

CLOSE OFF DOCUMENT APPROVED BY THE IAASB IN SEPTEMBER 2006**INTERNATIONAL STANDARD ON AUDITING 540 (REVISED)****AUDITING ACCOUNTING ESTIMATES AND RELATED DISCLOSURES (OTHER
THAN THOSE INVOLVING FAIR VALUE MEASUREMENTS AND DISCLOSURES)**

(Effective for audits of financial statements for periods beginning on or after [date])

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Introduction

1. The purpose of this International Standard on Auditing (ISA) is to establish standards and provide guidance on auditing accounting estimates and related disclosures, other than those involving fair value measurements and disclosures. It also includes standards and guidance on the auditor's determination of misstatements relating to individual accounting estimates, and on the auditor's consideration of indicators of possible management bias. ISA 545, "Auditing Fair Value Measurements and Disclosures" provides standards and guidance on auditing accounting estimates involving fair value measurements or disclosures.
2. **The auditor should obtain sufficient appropriate audit evidence to evaluate the reasonableness of accounting estimates and related disclosures in the financial statements, in the context of the entity's applicable financial reporting framework.**

Definitions

3. The following terms have the meanings attributed below:
 - (a) "Accounting estimate" – An approximation of a monetary amount in the absence of a precise means of measurement.
 - (b) "Auditor's point estimate" or "auditor's range" – The amount, or range of amounts, respectively, derived from audit evidence (whether obtained by the auditor or provided by a third-party expert engaged by the auditor) for use in evaluating management's point estimate.
 - (c) "Estimation uncertainty" – The susceptibility of a financial statement item to a lack of precision in its measurement, often because the outcome of future events is not known.
 - (d) "Management bias" – A lack of neutrality by management in the preparation and presentation of information.
 - (e) "Management's point estimate" – The amount selected by management for recognition in the financial statements as an accounting estimate.
 - (f) "Significant assumption(s)" – An assumption(s) used in making an accounting estimate that involves judgment about the outcome of future conditions, transactions or events, where a reasonable variation in the assumption(s) would materially affect the measurement of the accounting estimate.

Nature of Accounting Estimates

4. Because of the uncertainties inherent in business activities, some financial statement items cannot be measured precisely, but can only be estimated. Accordingly, making an accounting estimate frequently requires management to develop assumptions about the outcome of future conditions, transactions or events that are uncertain at the time of the estimation. Estimation involves judgments based on information available at the time of preparation of the financial statements.
5. Accounting estimates may be required, for example, of:
 - Allowance for doubtful accounts or investment impairment

- Inventory obsolescence
 - Warranty obligations
 - Depreciation method or asset useful life
 - Environmental remediation costs
 - Employee entitlements and related provisions (e.g. pension-related liabilities)
 - Outcome of long term contracts
 - Insurance claim reserves
 - Costs arising from litigation settlements and judgments
6. Some accounting estimates involve relatively low estimation uncertainty and may give rise to lower risks of material misstatements, for example, many accounting estimates that relate to routine transactions. This may be the case for accounting estimates arising in smaller entities that engage in business activities that are not complex. For some accounting estimates, however, there may be relatively high estimation uncertainty, particularly where they are based on significant assumptions about future conditions, transactions or events that are uncertain at the time of estimation. In some other cases, the sensitivity of an accounting estimate to changes in assumptions may be so great that a reliable accounting estimate cannot be made.
 7. Some financial reporting frameworks prescribe specific methods of measurement and the disclosures that are required to be made in the financial statements, while other financial reporting frameworks are less specific.
 8. In addition, financial reporting frameworks often call for neutrality, that is, freedom from bias. Accounting estimates are imprecise, however, and are influenced by management judgment. Such judgment may involve unintentional or intentional management bias as a result of motivation to achieve a desired result. The susceptibility of an accounting estimate to management bias increases with the degree of subjectivity of the decisions involved in making the accounting estimate. Unintentional management bias and the potential for intentional management bias are inherent in subjective decisions that are often required in making an accounting estimate. For continuing audits, indicators of possible management bias identified during the audit of the preceding periods influence the planning and risk identification and assessment activities of the auditor in the current period.
 9. Management bias can be difficult to detect at an account level. It may only be identified when considered in the aggregate of groups of accounting estimates or all accounting estimates, or when observed over a number of accounting periods. Although some form of management bias is inherent in subjective decisions, in making such judgments there may be no intention by management to mislead the users of financial statements. Where, however, there is intention to mislead, management bias is fraudulent in nature. ISA 240, “The Auditor’s Responsibility to Consider Fraud in an Audit of Financial Statements” establishes standards and provides guidance on the auditor’s responsibility to consider fraud in an audit of financial statements.

Risk Assessment Procedures

10. ISA 315, “Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement” requires the auditor to obtain an understanding of the entity and its environment, including its internal control, sufficient to identify and assess the risks of material misstatement of the financial statements whether due to fraud or error, and design and perform further procedures. The auditor obtains this understanding by performing risk assessment procedures, which involve gathering, updating and analyzing information throughout the audit.
11. **To identify the accounting estimates for which there is a risk of material misstatement, the auditor should:**
 - (a) **Obtain an understanding of the requirements of the entity’s applicable financial reporting framework relevant to accounting estimates;**
 - (b) **Obtain an understanding of how management identifies those transactions, events and conditions that may give rise to the need for accounting estimates in the financial statements;**
 - (c) **Obtain an understanding of how management makes the accounting estimates and the data on which they are based (i.e., management’s process for making the accounting estimates), including:**
 - (i) **Relevant internal controls;**
 - (ii) **Whether management has used an expert, from either within or outside the entity;**
 - (iii) **The assumptions underlying the accounting estimates;**
 - (iv) **Whether, and if so why, there has been a change from the prior period in the methods for making the accounting estimates; and**
 - (v) **Whether, and if so how, management has assessed the effect of estimation uncertainty; and**
 - (d) **Review the outcome, or re-estimation, of the accounting estimates made in the prior period financial statements.**
12. The above risk assessment procedures also assist the auditor in developing an expectation of the nature and type of accounting estimates that an entity may have. The expectation is used for purposes of identifying and assessing risks, and planning the nature, timing and extent of further audit procedures.

Obtaining an Understanding of the Requirements of the Applicable Financial Reporting Framework

13. Obtaining an understanding of the requirements of the entity’s applicable financial reporting framework assists the auditor in determining whether it prescribes certain conditions for the

recognition¹, or methods for the measurement, of accounting estimates, or specifies required disclosures. It also provides the auditor with a basis for discussion with management about how it has applied those requirements relevant to the accounting estimate.

14. In some cases, management may be able to make a point estimate directly. In other cases, management may be able to make a reliable point estimate only after considering alternative assumptions or outcomes from which it is able to determine a point estimate. Financial reporting frameworks may, or may not, provide guidance for management on determining point estimates from alternative outcomes. Some financial reporting frameworks, for example, require that the point estimate be selected from alternative outcomes to reflect management's judgment of the most likely outcome of the uncertain future conditions, transactions or events that led it to make the accounting estimate.²
15. Financial reporting frameworks may require the disclosure of information concerning the significant assumptions to which the accounting estimate is particularly sensitive. Furthermore, where there is a high degree of estimation uncertainty, some financial reporting frameworks do not permit an accounting estimate to be recognized in the financial statements, but certain disclosures may be required in the notes to the financial statements.

Obtaining an Understanding of How Management Identifies the Need for Accounting Estimates

16. In preparing the financial statements, management has the responsibility to determine whether a transaction, event or condition gives rise to the need to make an accounting estimate, and that all necessary accounting estimates have been recognized, measured and disclosed in the financial statements in accordance with the applicable financial reporting framework. The auditor obtains an understanding of the methods and practices followed by management for periodically reviewing the circumstances that give rise to the accounting estimates and re-estimating the accounting estimates as necessary.
17. Management's identification of transactions, events and conditions that give rise to the need for accounting estimates is likely to be based on its knowledge of the entity's business and the industry in which it operates, its knowledge of the implementation of strategies in the current period and, where applicable, its cumulative experience of preparing the entity's financial statements in prior periods. The auditor inquires of management about changes in circumstances such as, for example, whether:
 - The entity has engaged in new types of transactions that may give rise to accounting estimates.
 - Terms of transactions that gave rise to accounting estimates have changed.

¹ Financial reporting frameworks require incorporation in the balance sheet or income statement of items that satisfy their criteria for recognition. Disclosure of accounting policies or adding notes to the financial statements does not rectify a failure to recognize such items, including accounting estimates.

² Different financial reporting frameworks may use different terminology to describe point estimates determined in this way.

- The requirements of the applicable financial reporting framework have changed.
- Regulatory or other changes outside the control of management have occurred that may require management to revise, or make new, accounting estimates.
- New conditions or events have occurred that may give rise to the need for new or revised accounting estimates.

For smaller entities, obtaining this understanding is often straightforward because the range of business activities of those entities is often more limited than that of a larger entity and the transactions are often less complex. Further, often a single person, for example the owner-manager, determines the need to make an accounting estimate and the auditor may focus inquiries accordingly.

18. The completeness of accounting estimates is often a primary consideration of the auditor, particularly accounting estimates relating to liabilities. The auditor's understanding of the entity and its environment obtained during the performance of risk assessment procedures, together with other audit evidence obtained during the course of the audit, assist the auditor in identifying circumstances, or changes in circumstances, that may give rise to the need for an accounting estimate.
19. During the audit, the auditor may identify transactions, events and conditions that give rise to the need for accounting estimates that management failed to identify. If so, the auditor considers why the entity's risk assessment process failed to identify them and whether the process is appropriate for the circumstances. ISA 315 provides guidance when the auditor identifies a material weakness in the entity's risk assessment processes.

Obtaining an Understanding of How Management Makes the Accounting Estimates

20. Management is responsible for making accounting estimates and establishing financial reporting processes for measuring them, including adequate internal controls. Such processes include the following:
 - Selecting appropriate accounting policies and prescribing estimation processes.
 - Developing assumptions about future conditions, transactions or events that affect accounting estimates.
 - Periodically reviewing the circumstances that give rise to the accounting estimates and re-estimating the accounting estimates as necessary.
21. In obtaining an understanding of how management makes the accounting estimates, the auditor ordinarily considers matters such as:
 - The types of accounts or transactions to which the accounting estimates relate (for example, whether the accounting estimates arise from the recording of routine and recurring transactions or whether they arise from non-recurring or unusual transactions).
 - Whether, and if so how, management has used recognized measurement techniques for making particular accounting estimates.

Relevant Internal Controls

22. In obtaining an understanding of relevant internal controls, the auditor ordinarily considers matters such as:
- The experience and competence of those who make the accounting estimates.
 - How management determines the completeness, relevance and accuracy of the data used to develop accounting estimates.
 - The controls over the review and approval of accounting estimates by appropriate levels of management and, where appropriate, those charged with governance.
 - Other internal controls relevant to making the accounting estimates.

Use of Experts

23. Management may have, or the entity may employ individuals with, the experience and competence necessary to make the required point estimates. In some cases, however, management may need to engage an expert to make, or assist in making, them. This need may arise because of the complexity of the matter requiring estimation, for example the measurement of mineral or hydrocarbon reserves in extractive industries, or because of the unusual or infrequent nature of the condition, transaction or event requiring an accounting estimate.
24. In smaller entities, the circumstances that give rise to the need for an accounting estimate often are such that the owner-manager is capable of making the required point estimate. In some cases, however, an expert is needed to make, or assist in making, it, and the owner-manager may not have the experience or competence necessary to identify this need. Discussion with the owner-manager early in the audit process about the nature of the accounting estimates and the adequacy of the process to make them may assist the owner-manager in determining the need to use an expert.

Assumptions

25. In obtaining an understanding of the assumptions underlying the accounting estimates, the auditor considers matters such as:
- The nature of the assumptions, including which of the assumptions are likely to be significant assumptions, and how management assesses whether the assumptions are complete (i.e., that relevant variables have been taken into account).
 - How management determines that the assumptions are internally consistent.
 - Whether the assumptions relate to matters within the control of management (for example, assumptions about the maintenance programs that may affect the estimation of an asset's useful life), and how they conform to the entity's business plans and the external environment, or to matters that are outside its control (for example, assumptions about interest rates, mortality rates, or potential judicial or regulatory actions).

Changes in Methods for Making Accounting Estimates

26. Once management has selected a specific estimation method, it is important that management consider changes in the environment or circumstances affecting the entity or changes in the entity's applicable financial reporting framework. If management has changed the method for making an accounting estimate, it is important that management can demonstrate that the new method provides a more appropriate basis of measurement, or that the change is supported by a change in the applicable financial reporting framework, or a change in circumstances.

Estimation Uncertainty

27. In obtaining an understanding of whether, and if so how, management has assessed the effect of estimation uncertainty, the auditor considers matters such as:
- Whether, and if so how, management has considered alternative assumptions or outcomes by, for example, performing a sensitivity analysis to determine the effect of changes in the assumptions on an accounting estimate.
 - How management determines the accounting estimate when analysis indicates a number of outcome scenarios.
 - Whether management monitors the outcome of accounting estimates made in the prior period, and whether management has appropriately responded to the outcome of that monitoring procedure.

Reviewing the Outcome or Re-Estimation of Prior Period Accounting Estimates

28. The outcome of the condition, transaction or event that gave rise to an accounting estimate will often differ from the accounting estimate recognized in the prior period financial statements. By performing risk assessment procedures to identify and understand the reasons for such differences, the auditor may obtain:
- Information regarding the effectiveness of management's prior period estimation process, from which the auditor can judge the likely effectiveness of management's current process.
 - Audit evidence that is pertinent to the re-estimation, in the current period, of prior period accounting estimates.
 - Audit evidence of matters, such as estimation uncertainty, that may be required to be disclosed in the financial statements.
29. The review of the outcome or re-estimation of prior period accounting estimates may assist the auditor in identifying circumstances or conditions that increase the susceptibility of an accounting estimate to, or indicate the presence of, possible management bias. The auditor's attitude of professional skepticism is an important factor in identifying such circumstances or conditions and in determining the nature, timing and extent of further audit procedures. This review also assists the auditor in understanding whether there has been a change in, or re-estimation of, an accounting estimate from the prior period, and management's basis thereof.

However, the review is not intended to call into question the judgments made in the prior year that were based on information available at the time.

30. A retrospective review is also required by ISA 240. That review is conducted as part of the requirement for the auditor to design and perform procedures to review accounting estimates for bias that could result in material misstatements due to fraud, in response to the risks of management override of controls. However, as a practical matter, the auditor's review of the outcome, or re-estimation, of accounting estimates made in the prior period financial statements as a risk assessment procedure in accordance with this ISA may be carried out in conjunction with the review required by ISA 240.
31. A difference between the outcome of an accounting estimate and the amount recognized in the prior period financial statements does not necessarily represent a misstatement of the prior period financial statements. However, it may do so if, for example, the difference arises from information that was available to management when the prior period's financial statements were finalized, or that could reasonably be expected to have been obtained and taken into account in preparing and presenting those financial statements. Many financial reporting frameworks contain guidance on distinguishing between changes in accounting estimates that constitute misstatements and changes that do not, and the accounting treatment required to be followed.

Assessment of the Risks of Material Misstatement

32. ISA 315 requires the auditor, as part of the risk assessment, to identify and assess the risks of material misstatement at the assertion level and to determine which of the identified risks are, in the auditor's judgment, significant risks.
33. In assessing the risks of material misstatement, the auditor considers the degree of estimation uncertainty and susceptibility to bias. Factors affecting estimation uncertainty include, but are not limited to, the following:
 - The extent to which the accounting estimate depends on judgment about the outcome of uncertain future conditions, transactions or events.
 - The degree of sensitivity of the accounting estimate to changes in assumptions.
 - The existence of recognized measurement techniques that may mitigate the estimation uncertainty.
 - The relevance of data drawn from past events to predict future events.
34. Matters that the auditor considers in assessing the risks of material misstatement may also include:
 - The actual or expected magnitude of an accounting estimate;
 - The recorded amount of the accounting estimate in relation to the amount expected by the auditor to be recorded; and
 - The outcome of the review of prior period accounting estimates.

35. **Using information gathered from the risk assessment procedures, the auditor should determine which accounting estimates have high estimation uncertainty and may, therefore, give rise to significant risks.**
36. Examples of accounting estimates that may have high estimation uncertainty include the following:
- Accounting estimates that are highly dependent upon judgment of the outcome of uncertain future conditions, transactions or events.
 - Accounting estimates that are not calculated using recognized measurement techniques.
 - Accounting estimates where the results of the auditor's review of the outcome, or re-estimation, of accounting estimates made in the prior period financial statements indicate a substantial difference between the original accounting estimate and the outcome.
37. In determining which accounting estimates have high estimation uncertainty, the auditor disregards the materiality of the amount currently recognized or disclosed in the financial statements. This is because even a seemingly immaterial accounting estimate may have the potential to result in a material misstatement because of the estimation uncertainty associated with the estimation.
38. In some circumstances, the estimation uncertainty is so high that a reasonable accounting estimate cannot be made. The applicable financial reporting framework may, therefore, preclude recognition of the item in the financial statements. In such cases, the significant risks relate not only to whether an accounting estimate should be recognized but also to the adequacy of the disclosures. With respect to such accounting estimates, the financial reporting framework may require disclosure of the accounting estimates and the high estimation uncertainty associated with them (see paragraphs 90-93).
39. Where the auditor determines that an accounting estimate gives rise to a significant risk, ISA 315 requires, to the extent the auditor has not already done so, the auditor to evaluate the design of the entity's related controls, including relevant control activities, and to determine whether they have been implemented.
40. In some cases, the estimation uncertainty of an accounting estimate may cast significant doubt about the entity's ability to continue as a going concern. ISA 570, "Going Concern" establishes standards and provides guidance in such circumstances.

Responses to the Assessed Risks of Material Misstatement

41. ISA 330, "The Auditor's Procedures in Response to Assessed Risks" requires the auditor to design and perform audit procedures whose nature, timing, and extent are responsive to the assessed risks of material misstatement in relation to accounting estimates at both the financial statement and assertion levels. This ISA focuses on specific responses at the assertion level only.

42. **Based on the assessed risks of material misstatement, the auditor should determine, to the extent not already done:**
- (a) **Whether management has appropriately applied the requirements of the applicable financial reporting framework relevant to the accounting estimate; and**
 - (b) **Whether the methods for making the accounting estimates have been applied consistently, and the basis for changes, if any, in accounting estimates from the prior period.**
43. Many financial reporting frameworks prescribe certain conditions for the recognition of accounting estimates and specify the methods for their measurement and required disclosures. Such requirements may be complex and require the application of judgment. Based on the understanding obtained in performing risk assessment procedures, the requirements of the applicable financial reporting framework that may be susceptible to misapplication or differing interpretations become the focus of the auditor's attention.
44. The auditor considers whether and why management has changed an accounting estimate or the method for making the accounting estimate from the prior period. Where the change is not based on a change in circumstances or new information, the change is considered arbitrary. Arbitrary changes in an accounting estimate result in inconsistent financial statements over time.
45. Management often is able to demonstrate good reason for a change in an accounting estimate or the method for making an accounting estimate from one period to another based on a change in circumstances. What constitutes a good reason, and the adequacy of support for management's contention that there has been a change in circumstances that warrants a change in an accounting estimate or the method for making an accounting estimate, is a matter of judgment.
46. **In response to the assessed risks of material misstatement of an accounting estimate, the auditor should undertake one or more of the following:**
- (a) **Determine whether events occurring up to the date of the auditor's report confirm or contradict the accounting estimate.**
 - (b) **Test how management made the accounting estimate and the data on which it is based.**
 - (c) **Test the operating effectiveness of the controls over how management made the accounting estimate, together with appropriate substantive procedures.**
 - (d) **Develop, or use an expert to develop, a point estimate or a range to evaluate management's point estimate.**
47. The auditor's decision as to which of the above to undertake, individually or in combination, to respond to the risks of material misstatement is a matter of judgment. This decision is influenced by such matters as:

- The nature of the accounting estimate, including whether it arises from routine or non routine transactions.
- Whether the procedure(s) is expected to effectively provide the auditor with sufficient appropriate audit evidence.
- The assessed risk of material misstatement, including whether the assessed risk is a significant risk.

Additional guidance explaining the circumstances in which each of the responses may be appropriate is provided below.

Events Occurring Up to the Date of the Auditor's Report

48. Determining whether events occurring up to the date of the auditor's report confirm or contradict the accounting estimate may be an appropriate response when such events are expected to:
- occur; and
 - provide audit evidence regarding the accounting estimate such as to remove the need to perform additional procedures on the accounting estimate.

For example, sale of inventory of a superseded product shortly after the period end may provide audit evidence relating to the estimate of the net realizable value of that inventory. In order for such events to remove the need to perform additional audit procedures on the estimate, the auditor obtains sufficient appropriate evidence about the events.

49. In the case of some smaller entities, this procedure may be particularly effective where there is a long period after the balance sheet date available for review of such events by the auditor.
50. When events contradict the accounting estimate, the auditor considers whether this may be indicative of management having ineffective processes for making accounting estimates, or of the existence of management bias in the making of accounting estimates.
51. For some accounting estimates, it may be unlikely that events occurring up to the date of the auditor's report will confirm, or contradict, the accounting estimate, as conditions or events relating to some accounting estimates often develop only over an extended period. In such cases, the auditor may need, instead, to perform one or more of the other procedures identified in paragraph 46.
52. A decision by the auditor not to determine whether events occurring up to the date of the auditor's report confirm or contradict the accounting estimate does not relieve the auditor from complying with ISA 560, "Subsequent Events." ISA 560 requires the auditor to design procedures to obtain audit evidence that all events up to the date of the auditor's report that may require adjustment of, or disclosure in, the financial statements have been identified. Because the measurement of accounting estimates usually depends on the outcome of future conditions, transactions or events, the auditor's work under ISA 560 is particularly relevant.

Testing How Management Made the Accounting Estimate

53. Testing how management made the accounting estimate may be an appropriate response when, for example:
- The accounting estimate is derived from the routine processing of data by the entity's accounting system.
 - The auditor's review of the outcome, or re-estimation, of accounting estimates of a similar nature made in the prior period financial statements, suggests that management's current period process is likely to be effective.
 - The accounting estimate is based on a large population of items of a similar nature that individually are not significant.
54. Testing how management made the accounting estimate ordinarily involves:
- Testing the extent to which data on which the accounting estimate is based is accurate, complete and relevant, and whether the accounting estimate has been properly determined using such data and management assumptions;
 - Considering the source, relevance and reliability of external data;
 - Recalculating the accounting estimate, and reviewing information about an accounting estimate for internal consistency;
 - Evaluating whether the assumptions made by management, individually and collectively, are reasonable (see paragraphs 56-61);
 - Considering management's review and approval processes; and
 - Considering whether there are any indicators of possible management bias in the making of the accounting estimate (see paragraphs 99-101).
55. In smaller entities, the making of accounting estimates by management is likely to be less formal and less structured than in larger entities. Smaller entities with active management involvement may not need extensive descriptions of accounting procedures, sophisticated accounting records, or written policies. Even if the entity has no formal process, it does not mean that management is not able to provide a basis upon which the auditor can test the accounting estimate.

Assumptions

56. In testing how management has made an accounting estimate, the auditor evaluates whether the assumptions, individually and collectively, are reasonable for the purpose of making the accounting estimate. The auditor's consideration of management's assumptions is based only on information available to the auditor at the time of the audit. The auditor is not responsible for predicting future conditions, transactions or events that, if known at the time of the audit, might have significantly affected management's actions or management's assumptions underlying the accounting estimates and disclosures.
57. Assumptions may be supported by differing types of evidence from internal and external sources. In some cases, assumptions may be made by an expert used by management to assist

in making accounting estimates. Such assumptions are ordinarily treated as though they were management's.

58. The auditor considers the assumptions made by management both individually and collectively because assumptions are frequently interdependent, and therefore need to be internally consistent. An assumption that appears reasonable when taken in isolation may not be reasonable when used in conjunction with other assumptions, either for that accounting estimate or for other accounting estimates.
59. The assumptions on which accounting estimates are based ordinarily reflect what management expects will be the outcome of specific objectives and strategies. To be reasonable, such assumptions, individually and collectively, also need to be consistent with:
 - The general economic environment and the entity's economic circumstances.
 - The plans of the entity.
 - Assumptions made in prior periods, if relevant.
 - Past experience of, or previous conditions experienced by, the entity, to the extent this historical information may be considered representative of future conditions or events.
 - Other assumptions used by management relating to the financial statements.
60. The assumptions used often reflect management's intent to carry out courses of action relevant to the accounting estimate. Management often documents plans and intentions relevant to specific assets or liabilities and the financial reporting framework may require it to do so. Although the extent of audit evidence to be obtained about management's intent is a matter of professional judgment, the auditor's procedures ordinarily include the following:
 - Considering management's history of carrying out its stated intentions.
 - Reviewing written plans and other documentation, including, where applicable, formally approved budgets, authorizations, minutes, etc.
 - Considering management's reasons for a particular course of action.
 - Considering management's ability to carry out a particular course of action given the entity's economic circumstances, including the implications of its existing commitments.
61. In evaluating the reasonableness of the assumptions supporting an accounting estimate, the auditor may identify one or more significant assumptions. If so, it may indicate that the accounting estimate has high estimation uncertainty and may, therefore, give rise to a significant risk. Additional responses to significant risks are described in paragraphs 75-93.

Testing the Operating Effectiveness of Controls

62. Testing the operating effectiveness of the controls over how management made the accounting estimate may be an appropriate response when, for example:
 - Controls exist for the review and approval of the accounting estimates by appropriate levels of management and, where appropriate, by those charged with governance.

- The accounting estimate is derived from the routine processing of data by the entity's accounting system.
63. Controls over the process to make an accounting estimate may exist in smaller entities, but the formality with which they operate varies. Further, smaller entities may determine that certain types of controls are not necessary because of active management involvement in the financial reporting process. In the case of very small entities, however, there may not be many controls that the auditor can identify. For this reason, the auditor's procedures in response to the assessed risks are likely to be substantive in nature, with the auditor performing one or a combination of the other procedures in paragraph 46.
64. Testing the operating effectiveness of the controls is required, however, in accordance with ISA 330, when:
- (a) The auditor's assessment of risks of material misstatement at the assertion level is based on an expectation that controls over the process are operating effectively; or
 - (b) Substantive procedures alone do not provide sufficient appropriate audit evidence at the assertion level.

Developing a Point Estimate or Range

65. Developing a point estimate or a range to evaluate management's point estimate may be an appropriate response when, for example:
- An accounting estimate is not derived from the routine processing of data by the accounting system.
 - The auditor's review of the outcome, or re-estimation, of accounting estimates of a similar nature made in the prior period financial statements suggests that management's current period process is unlikely to be effective.
 - The entity's controls within and over management's processes for determining accounting estimates are not well designed or properly implemented.
 - Events or transactions between the period end and the date of the auditor's report contradict management's point estimate.
 - There are alternative sources of relevant data available to the auditor which can be used in making a point estimate.
66. Even when the entity's controls are well designed and properly implemented, developing a point estimate or a range may be a more effective or efficient procedure in responding to the assessed risks. In other situations, the auditor may consider performing this procedure as part of determining whether further procedures are necessary and if so, their nature and extent.
67. The approach taken by the auditor in developing either a point estimate or a range may vary based on what is considered most effective in the circumstances. For example, the auditor may initially develop a preliminary point estimate, and then assess its sensitivity to changes in assumptions to ascertain a range with which to evaluate management's point estimate.

Alternatively, the auditor may begin by developing a range for purposes of determining, where possible, a point estimate.

68. The auditor may develop a point estimate or a range in a number of ways, for example by:
- Using a model into which the auditor introduces entity-specific data. The model may be, for example, one that is commercially available for use in a particular sector or industry, or a proprietary or auditor-developed model.
 - Further developing management's consideration of alternative assumptions or outcomes, for example by introducing a different set of assumptions.
 - Employing or engaging an expert with specialized expertise to develop or execute the model, or to provide relevant assumptions.
 - Making reference to other comparable conditions, transactions or events.
69. When the auditor makes a point estimate or a range, the auditor may use assumptions different from those used by management. In such circumstances, to the extent not already done, the auditor obtains an understanding of management's assumptions in order to establish that the auditor's model takes into account relevant variables, and to be able to understand and evaluate any significant differences from management's point estimate. The auditor also establishes that the underlying data used in making the point or range estimate is relevant and reliable. Further, the making of a point estimate or a range by the auditor may reveal that the reliability of an accounting estimate is highly sensitive to certain assumptions and therefore subject to high estimation uncertainty. This may indicate that the accounting estimate is a significant risk.
70. The auditor may have the necessary skill and knowledge to make a point estimate or a range, or may determine that it is necessary to use the work of an expert. When using the work of an expert, the auditor obtains sufficient appropriate audit evidence that such work is adequate for the purposes of the audit, and complies with the requirements of ISA 620, "Using the Work of an Expert."
71. The ability of the auditor to make a point estimate, as opposed to a range, depends on several factors, including the model used, the nature and extent of data available and the estimation uncertainty involved with the accounting estimate. Further, the decision to develop a point estimate or range may be influenced by the financial reporting framework, which may prescribe the point estimate that is to be used after consideration of the alternative outcomes and assumptions.
72. When the auditor develops a range with which to evaluate the reasonableness of management's point estimate (the 'auditor's range'), the range cannot be one that comprises all possible outcomes if it is to be useful. Such a range would be too wide to be effective for purposes of the audit. The auditor's range is useful and effective when it is sufficiently narrow to enable the auditor to identify a material misstatement. This is achieved by:
- eliminating from the range those outcomes at the extremities of the range judged by the auditor to be unlikely to occur, and

- continuing to narrow the range, based on audit evidence available, until the auditor concludes that all outcomes within the range are considered reasonable.
73. Ordinarily, a range that has been narrowed to be equal to or less than the amount lower than materiality determined for purposes of assessing risks and designing further audit procedures³ is adequate for the purposes of evaluating the reasonableness of management's point estimate. However, particularly in certain industries, it may not be possible to narrow the range to below such an amount. This does not necessarily preclude recognition of the estimate. It may indicate, however, that the estimation uncertainty associated with the accounting estimate is such that it gives rise to a significant risk. Further, in such cases, the auditor considers whether recognition criteria and disclosure requirements of the financial reporting framework have been met (see paragraphs 87-89).
74. In some rare cases, the auditor may be able to narrow the range until the audit evidence indicates a point estimate. In such cases, that point estimate is used as the auditor's point estimate.

Further Substantive Procedures to Respond to Significant Risks

75. ISA 330 requires the auditor to perform substantive procedures that specifically respond to significant risks. In auditing accounting estimates, the auditor's further substantive procedures are primarily directed towards the evaluation of:
- How management has assessed the effect of estimation uncertainty on the accounting estimate, and the effect such uncertainty may have on the appropriateness of the recognition of the accounting estimate in the financial statements; and
 - The adequacy of related disclosures.

Estimation Uncertainty

76. **For accounting estimates that give rise to significant risks, in addition to other substantive procedures performed to meet the requirements of ISA 330, the auditor should evaluate:**
- (a) **How management has considered alternative assumptions or outcomes, and why it has rejected them, or otherwise has addressed the effects of estimation uncertainty on the accounting estimates; and**
 - (b) **To the extent not already done, whether the significant assumptions made by management are reasonable, including, where relevant, management's intent to carry out specific courses of action and its ability to do so.**

Management's Consideration of Estimation Uncertainty

77. Management may evaluate alternative assumptions or outcomes of the accounting estimates through a number of methods, depending on the circumstances. One possible method used by management is to undertake a sensitivity analysis. This might involve determining how

³ See ISA 320 (Revised), "Materiality in Planning and Performing an Audit."

the monetary amount of an accounting estimate varies with different assumptions. A sensitivity analysis could lead to the development of a number of outcome scenarios, sometimes characterized as a range of outcomes by management, such as “pessimistic” and “optimistic” scenarios.

78. A sensitivity analysis may demonstrate that the outcome of an accounting estimate is not sensitive to changes in particular assumptions. Alternatively, it may demonstrate that the outcome is sensitive to one or more assumptions that then become the focus of the auditor’s attention.
79. Where management has not considered alternative assumptions or outcomes, the auditor requests management to support how it has addressed the effects of estimation uncertainty on the accounting estimate.
80. This is not intended to suggest that one particular method of addressing estimation uncertainty (such as sensitivity analysis) is more suitable than another, or that management’s consideration of alternative assumptions or outcomes needs to be conducted through a detailed process supported by extensive documentation. Rather, it is whether management has assessed how estimation uncertainty may affect the accounting estimate that is important, not the specific manner it is done.
81. Often, smaller entities may use less formal means and simpler procedures to assess the estimation uncertainty. In these circumstances, in addition to the auditor’s review of available documentation, the auditor generally obtains audit evidence of management consideration of alternative assumptions or outcomes by inquiry of management. In addition, management may not have the expertise and experience to address the estimation uncertainty of the accounting estimate. In such cases, the auditor may explain to management the process or the different methods available for doing so, and the documentation thereof.
82. **Where, in the auditor’s judgment, management has not adequately addressed the effects of estimation uncertainty on the accounting estimates that give rise to significant risks, the auditor should consider whether it is necessary to develop a range with which to evaluate the reasonableness of the accounting estimate, to the extent not already done.**
83. In preparing the financial statements, management may be satisfied that it has adequately addressed the effects of estimation uncertainty on the accounting estimates that give rise to significant risks. In some circumstances, however, the auditor may view the efforts of management as inadequate. This may be the case, for example, where in the auditor’s judgment:
 - Sufficient appropriate audit evidence could not be obtained through the auditor’s evaluation of how management has addressed the effects of estimation uncertainty.
 - It is necessary to explore further the degree of estimation uncertainty associated with an accounting estimate, for example, where the auditor is aware of wide variation in outcomes for similar accounting estimates in similar circumstances.
 - It is unlikely that other audit evidence can be obtained, for example, through the review of events occurring up to the date of the auditor’s report.

- Indicators of management bias in the making of accounting estimates may exist.
84. The auditor's considerations in determining a range for this purpose are described in paragraphs 68-73.

Significant Assumptions

85. The evaluation of significant assumptions for accounting estimates that give rise to significant risks is required because of the influence that such assumptions are likely to have on such accounting estimates. Support for significant assumptions derived from management's knowledge may be obtained from management's continuing processes of strategic analysis and risk management. Even without formalized processes, such as may be the case in smaller entities, the auditor may be able to evaluate the assumptions through inquiries of and discussions with management.
86. The auditor's considerations in evaluating assumptions made by management, including management's intent and ability, where relevant, are described in paragraphs 56-60.

Recognition of the Accounting Estimates in the Financial Statements

87. **For accounting estimates that give rise to significant risks, the auditor should obtain sufficient appropriate audit evidence about whether management's decision to recognize, or to not recognize, the accounting estimate in the financial statements is in accordance with the recognition criteria of the applicable financial reporting framework.**
88. Where management has recognized an accounting estimate in the financial statements, the auditor evaluates whether the recognition criteria of the applicable financial reporting framework have been met. Where the auditor judges that it is the estimation uncertainty associated with an accounting estimate that gives rise to a significant risk, this evaluation focuses on whether the measurement of the accounting estimate is sufficiently reliable to meet the recognition criteria of the applicable financial reporting framework.
89. With respect to accounting estimates that have not been recognized, the auditor evaluates whether the recognition criteria of the applicable financial reporting framework have, in fact, been met. Where an accounting estimate has not been recognized and the auditor concludes that this treatment is appropriate, the auditor considers the adequacy of the disclosures in the notes to the financial statements and also whether to draw the reader's attention to a significant uncertainty by adding an emphasis of matter paragraph to the auditor's report. ISA 706, "Emphasis of Matter Paragraphs and Other Matters Paragraphs in the Independent Auditor's Report" establishes standards and provides guidance concerning such paragraphs.

Disclosures of Estimation Uncertainty

90. **For accounting estimates that give rise to significant risks, the auditor should evaluate the adequacy of their disclosure in the financial statements, in the context of the requirements of the applicable financial reporting framework.**
91. The presentation of financial statements in conformity with the applicable financial reporting framework includes adequate disclosure of material matters. In relation to accounting

estimates having significant risk, even where the auditor is able to obtain sufficient appropriate audit evidence, the auditor may conclude that estimation uncertainty relating to such estimate needs to be disclosed in light of the circumstances and facts involved. The auditor's evaluation of the adequacy of disclosure of estimation uncertainty increases in importance the greater the auditor's range is in relation to materiality.

92. The auditor also considers any additional requirements of the applicable financial reporting framework for disclosures regarding uncertainties. For example, some financial reporting frameworks prescribe the disclosure of key assumptions about the future and other sources of estimation uncertainty that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities. Such requirements may be described using terms such as "Key Sources of Estimation Uncertainty" or "Critical Accounting Estimates."
93. Where the applicable financial reporting framework does not prescribe disclosure of estimation uncertainty, the auditor nevertheless encourages management to describe, in the notes to the financial statements, the circumstances relating to the estimation uncertainty. ISA 705, "Modifications to the Opinion in the Independent Auditor's Report" provides guidance on the implications for the auditor's report when the auditor believes that management's disclosure of estimation uncertainty in the financial statements is inadequate or misleading.

Evaluating the Reasonableness of the Accounting Estimates and Related Disclosures, and Determining Misstatements

94. **The auditor should evaluate, based on the audit evidence, whether the accounting estimates and related disclosures in the financial statements are either reasonable in the context of the entity's applicable financial reporting framework, or are misstated.**
95. Based on the audit evidence obtained, the auditor may conclude that the evidence points to an accounting estimate that differs from management's point estimate. In such cases, where the auditor has developed a range, a misstatement exists when management's point estimate lies outside the auditor's range. The misstatement is measured as the difference between management's point estimate and the nearest point of the auditor's range. Where the audit evidence supports a point estimate, the difference between the auditor's point estimate and management's point estimate constitutes a financial statement misstatement.
96. Where management has changed an accounting estimate from the prior period based on a subjective assessment that there has been a change in circumstances, the auditor may conclude based on the audit evidence that the accounting estimate is misstated as a result of an arbitrary change by management, or may regard it as an indicator of possible management bias (see paragraphs 99-101).
97. ISA 450, "Evaluation of Misstatements Identified during the Audit" provides guidance on distinguishing misstatements for purposes of the auditor's evaluation of the effect of uncorrected misstatements on the financial statements. In relation to accounting estimates, a misstatement, whether caused by fraud or error, may arise as a result of:
 - Misstatements about which there is no doubt (factual misstatements).

- Differences arising from management’s judgments concerning accounting estimates that the auditor considers unreasonable (judgmental misstatements).
- Projecting misstatements identified in audit samples to the entire populations from which the samples were drawn (projected misstatements).

In some cases involving accounting estimates, a misstatement could arise as a result of a combination of these circumstances, making separate identification difficult or impossible.

98. In some cases, it may not be possible for the auditor to obtain sufficient appropriate audit evidence about an accounting estimate that could be material to the financial statements. ISA 705 establishes standards and provides guidance regarding expressing either a qualified opinion or disclaimer of opinion in these circumstances.

Indicators of Possible Management Bias

99. **The auditor should determine whether there are indicators of possible management bias in the making of accounting estimates.**
100. The auditor considers the judgments and decisions made by management in determining whether there are indicators of possible management bias. Such indicators do not themselves constitute misstatements for purposes of drawing conclusions on the reasonableness of individual accounting estimates. They may, however, affect the auditor’s conclusion as to whether the auditor’s risk assessment and related responses remain appropriate, and the auditor may need to consider the implications for the rest of the audit. Further, they may affect the auditor’s evaluation of whether the financial statements as a whole are free from material misstatement, as discussed in ISA 450.
101. Examples of indicators of possible management bias with respect to accounting estimates include:
- Changes in an accounting estimate where management has made a subjective assessment that there has been a change in circumstances.
 - Selection or construction of significant assumptions that yield a point estimate favorable for management objectives.
 - Selection of a point estimate by management such that the outcome scenario is indicative of a pattern when considered in conjunction with the optimism or pessimism of other accounting estimates.

Management Representations

102. **The auditor should obtain written representations from management regarding the reasonableness of significant assumptions used by it in making accounting estimates.**
103. ISA 580, “Management Representations” discusses the use of management representations. Depending on the nature, materiality and extent of estimation uncertainty, management representations about accounting estimates recognized or disclosed in the financial statements may include representations:

- About the appropriateness of the measurement processes, including related assumptions, used by management in determining accounting estimates in the context of the applicable financial reporting framework, and the consistency in application of the processes;
- That the assumptions appropriately reflect management's intent and ability to carry out specific courses of action on behalf of the entity, where relevant to the accounting estimates and disclosures;
- That disclosures related to accounting estimates are complete and appropriate under the entity's financial reporting framework; and
- That no subsequent events require adjustment to the accounting estimates and disclosures included in the financial statements.

104. For those accounting estimates not recognized or disclosed in the financial statements, management representations may also include representations about the appropriateness of the basis used by management for determining that the recognition or disclosure criteria of the applicable financial reporting framework have not been met (see paragraph 89).

Documentation

105. **The auditor should document:**

- (a) **The basis for the auditor's conclusions about the reasonableness of accounting estimates that give rise to significant risks; and**
- (b) **Indicators of possible management bias.**

106. The auditor's documentation of the following is carried out as part of the documentation requirements of ISA 315 and ISA 330:

- (a) The results of the auditor's risk assessment procedures.
- (b) The assessed risks of material misstatement of accounting estimates at the assertion level, and the nature, timing and extent of further audit procedures responsive to the assessed risks.
- (c) The results of tests of controls and substantive procedures responsive to significant risks.

107. The auditor's documentation of indicators of possible management bias includes those that come to the auditor's attention and that, either individually or collectively, are relevant to the auditor's conclusion as to whether the auditor's risk assessment and related responses remain appropriate, or to the auditor's evaluation of whether the financial statements as a whole are free from material misstatement. See paragraph 101 for examples of indicators of possible management bias.

Effective Date

108. This ISA is effective for audits of financial statements for periods beginning on or after [date].