the Summary of Misstatements for evaluation, along with all other misstatements identified. (BDO)

DETERMINING WHICH OTHER SUBSTANTIVE PROCEDURES TO PERFORM

25.9 As explained in chapter 18 - Design Audit Response, the auditor plans procedures to obtain assurance to at least an R factor of 1.0 (for Low IRMMs), 2.0 (for Moderate IRMMs), 2.5 (for Elevated IRMMs) and 3.0 (for Significant IRMMs). The R factor that the auditor obtains from OSPs depends on the mix of procedures being planned to respond to the assessed IRMM and that enable the auditor to obtain the required level of total assurance in the most efficient and effective manner. (BDO)

25.10 The R factor when some assurance from OSPs is required ordinarily ranges between 0.5 and 3 (in increments of 0.5), depending on the IRMM and the degree of assurance required from OSPs. However, there may be limited circumstances when an R factor of less than 0.5 may be appropriate (for example, when performing substantive testing as part of a TOC-based approach). In addition, in some cases, the auditor may not require any assurance from OSPs when the auditor obtains sufficient assurance from DATs or SAPs alone or from TOCs combined with DATs or SAPs. Refer to chapter 18 - Design Audit Response. (BDO)

25.11 The auditor determines the most appropriate combination of OSPs to give the R factor assurance required from OSP procedures to address the IRMM. (BDO)

25.12 In determining which OSPs to perform, the auditor considers:

(1) The assurance required from OSPs; and

(2) The amount of assurance gained from the selected OSPs. (BDO)

25.13 Audit sampling is designed to allow the auditor to test a sample selected from the population in a manner which avoids any conscious bias or predictability and to enable the auditor to draw conclusions based on our testing across the entire population. The BDO Audit Approach currently supports use by engagement teams (subject to any local firm policies) of the following sampling approaches (where appropriate):

(1) Classical sampling;
(2) Small population sampling;
(3) High volume population sampling; and
(4) Attribute sampling. (BDO)

[BDO firms are advised to determine whether additional sampling methods have been made available to engagement teams and to note these here.]

25.14 The assurance obtained from a sampling OSP depends on the sample size. A higher level of assurance typically results in a larger sample. In determining the sampling R factor for use in the sample size calculation, the assurance associated with all other audit procedures performed are deducted from the total assurance (R=1.0, R=2.0, R=2.5 or R=3.0) required. (BDO)

25.15 The assurance obtained from a non-sampling OSP is a matter of judgment. Factors to consider when determining this are:

(1) The nature of the test;
(2) The nature of the balance that is being tested;
(3) The quality and source of the evidence; and
(4) The design of the OSP. (BDO)

25.16 In selecting which of the many possible OSPs to perform, the auditor chooses the most efficient and effective combination. There are many factors affecting the efficiency and effectiveness of the auditor's choice of procedures. These include:

(1) *The expected time it takes to perform the OSP*; when there are tight deadlines, certain OSPs may not achieve the desired result, for example, a test of subsequent payments to suppliers may not reveal unrecorded liabilities if the period between the period end and the finalization of the audit is so short that payments to suppliers can be withheld until after the finalization of the audit;
(2) *The quality of the OSP*; an inquiry made of management concerning a matter for which management itself is responsible is less effective than, say, an external confirmation. Internal evidence is generally always weaker than external evidence. For example, examining a bank statement provided to us by the entity (which could have been altered) is less persuasive than a statement received directly from the bank;
(3) *Whether an OSP performed in the prior year was efficient and effective*; the auditor would not ordinarily repeat an OSP that did not produce an efficient and effective result in the past. For example, if an accounts receivable circularization did not elicit a good response rate because of the nature of the entity's accounts receivable, it would be ineffective to use this OSP again. The auditor may decide that a test of subsequent receipts would be more effective;
(4) *When the OSP is to be performed;* the timing of the OSP is important. For example, an inventory observation is performed at the period end, or at an interim date shortly before period end, and at the same time as the entity conducts the inventory count. An OSP such as an accounts receivable circularization may be more effective if it is performed before the period end and rolled forward to the period end. This allows for sufficient time to receive replies from accounts receivable and to carry out alternative procedures if necessary. However, offsetting this is the potential increase in risk of not detecting anomalies that occur in the roll forward period;
(5) *The use of schedules the entity has already prepared;* using the entity's schedules can make work more efficient, for example, requesting the entity to prepare a schedule of post period end cash receipts against period end accounts receivable. However, such schedules are to be subjected to audit, including testing the schedule itself for completeness and accuracy;
(6) *The materiality of the balance to be tested*; this affects the sample size if the auditor plans sampling OSPs;
(7) *Whether the balance is to be tested for overstatement or understatement*; overstatement tests are focused on recorded data and can be designed to address high value or other identified criteria. Understatement tests, by their nature, are a search for missing or omitted information or transactions. The auditor may perform more than one OSP to identify omitted transactions. For example, a search for unrecorded liabilities may include standard cutoff tests; a review of post period end payments to suppliers; a search for unprocessed invoices; reconciliations between supplier statements and accounts payable; accounts payable circularization etc.;
(8) *Whether automated tools and techniques such as Audit Data Analytics (ADA) can be used;* these may be appropriate where there are large volumes of data that can be sorted and interrogated electronically, for example, inventory may be interrogated to identify items of inventory that are slow moving; and
(9) *The range of sampling approaches versus non-sampling techniques;* it may be more efficient in some circumstances to use non-sampling techniques. For example, in a relatively small population where there are easily identifiable high value or key items, it may be more appropriate to test these items to arrive at a higher level of assurance than a sample would produce. The results of audit procedures applied to items selected in

this way may not be projected to the entire population; accordingly, selective examination of specific items does not provide audit evidence concerning the remainder of the population. Further guidance on other factors that may influence when an engagement team may use a sampling approach can be found in How to Guide: Deciding when it is appropriate to use an OSP sampling approach. (BDO)

APPLICATION GUIDANCE – AVAILABILITY OF INFORMATION

25.17 Source documents needed to perform OSPs, such as purchase orders and invoices, may exist only in electronic form depending on the nature of the entity's system, or may be discarded after scanning when an entity uses image processing systems to facilitate storage and reference. (BDO)

25.18 Such electronic information may not be retrievable after a specified period of time, for example, if files are changed and backup files do not exist. Accordingly, the auditor may find it necessary, as a result of an entity's data retention policies, to request retention of some information for the auditor's review or to perform audit procedures at a time when the information is available. (BDO)

PROOF IN TOTAL

25.19 A proof in total may be achieved when the auditor can compute, or otherwise determine, the expected amount of a given financial statement area, with a high level of precision, where this procedure is based on information that the auditor has determined to be reliable. A proof in total gives the auditor all of the auditor's required assurance for one or more assertions for the given FSA, even if the assertion(s) is a significant risk. (BDO)

25.20 Performing a proof in total involves computing the expected amount and then comparing this theoretically computed value to the actual amount recorded. A proof in total is not appropriate for an amount that cannot be predicted with sufficient accuracy, thus it cannot be used in many FSAs. Some examples of where proof in totals might be possible are provided in the application guidance below. (BDO)

APPLICATION GUIDANCE - AREAS WHERE PROOF IN TOTAL MIGHT BE POSSIBLE

25.21 The assurance obtained from these procedures depends on the validity of the data and therefore the level of precision that can be achieved. In some situations, the procedure may provide proof in total assurance, in others the level of precision may not be high enough for proof in total, but may provide SAP assurance of 2.0, or less (see Chapter 24 - Substantive Analytical Procedures). (BDO)

FSA	PROCEDURE
Interest expense	Interest rate applied to outstanding borrowings, where the interest rate is verified to the bank's

	credit agreement and the outstanding borrowings are agreed to the bank statements or loan summary.
Investment income	Interest rate or yield applied to investments, where the interest rate or yield and the investment value are agreed to third party documentation (e.g., an annual investment summary).
Lease expense	Multiply the monthly rent per the lease agreement by 12.
Prepaid Insurance/Insurance expense	Prorated amounts based on premiums and policy terms that are agreed to a third-party statement.

How to Evaluate the Results: Proof in Total

25.22 In order for an FSA amount to be proved in total, there is no significant difference between the estimated amount and the recorded amount. Determining whether a difference is significant is a matter of professional judgment. The difference is assessed in relation to performance materiality, the amount and composition of the recorded balance, the nature of the amount being tested, and the engagement team's understanding of the entity. As a proof in total procedure is intended to provide all the necessary assurance for one or more assertions of the relevant FSA, the auditor is able to conclude that the evidence the auditor obtained solely from that procedure is sufficient to reduce audit risk for that assertion(s) to an acceptably low level. In other words, the auditor has established that the theoretical value is sufficiently close to the recorded value to demonstrate that the auditor has effectively proved the amount recorded. In addition, the auditor has to ensure that the inputs used in the calculation for the determination of the theoretical value are sufficiently reliable so as to support a high level of assurance. (BDO)

25.23 Where the test has been concluded as satisfactory, a proof in total gives an assurance level of R factor 3 for one or more assertions of a given FSA and no further testing is necessary for the covered assertions. (BDO)

OTHER TESTS OF DETAIL

25.24 In addition to proof in total and representative samples, the auditor is also able to obtain some assurance over any given FSA either by:

(1) Examining a full population for components that match a certain criteria (extraction based OSP); or
(2) Using judgment to focus in on specific components of a population for detailed testing (directed OSP). (BDO)

Extraction Based OSPs

25.25 The key element to an extraction based OSP is to subject the entire population to a conditional test so that the entire population has been reviewed and all the transactions not selected are recorded in a manner that meets the auditor's expectation while any unusual items are identified for follow up. Examples of unusual items identified for follow up include:

(1) Entries that are posted with dates outside the audit period;
(2) Entries that appear to be double posted; and

(3) Credit entries posted to expense accounts. (BDO)

25.26 Extraction based OSPs are particularly suited to the use of automated tools and techniques such as ADA which often enable more extensive and efficient testing of electronic transactions and account files. (BDO)

25.27 The auditor may use software (for example, Power BI, QlikView, IDEA© or other technology) to support extraction and analysis of entity data to identify unusual or unanticipated transactions (such as ADA Notable Items and/or ADA Anomalies in the case of ADA) for further follow up and verification. For additional information refer to the BDO Advantage – Audit Data Analytics Handbook. (BDO)

25.28 Unusual items identified are subjected to additional verification procedures such as verification to source documentation. When doing so:

(1) Unusual items resulting from each search are treated as a separate population;
(2) Each population of unusual items may be sampled if the number of unusual items returned by a search is considerable. For the purpose of determining the auditor's sample size:
    (i) If the IRMM identified for the unusual items was assessed as significant, then an R factor of 3 is used;
    (ii) The population recorded amount is equal to the sum of the unusual items;
    (iii) Performance materiality for the FSA remains constant. (BDO)

25.29 In an extraction based OSP, it is the number of searches performed that dictates the level of assurance generated from these OSPs and not the identification of unusual items or lack of identification of unusual items. While no follow up activities are required if the search does not return any unusual items, the population has nevertheless been subjected to the test. (BDO)

25.30 It is a matter of professional judgment as to the level of assurance derived from extraction based OSPs. The auditor considers the degree to which the search addresses the various stages of the FSA (initiation, processing, recording, reporting) and how many searches have been performed related to the same assertion. (BDO)

25.31 While the level of assurance is driven by the number of searches, it is important to recognize that any unusual items found represent a high-risk population and the auditor follows up on these items. It is inappropriate to delete unusual items resulting from searches as this result represents contradictory audit evidence for the auditor's opinion. Accordingly, the extent of misstatement contained in each population of unusual items is determined:

(1) Normally by testing or following up on 100% of the unusual items returned by a search; or
(2) If the number of unusual items returned by a search is so large that testing 100% of the items would be impractical, by reconsidering the criteria used for determining what is an unusual item. If the auditor concludes that such criteria are appropriate, the auditor considers stratifying the population of unusual items for analysis or, if there are no apparent patterns identified, the auditor selects a sample of the population of unusual items to test instead of verifying 100%. (BDO)

25.32 Examples of extraction based OSPs are given in Appendix Four.(BDO)

Directed OSP (Judgmental Selection of Specific Items)

25.33 A directed OSP is a test of the details of an FSA that does not employ representative sampling of a recorded population. It is a procedure whose design is specifically responsive to the circumstances and nature of the items being tested. For example:

(1) Verifying the supporting schedules of outstanding deposits and outstanding checks as well as other reconciling items on bank reconciliations;
(2) Inquiring of the entity's sales and marketing personnel or in house legal counsel regarding sales or shipments near the end of the period and their knowledge of any unusual terms or conditions associated with these transactions;
(3) Being physically present at one or more locations at period end to observe goods being shipped or being prepared for shipment (or returns awaiting processing) and performing other appropriate sales and inventory cutoff procedures;
(4) Inquiring of management regarding the existence of any contingent liabilities, legal proceedings against the entity, and
(5) Verifying that control accounts reconcile to the individual ledgers. (BDO)

25.34 The nature and design of a directed OSP varies greatly given the circumstances surrounding its use, but typically are used to:

(1) Fulfill specific audit procedure requirements specified in the ISAs such as:
    (i) Testing the appropriateness of journal entries recorded in the general ledger; and
    (ii) Agreeing the financial statements to the underlying books and records of account;
(2) Not directly provide assurance themselves, but as a key component of another test; for example, directed OSPs may be used to establish that the recorded transactions are reliable as a component of obtaining SAP assurance;
(3) Test the entire population of items that make up a class of transactions or account balance (or a stratum within that population) or may make use of certain sampling techniques in a number of specific situations. (BDO)

25.35 Although these procedures do not include representative sampling, they may include sampling to the extent detailed in the application guidance below. (BDO)

APPLICATION GUIDANCE - 100% EXAMINATION

25.36 100% examination may be appropriate when:

(1) The population constitutes a small number of large value items;
(2) There is a significant risk and other means do not provide sufficient appropriate audit evidence; or
(3) 100% examination is the most efficient approach. (BDO)

APPLICATION GUIDANCE – SELECTING SPECIFIC ITEMS

25.37 In a given population, the auditor may consider testing four specific items which in total cover 90% of the population, leaving an untested balance which is immaterial. Here the auditor may take assurance that the total balance is not materially misstated. (BDO)

25.38 Whereas examining 70% of the dollar value of an inventory may seem to be sufficient, if the remaining 30% is not appropriately tested, the risk of not detecting a

material misstatement may still be too high. Examination of an arbitrary percentage (e.g., 70%) of the balance is not a sufficient reason by itself for concluding that other items in the population do not require testing. When the value of the remaining unexamined items is not material, the auditor may conclude there is no need to design a sample of the remaining items. However, when the value of the remaining unexamined items is material, a sample is designed for the remaining items unless other sources of assurance (e.g., reliance on controls, analytical procedures) indicate a sample is not necessary. (BDO)

25.39 There is no set percentage as to what coverage is required in order to take assurance from the OSP. This is a matter of judgment giving consideration to the untested balance in the context of materiality, but specific items selected may include:

(1) *Key items;* the auditor may decide to select specific items within a population because they are of high value, or exhibit some characteristic, for example, items that are suspicious, unusual, particularly risk prone or that have a history of error;
(2) *All items over a certain amount*; the auditor may decide to examine items whose recorded values exceed a certain amount so as to verify a large proportion of the total amount of a class of transactions or account balance, for example, the auditor might analyze larger amounts included in repairs and maintenance expense to consider whether any ought to have been capitalized as fixed assets; or
(3) *Items to obtain information*; the auditor may examine items to obtain information about matters such as the nature of the entity or the nature of transactions, for example, the auditor may analyze legal expenses for indications of lawsuits or significant transactions that the auditor may not have been aware of. (BDO)

APPLICATION GUIDANCE – SAMPLING – OTHER THAN REPRESENTATIVE SAMPLING

Sampling for completeness assertion/when population is unknown

25.40 When sampling for completeness, it is not possible to pick a representative sample because by definition that true population is unknown (i.e., the auditor is looking for items that are missing). In this case the auditor may select a sample from the reciprocal population e.g., when picking a sample for the accounts payable balance the auditor may take a sample from the report of items purchased from each separate supplier during the period and select from that on a judgmental basis. Since the true size of the population is unknown, any formulas that assist in the determination of an appropriate sample size are meaningless, thus the extent of the sample size is up to professional judgment. (BDO)

Applying sampling to non FSA populations e.g. items outstanding on a bank reconciliation

25.41 In most cases, where there are only a small number of uncleared items on a bank reconciliation as part of the auditor's audit work, the auditor would ordinarily test all of them to check that they clear post period end. In situations where there are large numbers of uncleared items it is not efficient to test all of them. The selection of the

sample of items, along with the number of items, to be checked is judgmental and depends on the auditor's assessment of the risks and the size of the uncleared items. (BDO)

Block sampling for cutoff

25.42 Block sampling is a type of non-statistical sampling that involves selecting a number of consequential items in a series from a certain point. An example of this is selecting a sample of items around the period end date to test whether cutoff has been performed correctly e.g., selecting ten invoices from before and after the period end to check whether cutoff has been performed correctly. (BDO)

25.43 The auditor evaluates the results of the auditor's procedures in order to determine the extent of assurance obtained. The assurance obtained from a directed OSP is a matter of judgment. Factors to consider when determining this are:

(1) The nature of the test;
(2) The nature of the balance or item that is being tested;
(3) The quality and source of the evidence; and
(4) The design of the OSP. (BDO)

25.44 The auditor also evaluates the results of the auditor's procedures in order to determine if there have been any misstatements identified. Misstatements may arise from:

(1) An inaccuracy in gathering or processing data from which the financial statements are prepared;
(2) An omission of an amount or disclosure;
(3) An incorrect accounting estimate arising from overlooking, or clear misinterpretation of, facts; and
(4) Judgments of management concerning recognition, measurement, presentation and disclosure in the financial statements (including the selection and application of accounting policies) that the auditor considers unreasonable or inappropriate. (BDO)

25.45 Professional judgment is to be applied when determining whether the result of a procedure constitutes a misstatement or not. (BDO)

REPRESENTATIVE SAMPLING PROCEDURES FOR OSPS

25.46 When using audit sampling, the auditor chooses between a statistical and a non-statistical approach to audit sampling. Both methods are consistent with auditing standards, although as a general rule, the more reliable the audit evidence required, the greater the use of statistical methods to be applied:

(1) Statistical methods are drawn from the field of applied statistics and require training and experience in their use. In using statistical sampling, the auditor uses experience and judgment when determining the appropriate selection and evaluation methods provided from the field of applied statistics; and
(2) Non-statistical methods draw on the auditor's experience and professional judgment in selecting items for evidence from populations and evaluating the results. (BDO)

25.47 It is important to note that non-statistical sampling methods may use tools from statistical sampling such as:

(1) Probability theory to determine the sample size; and/or
(2) Using probabilistic methods of sample selection (e.g., interval sampling or true random sampling such as that based on random number tables); and/or
(3) Evaluation methods based on applied statistics. (BDO)

25.48 Statistical sampling additionally permits the quantitative expression of the assurance achieved (e.g., the confidence level or reliability level) and the precision of the sample result (e.g., the upper and sometimes also the lower bound of the amount being estimated). To be a statistical sample, the sample is randomly (or, systematically) selected, and the sample result is statistically evaluated. Just determining a sample size using a statistical method is not sufficient to consider a sample to be 'statistical'. (BDO)

Design and Application of Sampling

25.49 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. (ISA 530.06)

APPLICATION GUIDANCE – SAMPLE DESIGN

25.50 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. (ISA 530.A4)

25.51 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. (ISA 530.A5)

25.52 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 entity, 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. (ISA 530.A6)

25.53 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. (ISA 530.A7)

25.54 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. (ISA 530.A8)

25.55 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. (ISA 530.A9)

25.56 The application of sampling requires:

(1) Defining the population;
(2) Analyzing the population into sub populations:
  (a) Identifying key items; and
  (b) Considering variability;
(3) Defining the sampling items;
(4) Determining the sample size using an appropriate sampling method;
(5) Selecting the sampling items;
(6) Performing appropriate procedures on the items selected; and
(7) Evaluating the results:
  (a) Follow up of identified misstatements;
  (b) Projecting misstatements; and
  (c) Determining whether results have provided a reasonable basis for conclusions about the population.

Further information on steps 1 – 3 can be found in the How to Guide: Deciding when it is appropriate to use an OSP sampling approach. Steps 1 – 7 of the Design and Application of Sampling apply, where relevant, within the various sampling approaches worksheets contained within the Sampling Toolkit for OSPs. (BDO)

Defining the Population

25.57 The population (i.e., the items comprising the account balance or class of transactions) from which the sample is drawn is to be appropriate for the specific assertion(s). (BDO)

25.58 For example, the auditor cannot detect understatements of an account that result from omitted items (that is, perform a test of completeness) by sampling only the recorded items. An appropriate plan for detecting such understatements involves selecting from a source in which the omitted items are included. (BDO)

25.59 The population definition may be expressed in terms of either dollar values which comprise the FSA total or physical units (e.g., invoices or vouchers) which comprise the population. (BDO)

25.60 The auditor considers whether:

(1) The population to be sampled is complete so that all units are available for selection. This can be done, for example, by totaling the population and agreeing it to the FSA balance or through using automated tools and techniques such as ADA to sort and summarize the various types of transactions comprising the population; and
(2) It ought to include all items. For example, because the nature of the transactions resulting in debit balances, credit balances and zero balances is generally different, it may be more effective and efficient to perform separate tests of the debit balances and credit balances. In that case, the debit and credit balances would be defined as separate populations for the purpose of audit sampling. (BDO)

25.61 Careful definition of populations to be audited may significantly reduce sample sizes, by identifying separate populations about which the auditor has sufficient knowledge to decide which sampling approach is appropriate, when sampling of these populations may be unnecessary, or which may be tested by more efficient techniques. (BDO)

Analyzing the Population into Sub Populations

25.62 Once the auditor has determined the population to be sampled, the auditor considers whether to analyze it into its constituent parts. There are two reasons to consider this:

(1) Identifying key items; and
(2) Considering the variability in the remaining population. (BDO)

25.63 Since there is sometimes an interaction between the sample size and the value and number of items selected for 100% examination, the auditor may wish to try different strategies that balance these two testing approaches to achieve an efficient overall testing approach. (BDO)

Identifying Key Items

25.64 Key items are items which, in the auditor's judgment require individual examination. The auditor may decide to select such items within a population because they are of high value, or exhibit some other characteristic, for example, items that are suspicious, unusual, particularly risk prone or that have a history of error. Key items that the auditor decides to test 100 % are not part of the population subject to audit sampling. (BDO)

25.65 Some sampling methods automatically result in items over a certain amount being selected. For example, fixed interval monetary unit sampling results in all items being selected that are greater than or equal to the selection interval. (BDO)

APPLICATION GUIDANCE - IDENTIFICATION OF KEY ITEMS

High Value

25.66 In a test over accounts receivable, the auditor would ordinarily identify key items as being items above performance materiality, or above a threshold below performance materiality, and test these on a 100% basis. (BDO)

Risk Prone

25.67 In a test over accounts receivable, the auditor may decide due to the nature of the risk to which the test is a response, to identify key items as being those owed from a few late paying customers and test them on a 100% basis. (BDO)

Considering the Variability in the Remaining Population

25.68 Sampling techniques such as Monetary Unit Sampling (MUS) or Probability Proportional to Size (PPS) automatically take into account the variability in the population so no further consideration and/or adjustments are required to reflect variability. Where these techniques are not used, the following guidance is applicable. (BDO)

25.69 Accounting populations tend to include:

(1) A few very large amounts (see key items);
(2) A number of moderately large amounts; and
(3) A large number of small amounts.

This type of distribution has greater variability than many other populations where the distribution of the sampling characteristic is centered on the mean of the population. (BDO)

APPLICATION GUIDANCE - DETERMINING WHETHER OR NOT A POPULATION DOES NOT HAVE VARIABILITY IN ITS DISTRIBUTION

25.70 Without using automated tools and techniques such as ADAs to report on the variability of the population it is often not practicable to determine whether a population possesses this attribute and to what extent. What is known is that most accounting populations do possess this attribute. (BDO)

25.71 However, there are certain accounting populations for which this is not an issue, for example, student loans generally result in accounts receivable balances that are similar in size (i.e., a large number of smaller balances, the repayment schedules are comparable, and the interest rates are the same or similar). (BDO)

25.72 In such situations, the auditor ordinarily would not stratify the accounts receivable population since the population is homogeneous. (BDO)

25.73 Similarly, in a population where the auditor has already removed key items over tolerable misstatement (or performance materiality) then the population has already been stripped of its few very large amounts and moderately large amounts and again there may be no need to stratify the population. For example, a wholesale retailer of razor blades sells to two distinct types of customer, a small number of very large national retail chains, and thousands of small independent local pharmacists. In respect of auditing accounts receivable, once the large national chains are removed and tested as key items, the remaining accounts receivable population is considered to be homogeneous, and no stratification is required. This is largely due to the fact that transactions with the smaller independent customers are made on standard sales and payment terms resulting in similar balances with similar risks. (BDO)

25.74 The auditor addresses variability in a population either by:

(1) Increasing sample sizes as the variation in recorded value increases; or
(2) By performing stratification; or
(3) By using a sampling method that takes into account the variability of the distribution such as MUS or PPS sampling methods. (BDO)

Increasing Sample Sizes

25.75 The auditor would ordinarily increase sample sizes by 10% to 50%, depending upon the variability within the population. For a typical population, a factor of 1.25 would ordinarily be appropriate. (BDO)

APPLICATION GUIDANCE - POPULATIONS WITH SOME VARIABILITY

25.76 Considering inventory:

(1) A small newsagent normally has a range of products, for example, a range of newspapers, magazines and other publications along with a variety of confectionery and tobacco products, which tend to be of a similar nature but with some variability. In this case, it may be appropriate to increase the sample by a lower amount, say 10%.
(2) On the other hand, a department store would ordinarily have a much broader range of products, for example, clothes, shoes, accessories, computers and furniture. These would ordinarily have a higher degree of variability, in which case it may be appropriate to increase the sample by a higher factor, say 50%. (BDO)

What Methods of Stratification are Available?

25.77 Stratification may be accomplished by computerized or manual techniques. (BDO)

25.78 The population is stratified on the basis of the underlying variation in the population, in this case, recorded amount. (BDO)

25.79 Methods that may be used have been set out in the application guidance below. These may be performed manually or automated tools and techniques (such as ADA). Where the population is maintained as an extensive dataset, it is usually more efficient to use automated tools and techniques rather than manual means of stratification. Strata can be variable and do not have to be set out as below. Other subjective levels may be chosen if more appropriate. Greater variability within the population would ordinarily lead to more strata being required, however, if manual stratification is taking place, the auditor would ordinarily have no more than two or three strata to avoid inefficiency when selecting the sample. (BDO)

APPLICATION GUIDANCE – METHODS OF STRATIFICATION

2/3 : 1/3 Method

25.80 After removing any key items:

(1) Total the number of items in the remaining population;
(2) Calculate the average value of the sampling items;
(3) Divide the population into two strata (items greater than and less than the average value of the sampling items);
(4) Select 2/3 of the sample items from the upper stratum; and
(5) Select 1/3 from the lower stratum.

The auditor would ordinarily obtain data from the entity in an electronic format which the auditor can manipulate (i.e., count the number of items to allow an average value to be calculated and then sort into descending value) to assist with sample selection. (BDO)

Divide the population into 2 strata of equal value

25.81 After removing any key items:

(1) Divide the residual population into two strata with the first stratum comprising items representing approximately half the total monetary value of the population and the second stratum representing the other half; and
(2) Select half the sample items from the upper value group and half from the lower value group.

The auditor would ordinarily obtain data from the entity in an electronic format which the auditor can manipulate (i.e., sort into descending value and then calculate a running total) to assist with sample selection. (BDO)

Defining the Sampling Items

25.82 The definition of a sampling item (i.e. the individual items comprising the population) depends on the nature of the audit procedure to be applied. (BDO)

25.83 If the objective of the sampling application is to address a risk in the accounts receivable balance, either customer balances or individual customer invoices could be selected as the sampling item. In making that judgment, the auditor would consider which sampling item leads to a more effective and efficient sampling application in the circumstances. (BDO)

APPLICATION GUIDANCE - DEFINING THE SAMPLING ITEM

25.84 Once the sampling item has been defined, the auditor should not then swap between sampling items as the tests are performed. For example, if the auditor selects customer balances as the sampling item, the auditor then tests all items that make up the customer balance when performing the testing. If each customer balance contains a large number of invoices, it may be more efficient to set the sampling item as customer invoices. The auditor balances this with the fact that selecting customer balances as the sampling item may lead to lower sample sizes as more items may be removed as key items. (BDO)

25.85 One consideration when estimating a required sample size is the expected or anticipated level of misstatement. The greater the expected misstatement, the larger the sample is to ensure that the true misstatement in the population does not exceed the

tolerable level for the test. The expected misstatement is to be less than the tolerable misstatement (performance materiality), or a sample size cannot be calculated. When designing a sample, the auditor also 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, to a particular sampling procedure. Tolerable misstatement may be the same amount or an amount lower than performance materiality. (BDO)

APPLICATION GUIDANCE – APPLYING TOLERABLE MISSTATEMENT

25.86 Tolerable misstatement may be thought of as an extension of the concept of performance materiality applied at the test level for FSAs, or classes of transactions. As performance materiality is set at an amount that is less than materiality in order to provide for the combination of various audit areas, similarly tolerable misstatement may be less than performance materiality when combining test results from various samples. How tolerable misstatement is set relative to performance materiality depends on what additional factors, if any, are considered when determining tolerable misstatement. (BDO)

25.87 For example, if several samples and estimation procedures are being used when auditing the inventory account, and the expectation of misstatement in these tests is different from sample to sample, then tolerable misstatement might be set at:

(1) Below performance materiality for these separate samples, or
(2) To reflect the differing characteristics (such as expected error rates) for the samples. (BDO)

25.88 Also, tolerable misstatement may be set at lower than performance materiality when the sample is performed on only a portion of the account. (BDO)

25.89 Many accounting populations are well controlled and contain little misstatement; however, the consequence of setting the expected misstatement level too low may be that when the sample is evaluated, the upper limit on the sample error exceeds the tolerable level and the auditor does not achieve the desired level of assurance for the test. (BDO)

25.90 Estimates of expected misstatement are generally based on the sample findings in prior periods, adjusted for current circumstances. When using an unrealistic low or zero expected misstatement, the auditor faces the risk that the sample does not fully meet the desired level of assurance when more misstatement is found in the sample than was planned for. (BDO)

Determine the Sample Size Using an Appropriate Sampling Method

[BDO firms are advised to determine whether they may need to prohibit the use of one or more of the sampling methods listed below (e.g., some firms have indicated that attribute sampling is not permitted for certain types of engagements such as Public Interest Entities). This may also apply if a particular sampling method is not permitted by regulators (both local and foreign regulators having jurisdiction over the firm) or standard setters. In addition, where a particular sampling method is permitted in the local country, BDO firms may choose not to allow it for significant risk assertions.]

25.91 The auditor shall determine a sample size sufficient to reduce sampling risk to an acceptably low level. (ISA 530.07)

APPLICATION GUIDANCE – SAMPLE SIZE

25.92 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. (ISA 530.A10)

25.93 The sample size can be determined by the application of a statistically-based formula or through the exercise of professional judgment. (ISA 530.A11)

25.94 Either statistical or non-statistical sampling may be used. The BDO Sampling Toolkit for OSPs in APT provides engagement teams with a selection of non-statistical sampling methods. Determination of which sampling method is appropriate for a particular sampling OSP is a decision made by the engagement team that takes account of the following three factors and the extent of OSPs set out in the table below:

(1) The nature of the sampling population - a particular sampling method may be more appropriate in some circumstances when certain criteria exist (for example, use of the high-volume population method when the sampling population is a large population).
(2) Extent of homogeneity of sampling population - where there are higher levels of relative homogeneity of a sampling population (i.e., almost all items have the same characteristics) then certain sampling methods may be more appropriate than others. See the How to Guide: Deciding when it is appropriate to use an OSP sampling approach.
(3) Restrictions placed on use of certain sampling methods - some sampling methods may only be applied when certain criteria are met, or in some firms there may be local prohibitions on use of certain sampling methods for specific situations or engagements. See the description of each method in paragraph 25.95 below. (BDO)

EXTENT OF OSPS		
Factor:	**Conditions leading to:**	
	Smaller Sample Sizes**	**Larger Sample Sizes****
Actual IRMM level	Low or Moderate	Elevated or Significant
Assurance from TOCs (over specific controls)	Greater Assurance	Lesser Assurance
Assurance from DATs	Greater Assurance / 100% coverage of population	Lesser Assurance / less than 100% coverage of population
Assurance from SAPs	Greater Assurance	Lesser Assurance
Performance Materiality	Larger measure of tolerable error	Smaller measure of tolerable error
Materiality of population	Smaller monetary significance	Larger monetary significance

** If other OSP procedures are performed the auditor may reconsider the assurance required to respond to the IRMM.

25.95 Where sampling for OSPs is used the calculated sample size is used. Each of the sampling methods contained within the Sampling Toolkit for OSPs is described in the Application Guidance below. (BDO)

APPLICATION GUIDANCE – CLASSICAL SAMPLING

25.96 The classical sampling approach applies a simple formula which is then modified for a range of factors (assurance from other types of procedures, variability of population, key items, etc.) to determine a sample size: (BDO)

CLASSICAL SAMPLING - SAMPLE SIZE FORMULA

$$\text{Sample size} = \frac{\text{Population to be tested (recorded amount)} \times \text{R factor}}{\text{Tolerable misstatement or performance materiality}}$$

Appropriateness considerations

25.97 Where the FSA includes a number of individually significant items, or there is a large population of relatively homogeneous items, then the classical sampling method to determining the sample size would ordinarily be appropriate, particularly if variability of the population has been addressed such that the sample size multiplier for unstratified populations is not required, or when stratification can be easily applied. (BDO)

25.98 For example, consider an entity where annual revenues are $40,000,000, earned by servicing approximately 500 customer contracts, revenue existence is a significant risk (R=3.0), and performance materiality is $1,325,000. Assume also that the largest two contracts comprise $25,000,000, but no other contracts are significant. In this scenario, a monetary classical sampling approach to substantively audit revenue existence using the Sampling Toolkit for OSPs may be appropriate. Assuming no other procedures are performed, the sample size for the population subject to sampling would be 34 items ($15,000,000 x (3.0 – 0)) / $1,325,000) plus the two significant contracts, giving a total sample size of 36. (BDO)

25.99 This sampling method may also be more appropriate when there is greater relative variation in the nature of the population (i.e., the population being sampled may represent a mixture of small, average and larger balances rather than being one particular size of item). (BDO)

Further considerations

25.100 The sample size could be further reduced with the introduction of one or more appropriately designed and executed TOCs, SAPs, other sampling OSPs, non-sampling OSPs or DATs. (BDO)

APPLICATION GUIDANCE – SMALL POPULATION SAMPLING

25.101 The small population sampling method enables engagement teams to compute a sample size using the classical sampling method which is then modified (i.e. the generated sample size is adjusted) to reflect that the sampling population contains a small number of items. The classical sampling approach assumes a large population and does not adjust for the number of items within the population. A small population is ordinarily defined to be when a sampling population has 250 or fewer items. The range of reductions applied to the sample size generated by the classical sampling method are as follows: (BDO)

Population Size	**% Reduction applied to classical sampling method**
250	10%
215	15%
175	20%
150	25%
100	30%
75	35%
50	40%

Appropriateness considerations

25.102 Examples of situations when the small population method may be more appropriate, may include:

(1) A property entity with a portfolio of 200 nearly identical student accommodation rental properties which are similar in terms of size, pricing, length of entity ownership of each property – and each of these properties may exceed materiality.
(2) An entity holding 100 government bonds with each bond being large enough that they are likely to exceed materiality. (BDO)

25.103 Selection of this sampling method is only appropriate when the engagement team has performed risk assessment procedures (which may, for example, include use of ADA) to analyze the population in order to:

(1) Fully understand the 'small' number nature of the population;
(2) Avoid traps and biases based on overly simplistic approaches, anchoring information which may be out of date or over-reliance on inquiries of management; and
(3) Consider if there is variability of the risk of each item within the population.

Where engagement teams forego the steps listed above then they would not apply the sampling reduction to the classical sampling method. (BDO)

Further considerations

25.104 Where specific items have varying risk, then these items are treated as key items (i.e., examined 100 per cent) and excluded from the remaining population on which the small population method is applied. (BDO)

25.105 For populations that are based on a very small number of items in a population (i.e., 40 or fewer items) the small population method permits use of the following minimum sample sizes which are modified on the basis of the level of risk that the sampling OSP is designed to address. This is after considering the impact of other planned procedures and the remaining R factor assurance required from the sampling OSP procedure (in these situations there is no need to compute the classical method and then to apply a reduction percentage): (BDO)

Level of risk	**Level of R factor assurance the sampling procedure is designed to achieve in response to the risk**	
Significant or Elevated IRMM	3.0 - 20 items	2.5 or less - 15 items
Low or Moderate IRMM	2.0 - 10 items	1.5 or less - 5 items

25.106 For those occasions when a population contains a relatively small number of items (for example, just above 250 items) and an engagement team would like to apply the small population method, engagement teams discuss their approach with local experts or technical support, apply local firm guidance or follow consultation procedures as appropriate. (BDO)

APPLICATION GUIDANCE – HIGH VOLUME POPULATION SAMPLING

25.107 The high-volume population sampling approach is designed to focus on the high frequency or large number of homogeneous items within a population (i.e., 'high volume') and to provide a sample size that is effective in such situations. (BDO)

25.108 By focusing on the high-volume nature of the population this method can enable engagement teams to compute effective samples sizes that are more reflective of the population while taking into account tolerable misstatement (performance materiality) and the necessary level of precision. (BDO)

25.109 This method avoids those situations where samples sizes are generated that are unnecessarily large and do not reflect the context of the population, relative homogeneity of items within the population or consideration of the remaining IRMM(s) given the population and the array of other audit evidence. These scenarios are not uncommon when auditing large populations where traditional levels of precision result in unnecessarily tight margins of error, which is an important input in the computation of the sample size. (BDO)

25.110 The following table indicates how the high-volume population sample size is generated based on the population as a multiple of performance materiality and the level of assurance required from the sampling OSP to respond to the assessed IRMM. (BDO)

Population as multiple of performance materiality	Level of Assurance (R factor) required from OSP sampling procedure					
	0.5	1.0	1.5	2.0	2.5	3.0
100	30	40	75	120	175	210
200	35	50	90	135	215	270
300	45	75	130	180	255	315
400	55	90	155	215	337	375
For each 100 times thereafter, add a sample of:	+5	+7	+8	+10	+12	+15

25.111 R factor levels in this table are after any deductions from planned TOC, SAP, other OSP or DAT procedures. (BDO)

25.112 R factor assurance of 3.0 in this context would be the assurance required to address a significant IRMM. Engagement teams use their professional judgment, including assurance obtained from other audit procedures (TOCs, SAPs, other OSPs, DATs) to determine the level of assurance to select from the table above. The 'High-Volume

Population' tab within the Sampling Toolkit for OSPs automatically calculates the sample size based on the inputs shown in the above tables. (BDO)

Appropriateness considerations

25.113 Examples of situations when the high-volume population method may be more appropriate, may include:

(1) A subscription-based technology app may have millions of account holders who each pay a small amount periodically to access the app via mobile devices (or to buy more app accessories).
(2) A property and casualty insurance company specializing in vehicle insurance may have millions of policies each generating relatively small monthly premiums.
(3) A large retailer may have millions of sales transactions each less than €100 which result in retail revenues that are many times materiality.

A typical application of the classical sampling approach to the three scenarios listed above could result in unnecessarily large and impractical sample sizes. (BDO)

25.114 Selection of the high-volume population sampling method is only appropriate when the engagement team has performed risk assessment procedures (which may, for example, include use of ADA) to analyze and fully understand the sampling population, in order to confirm:

(1) The 'large' number nature of the population, including ensuring that:
    i. Unusual items are removed, or
    ii. Items that are not a homogeneous set of routine transactions or balances are removed, or
    iii. The sampling population is stratified (where necessary);
(2) The engagement team's experience from prior and current period risk assessment suggests zero or negligible errors are expected in the sampling population (i.e., no systemic issues expected, any extrapolated identified errors would likely be substantially less than materiality); and
(3) Design and implementation of internal controls relevant to the assertion, individually or in combination with other controls, indicate that controls are capable of effectively preventing, detecting or correcting material misstatements.

Where engagement teams forego the steps listed above, or the population does not conform to the criteria listed, then the classical sampling method is appropriate. (BDO)

APPLICATION GUIDANCE – ATTRIBUTE SAMPLING

25.115 The attribute sampling method tests a population in terms of rate of occurrence of a particular attribute (also synonymous with 'quality' or 'characteristic'). (BDO)

25.116 This approach can be applied to test a non-monetary attribute that is the focus of the OSP procedure which addressed the IRMMs identified, or situations where a typical

monetary sampling approach is not effective, for example when testing completeness. (BDO)

25.117 The attribute sample size is determined as follows based on the Remaining Sampling R factor required for the OSP to address the IRMM for the relevant FSA/assertion, after considering the results of TOC, SAP, other OSP and DAT testing performed:

Remaining R factor	**Sample size**
3.0	60
2.5	50
2.0	40
1.5	30
1.0	20
0.5	10

This method is also helpful when an entity has an extremely large balance with few individually significant items (e.g., revenue or cost of sales). (BDO)

Appropriateness considerations

25.118 Use of the attribute sampling method is appropriate only if the population is largely homogeneous in nature, and the auditor does not expect errors to exist in the population. Homogeneous in this context means that items are similar and are processed in the same manner. Processing that is complex or involves judgments on the part of those performing the processing may indicate that the population is not homogeneous in relation to the attributes being tested since items are less likely to be processed in the same way each time. (BDO)

25.119 In addition, if performance materiality is set at a lower end of the range, at least partly because of a higher expectation of known and likely misstatements, attribute sampling would ordinarily not be appropriate. (BDO)

25.120 Examples of of situations when the attribute sampling method may be more appropriate, may include:

(1) A magazine subscription entity generates a high-volume of renewal and new subscription invoices during any given day. Each invoice is recorded in the same way (same people, same accounting system, similar cost structure) and same format (each invoice contains certain attributes such invoice number, invoice date, number of items sold).
(2) A design consultancy entity captures standard information on a daily basis from each design consultant to enable billing of time to customers. Information is captured using a standardized online system which records certain attribute data (such as number of hours worked each day, personnel number, project code). (BDO)

Further considerations

25.121 As attribute sampling is not based on items of a particular value, this particular sampling method does not permit the auditor to extrapolate sampling results in terms of monetary amounts. (BDO)

25.122 Similarly, errors may not be dismissed purely on the grounds of immateriality. Alternate procedures would ordinarily be performed to identify material misstatements if the attribute sample results in any errors. (BDO)

25.123 Further information on use of Attribute Sampling can be found in the How to Guide: *Using Attribute Sampling*. (BDO)

25.124 Further information on how each method operates can be found in the Sampling Toolkit for OSPs within APT. (BDO)

25.125 Irrespective of the sampling method applied, sometimes when the auditor determines the appropriate sample size, it results in a very small sample size. Sample sizes of less than ten items may suggest that the population itself is relatively immaterial and that appropriate evidence may best be obtained by other means. (BDO)

25.126 A judgmental approach can also be taken by an engagement team. This judgment is likely to be based on a range of factors. Remember that sample size is not a valid criterion to distinguish between the various approaches. (BDO)

25.127 For populations comprising a homogeneous set of routine transactions, i.e., where less pervasive evidence is required, such as those where the population has absences of the following:

(1) Significant IRMMs (including fraud risks) assessed to the related FSA and assertion;
(2) Engagement level responses planned;
(3) Significant transactions with related parties;
(4) High degree of subjectivity in the measurement of financial information; and
(5) Significant transactions that are outside of the normal course of business for the entity;

The auditor may apply professional judgment, rather than the above sampling methods, to select a sample size.

In such instances, the auditor considers various factors to determine where in the range the auditor would select. Further information can be found in How to Guide: *Deciding when it is appropriate to use an OSP sampling approach*. (BDO)

25.128 Regardless of whether monetary, attribute or judgmental sample size methods are used, where assurance from other sampling OSPs and/or non-sampling OSPs is used to reduce the sample size, such OSPs are identified in the Sampling Toolkit for OSPs and updated in the strategy section of the appropriate Risk Detail panel for which the test is considered to provide assurance. (BDO)

APPLICATION GUIDANCE – OTHER SAMPLING CONSIDERATIONS

Recording sources of assurance in APT

25.129 Regardless of whether monetary or attribute sample sizes are used, where assurance from other sampling OSPs and/or non-sampling OSPs is used to reduce the sample size, such OSPs are identified in the Risk Detail panel and the relevant assertion box checked in each FSA for which the test is considered to provide a response to the assessed IRMM. (BDO)

25.130 In the above examples, therefore, if accounts receivable and cutoff work is being used to provide assurance regarding an IRMM on the existence of revenues, in APT, the accounts receivable existence test and the sales cutoff tests would have been included in the strategy section of the Risk Detail panel (including identification of relevant assertions) and would ultimately appear in both audit plans for those areas. This demonstrates that assurance is being taken to respond to the IRMM on the existence of revenue and reduces the extent of tests of revenue transactions. (BDO)

Dual purpose tests

25.131 Dual purpose tests may be used to combine TOC and OSP testing through the use of one sample. For example, when testing controls over sales the auditor may verify that the entity matches the order, the shipping document and the invoice before recording revenue and the auditor examines evidence that the entity does perform this, such as by examining approval signatures. By also examining the supporting documentation and tracing each item to and from the general ledger, the auditor is also performing a substantive test of the transaction. The auditor exercises care to ensure that both tests on each selection and the conclusions of both are documented. It is possible that the auditor cannot see the operation of the control and therefore conclude that controls are not effective, but the auditor may still be able to take assurance from the substantive part of the test. (BDO)

25.132 When performing dual purpose tests, the auditor considers how the outcome of the TOCs may affect the extent of substantive procedures to be performed. For example, if controls are found to be ineffective, the auditor considers whether to increase the planned sample size for substantive procedures. (BDO)

25.133 Assuming the same population and sample selection method are appropriate for both purposes, the size of a sample designed for a dual-purpose test would ordinarily be the larger of the samples that would otherwise have been designed for the two separate purposes. (BDO)

25.134 The sample size for the OSP can be planned assuming assurance is gained from acceptable results of the TOC. If the TOC does not succeed, then a dual-purpose test is no longer appropriate, and the OSP sample size would need to be adjusted to the size based on no TOC assurance. In performing a dual-purpose test, the test requiring the smaller sample size may be selected as a subset of the larger sample.

For example, assume the following:

(Note – this example uses OSP sample sizes from the attribute sampling tables above, but monetary sample sizes could have been used instead, if applicable)

Significant IRMM (R Factor of 3.0)	
OSP sample size assuming no assurance from controls	60
OSP sample size assuming effective controls (credit of R=2.0)	20
TOC sample size to achieve assurance from manual controls (see chapter 23, appendix one)	14 for Control #1; 25 for Control #2

Performing only OSPs would require 60 items to be tested substantively, whereas for a dual-purpose test the auditor could select 25 items, for which controls are tested on all for control #2, and then sub-select 14 items of those 25 to also test control #1 and 20 items of those 25 to also test substantively. Should either of the TOCs fail, such that controls cannot be deemed effective, then the substantive tests would need to be carried out on all of the original 25 items selected plus an additional 35 to arrive at an OSP sample size of 60. (BDO)

25.135 Note that the OSP sample size may be either larger or smaller than the TOC sample size depending on the nature of the population being tested. OSP sample sizes for balance sheet areas (e.g., existence and accuracy tests of fixed asset additions) are calculated using the Sampling Toolkit for OSPs, taking the appropriate amount of credit for TOCs (in addition to any credit for SAPs, DATs, other sampling OSPs and/or non-sampling OSPs). (BDO)

25.136 Where the criteria for use of the attribute sampling table are met, OSP sample sizes for income statement areas may be calculated using that table, taking into account the level of assurance needed from the OSP to respond to the IRMM. Otherwise, the Sampling Toolkit for OSPs would ordinarily be used to determine OSP sample sizes. When using the table above, for significant IRMMs (R=3.0), assuming R=2.0 has been derived from TOCs, a sample size of 20 would ordinarily be required to address the remaining 1.0 required assurance (R=1.0, Low), whereas for Moderate IRMMs (R=2.0), also assuming R=2.0 has been derived from TOCs, a sample size of at least one item is required (recognizing that professional standards do not allow for all assurance to come from TOCs; see further guidance under 'Performing OSPs after TOC assurance has been obtained' below). (BDO)

Performing OSPs after TOC assurance has been obtained

25.137 In situations where the auditor obtains TOC assurance that fully addresses the IRMM's assurance required (i.e., TOC assurance R=1.0 for a Low IRMM, or TOC assurance R=2.0 for a Moderate IRMM), the auditor may still need to perform limited top-up substantive testing to comply with relevant auditing standards (see paragraph 6.8 or regulatory requirements. For example, if the only assurance the auditor has over a material FSA is from TOCs, then the auditor still needs to comply with ISA 330.18 by doing some substantive procedures. In this situation, the auditor performs OSPs, DATs or SAPs. Where the auditor chooses to use sampling OSPs as the necessary substantive procedure in such situations, the number of items selected the additional required assurance is determined at the judgment of the engagement team, taking into account the facts and circumstances of the IRMM, the financial statement area (FSA) and relevant assertion(s) in question, but resulting in a sample size of at least one item. (BDO)

25.138 An alternative approach may be to calculate the OSP sample size in this situation applying the classical sampling formula (see paragraph 25.96) using an R factor that results in a minimum sample size of at least one item. The R factor used for this purpose may be 0.1 or higher. It is not ordinarily necessary to use the Sampling Toolkit for OSPs in this situation, but if the auditor chooses to do so, the auditor may override the OSP Sampling R-factor formula in the template. (BDO)

25.139 For example, consider a situation where the annual payroll is $20,000,000 for 500 non-salaried employees in a company where a payroll existence IRMM has been assessed as a Moderate RMM (R=2.0), performance materiality is $1,750,000, and there are no individually significant items. TOCs have been satisfactorily performed over payroll existence (to R=2.0) and the auditor plans to gain the limited additional assurance required by performing a sampling OSP. No other procedures are planned related to payroll expense existence and no errors in the population are expected. Consider the following two examples:

Example 1: Using professional judgment to determine the sample size, the engagement team may decide that a sample of 2 items for the substantive testing is sufficient based on the engagement team's assessment that there is minimal likelihood of an existence misstatement, whether due to error or fraud; the fact that TOC assurance of R=2.0 has already been obtained; and the population is relatively homogeneous.

Example 2: Using the alternative approach and the same rationale as above, the engagement team may decide that the engagement team would like to achieve additional assurance of R=0.2 from the engagement team's OSP sampling. Therefore, the engagement team would select a sample of 3 items ($20,000,000 x (0.2 - 0)) / $1,750,000, rounded up). (BDO)

Selecting the Sampling Items

25.140 Having determined the population, the sampling item, the sampling method and the size of the sample, the auditor then selects the items to be tested. The auditor ensures that the items so selected are representative of the population being tested. (BDO)

25.141 The auditor shall select items for the sample in such a way that each sampling unit in the population has a chance of selection. (ISA 530.08)

APPLICATION GUIDANCE – SELECTION OF ITEMS FOR TESTING

25.142 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. (ISA 530.A12)

25.143 The principal methods of selecting samples are the use of random selection, systematic selection and haphazard selection. Each of these methods is discussed in paragraph 25.145. (ISA 530.A13)

25.144 If the sample is unrepresentative, any conclusions about the audit work based on this sample may be different from the conclusion arising if the auditor had tested the entire population. For example, the auditor may conclude that a material error does exist, when in fact it does not (and vice versa). Items selected without conscious bias or predictability are representative enough for the auditor to draw conclusions based on the auditor's testing across the entire population even though they may not be truly representative from a statistical theory point of view. However, the more reliable the audit evidence required, the greater the use of statistical methods that are to be applied. Thus, more robust selection methods that are truly representative of the population would ordinarily be utilized as circumstances dictate. (BDO)

25.145 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 3) 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. (ISA 530.Appendix 4)

25.146 Selection may be based on records or quantitative fields (i.e. monetary units) as shown below: (BDO)

Selection technique	Selection based on:	
	Record	Quantitative Field
Random	✓	✓
Systematic	✓	✓
Haphazard	✓	✓

25.147 Examples of how to select samples using systematic selection and MUS are set out in Appendix Two and Appendix Three respectively. (BDO)

Automated Tools and Techniques

25.148 Many aspects of sampling may be performed effectively and efficiently by using automated tools and techniques such as ADA. Interrogation packages such as IDEA© may be used to select sample sizes in various ways, including unstratified or stratified random selection or systematic selection. After selection has been made, it may then be printed in several different formats e.g., numerical or alphabetical sequence, depending on what is most convenient. (BDO)

25.149 When planning an audit, the auditor may consider an appropriate combination of manual and automated tools and techniques. In determining whether to use automated tools and techniques, the factors to consider include:

(1) The information technology (IT) knowledge, expertise and experience of the engagement team;
(2) The availability of automated tools and techniques and suitable computer facilities and data;
(3) The impracticability of manual tests;
(4) The effectiveness and efficiency; and
(5) Time constraints.

Further guidance on the use of automated tools and techniques can be found in chapter 19 - Using Automated Tools and Techniques. (BDO)

25.150 Before using automated tools and techniques the auditor considers the controls incorporated in the design of the entity's computer systems to which they are to be applied in order to determine whether, and if so how, they may be used. (BDO)

25.151 Accordingly, when considering the application of sampling, careful thought may be given to using automated tools and techniques such as ADA. (BDO)

Performing Appropriate Procedures on the Items Selected

25.152 The auditor shall perform audit procedures, appropriate to the purpose, on each item selected. (ISA 530.09)

25.153 Techniques that may be used to perform the procedures are included in Appendix One to this chapter. (BDO)

25.154 In some circumstances, the auditor may not be able to apply the planned procedures to the selected sample item (for example, because the entity could not locate the supporting documentation or because the sample item selected was not contemplated in the design of the test). The auditor's treatment of these items depends on the circumstances. (BDO)

25.155 If the audit procedure is not applicable to the selected item, the auditor shall perform the procedure on a replacement item. (ISA 530.10)

25.156 When the audit procedure is not applicable to the selected item, it is not considered to be an error. Where the audit procedure is applicable, then the selected item is to be subjected to the audit procedure and not replaced with another. The application guidance below provides for particular situations that are commonly encountered. (BDO)

APPLICATION GUIDANCE – REPLACEMENT ITEMS

Voided or unused Document

25.157 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. (ISA 530.A14)

Inapplicable Document

25.158 An inapplicable document is an item that was selected based on a sampling unit that was not contemplated in the design of the test. It is not part of the auditor's desired population. For example, a credit note selected when the auditor's population is sales invoices. The auditor would ordinarily choose a replacement, since if the auditor had defined the population correctly and removed these items from the population the auditor would have selected a different item. The auditor may also reconsider if the auditor has an appropriate understanding of the items comprising the auditor's population in accordance with paragraph 25.57. (BDO)

Zero value Document

25.159 A zero-value document supports an amount recorded in the books and records of nil (or there is simply no entry at all). The auditor does not replace the document. Any difference in the recorded amount and the document is an error. (BDO)

Missing Document

25.160 If the documentation is missing, the auditor initially classifies this as an error and no replacement would be chosen. However, see paragraph 25.154 – 25.156 for guidance

on performing alternative procedures that may support overcoming this initial classification as an error. (BDO)

25.161 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. (ISA 530.11)

25.162 It is not necessary to examine selected sample items where the auditor was unable to apply the planned audit procedures if the auditor's evaluation of the sample results would not be altered by considering those unexamined items to be misstated. However, if considering those unexamined items to be misstated would lead the auditor to conclude that the balance or class contains a material misstatement, the auditor considers performing alternative audit procedures. The auditor also considers whether the inability to examine the items affects the assessment of IRMMs due to fraud, the assessed level of control risk, or the degree of reliance on management representations. (BDO)

APPLICATION GUIDANCE – EXAMPLE – ALTERNATIVE PROCEDURES PERFORMED ON AN ERROR

25.163 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. (ISA 530.A15)

25.164 However, in some cases a copy of the missing documentation may be obtained from a vendor or other third party. (BDO)

25.165 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. (ISA 530.A16)

Evaluating Results of Audit Sampling

25.166 The auditor shall evaluate:

(a) The results of the sample; and
(b) Whether the use of audit sampling has provided a reasonable basis for conclusions about the population that has been tested. (ISA 530.15)

APPLICATION GUIDANCE – EVALUATING RESULTS OF AUDIT SAMPLING

25.167 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 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. (ISA 530.A21)

25.168 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. (ISA 530.A22)

25.169 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. (ISA 530.A23)

25.170 In evaluating results of OSPs the auditor considers the following:

(1) Follow up of identified misstatements; and
(2) Projecting misstatements. (BDO)

25.171 In evaluating dual purpose tests, deviations from the prescribed control and monetary misstatements are evaluated separately, using the risk levels applicable for the respective purposes. (BDO)

25.172 The auditor uses professional judgment when determining whether the result of a procedure constitutes an error or not. Misstatements may arise from:

(1) An inaccuracy in gathering or processing data from which the financial statements are prepared;
(2) An omission of an amount or disclosure;
(3) An incorrect accounting estimate arising from overlooking, or clear misinterpretation of, facts; and
(4) Judgments of management concerning accounting estimates that the auditor considers unreasonable, or the selection and application of accounting policies that the auditor considers inappropriate. (BDO)

Nature and Cause of Deviations and Misstatements

25.173 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. (ISA 530.12)

APPLICATION GUIDANCE – NATURE AND CAUSE OF DEVIATIONS AND MISSTATEMENTS

25.174 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. (ISA 530.A17)

APPLICATION GUIDANCE - IMPACT OF MISSTATEMENTS IDENTIFIED

25.175 The impact of misstatements identified depends on the nature of the item and the cause of the misstatement, for example:

(1) A systematic misstatement is easier to correct due to its regular occurrence; the auditor's response would ordinarily be to search for all the other occurrences and quantify the aggregate impact. For example, if the auditor's error related to a credit posting in an account that normally is a debit sign - the auditor may identify all the credits posted to the account, determine which were errors and aggregate the sum of the errors;
(2) An error in principle is pervasive to every item of a similar nature. (BDO)

25.176 Automated tools and techniques such as ADA are likely to be an efficient way to perform these searches as they can be used to summarize, sort, display, analyze, age and compare the data in an efficient manner. (BDO)

25.177 In other cases where the misstatement results from OSP procedures that do not involve sampling, the auditor applies professional judgment to determine how to respond. (BDO)

25.178 If an individual misstatement is judged to be material, it is unlikely that it can be offset by other misstatements. For example, if revenue is materially overstated, in general the financial statements as a whole are materially misstated, even if the effect of the misstatement on earnings is completely offset by an equivalent overstatement of expenses. It may be appropriate to offset misstatements within the same account balance or class of transactions; however, the risk that further undetected misstatements may exist is considered before concluding that offsetting even immaterial misstatements is appropriate. (BDO)

Projecting Misstatements

25.179 For tests of details, the auditor shall project misstatements found in the sample to the population. (ISA 530.14)

25.180 Projecting misstatements only relates to representative OSP sampling of a recorded population. The sum of the projected misstatement plus identified misstatements is the auditor's best estimate of the total misstatement contained in the population as a whole. In this manner, projecting misstatements enables the auditor to take a broad view of the

scale of misstatement but this projection may not be sufficient to determine an amount to be recorded. (BDO)

25.181 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. (ISA 530.13)

25.182 Anomalous misstatements are those that are demonstrably not representative of the population. The auditor shall record the facts and circumstances that led to the conclusion that a misstatement is anomalous prior to treating it as such. (BDO)

APPLICATION GUIDANCE – PROJECTING MISSTATEMENTS

25.183 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. (ISA 530.A18)

25.184 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. (ISA 530.A19)

25.185 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 provides guidance when deviations from controls upon which the auditor intends to rely are detected. (ISA 530.A20)

Anomalous Misstatement

25.186 In a test of existence of revenue, the last sample item selected was an error because it was a sale related to the subsequent year. In this case the error is a misstatement, however it is not representative of the population as the error(s) are only present in the last few recorded items of the population. Thus, this misstatement is not extrapolated. This does not mean, however, that the auditor can ignore the potential sum of similar misstatements. The auditor performs appropriate procedures when the auditor determines an error has a particular pattern in paragraph 25.90. In this case the auditor extends cutoff procedures, in particular looking for pre-recorded invoices. (BDO)

25.187 There are several acceptable methods of projecting the misstatement when applying non-statistical methods (when statistical sampling is employed the auditor generally uses IDEA© to determine the extrapolated value of the misstatement). The method of projection is to be consistent with the method used to select the sampling item as follows: (BDO)

Method of sample selection	Non-statistical extrapolation formula
Haphazard (i.e., ad hoc), interval selection or random selection, non-stratified	Error rate in sample x Value of population
Haphazard (i.e., ad hoc), interval selection or random selection, stratified	When the population is stratified into two or more sub populations, the projection of misstatements is done separately for each sub population and then aggregated, see paragraph 25.188.
Monetary unit selection	In projecting misstatements from MUS the auditor considers separately those errors that have been found from: (1) Items that are greater than the sampling interval. MUS guarantees the selection of such items and accordingly they may be considered as a separate stratum that has also been subjected to 100% examination. Errors found in relation to this sub population are identified misstatements where no projection is necessary; and (2) Items that are less than the sampling interval. The items selected are representative of this sub population and errors found in those items are projected to the remainder of this sub population. The projection of errors is, therefore, only concerned with point (2) above. When using non-statistical sampling the auditor can perform a simple extrapolation (Error rate in strata x Value of the strata).

APPLICATION GUIDANCE - PROJECTION OF MISSTATEMENTS WHEN POPULATION WAS STRATIFIED

25.188 When the population is stratified into two or more sub populations, the projection of misstatements is done separately for each sub population and then aggregated, for example: (BDO)

Source of error	Book value of population $	Value of sample $	Known errors $	Error rate in sample $

Key items examined 100%	635,000	635,000	12,000	-
Stratum 1	1,500,000	60,000	2,400	0.04
Stratum 2	607,000	5,000	75	0.015
Total	2,742,000	700,000	14,475	-

Calculation of projected error:

Projected error for stratum 1 = 0.04 x ($1,500,000 - $60,000) = $57,600

Projected error for stratum 2 = 0.015 x ($607,000 - $5,000) = $9,030

Total $66,630

Determining Whether Results Have Provided a Reasonable Basis for Conclusions about the Population

25.189 When the sum of the projected misstatement plus identified misstatements exceeds the auditor's anticipated expectations of the errors in the population that the auditor used in determining the sample sizes this indicates that there is an unacceptable sampling risk. In such a case, the auditor's conclusion would ordinarily be that audit sampling has not provided a reasonable basis for conclusions about the population that has been tested with the following consequences:

(1) The sampling procedure has failed; it does not provide the desired assurance;
(2) It is inappropriate to rely on any computation of projected misstatements; they are not included on the Summary of Misstatements;
(3) All identified misstatements remain identified misstatements, they are on the Summary of Misstatements;
(4) Request management to investigate misstatements that have been identified and the potential for further misstatements and to make any necessary adjustments; and
(5) Tailor the nature, timing and extent of further audit procedures to best achieve the required assurance. (BDO)

25.190 The anticipated error rate when the sample size was determined using professional judgment is nil or extremely low. When the sum of the projected misstatement plus identified misstatements is inconsistent with this expectation, the auditor concludes that the sampling procedure has failed. (BDO)

25.191 The anticipated error rate when the sample size was determined using the statistically based formula is not more than 5%. If the error rate based on the sum of the projected misstatement plus identified misstatements exceeds this amount, then the result is inconsistent with this expectation, thus, the auditor concludes that the sampling procedure has failed. (BDO)

25.192 Extrapolation of errors from a sample result in the 'likely error', but not necessarily the 'worst case scenario'. (BDO)

25.193 The statistical evaluation of a sample provides a monetary limit of misstatement (generally an upper limit in the case of an overstatement focused sample). This upper bound is compared to the tolerable misstatement amount (performance materiality). When the upper bound exceeds the tolerable misstatement amount, the statistical evidence fails to support the assertion that monetary error is less than the tolerable misstatement, at the assurance level designed when planning the test. (BDO)

25.194 A non-statistical test cannot provide this calculated upper limit on the misstatement, however, when performing statistical sampling the auditor computes the estimated maximum error for the purpose of determining whether the auditor has achieved sufficient support from the auditor's sampling procedures. (BDO)

If a Sample Does Not Meet its Planned Objectives

25.195 There are after-the-fact remedies to address a sample that does not achieve what was planned:

(1) Actual (known) errors can be booked and the sample extended;
(2) Projected errors, or a portion thereof, can be booked if there is a sufficient basis to record them, and the sample extended;
(3) Other, specific errors, in the entity file can be identified based on the characteristics of the errors found in the sample, and these known errors can be identified and booked;
(4) The sample can be expanded and the errors considered as part of the enlarged sample; and
(5) Other procedures can be planned, such as focused analytical procedures. (BDO)

25.196 An initially unacceptable conclusion drawn from the sample may be further investigated by the performance of some of the above procedures. Depending on the results of these procedures, the auditor may be able to ultimately conclude that there is no material misstatement in the overall population. However, simply extending the sample without the entity correcting the underlying data generally is inefficient, as the sample often requires significant expansion to change the original result, and the additional sample items often shows similar misstatement patterns as the first sample, providing little benefit. (BDO)

25.197 Refer to Sampling page on BDO World for a range of new and existing materials that have been developed to support engagement teams use of BDO's sampling methods. (BDO)

APPENDIX ONE – APPLICATION OF AUDITING TECHNIQUES - EXAMPLE AUDIT TECHNIQUES

Observation

Observation consists of seeing at a process or procedure being performed by others, for example, the auditor's observation of inventory counting by the entity's personnel, or of the performance of controls. Observation provides evidence about the performance of a process or procedure but is limited to the point in time at which the observation takes place, and by the fact that the act of being observed may affect how the process or procedure is performed. (ISA 500.A21)

In certain cases, it may be appropriate to support observation by the use of experts outside the firm. For example, inspection of specialized inventories. Further guidance on the procedures for physical inventory counting is given in chapter 27 - Physical Inventory Counts. (BDO)

EXAMPLE OF OBSERVATION

During observation of the inventory count the auditor identifies items that may be slow moving, damaged or obsolete. However, the auditor does not rely exclusively on this evidence in arriving at conclusions concerning the valuation of inventory. (BDO)

Inquiry

Inquiry consists of seeking information of knowledgeable persons, both financial and non-financial, within the entity or outside the entity. Inquiry is used extensively throughout the audit, in addition to other audit procedures. Inquiries may range from formal written inquiries to informal oral inquiries. Evaluating responses to inquiries is an integral part of the inquiry process. (ISA 500.A26)

Inquiry may provide important audit evidence and may even produce evidence of a misstatement; however, inquiry alone does not provide sufficient audit evidence of the absence of a material misstatement at the assertion level. (BDO)

Responses to inquiries may provide the auditor with information not previously possessed or with corroborative audit evidence. Alternatively, responses may provide information that differs significantly from other information that the auditor has obtained, for example, information regarding the possibility of management override of controls. In some cases, responses to inquiries provide a basis for the auditor to modify or perform additional procedures. (ISA 500.A27)

Although corroboration of evidence obtained through inquiry is often of particular importance, in the case of inquiries about management intent, the information available to support management's intent may be limited. In these cases, understanding management's past history of carrying out its stated intentions, management's stated reasons for choosing a particular course of action, and management's ability to pursue a specific course of action may provide relevant information to corroborate the evidence obtained through inquiry. (ISA 500.A28)

In respect of some matters, the auditor may consider it necessary to obtain written representations from management and, where appropriate, those charged with governance to confirm responses to oral inquiries see chapter 35 - Written Representations. (ISA 500.A29)

However, if the auditor does obtain such written representations, the auditor still performs corroborative procedures related to such inquiries, as described above. The auditor also ensures that responses to any oral inquiries are documented in the working papers. (BDO)

EXAMPLES OF INQUIRIES

(1) The auditor makes inquiries of management regarding their plans for dealing with a potential going concern problem so that the auditor can assess the feasibility of such plans.

(2) The auditor makes inquiries of management regarding the existence of any contingent liabilities, legal proceedings against the entity etc. The auditor then confirms the information provided by management through other audit procedures.

(3) Through inquiries of key members of staff, for example sales or production managers, the auditor may obtain information regarding inventory that is slow moving, rejected by customers, obsolete etc. This information assists the auditor in determining the valuation of inventory.

(4) The auditor makes inquiries of management regarding subsequent events and the information is corroborated with findings of other audit procedures.

Recalculation

Recalculation consists of checking the mathematical accuracy of documents or records. Recalculation may be performed manually or electronically. (ISA 500.A23)

EXAMPLES OF CHECKING ARITHMETIC

Checking the arithmetic of entries in the accounting records provides evidence to support the assertion that amounts in the financial statements have been recorded accurately and, in some cases, also gives assurance about completeness, e.g., where the auditor is testing a listing that supports a balance that the auditor wishes to test.

The amount of arithmetic checking necessary depends on the extent to which:

(1) The accounting system is computerized. A computerized system is more likely, but not guaranteed, to produce a set of balanced accounting records;
(2) Automated tools and techniques can be used to perform checking of arithmetic functions; and
(3) Control accounts are used and reconciled regularly to the individual ledgers.

Areas for checking

The auditor may perform arithmetic checks in relation to the following:

(1) Control accounts. Where the auditor relies on the reconciliation, the auditor ensures it adds up and also the individual ledger to which the account is being reconciled;
(2) Bank reconciliations. The monthly or year-end reconciliation needs to add up, along with the supporting schedules of outstanding deposits and outstanding checks as well as other reconciling items;
(3) Analyses that are prepared to support an amount in the accounting records or financial statements, e.g., the aged analysis of accounts receivable, and schedules which are used by the auditor;

(4) Listings that are prepared to arrive at an amount in the accounting records or financial statements such as inventory count sheets or plant, property and equipment schedules;
(5) Trial balance and accounts within the general ledger where the auditor is not satisfied that the accounting system can produce balanced records and using automated tools and techniques is not possible; and
(6) Transactional records such as invoices where these are prepared manually.

(BDO)

Inspection/Examination

Inspection involves examining records or documents, whether internal or external, in paper form, electronic form, or other media, or a physical examination of an asset. Inspection of records and documents provides audit evidence of varying degrees of reliability, depending on their nature and source and, in the case of internal records and documents, on the effectiveness of the controls over their production. An example of inspection used as test of controls is inspection of records for evidence of authorization. (ISA 500.A18)

Some documents represent direct audit evidence of the existence of an asset, for example, a document constituting a financial instrument such as a stock or bond. Inspection of such documents may not necessarily provide audit evidence about ownership or value. In addition, inspecting an executed contract may provide audit evidence relevant to the entity's application of accounting policies, such as revenue recognition. (ISA 500.A19)

Inspection of tangible assets may provide reliable audit evidence with respect to their existence, but not necessarily about the entity's rights and obligations or the valuation of the assets. Inspection of individual inventory items may accompany the observation of inventory counting. (ISA 500.A20)

Externally sourced documentation is more reliable than evidence that is created or sourced internally. Internally generated documentation that has been created independently from the accounting system, and by persons with no known motivation to misstate such evidence, is generally more reliable as audit evidence than documentation produced by that system. (BDO)

In some cases, inspection procedures pose difficulties for the auditor as the auditor may be required to identify assets or documents, recognition and interpretation of which may warrant special experience. (BDO)

The auditor exercises judgment in determining whether the auditor may accept that the items being inspected are what they are represented to be and, in certain circumstances, the auditor may consult an expert outside the field of auditing. (BDO)

EXAMPLES OF INSPECTION

(1) Inspection of tangible assets may provide reliable audit evidence with respect to their existence, but not necessarily about the entity's rights and obligations or the valuation of the assets.

(2) Inspection of individual inventory items may accompany the observation of physical inventory counting and may provide evidence of the condition, and therefore the value of the item e.g., it may be old or damaged.

(3) A document constituting a financial instrument such as a stock or bond may provide evidence of the existence of the asset although it does not necessarily provide evidence as to the ownership or value of that asset.

(4) Inspecting a physically executed contract may provide audit evidence relevant to the entity's application of accounting policies, such as revenue recognition, which is more reliable than information obtained from information stored in the accounting system regarding that contract.

(5) Inspecting an approved invoice and subsequently returned and cancelled check may provide audit evidence of the existence and accuracy of an account payable and the related expense. (BDO)

External confirmation

An external confirmation represents audit evidence obtained by the auditor as a direct written response to the auditor from a third party (the confirming party), in paper form, or by electronic or other medium. External confirmation procedures frequently are relevant when addressing assertions associated with certain account balances and their elements. However, external confirmations need not be restricted to account balances only. For example, the auditor may request confirmation of the terms of agreements or transactions an entity has with third parties; the confirmation request may be designed to ask if any modifications have been made to the agreement and, if so, what the relevant details are. External confirmation procedures also are used to obtain audit evidence about the absence of certain conditions, for example, the absence of a 'side agreement' that may influence revenue recognition. See ISA 505 for further guidance. (ISA 500.A22)

External confirmation procedures are also used to obtain audit evidence about the absence of certain conditions, for example, the absence of a 'side agreement' that may influence revenue recognition. (BDO)

Examples of external confirmations include accounts receivable and accounts payable confirmations, bank balance confirmations, debt confirmations and lawyer's confirmations. (BDO)

Reconciliations

While reconciliations are not a type of OSP test in their own right, the audit of a reconciliation would ordinarily use a combination of other types of OSPs. (BDO)

Reconciliation consists of comparing data recorded in the accounting records with similar data that has been recorded independently either internally or externally, in order to identify discrepancies or timing differences between the data. The reasons for the differences are identified and appropriate adjustments made if necessary to ensure errors are corrected and transactions are recorded in the correct financial period. (BDO)

The purpose of a reconciliation is to ensure that the subsidiary records and ledgers are in agreement with the general ledger. As much of the audit work is performed on the detailed information in the subsidiary ledgers, the auditor ensures that the total amounts the auditor is verifying are the same as those used in the general ledger. (BDO)

Examples of reconciliations include accounts receivable and accounts payable reconciliations, bank reconciliations and fixed asset ledger reconciliations. (BDO)

EXAMPLES OF USING RECONCILIATIONS

Reconciling the total of the accounts receivable ledger to the balance of the control account in the general ledger provides assurance that the general ledger balance is

accurate and complete. Any difference between the total of the accounts receivable ledger and the control account is investigated and resolved.

Differences can be caused by:

(1) *Incorrect addition of the accounts receivable ledger listing or the control account;* the auditor checks the additions to verify that this is the cause of the difference.

(2) *Omission of items/balances from the accounts receivable ledger;* this may occur where individual invoices or payments are not posted to individual accounts receivable accounts. The auditor would ordinarily investigate the reason for these omissions. They may be simple timing issues or may be indicative of internal control or accounting problems. Balances that have been omitted from the listing may indicate an attempt to conceal an individual balance.

(3) *Posting of transactions to the accounts receivable ledger but not to the control account*; this may be a timing issue, for example where the accounts receivable ledger is held open for processing after the general ledger has been closed off. The auditor ensures that any transactions relating to the current accounting period are brought to account in the general ledger.

(4) *Posting of transactions to the control account but not to the accounts receivable ledger;* the general ledger may be held open after the accounts receivable ledger has been closed off. If material transactions have been processed to the general ledger but not to the accounts receivable ledger, these would not have been subjected to any testing conducted on the accounts receivable balances. Such reconciling items are tested separately to ensure that they are valid and are correctly recorded in the accounting period.

Chapter 28 - Bank Reconciliations gives guidance on bank reconciliations. (BDO)

APPENDIX TWO – SYSTEMATIC SELECTION

The interval at which items are selected is arrived at by dividing the sample size into the population of sampling items. For example, if the sample size is 50 and the population consists of 50,000 sampling items, then the sampling interval is 1,000, i.e., every 1,000th unit is selected. (BDO)

To avoid bias and to ensure that every unit has an equal chance of selection, the auditor has a random starting point. The random start is smaller than the sampling interval. In the example above, a random starting point may be anywhere between 1 and 999. If the random start is, say, 43, then the first unit selected would be item 43 and the next item would be 1,043. (BDO)

In using this method, particular care is exercised to avoid selecting a non-representative sample. Sometimes, populations may be arranged in repetitive order. For example, a population of employees on a payroll for a construction entity may be arranged by teams, each team consisting of a foreman and nine laborers. A selection of every 10th employee that either results in a sample of just foremen or no foremen, would not be representative. (BDO)

The use of several random starts would normally assure a representative sample in these types of circumstance. (BDO)

EXAMPLE – HOW TO SELECT A SYSTEMATIC SAMPLE OF 80 WITH 4 RANDOM STARTS

Selecting 80 paid checks from a population of 12,000 checks with 4 random starts.

The first 20 sample items are chosen by selecting every 600th item with the first item randomly selected. After selecting a new random start, another 20 items are chosen selecting every 600th item. This process is repeated after every 20 sample items are chosen until 80 sample items are selected.

The population comprises 12,000 items. Therefore:

$$\frac{12{,}000 \times 4}{80} = 600$$

Choose 4 random starts between 1 and 600 and then choose every 600th item from each random start. (BDO)

Random number chosen	7	55	387	599
Sample item chosen	607	655	987	1,199
Sample item chosen	1,207	1,255	1,587	1,799
Sample item chosen	1,807	1,855	2,187	2,399
etc.	etc.	etc.	etc.	etc.
Last item chosen	11,407	11,455	11,787	11,999

(BDO)

APPENDIX THREE – MUS SAMPLE SELECTION

There are two methods of selecting sample items using MUS:

- A method where key items are chosen as part of the selection process if these are equal to or greater than the sampling interval;
- A method where key items are selected in advance of selecting the sample items. (BDO)

Without Pre-selection of Key Items

The various steps are as follows.

(1) Determine the value of the population after excluding all items with a negative value;
(2) Compute the sample interval by dividing (1) by the required sample size;
(3) Choose a start point by selecting a random number which is less than the sampling interval;
(4) Select the first sample item;
(5) Select subsequent sampling items by adding increments of the selection interval to the start point but excluding negative values. (BDO)

EXAMPLE OF MUS SELECTION

Sampling interval = $100,000 (i.e. population is $2 million and sample size is 20)

Random start = $20,000

Item	Value	Cumulative value of population	Selection point	Item selected
1	15,000	15,000		
2	30,000	45,000	20,000	Yes
3	80,000	125,000	120,000	Yes
4	5,000	130,000		
5	65,000	195,000		
6	120,000	315,000	220,000	Yes
7	25,000	340,000	320,000	Yes
8	55,000	395,000		
9	10,000	405,000		
10	40,000	445,000	420,000	Yes
etc.	etc.	etc.	etc.	etc.

All items whose value is in excess of the sampling interval are guaranteed to be selected. In fact, such items may be selected more than once if two sampling units fell within the same balance although they would need to be tested only once. If balances larger than the sampling interval are present, the size of the sample selected from the population for testing is less than initially calculated. The sample size does not need to be increased to make up for this shortfall. (BDO)

With Pre-selection of Key Items

The various steps are as follows.

- Select all key items;
- Determine the value of the population after excluding all key items and all items with a negative value;
- Compute the sample interval by dividing (2) by the required sample size;
- Choose a start point by selecting a random number which is less than the sampling interval;
- Select first sample item;
- Select subsequent sample items by adding increments of the selection interval to the start point but excluding key items and negative values. (BDO)

EXAMPLE OF MUS SELECTION

A population has a value of $120,000. Key items are defined as items greater than $5,000. Such key items in the population have a total value of $20,000. 50 items are to be sampled from the remaining population of $100,000. The selection interval is therefore $2,000. The random start point is $500. (BDO)

Item	Value	Cumulative value of population	Selection point	Item selected
1	300	300		
2	1,000	1,300	500	Yes
3	6,000	N/A - key item		
4	2,400	3,700	2,500	Yes
5	500	4,200		
6	1,800	6,000	4,500	Yes
7	3,000	9,000	6,500 and 8,500	Yes
etc.	etc.	etc.	etc.	etc.

APPENDIX FOUR – EXAMPLES OF EXTRACTION BASED OSPS

Revenue Cycle
• Test for one or more of duplicate invoices/receipts/sales order documents/shipping documents, credit notes (the more the auditor tests the higher the assurance). (E) • Test for one or more gaps in invoices/receipts/sales order documents/shipping documents, credit notes. (C) • Identify all sales orders not associated with a customer invoice or identify all customer invoice numbers not posted to general ledger accounts. (C) • Identify dollar values on sales orders that do not agree with dollar values on customer invoices or identify dollar values on customer invoices that do not match what is posted to the general ledger. (A) • Identify debit balances in revenue, identify credit balances in accounts receivable. (E, A) • Identify sales to the same customer for the same dollar amount on the same day but with different invoice numbers. (E) • Identify where units sold multiplied by price does not agree to the invoice subtotal before taxes. (A) • Identify where the invoice subtotal plus the taxes charged does not agree to the invoice total. (A) • Identify invoice dates or shipping document dates recorded in the next fiscal year's data that are prior to year-end. (C) • Extract items from the current year's data (credit notes, receipt dates, invoice dates) with dates or references out of range (cut-off). (E) • Identify shipping documents for goods shipped prior to year-end and not invoiced. (C)
Inventory/Cost of Goods Sold
• Test for one or more of duplicate receiving documents/assembly/movement or transfer/shipping documents, and or adjustments. (E) • Test for one or more of gaps in receiving documents/assembly/movement or transfer/shipping documents, and/or adjustments. (C) • Identify credit balances in inventory or cost of goods sold. (E, A) • Identify entries where there are sales without an associated cost of goods sold entry. (C) • Identify entries where there are cost of goods sold without an associated revenue entry. (E) • Identify cost of goods sold transactions posted to inappropriate general ledger accounts. (C, E, A) • Identify inventory where units by cost does not agree to the inventory amount for the item on the year-end inventory listing. (A) • Compare standard costs to actual costs to verify the accuracy of the standard cost units. (A) • Identify shipping dates recorded in the next fiscal year's data that are prior to year-end. (C) • Extract items from the current year's data (receipts, shipments, adjustments) with dates or references out of range (cutoff). (C, E)
Payroll
• Test for one or more of duplicate timesheets, disbursements end dates, and/or disbursement dates. (E) • Test for one or more of gaps in timesheets, disbursements, pay period end dates, and/or disbursement dates. (C)

- Identify checks in subsequent period with a date within the current audit period. (C)
- Extract items from the current year's data (disbursements and timesheets, pay period end dates, disbursement dates) with dates or references out of range (cut-off). (E)
- Identify adjustments to payroll, review for duplicate amounts or recurring amounts to the same employee or posted by the same user. (E)
- Compare the master file at two dates to identify new employees or terminated employees. (E)
- Check calculation of net or gross pay. (A)
- Check consistency of certain types of deductions. (A)
- Check for duplicate/blank government identification numbers, names, and/or dates of birth. (E)
- Test for duplicate bank account details (i.e. different employee names but same bank account number). (E)
- Obtain a listing of terminated employees and last pay date. Compare to payroll records for payments to these employees after their final pay period. (E)
- Compare vendor addresses/phone numbers and employee addresses/phone numbers to identify conflict-of-interest (e.g., postal codes, phone numbers). (E)

Purchases Cycle

- Identify duplicate payments/vendor invoices/receiving documents/purchase order documents. (E)
- Identify gaps in payments/vendor invoices/receiving documents/purchase order documents. (C)
- Identify all purchase orders not associated with vendor invoices or identify all vendor invoice numbers not posted to general ledger accounts. (C)
- Identify dollar values on purchase orders that to not agree with dollar values on vendor invoices or identify dollar values on vendor invoices that do not match what is posted to the general ledger. (A)
- Identify debit balances in accounts payable; identify credit balances in expense accounts. (E, A)
- Identify payments to the same supplier for the same dollar amount on the same day but with different invoice numbers. (E)
- Identify where units received multiplied by cost does not extend to the total. (A)
- Identify invoice dates recorded in the next fiscal year's data that are prior to year-end. (C)
- Identify check dates, receiving document dates, invoice dates with dates outside the audit period posted to the current year. (E)
- Identify receiving documents dated during the fiscal year where there is no corresponding payable or accrual. (C)
- Identify duplicate bank account details (i.e., different vendor names but same bank account number). (E)

(BDO)