INTERNATIONAL STANDARD ON AUDITING 540
AUDITING ACCOUNTING ESTIMATES AND RELATED DISCLOSURES

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

Introduction

Scope of this ISA

1. This International Standard on Auditing (ISA) deals with the auditor's responsibilities relating to accounting estimates and related disclosures in an audit of financial statements. Specifically, it expands on how ISA 315 (Revised),[1] ISA 330,[2] ISA 500[3] and other relevant ISAs are to be applied in relation to accounting estimates. It also includes requirements and guidance on misstatements of individual accounting estimates, and indicators of possible management bias.

Nature of Accounting Estimates

2. Many financial statement items are susceptible to an inherent lack of precision in their measurement. In the ISAs, such financial statement items are referred to as accounting estimates. Accounting estimates vary widely in nature, and may be subject to, or affected by, complexity, the need for the use of judgment by management, and estimation uncertainty. The extent to which this is the case affects the auditor's identification and assessment of the risks of material misstatement relating to accounting estimates, and the auditor's responses to those assessed risks. (Ref: Para: A1A, Appendix 1, Appendix 2)

3. Accounting estimates may be more susceptible to a risk of material misstatement when:

    (a) With respect to complexity, management does not:

        (i) Apply appropriate specialized skills or knowledge in the selection, design or application of the method used to make the accounting estimate, including when the method involves complex modelling;

        (ii) Appropriately understand the relevance and reliability of the data used, regardless of whether the data is obtained from internal sources or from external information sources; or

        (iii) Maintain the integrity of the data used.

    (b) With respect to the need for the use of judgment management does not:

        (i) Appropriately take into account available information when selecting methods, assumptions, or data; or

        (ii) Mitigate the risk of management bias; and

    (c) With respect to estimation uncertainty, management does not:

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1 ISA 315 (Revised), *Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment*

2 ISA 330, *The Auditor's Responses to Assessed Risks*

3 ISA 500, *Audit Evidence*

(i) Take appropriate steps to address estimation uncertainty; or

(ii) Select an appropriate management point estimate or make appropriate related disclosures in the financial statements

Key Concepts of This ISA

3A. This ISA focuses the auditor's attention on designing and performing further audit procedures (including, where appropriate, tests of controls) responsive to the reasons for the assessment given to the assessed risks of material misstatement, particularly when those reasons include complexity, judgment or estimation uncertainty. This ISA also recognizes that the factors complexity, judgment or estimation uncertainty are interrelated and that there are inherent limitations in reducing estimation uncertainty beyond certain limits.

3B. The application of professional skepticism by the auditor is particularly important to the auditor's work relating to accounting estimates. Professional skepticism also is important because there is a particular risk of management bias affecting accounting estimates due to their subjective, potentially complex and uncertain nature, and the possible combined effect of complexity, judgment and estimation uncertainty.

4. This ISA requires an overall evaluation of accounting estimates based on the audit procedures performed and the audit evidence obtained. In doing so, the auditor is required to evaluate whether the accounting estimates, and related disclosures, are reasonable. For this purpose, the evaluation of reasonableness involves considerations beyond whether the accounting estimate and related disclosures comply with the requirements of the applicable financial reporting framework. (Ref: Para. A1B–A1C).

Effective Date

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

Objective

6. The objective of the auditor is to obtain sufficient appropriate audit evidence about whether:

(a) Accounting estimates, whether recognized or disclosed in the financial statements; and

(b) Related disclosures in the financial statements,

are reasonable in the context of the applicable financial reporting framework.

Definitions

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

(a) Accounting estimate – A monetary amount, prepared in accordance with the requirements of the applicable financial reporting framework, the measurement of which is subject to estimation uncertainty. (Ref: Para. A11A)

(b) Auditor's point estimate or auditor's range – An amount, or range of amounts, respectively, developed by the auditor in evaluating management's point estimate.

(Ref: Para. A11B)

(c) Estimation uncertainty – The susceptibility of an accounting estimate to an inherent lack of precision in its measurement. (Ref: Para. A11C)

(d) Management bias – A lack of neutrality by management in the preparation of information. (Ref: Para. A11D)

(e) Management's point estimate – The amount selected by management for recognition or disclosure in the financial statements as an accounting estimate.

(f) Outcome of an accounting estimate – The actual monetary amount that results from the resolution of the underlying transaction(s), event(s) or condition(s) addressed by an accounting estimate. (Ref: Para A11E)

Requirements

Risk Assessment Procedures and Related Activities

8. When performing risk assessment procedures and related activities to obtain an understanding of the entity and its environment, including its internal control, as required by ISA 315 (Revised),[4] the auditor shall obtain an understanding of the following: (Ref: Para. A12)

    (a) The requirements of the applicable financial reporting framework relevant to accounting estimates, including the recognition criteria, measurement bases and the related presentation and disclosure requirements. (Ref: Para. A13–A15)

    (aA) Regulatory factors relevant to accounting estimates.[5] (Ref: Para. A15A–A15C)

    (aB) The nature of the accounting estimates that the auditor expects to be included in the entity's financial statements. (Ref: Para. A15D–A15E)

    (b) How management identifies those transactions, events and conditions that may give rise to the need for accounting estimates to be recognized or disclosed in the financial statements. In obtaining this understanding, the auditor shall make inquiries of management about changes in circumstances that may give rise to new, or the need to revise existing, accounting estimates. (Ref: Para. A16–A21)

    (c) How management makes accounting estimates, including: (Ref: Para. A22–A23)

        (i) The methods used, how they are selected or designed, and how they are applied, including the extent to which they involve complex modelling; (Ref: Para. A23A–A26)

        (ii) The process used to select assumptions, including alternatives considered and how management identifies significant assumptions; (Ref: Para. A26A–A35D)

        (iiA) The process used to select data, including the source(s) of that data and how management identifies significant data; (Ref: Para. A35E–A35H)

        (iii) The extent to which management has applied specialized skills or knowledge, including whether a management's expert has been used; (Ref:

[4] ISA 315 (Revised), paragraphs 5–6 and 11

[5] ISA 315 (Revised), paragraph 11(a)

Para. A35I–A35J)

(iiiA) How the risk of management bias is identified and addressed; (Ref: Para. A35K)

(iv) How management has addressed estimation uncertainty; and (Ref: Para. A38)

(v) Whether management has addressed the need for a change from the prior period in the methods, assumptions or data used, and if so, the nature of, and reasons for, such changes. (Ref: Para. A38A).

(d) Each of the components of internal control as they relate to making accounting estimates.[6] (Ref: Para. A38B–A38P)

9. The auditor shall review the outcome or re-estimation of previous accounting estimates to the extent that doing so will assist in identifying and assessing the risks of material misstatement in the current period. The auditor shall take into account the characteristics of the accounting estimates in determining the nature and extent of that review. The review is not intended to call into question, based on new information, judgments about previous accounting estimates that were appropriate based on the information available at the time. (Ref: Para. A38Q–A44)

9A. The auditor shall consider whether specialized skills or knowledge are required, in order to perform the risk assessment procedures, or to identify and assess the risks of material misstatement. (Ref: Para. A44A-A44E)

Identifying and Assessing the Risks of Material Misstatement

10. In applying ISA 315 (Revised), the auditor is required to identify and assess the risks of material misstatement, at the financial statement and assertion levels, and to determine whether any of the risks of material misstatement identified are, in the auditor's judgment, significant risks. In identifying and assessing risks of material misstatements in relation to an accounting estimate, the auditor shall take into account the extent to which the accounting estimate is subject to, or affected by relevant factors, including: (Ref: Para. A44F–A44M)

(a) Complexity in making the accounting estimate, including:

(i) The extent to which the method used by management involves specialized skills or knowledge, including with respect to the use of a model; and (Ref: Para. A44N–A44P)

(ii) The difficulty, if any, in obtaining relevant and reliable data and maintaining the integrity of that data; (Ref: Para. A44Q)

(b) The need for the use of judgment by management and the potential for management bias, including with respect to methods, assumptions, and data; and (Ref: Para. A44R–A44T)

(c) Estimation uncertainty, including the extent to which the accounting estimate is sensitive to the selection of different methods or to variations in the assumptions and data used. (Ref: Para. A44U–A49C)

6 ISA 315 (Revised), paragraphs 14–24

Responses to the Assessed Risks of Material Misstatement

11A. In responding to the assessed risks of material misstatement related to accounting estimates, the auditor shall consider whether specialized skills or knowledge are required to design and perform audit procedures, or to evaluate the results of those procedures. (Ref: Para. A44A–A44F)

13. In applying ISA 330, the auditor is required to design and perform further audit procedures to respond to the assessed risks of material misstatement, including significant risks, at the assertion level. In doing so, the auditor shall design and perform tests of controls to obtain sufficient appropriate audit evidence as to the operating effectiveness of relevant controls if the auditor's assessment of risks of material misstatement at the assertion level includes an expectation that relevant controls are operating effectively, or if substantive procedures alone cannot provide sufficient appropriate audit evidence at the assertion level. With respect to accounting estimates: (Ref: Para. A57A–A57G)

(a) If the assessed risk of material misstatement is low, but not because that assessment includes an expectation that relevant controls are operating effectively, the auditor shall consider whether a procedure(s) that addresses management's point estimate at an overall level would provide sufficient appropriate audit evidence regarding the assessed risk of material misstatement in the circumstances. (Ref: Para. A57H)

(b) If the assessed risk of material misstatement is low and that assessment includes an expectation that relevant controls are operating effectively, the auditor's further audit procedures shall include tests of controls to obtain audit evidence about the matters in paragraphs 13A–13C, when applicable. Such procedures shall be responsive to the reasons for the assessment given to the risk of material misstatement in accordance with paragraph 10. (Ref: Para. A57I)

(c) If the assessed risk of material misstatement is not low, the auditor's further audit procedures shall include procedures to obtain audit evidence about the matters in paragraphs 13A–13C, when applicable. Such procedures (whether substantive procedures or tests of controls) shall be responsive to the reasons for the assessment given to the risk of material misstatement in accordance with paragraph 10, recognizing that the higher the assessed risk the more persuasive the audit evidence needs to be. (Ref: Para. A57J–A57L)

Complexity

13A. In complying with paragraphs 13(b) or 13(c), when the reasons for the assessment given to the risk of material misstatement include complexity, the auditor shall obtain sufficient appropriate audit evidence about the following matters when management uses a complex method (including complex modelling), or when management's method otherwise involves the use of specialized skills or knowledge: (Ref: Para A59A-A59D)

(a) Whether the method, and significant data and assumptions, are appropriate in the context of the applicable financial reporting framework;

(b) Whether significant data is relevant and reliable.[7]

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[7] ISA 500, paragraph 7

(c) Whether management has appropriately understood or interpreted significant data, including with respect to contractual terms. (Ref: Para. A59E)

(d) Whether the integrity of significant data and assumptions has been maintained in applying the method; and (Ref: Para. A59F)

(e) Whether the calculations are mathematically accurate and are appropriately applied

Judgment

13B. In complying with paragraph 13(b) or 13(c), when the reasons for the assessment given to the risk of material misstatement include the need for the use of judgment by management, the auditor shall obtain sufficient appropriate audit evidence about the following matters:

(a) When the accounting estimate involves the use of significant data or assumptions:

(i) Whether management's judgments regarding the selection of the method and the significant data and assumptions: (Ref: Para A59G)

a. Are appropriate in the context of the measurement objectives and other requirements of the applicable financial reporting framework; or

b. Give rise to indicators of possible management bias;

(ii) Whether management's judgments about changes from previous periods in the method or the significant data or assumptions, are appropriate (Ref: Para. A59H–A59L);

(iii) Whether significant assumptions are consistent with each other and with those used in other accounting estimates or areas of the entity's business activities.;

(iv) Whether management's judgments in applying the requirements of the applicable financial reporting framework are appropriate;

(b) When relevant to the appropriateness of the significant assumptions or the appropriate application of the requirements of the applicable financial reporting framework, whether management has the intent to carry out specific courses of action and has the ability to do so (Ref: Para. A59M);

(c) When management's application of the method involves complex modelling, whether judgments made have been applied consistently and whether, when applicable:

(i) The design of the model meets the measurement objective of the applicable financial reporting framework and is appropriate in the circumstances;

(ii) Changes, if any, from the previous period's model are appropriate in the circumstances; and

(iii) Adjustments, if any, to the output of the model are consistent with the measurement objective of the applicable financial reporting framework. (Ref: Para A59N)

Estimation Uncertainty

13C. In complying with paragraph 13(b) or 13(c), when the reasons for the assessment given to the risk of material misstatement include estimation uncertainty, the auditor shall obtain sufficient appropriate audit evidence about the following matters:

(a) Whether, in the context of the applicable financial reporting framework, management has taken appropriate steps to: (Ref: Para. A59O)

(i) Understand and address the estimation uncertainty, and develop a point estimate that meets the measurement objective of the applicable financial reporting framework; and

(ii) Whether:

(a) Management's point estimate is reasonable; and

(b) The disclosures in the financial statements that describe the estimation uncertainty are reasonable. (Ref: Para. A60A–A60B)

(b) When, in the auditor's judgment, management has not appropriately addressed the effect of estimation uncertainty, based on the audit evidence obtained, the auditor shall, to the extent possible, develop an auditor's point estimate or range to enable the auditor to evaluate the reasonableness of management's point estimate and the disclosures in the financial statements that describe the estimation uncertainty. (Ref: Para A60C–A60K)

(c) If, based on the audit evidence obtained, the auditor concludes that it is not appropriate to determine an auditor's point estimate, but that it is appropriate to develop an auditor's range, the auditor shall only include in that range amounts that: (Ref: Para A60L–A60M)

(i) Are supported by the audit evidence; and

(ii) The auditor has evaluated to be reasonable in the context of the measurement objectives and other requirements of the applicable financial reporting framework.

Disclosures Related to Accounting Estimates

13D. The auditor shall obtain sufficient appropriate audit evidence to evaluate whether the accounting estimates have been appropriately disclosed in accordance with the requirements of the applicable financial reporting framework and: (Ref: Para. A120–A121A)

(a) In the case of a fair presentation framework, shall evaluate whether it is necessary for management to provide disclosures beyond those specifically required by the framework to achieve the fair presentation of the financial statements as a whole, or

(b) In the case of a compliance framework, shall evaluate whether the disclosures are appropriate for the financial statements not to be misleading.

Overall Evaluation Based on Audit Procedures Performed

Note – paragraphs 13E and 13F are shown with marked changes from the IAASB's January 31st Teleconference

13E. In applying ISA 330[8] to the accounting estimates for which the auditor's further audit procedures address the matters in paragraphs 13A–13C, the auditor shall evaluate, based on the audit procedures performed and audit evidence obtained, whether: (Ref: Para A121B–A121D)

(a) The assessments of the risks of material misstatement at the assertion level remain appropriate, including when indicators of possible management bias have been identified; and

(b) Sufficient appropriate audit evidence has been obtained; and

(c) Management's decisions relating to the recognition, measurement, presentation and disclosure of these accounting estimates in the financial statements are in accordance with the applicable financial reporting framework.

13F. Based on the audit procedures performed and the audit evidence obtained, the auditor shall evaluate whether the accounting estimates and related disclosures are reasonable in the context of the applicable financial reporting framework, or are misstated. In making this evaluation, the auditor shall consider all relevant audit evidence obtained whether corroborative or contradictory. If the auditor is unable to obtain sufficient appropriate audit evidence, the auditor shall evaluate the implications for the audit.[9] (Ref: Para. A1B–A1C, A121E–A121H)

Indicators of Possible Management Bias

21. The auditor shall evaluate whether judgments and decisions made by management in making the accounting estimates included in the financial statements, even if they are individually reasonable, indicate possible bias on the part of the entity's management. When indicators of possible bias are identified the auditor shall evaluate the implications for the audit. (Ref: Para. A121I–A121N)

Written Representations

22. The auditor shall obtain written representations from management and, where appropriate, those charged with governance that they believe the methods and significant data and assumptions used in making the accounting estimates and their related disclosures are appropriate. The auditor shall also consider the need to obtain representations about specific accounting estimates, including in relation to the methods, assumptions, or data used. (Ref: Para. A126–A127)

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8 ISA 330, paragraphs 25 and 26

9 ISA 330, paragraph 27

Communication with Those Charged With Governance or Management

22A. In applying ISA 260 (Revised)[10] and ISA 265,[11] the auditor is required to communicate with those charged with governance or management about certain matters, including significant qualitative aspects of the entity's accounting practices and significant deficiencies in internal control, respectively. In doing so, the auditor shall consider the matters, if any, to communicate related to the extent to which the accounting estimates and their related disclosures are affected by, or subject to, estimation uncertainty, complexity, use of judgment by management, or other relevant factors. (Ref: Para. A127A–A127C)

Documentation

23. The audit documentation shall include:

(a) The basis for the auditor's evaluation of the reasonableness of the accounting estimates and related disclosures; and

(b) Indicators of possible management bias, if any, and the auditor's evaluation thereof in forming the auditor's opinion on whether the financial statements as a whole are materially misstated. (Ref: Para. A128)

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Application and Other Explanatory Material

Nature of Accounting Estimates (Ref: Para. 2)

A1A. Examples of situations where accounting estimates may be required include:

- Inventory obsolescence.
- Warranty obligations.
- Depreciation method.
- Outcome of long term contracts.
- Estimated costs arising from litigation settlements and judgments.
- Expected credit losses.
- Valuation of insurance contract liabilities.
- Valuation of complex financial instruments, including those that are not traded in an active market.
- Share-based payments.
- Assets or liabilities acquired in a business combination, including goodwill and intangible assets.
- Property or equipment held for disposal.

[10] ISA 260 (Revised), *Communication with Those Charged with Governance*, paragraph 16(a)

[11] ISA 265, *Communicating Deficiencies in Internal Control To Those Charged With Governance And Management* paragraph 9

- Transactions involving the exchange of assets or liabilities between independent parties without monetary consideration, for example, a non-monetary exchange of plant facilities in different lines of business.

Key Concepts (Ref: Para. 2, 13-F)

A1B. The auditor is required to obtain sufficient appropriate audit evidence about whether the accounting estimates recognized or disclosed, are reasonable. What is reasonable depends on the facts and circumstances in the context of the applicable financial reporting framework.

A1C. The following factors may be relevant to the auditor's evaluation of whether the accounting estimate and related disclosures are reasonable:[12]

- The accounting estimate and related disclosures meet the requirements of the applicable financial reporting framework;
- The accounting estimate takes into account appropriate information available at the time of issuance of the auditor's report; and
- In the context of the applicable financial reporting framework and in view of the nature of the estimate and the facts and circumstances of the entity:
  - The method, assumptions and data (including related judgments) are appropriate;
  - The accounting estimate and its data and assumptions are consistent with each other and with those used in other accounting estimates or areas of the entity's business activities; and
  - The disclosures are appropriate, including disclosures regarding estimation uncertainty.

Definitions

Accounting Estimate (Ref: Para. 7(a))

A11A. Accounting estimates are monetary amounts that may be classes of transactions or account balances recognized in the financial statements, but also include accounting estimates used in disclosures or used to make judgments about whether or not to recognize or disclose a monetary amount.

Auditor's Point Estimate or Auditor's Range (Ref: Para. 7(b))

A11B. An auditor's point estimate or a range may be developed for an accounting estimate as a whole (for example, the expected credit losses for a particular loan portfolio or the fair value of different types of financial instruments), or a component of an accounting estimate (for example, an amount to be used as a significant assumption or data for an accounting estimate). A similar approach may be taken by the auditor in developing an amount or range of amounts in evaluating an item of data or an assumption (for example, an estimated useful life of an asset).

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[12] See also ISA 700 (Revised), *Forming an Opinion and Reporting on Financial Statements*, paragraph 13(c).

Estimation Uncertainty (Ref: Para. 7(c))

A11C. Estimation uncertainty is an inherent characteristic of accounting estimates. The measurement effect of estimation uncertainty can be reduced by using appropriate available information sources. However, limitations in the availability of relevant information and in the practicality of using available information (e.g., when the cost of obtaining it exceeds the benefit of using it), mean that estimation uncertainty cannot be reduced beyond a certain level (in other words, residual estimation uncertainty). The nature and implications of estimation uncertainty are discussed further in Appendix B.

Management Bias (Ref: Para. 7(e))

A11D. Financial reporting frameworks often call for neutrality, that is, freedom from bias. The inherent lack of imprecision in the measurement of accounting estimates gives rise to the need for the use of judgment by management. Such judgment may be influenced by unintentional or intentional management bias (for example, as a result of motivation to achieve a desired profit target or capital ratio). The susceptibility of an accounting estimate to management bias increases with the extent to which there is a need for judgment in making it. 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.

Outcome of an Accounting Estimate (Ref: Para. 7(f))

A11E. Some accounting estimates, by their nature, do not have an outcome that is relevant for the auditor's work performed in accordance with this ISA. For example, an accounting estimate may be based on perceptions of market participants at a point in time. Accordingly, the price realized when an asset is sold or the liability transferred may differ from the accounting estimate at the reporting date because, with the passage of time, the market participants' perceptions of value may change.

Risk Assessment Procedures and Related Activities (Ref: Para. 8)

A12. The risk assessment procedures and related activities required by paragraph 8 of this ISA assist the auditor in obtaining an understanding of the nature of the accounting estimates and related disclosures that an entity may be expected to include in its financial statements and of the entity's internal control relevant to making its accounting estimates. In relation to the entity's accounting estimates, the auditor's primary consideration is whether that understanding is sufficient to:

- Identify and assess the risks of material misstatement, including determining whether, in the auditor's judgment, any of those risks are significant risks; and
- Plan the nature, timing and extent of further audit procedures.

Obtaining an Understanding of the Requirements of the Applicable Financial Reporting Framework (Ref: Para. 8(a))

A13. Obtaining an understanding of the requirements of the applicable financial reporting framework provides the auditor with a basis for discussion with management and those charged with governance about how management has applied those requirements relevant to the accounting estimates, and about the auditor's determination of whether they have been applied appropriately. This understanding also may assist the auditor in communicating with those charged with governance when the auditor considers a significant accounting practice, that is acceptable under the applicable financial reporting framework, not to be most appropriate in the circumstances of the entity.[13]

A14. For certain accounting estimates, financial reporting frameworks may prescribe or provide guidance on the basis for selecting management's point estimate, which may be, for example, the most likely outcome[14] or a discounted probability-weighted expected value. Depending on the circumstances, it may be possible for the accounting estimate to be determined directly, or it may be possible to select a management point estimate only after considering alternative assumptions or the range of possible measurement outcomes.

A15. Financial reporting frameworks may specify criteria for, or guidance on, the disclosure of information concerning judgments, assumptions, or other sources of estimation uncertainty relating to accounting estimates.

Obtaining an Understanding of Regulatory Factors (Ref: Para. 8(aA)

A15A. Obtaining an understanding of the relevant aspects of the regulatory framework (e.g., regulation established by banking and insurance regulators) may assist the auditor in determining whether, for example, the regulatory framework:

- Addresses conditions for the recognition, or methods for the measurement, of accounting estimates, or provides related guidance thereon;
- Specifies, or provides guidance about, disclosures in addition to the requirements of the applicable financial reporting framework; or
- Provides an indication of areas for which there may be a potential for management bias to meet regulatory requirements.

A15B. Obtaining such an understanding may also highlight requirements for regulatory purposes that are not consistent with requirements of the applicable financial reporting purposes, which may indicate potential risks of material misstatement. For example, the measurement basis for certain financial statement items, for regulatory capital maintenance purposes, may require earlier recognition of losses than the measurement basis, in accordance with the applicable financial reporting framework, for an accounting estimate relating to the item.

A15C. ISA 250 (Revised) includes requirements related to the legal and regulatory framework applicable to the entity and the industry or sector in which the entity operates, including regulations generally recognized to have a direct effect on the determination of material amounts and disclosures in the financial statements.[15]

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[13] ISA 260 (Revised), paragraph 16(a)

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

[15] ISA 250 (Revised), *Consideration of Laws and Regulations in an Audit of Financial Statements*, paragraphs 12 and A7

Obtaining an Understanding of the Nature of the Accounting Estimates That the Auditor Expects to be included in the Financial Statements (Ref: Para. 8(aB))

A15D. Obtaining an understanding of the accounting estimates and related disclosures that the auditor expects to be included in the financial statements assists the auditor in understanding the measurement basis and the nature and extent of disclosures that may be relevant. Such an understanding provides the auditor with a basis for discussion with management about how management has made the accounting estimates. The auditor may obtain an understanding of the accounting estimates that the auditor expects to be included in the financial statements through the auditor's:

- Understanding of the nature of the entity, including the nature of the assets and liabilities and other financial statement items that it would be expected to have, given the nature of its operations, ownership and governance structures and investments, the way it is structured and financed, its objectives and strategies and related business risks;
- Understanding of the applicable financial reporting framework, and other relevant legal, regulatory and other external factors;
- Past knowledge and experience, including that obtained through other audits; and
- Previous experience with the entity.[16]

A15E. Developing an expectation of the nature of the accounting estimates and related disclosures may also assist the auditor in understanding whether the accounting estimates are complex to make, require significant judgment by management, or have high estimation uncertainty.

Obtaining an Understanding of How Management Identifies the Need for the Accounting Estimates (Ref: Para. 8(b))

A16. The preparation of the financial statements requires management 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, presented, and disclosed in the financial statements, in accordance with the applicable financial reporting framework.

A17. Management's identification of transactions, events and conditions that give rise to the need for accounting estimates is likely to be based on:

- Management's knowledge of the entity's business and the industry in which it operates.
- Management's knowledge of the implementation of business strategies in the current period.
- Where applicable, management's cumulative experience of preparing the entity's financial statements in previous periods.

The auditor may obtain an understanding of how management identifies the need for accounting estimates primarily through inquiry of management. Management may periodically review the circumstances that give rise to the need for accounting estimates

[16] ISA 315 (Revised), paragraph 9

and for re-estimating them as necessary. Further, management may have established a risk assessment process in this area which may involve a formal risk management or similar function. In such circumstances, the auditor's risk assessment procedures may be directed at understanding such a review or risk assessment processes. How management addresses the completeness of accounting estimates, particularly estimates related to liabilities, is often an important consideration of the auditor.

A18. 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, assists the auditor in identifying circumstances, or changes in circumstances, that may give rise to the need for accounting estimates.

A19. Inquiries of management about changes in circumstances may include, for example, inquiries about 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.
- Accounting policies relating to accounting estimates have changed, as a result of changes to the requirements of the applicable financial reporting framework or otherwise.
- 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.

A20. 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. ISA 315 (Revised) deals with circumstances where the auditor identifies risks of material misstatement that management failed to identify, including determining whether there is a significant deficiency in internal control with regard to the entity's risk assessment processes.[17]

Considerations Specific to Smaller Entities

A21. Obtaining this understanding for smaller entities is often less complex as their business activities are often more limited and their transactions are often less complex. Further, often a single person, for example the owner-manager, identifies the need to make the accounting estimates and the auditor's inquiries may be focused accordingly.

Obtaining an Understanding of How Management Makes Accounting Estimates (Ref: Para. 8(c))

A22. The preparation of the financial statements also requires management to establish financial reporting processes for making accounting estimates, including adequate internal control. Such processes include the following:

- Selecting appropriate accounting policies and prescribing estimation processes, including appropriate estimation or valuation methods, including, where applicable,

[17] ISA 315 (Revised), paragraph 16

models.

- Developing or identifying relevant data and assumptions that are used in making accounting estimates.
- Periodically reviewing the circumstances that give rise to the accounting estimates and re-estimating as necessary.

A23. Matters that the auditor may consider in obtaining an understanding of how management makes the accounting estimates include, for example:

- The types of accounts or classes of transactions to which the accounting estimate 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.
- Whether the accounting estimates were made based on data available at an interim date and, if so, whether and how management has taken into account the effect of events, transactions and changes in circumstances occurring between that date and the period end.

Methods (Ref: Para. 8(c)(i))

A23A. A method is a measurement technique used by management to apply the measurement basis in the financial reporting framework. In some cases, the applicable financial reporting framework may prescribe the method to be used for making an accounting estimate. In many cases, however, the applicable financial reporting framework does not prescribe a single method or the required measurement basis prescribes, or allows, the use of alternative methods.

A23B. For example, one recognized method used to make accounting estimates relating to share based payment transactions is to determine a theoretical option call price using the Black Scholes option pricing formula. This method may be applied by modelling the data and assumptions of that formula based on the terms of the transaction and market conditions relevant to the underlying share.

A23C. A model is a tool used to make the accounting estimate that applies assumptions and data, and a set of relationships between them as specified by the method.

A23D. A model is complex when:

- The method it applies requires more specialized skills or knowledge;
- It is more difficult to obtain relevant and reliable data needed for use in the model;
- It is difficult to maintain the integrity of that data;
- It exhibits a significant degree of complexity in its design or operation, which may, for example, involve more extensive use of information technology or large volumes of data; or
- It uses multiple data sources or assumptions with complex-interrelationships.

A25A. Management may design and implement specific controls around models used for making accounting estimates, whether management's own model or an external model. Controls that address complexity around models are more likely to be relevant to the audit when the model used is complex, such as an expected credit loss model or a model used for the valuation of insurance contract liabilities. Factors that may be appropriate for the auditor to consider in obtaining an understanding of the model and of related control activities, include the following:

- How management determines the relevance and accuracy of the model;
- The validation or back testing of the model, including whether the model is validated prior to use and revalidated at regular intervals to determine whether it remains suitable for its intended use. The entity's validation of the model may include evaluation of:
  - o The model's theoretical soundness;
  - o The model's mathematical integrity;
  - o The accuracy and completeness of the data and assumptions used in the model; and
  - o Whether the appropriate data is used in the model and appropriate assumptions have been made;
- How the model is appropriately changed or adjusted on a timely basis for changes in market or other conditions and whether there are appropriate change control policies over the model;
- Whether adjustments, also referred to as overlays in certain industries, are made to the output of the model and whether such adjustments are appropriate under the circumstances and consistent with the requirements of the applicable financial reporting framework; and
- Whether the model is adequately documented, including its intended applications, limitations, key parameters, required data and assumptions, the results of any validation performed on it and the nature of, and basis for, any adjustments made to its output.

A26. There may be greater susceptibility to risks of material misstatement relating to the use of models, for example, in cases when management has developed a model internally but has relatively little experience in doing so, or uses a model that applies a method that is not established or commonly used in a particular industry or environment.

Assumptions Ref: Para. 8(c)(ii))

A26A. Assumptions are integral components of accounting estimates and may include matters such as the choice of an interest rate, a discount rate, or judgments about future conditions or events. An assumption may be selected by management from a range of possible alternatives for use in applying a method to make accounting estimates.

A31. Matters that the auditor may consider in obtaining an understanding of the assumptions used in making the accounting estimates include, for example:

- The nature of the assumptions used, the alternatives considered and the basis for management's selection. The applicable financial reporting framework may provide criteria or guidance to be used in the selection of an assumption.

- How management assesses whether the assumptions are relevant and complete.
- When applicable, how management determines that the assumptions are consistent with each other and with those used in other accounting estimates or areas of the entity's business activities.
- How the assumptions are consistent with other matters:
  - o Within the control of management (for example, assumptions about the maintenance programs that may affect the estimation of an asset's useful life), and whether they are consistent with the entity's business plans and the external environment; and
  - o Outside the control of management (for example, assumptions about interest rates, mortality rates, potential judicial or regulatory actions, or the variability and the timing of future cash flows).
- Management's documentation supporting the assumptions.
- The disclosures of assumptions required by the applicable financial reporting framework.
- How management identifies significant assumptions.

Assumptions may be made or identified by a management's expert to assist management in making the accounting estimates. Such assumptions, when used by management, become management's assumptions.

A35. With respect to fair value accounting estimates, assumptions vary in terms of the sources of the data and the basis for the judgments to support them, as follows:

(a) Those that reflect what marketplace participants would use in pricing an asset or liability developed based on market data obtained from sources independent of the reporting entity.

(b) Those that reflect the entity's own judgments about what assumptions marketplace participants would use in pricing the asset or liability developed based on the best data available in the circumstances.

In practice, however, the distinction between (a) and (b) may not always be apparent and distinguishing between them depends on understanding the sources of data and the basis for the judgments that support the assumption. Further, it may be necessary for management to select from a number of different assumptions used by different marketplace participants.

Significant data and assumptions

A35A. Data and assumptions used in making an accounting estimate are referred to as significant data or significant assumptions in this ISA if a reasonable variation in the data or assumption would materially affect the measurement of the accounting estimate. For example, an accounting estimate may be determined applying a method that uses several data sets and several assumptions, one or more of which particularly influences the measurement of the accounting estimate because the range of reasonable assumptions may be large or the model may be sensitive to specific data or assumption because of the underlying formulas.

Inactive or illiquid markets

A35B. Some financial reporting frameworks require different accounting treatments depending on the level of activity in the market. Estimation uncertainty increases and valuation is more complex when the markets in which financial instruments or their component parts are traded become inactive. Valuation techniques selected in times when market information was available may not provide appropriate valuations in times of stress. However, even where markets are inactive, prices achieved may still provide relevant evidence about fair value. In these circumstances, valuations may be developed based on more unobservable inputs, requiring more judgment by management. When markets are inactive, prices quoted may not represent prices at which market participants would trade or may represent forced transactions (such as when disposal of an asset is necessary to meet regulatory or legal requirements).

A35C. Particular difficulties may develop where there is severe curtailment or even cessation of trading in particular financial instruments. In these circumstances, financial instruments that have previously been valued using market prices may need to be valued using a model; or, where they have previously been valued using a model, the model may need to change. Reacting to changes in market conditions may be difficult if management does not possess the specialized skills or knowledge necessary to develop an appropriate model on a timely basis, or to select the valuation technique that may be most appropriate in the circumstances.

A35D. When markets are inactive or illiquid, the auditor's understanding of how management selects assumptions may include understanding whether management has:

- Implemented appropriate policies for adapting the application of the method in such circumstances. Such adaptation may include making model adjustments or developing new models that are appropriate in the circumstances;
- Resources with the necessary skills or knowledge to adapt or develop a model, if necessary on an urgent basis, including selecting the valuation technique that is appropriate, in such circumstances;
- The resources to calculate the range of outcomes, given the uncertainties involved, for example by performing a sensitivity analysis;
- The means to assess how, when applicable, the deterioration in market conditions has affected the entity's operations, environment and relevant business risks and the implications for the entity's accounting estimates, in such circumstances; and
- An appropriate understanding of how the price data from particular external information sources may vary in such circumstances.

Data (Ref: Para. 8(c)(iiA)

A35E. Data comprises factual data, which can be observed directly, and derived data, which is data obtained through applying analytical or interpretive techniques to factual data. The analytical or interpretive techniques to be used in deriving data have a well-established theoretical basis and do not involve the application of judgment. Examples of data include:

- Prices agreed in market transactions;
- Operating times or quantities of output from a production machine;
- Historical prices or other terms included in contracts (for example, a loan agreement may include a contracted interest rate, a payment schedule, and term of the loan); or
- Forward looking data such as economic or earnings forecasts made publicly, or a future payment schedule in a loan agreement.

A35F. Data can come from a wide range of sources. For example, data can be:

- enerated within the organization or externally;
- Obtained from a system that is either within or outside the general or subsidiary ledgers;
- Observable in contracts; and
- Observable in legislative or regulatory pronouncements.

Understanding the source of the data used to make the accounting estimates may help the auditor in understanding the risks with respect to the relevance and reliability of the data.

A35G. Matters that the auditor may consider in obtaining an understanding of the data on which the accounting estimates are based include:

- The nature of the data.
- How management evaluates whether the data is appropriate.
- The accuracy and completeness of the data.
- The consistency of the data used with data used in previous periods.
- The complexity of the information technology systems used to obtain and process the data, including when this involves handling large volumes of data.
- How the data is obtained, transmitted and processed and how its integrity is maintained.

A35H. When making an accounting estimate involves large volumes of data or otherwise involves complex processing, management may make extensive use of information technology. In such cases, it may be necessary for the auditor to understand and test information technology general controls and relevant application controls. Such controls address risks related to:

- The complete and accurate extraction of data from the entity's records or from external information sources; and
- The complete and accurate flow of data through the entity's information systems and the appropriateness of any modification to the data used in making accounting estimates, such as the translation of data into a different currency. Controls to maintain the integrity and security of the data are important.

Management's Application of Specialized Skills or Knowledge, Including the Use of Management's Experts (Ref: Para. 8(c)(iii))

A35I. Management may have, or the entity may employ individuals with, the skills and knowledge necessary to make the accounting 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, for example:

- The specialized nature of the matter requiring estimation, for example, the accounting estimate may involve measurement of mineral or hydrocarbon reserves in extractive industries or the evaluation of the likely outcome of applying complex contractual terms.
- The complex nature of the models required to apply the relevant requirements of the applicable financial reporting framework, as may be the case in certain measurements, such as level 3 fair values.
- The unusual or infrequent nature of the condition, transaction or event requiring an accounting estimate.

A failure by management to apply the required specialized skills or knowledge, including engaging an expert when management does not otherwise have access to an individual with such skills and knowledge, increases control risk.

Considerations specific to smaller entities

A35J. In smaller entities, the circumstances requiring accounting estimates often are such that the owner-manager is capable of making the required point estimate. In some cases, however, an expert will be needed. Discussion with the owner-manager early in the audit process about the nature of any accounting estimates, the completeness of the required accounting estimates, and the adequacy of the estimating process may assist the owner-manager in determining the need to use an expert.

Risk of Management Bias (Ref: Para. 8(c)(iB))

A35K. Matters that the auditor may consider in obtaining an understanding of how management addresses the risk of management bias in making accounting estimates includes whether, and if so how management:

- Identifies and pays particular attention to accounting estimates that involve greater levels of subjectivity in related judgments.
- Monitors key performance indicators that may indicate unexpected or inconsistent performance compared with historical or budgeted performance or with other known factors.
- Identifies financial or other incentives that may be a motivation for bias.
- Monitors changes in the methods, or in significant sources of data and significant assumptions, used in making accounting estimates.
- Establishes appropriate oversight and review of models used in making accounting estimates.
- Requires documentation of the rationale for, or an independent review of, significant judgments made in making accounting estimates.

Estimation Uncertainty (Ref: Para. 8(c)(iv))

A38. Matters that may be appropriate for the auditor to consider in obtaining an understanding of whether and, if so, how management has addressed estimation uncertainty include, for example:

- Whether and, if so, how management has identified alternative methods, significant assumptions or sources of significant data that are appropriate in the context of the applicable financial reporting framework.
- Whether and, if so, how management has considered alternative outcomes by, for example, performing a sensitivity analysis to determine the effect of changes in the data or assumptions on the accounting estimate.
- How management determines its point estimate when analysis indicates a number of possible outcome scenarios.
- Whether management monitors the outcome of accounting estimates made in previous periods, and how management has appropriately responded to the results of that monitoring.

Changes in Methods, Assumptions or Data Used in Making Accounting Estimates (Ref: Para. 8(c)(vi))

A38A. In evaluating how management makes the accounting estimates, the auditor is required to understand the extent to which management has identified and addressed the need for change in the methods, assumptions or data used in making the accounting estimates. If management has changed the method for making an accounting estimate, it is important that management can demonstrate that the new method is more appropriate, or is itself a response to changes in the environment or circumstances affecting the entity, or to changes in the requirements of the applicable financial reporting framework or regulatory environment. It is also important that management can demonstrate, when no change has been made, that the continued use of the previous methods, assumptions and data is appropriate in view of the current environment or circumstances. For example, whether management's assumptions about marketplace transactions or price quotes reflect fair value when there is reduced market activity.

Components of Internal Control Relating To Accounting Estimates (Ref: Para. 8(d))

A38B. Paragraphs 14–24 of ISA 315 (Revised) describe the components of internal control and provide useful information for the auditor in considering the components of internal control as they relate to making accounting estimates.

A38C. Some entities may have a wide range of accounting estimates, some of which may be significantly affected by, or subject to, complexity, the need for use of judgment by management, and estimation uncertainty. In such circumstances, there may be an increased need for the application of specialized skills or knowledge, and management may make extensive use of information technology in making the estimates. In such cases, it likely will be more important for the auditor to understand of the design and implementation, and test the operating effectiveness, of related controls. It is likely to be less important for entities that may not have many, or any, estimates that exhibit such characteristics.

The Control Environment Relevant To Making Accounting Estimates

A38D. The auditor's understanding of the control environment relevant to making accounting estimates includes consideration of the influence that the elements of the control environment would be expected to have on the risks of material misstatement.[18] This may include, for example, whether:

- Management, with the oversight of those charged with governance, has created and maintained a culture of transparency and proper ethical behavior, as it relates to making the accounting estimates; and
- The strengths in the control environment elements collectively provide an appropriate foundation for the other components of internal control, insofar as they relate to the accounting estimates, and whether those other components are not undermined by deficiencies in the control environment.

A38E. In some industries, such as the banking or insurance industry, the term governance may be used to describe the control environment as described in ISA 315 (Revised).[19]

Oversight by those charged with governance

A38F. Management and, where applicable, those charged with governance are responsible for designing and implementing a system of internal control to enable the preparation of financial statements in accordance with the applicable financial reporting framework. The effectiveness of the design of the control environment in relation to participation by those charged with governance is influenced by the matters described in paragraph A80 in ISA 315 (Revised).

A38G. How effective those charged with governance are in overseeing the control environment set by management, with respect to accounting estimates, may be influenced by such matters as the extent to which they:

- Have the skills or knowledge to uunderstand the characteristics of a particular method or model to make accounting estimates, or the risks related to the accounting estimate, for example, risks related to the method or information

[18] ISA 315 (Revised), paragraph A77

[19] ISA 315 (Revised) paragraph A76

technology used in making the accounting estimates;

- Have the skills and knowledge to understand whether management made the accounting estimates in accordance with the applicable financial reporting framework; or
- Are independent from management, have the information required to evaluate on a timely basis how management made the accounting estimates, and the authority to challenge management when those actions appear to be inadequate or inappropriate.

A38H. Depending on the nature of the accounting estimates, the auditor may consider obtaining an understanding of the oversight by those charged with governance over matters, such as:

- Management's process for making the accounting estimates, including the use of models.
- The monitoring activities undertaken by management. This may include appropriate supervision and review of the accounting estimates designed to detect and correct any deficiencies in the operating effectiveness of controls over the accounting estimates.

A38I. The oversight by those charged with governance may particularly be important for accounting estimates that:

- Require significant judgment by management, for example in the selection of the method, significant assumptions or significant data;
- Have high estimation uncertainty;
- Are complex to make, for example, because of the extensive use of information technology, large volumes of data or the use of multiple data sources or assumptions with complex-interrelationships;
- Had, or ought to have had, a change in the method, assumptions or data compared to previous periods; or
- Involve significant data and assumptions.

The Entity's Risk Assessment Process

A38J. If the entity has a risk assessment process, the auditor needs to obtain an understanding of the process and its results in relation to the entity's accounting estimates, including how management determines the risks to be managed arising from changes in:

- The requirements of the applicable financial reporting framework related to the accounting estimates;
- The availability or nature of data sources that are relevant to making the accounting estimates or that may affect the reliability of the data used;
- The entity's information systems or IT environment; and
- Key personnel.

The Entity's Information Systems

A38K. With respect to the entity's information system relevant to making accounting estimates, it may be appropriate for the auditor to obtain an understanding as to whether:

- The information systems have the capability and are appropriately configured to process large volumes of data;
- When diverse systems are required to process complex transactions, regular reconciliations between the systems are made, in particular when the systems do not have automated interfaces or may be subject to manual intervention;
- The design and calibration of complex models is periodically evaluated;
- Management has controls around access, change and maintenance of individual models to maintain a strong audit trail of the accredited versions of models and to prevent unauthorized access or amendments to those models;
- When using external information sources, management considers and appropriately addresses the risks related to processing or recording the data, recognizing management's responsibility for appropriately reconciling and challenging the data from those sources; and
- There are appropriate controls over the transfer of information relating to accounting estimates into the general ledger, including appropriate controls over related journal entries.

A38L. Information systems relevant to financial reporting are an important source for the quantitative and qualitative disclosures in the financial statements. This may include a system developed and maintained by the entity primarily for internal reporting, but which also captures, processes and generates data that may be included in disclosures relating to accounting estimates.

Control Activities

A38M. The auditor needs to obtain an understanding of the control activities relevant to the audit as they relate to accounting estimates and the auditor's consideration of such control activities may be more important when the accounting estimates are significantly subject to, or affected by, complexity, the use of judgment by management, or estimation uncertainty. This may include control activities related to:

- How management determines the relevance and reliability of the data used to develop the accounting estimates, including when management uses an external information source or data from outside the general and subsidiary ledgers.
- The review and approval of accounting estimates, including the assumptions or data used in their development, by appropriate levels of management and, where appropriate, those charged with governance.
- The segregation of duties between those committing the entity to the underlying transactions and those responsible for making the accounting estimates, including whether the assignment of responsibilities appropriately takes account of the nature of the entity and its products or services. For example, in the case of a large financial institution, relevant segregation of duties may consist of an independent function responsible for estimation and validation of fair value pricing of the entity's

financial products staffed by individuals whose remuneration is not tied to such products.

- The control activities included in paragraph A25A.

The Entity's Activities to Monitor Controls over How the Accounting Estimates Are Made

A38N. For entities with an internal audit function, its work may be relevant to the auditor's identification and assessment of the risks of material misstatement relating to accounting estimates.

A38O. Areas where the work of the internal audit function may be particularly relevant include understanding:

- The nature and extent of management's use of accounting estimates;
- The design and implementation of control activities that address the risks related to the data, assumptions and models used to make the accounting estimates;
- The systems that generate the data on which the accounting estimates are based; and
- How new risks relating to accounting estimates are identified, assessed and managed.

Considerations Specific to Smaller Entities

A38P. In smaller entities, accounting estimates may be generated outside the general ledger, controls over their development may be limited, and an owner-manager may have significant influence over the determination. The owner-manager's role in making the accounting estimates may need to be taken into account by the auditor both when identifying the risks of material misstatement and when considering management bias. ISA 315 (Revised)[20] includes specific considerations to smaller entities that the auditor might find helpful in obtaining an understanding of the components of internal control that are relevant to making accounting estimates.

Reviewing the Outcome or Re-Estimation of Previous Accounting Estimates (Ref: Para. 9)

A38Q. A retrospective review may be useful to the auditor in identifying and assessing the risks of material misstatement, specifically in circumstances when previous accounting estimates have an outcome through transfer or realization of the asset or liability, or are re-estimated for the purpose of the current period. In certain circumstances, a retrospective review may not assist the auditor in identifying and assessing the risks of material misstatement. For example, for many fair value accounting estimates, there is no observable outcome as the fair value is based on a hypothetical transaction to exchange an item at the reporting date.

A39. The outcome of an accounting estimate will often differ from the accounting estimate recognized in the previous period's financial statements. By performing risk assessment procedures to identify and understand the reasons for such differences, the auditor may obtain:

[20] ISA 315 (Revised) paragraph A52, A56, A57, A88, A93, A95, A101, A102 and A108

- Information regarding the effectiveness of management's previous estimation process, from which the auditor can obtain insight about the likely effectiveness of management's current process.
- Audit evidence that is pertinent to the re-estimation, in the current period, of previous accounting estimates.
- Audit evidence of matters, such as estimation uncertainty, that may be required to be disclosed in the financial statements.
- Information regarding the complexity and estimation uncertainty pertaining to the accounting estimates.
- Information regarding the susceptibility of accounting estimates to, or that may be an indicator of, possible management bias. The auditor's professional skepticism assists in identifying such circumstances or conditions and in determining the nature, timing and extent of further audit procedures.

A39A. A retrospective review may be performed over accounting estimates made for prior period financial statements but also for accounting estimates made over several periods or a shorter period (such as half-yearly or quarterly). When entities make accounting estimates that are realized within a shorter timescale than full financial reporting periods, considering the outcomes of such accounting estimates may also provide important information about management's current effectiveness in making accounting estimates and other factors relevant to making estimates. Considering outcomes of accounting estimates that are realized between the end of the financial reporting period and the end of the audit may be useful for similar reasons.

A41. A retrospective review of management judgments and assumptions related to significant accounting estimates is always required by ISA 240.[21] As a practical matter, the auditor's review of previous accounting estimates as a risk assessment procedure in accordance with this ISA may be carried out in conjunction with the review required by ISA 240, when the auditor determines that performing a retrospective review will assist in identifying or assessing the risk of material misstatement.

A42. The auditor may judge that a more detailed review is required for those accounting estimates that have changed significantly from the previous period, or for those accounting estimates for which the assessed risk of material misstatement in the previous period audit was not low or was low and that assessment includes an expectation that relevant controls were operating effectively. As part of the detailed review, the auditor may pay particular attention, when possible, to the effect of significant assumptions used in making the previous estimates.

A43. For fair value accounting estimates and other accounting estimates based on current conditions at the measurement date more variation may exist between the fair value amount recognized in the previous period's financial statements and the outcome or the amount re-estimated for the purpose of the current period. This is because the measurement objective for such accounting estimates deals with perceptions about value at a point in time, which may change significantly and rapidly as the environment in which the entity operates changes. The auditor may therefore focus the review on obtaining information that would be relevant to identifying and assessing risks of material

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[21] ISA 240, *The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements*, paragraph 32(b)(ii)

misstatement. For example, in some cases, obtaining an understanding of changes in marketplace participant assumptions which affected the outcome of a previous period's fair value accounting estimates may be unlikely to provide relevant information for audit purposes. If so, then the auditor's consideration of the outcome of previous period's fair value accounting estimates may be directed more towards understanding the effectiveness of management's prior estimation process, that is, management's track record, from which the auditor can judge the likely effectiveness of management's current process.

A44. A difference between the outcome of an accounting estimate and the amount recognized in the previous period's financial statements does not necessarily represent a misstatement of the previous period's financial statements. However, it may do so if, for example, the difference arises from information that was available to management when the previous period's financial statements were finalized, or that could reasonably be expected to have been obtained and taken into account in the preparation of 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.

Specialized Skills or Knowledge (Ref: Para. 9A, 11A)

A44A. In planning the audit, the auditor is required to ascertain the nature, timing and extent of resources necessary to perform the audit engagement.[22] In some cases, the auditor may conclude that specialized skills or knowledge are required in relation to specific areas of accounting or auditing. In addition, ISA 220 requires the engagement partner to be satisfied that the engagement team, and any auditor's external experts, collectively have the appropriate competence and capabilities to perform the audit engagement.[23] During the course of the audit, the auditor may identify a need for specialized skills or knowledge to be applied in relation to one or more aspects of the accounting estimates.

A44B. Matters that may affect the auditor's consideration of whether specialized skills or knowledge is required include, for example:

- The nature of the accounting estimates for a particular business or industry (for example, mineral deposits, agricultural assets, complex financial instruments, insurance liabilities).
- The degree of estimation uncertainty.
- The complexity of the method or model used.
- The complexity of the requirements of the applicable financial reporting framework relevant to accounting estimates, including whether there are areas known to be subject to differing interpretation or practice or areas where there are inconsistencies in how accounting estimates are made.
- The procedures the auditor intends to undertake in responding to assessed risks.
- The need for judgment to be made about matters not specified by the financial reporting framework.

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[22] ISA 300, *Planning an Audit of Financial Statements*, paragraph 8(e)

[23] ISA 220, *Quality Control for an Audit of Financial Statements*, paragraph 14

- The degree of judgment needed to select data and assumptions.
- The extent of the entity's use of information technology in making accounting estimates.

A44C. Many accounting estimates do not require the application of specialized skills or knowledge. For example, for most audits it is unlikely that specialized skills or knowledge would be necessary for an auditor to evaluate a bonus accrual. However, for expected credit losses of an internationally active banking institution or the insurance contract liability for an insurance entity, the auditor is likely to conclude that it is necessary to apply specialized skills or knowledge.

A44D. The auditor may not possess the specialized skills or knowledge required when the matter involved is in a field other than accounting or auditing and may need to use an auditor's expert. ISA 620[24] establishes requirements and provides guidance in determining the need to employ or engage an auditor's expert and the auditor's responsibilities when using the work of an auditor's expert.

A44E. Depending on the auditor's understanding and experience of working with the auditor's expert or other individuals with specialized skills or knowledge, the auditor may consider it appropriate to discuss matters such as the requirements of the applicable financial reporting framework with the individuals involved to establish that their work is relevant for audit purposes.

Identifying and Assessing the Risks of Material Misstatement (Ref: Para. 10)

A44F. Obtaining an understanding of the entity and its environment, including the entity's internal control, as required by paragraph 8, assists the auditor in identifying areas of the financial statements that may be subject to potential misstatement and relevant risk factors that may give rise to potential risks of material misstatement related to accounting estimates.

A44G. Paragraph 10 requires the auditor, in assessing the risks of material misstatement, to take into account the extent to which the accounting estimate is subject to, or affected by relevant factors, including complexity, the use of judgment by management in making the estimate, and estimation uncertainty.

A44H. For some accounting estimates, the auditor's assessment of the risk of material misstatement may be low but not because that assessment includes an expectation that relevant controls are operating effectively (in other words, the assessed risk of material misstatement is primarily influenced by lower inherent risk). Examples may include:

- Depreciation calculations for an entity using a single depreciation method for property and equipment and a relatively low level of additions or disposals.
- Accounting estimates based on data that is readily available, such as published interest rate or foreign exchange rate data or exchange-traded prices of securities that are listed and actively traded on a recognized exchange, and few or no assumptions. An example of such an accounting estimate is the translation of a cash balance that is held in a currency other than the reporting currency.
- A bonus accrual for management which is based on performance indicators that

[24] ISA 620, *Using the Work of an Auditor's Expert*

are clearly identified.

A44I. For some accounting estimates, the extent to which they are subject to or affected by complexity, judgment or estimation uncertainty may be such that the assessed risk of material misstatement is not low, or is low but only because it includes an expectation that relevant controls are operating effectively. Examples may include:

- Accounting estimates relating to the outcome of litigation.
- Accounting estimates for financial instruments not publicly traded.
- Accounting estimates for which a complex model is used or for which there are assumptions or data that cannot be observed directly in the marketplace (level 3 fair values).
- Accounting estimates that collate, weight and integrate assumptions and data from a wide range of internal and external sources, such as an expected credit loss model in a financial institution that is active in different markets.
- Estimates of the development costs of a new pharmaceutical product.
- Estimates relating to undeveloped mineral resources.
- Valuation of goodwill in a business combination.

A44J. The reasons for the auditor's assessment of the risk of material misstatement may result from one or more of the factors of complexity, judgment and estimation uncertainty. For example:

(a) Accounting estimates of expected credit losses are likely to be complex because the expected credit losses cannot be directly observed and may require the use of a complex model. The model may use a complex set of historical data and assumptions about future developments in a variety of entity specific scenarios that may be difficult to predict. Accounting estimates for expected credit losses are also likely to involve high estimation uncertainty and significant subjectivity in making judgments about future events or conditions.

(b) A contrasting example may be an obsolescence provision for an entity with a wide range of different inventory types. Making the accounting estimate may require complex systems and processes, but may involve little judgment and the estimation uncertainty may be low.

(c) Other accounting estimates may not be complex to make but may have high estimation uncertainty and require significant judgment, for example, an accounting estimate that requires a single critical judgment about a liability, the amount of which is contingent on the outcome of the litigation.

Significant Risks

A44K. Paragraph 28 of ISA 315 (Revised) and the related application material include factors that are required to be considered when identifying significant risks. If the auditor determines that an accounting estimate gives rise to a significant risk, the auditor is required to obtain an understanding of the entity's controls, including control activities.[25]

[25] ISA 315 (Revised), paragraph 29

A44L. In some cases, the estimation uncertainty relating to an accounting estimate may cast significant doubt about the entity's ability to continue as a going concern. ISA 570 (Revised)[26] establishes requirements and provides guidance in such circumstances.

Other Relevant Factors

A44M. In addition to complexity, judgment and estimation uncertainty, there may be other relevant factors that the auditor may consider in identifying and assessing the risks of material misstatement. These may include the extent to which the accounting estimate is subject to, or affected by:

- A change in the nature or circumstances of the relevant financial statement items, requirements of the applicable financial reporting framework, or regulatory factors which may give rise to the need for changes in the method, assumptions or data used to make the accounting estimate;
- The susceptibility of the accounting estimate to the risk of a material misstatement due to fraud; and
- The regulatory environment, including relevant regulatory requirements.

Complexity

Complexity Arising from the Method Used in Making the Accounting Estimate (Ref: Para. 10(a)(i))

A44N. Methods vary in the extent to which they involve complex concepts or techniques that require management to apply specialized skills or knowledge.[27] In addition, the nature of the measurement basis in the applicable financial reporting framework may result in the need for a complex method that requires multiple sources of historical and forward looking data or assumptions, with complex inter-relationships between them.

A44O. Complex methods are often applied using a complex model, particularly when the measurement basis requires the use of discounted cash flow techniques, projected or expected future cash flows and historical and forward looking data and assumptions obtained or developed from a combination of internal and external sources. Designing and operating such models often involves specialized skills or knowledge, including in relation to valuation attributes arising from the nature and circumstances of the underlying financial statement items and in the use of information technology.

A44P. Examples of accounting estimates in relation to which complex models are likely to be used include:

- An impairment loss for goodwill or an intangible asset, which may require expectations about future cash flows from the business, asset or a group of related assets to be developed based on historical data and forward looking assumptions.
- An expected credit loss, which may require expectations of future credit repayments and other cash flows, based on historical experience data and forward looking assumptions.
- An insurance contract liability, which may require expectations about future

[26] ISA 570, (Revised), *Going Concern*

[27] See for examples of complex techniques paragraph 8 of Appendix 2

insurance contract payments to be projected based on historical experience and current and assumed future trends.

- A level 3 fair value based on cash flow projections and historical market related data.

Complexity Arising from the Data on Which the Accounting Estimates Are Based (Ref: Para. 10(a)(ii))

A44Q. Risks of material misstatement related to complexity in making accounting estimates may arise when such complexity leads to greater difficulty in obtaining, or in maintaining the integrity of, relevant and reliable data, stemming from one or a combination of the following:

- The reliability of the data source. Data from certain sources may be more reliable than from others. For example, data obtained from internal systems outside the general and subsidiary ledgers may be more susceptible to misstatements because in some entities it may be difficult to determine whether there were appropriate controls and governance over that data.
- Data from an external information source may be less relevant in making a fair value estimate if it is not based on observable market transactions. For example, it may be less relevant when it is based on brokers' quotes that reflect brokers' subjective judgments in the context of an inactive market. In addition, for confidentiality or proprietary reasons, some external information sources will not (or not fully) disclose information that may be relevant in considering the relevance and reliability of the data they provide, such as the sources of the underlying data they used or how it was accumulated and processed (including any controls over the process). It may be more difficult to consider the relevance and reliability of such data than in the case of data from more transparent external information sources.
- The integrity of the information systems. Data that is used to make the accounting estimates may be processed by complex information systems which may require effective information technology general controls, and controls over the flow of data through the system.
- A complex organizational structure or a lack of integration between systems in different parts of the entity may give rise to difficulty in reliably and consistently aggregating.
- The volume of data or the source of the data, including data that comes from a wide variety of sources. This may lead to the risk that the data may be inappropriately used, or may be incomplete or from an incorrect data set.

Judgment (Ref: Para. 10(b))

A44R Judgment may be used by management in the selection or application of appropriate methods, the selection or development of appropriate assumptions, and the selection or interpretation of data. The risks of material misstatement related to judgment involved in making accounting estimates may relate to one or a combination of the following:

- A lack of experience or competence by management, including a lack of availability to management of required skills or knowledge. These factors may result in risks related to the selection of inappropriate methods, assumptions and data. When management lacks the competence or experience in a certain area and decides not to use a management's expert, there may be a risk that:

- o The method selected may not comply with the applicable financial reporting framework.
- o Management may select a data source that is not relevant and reliable.

- Indicators of management bias.
- The extent to which the applicable financial reporting framework does not specify the appropriate valuation approaches, concepts, techniques and factors to use in the estimation method and therefore may require significant judgment.

A44S. Examples of accounting estimates that are likely to be subject to a high degree of judgment include the following:

- Accounting estimates that are based on expected future cash flows for which there is uncertainty regarding the amount or timing.
- Accounting estimates that are based on complex contractual terms. For example, the determination of cash inflows or outflows arising from commercial supplier or customer rebates may depend on very complex contractual terms that require specific expertise or competence.
- Accounting estimates with a long forecast period.

A44T. When accounting estimates are subject to a high degree of judgment, the accounting estimate may be more susceptible to the potential for management bias, particularly when this judgment involves greater subjectivity. For example, such judgment may result in a wide range of possible measurement of the accounting estimate. Management may select a point estimate from that range that is inappropriate in the circumstances, or that is inappropriately influenced by unintentional or intentional management bias, and that is therefore misstated.

Estimation Uncertainty (Ref: Para. 10(c))

A44U. Estimation uncertainty arises from factors that give rise to an inherent lack of precision in the measurement of an accounting estimate. The variation in the measurement of an accounting estimate that results from estimation uncertainty is not in itself a misstatement. A risk of material misstatement related to estimation uncertainty arises from variables that increase the likelihood that management's point estimate and related disclosures are not reasonable in the context of the applicable financial reporting framework.

A44V. Estimation uncertainty may arise, for example, when it is not possible (or not practical, insofar as permitted by the applicable financial reporting framework) for management:

- To make a precise and reliable prediction about the future realization of a past transaction (for example, the amount that will be paid under a contingent contractual term), or about the incidence and impact of future events or conditions (for example, the amount of a future credit loss or the amount that will be settled for a future insurance claim); or
- To obtain precise and complete information about a present condition (for example,

information about valuation attributes that would reflect the perspective of market participants at the date of the financial statements, to develop a fair value estimate).

A44W. The risk of material misstatement related to estimation uncertainty may relate to one or a combination of the following:

- The applicable financial reporting framework, which may require:
  - The use of a method to make the accounting estimates that inherently has a high level of estimation uncertainty. For example, the financial reporting framework may require the use of a level 3 fair value.
  - The use of assumptions that inherently have a high level of estimation uncertainty, such as future cash flows for a long-term contract, assumptions that are based on data that is unobservable and are therefore difficult for management to develop or the use of the various assumptions that are interrelated.
  - Disclosures about estimation uncertainty. There may be a risk of material misstatement related to the failure to make a material disclosure about the estimation uncertainty.
- The business environment. An entity may be active in a market that experiences turmoil or possible disruption (for example, from major currency movements or inactive markets) and the accounting estimate may therefore be dependent on data that is not readily observable.

A48. A seemingly immaterial accounting estimate may have the potential to result in a material misstatement due to the estimation uncertainty associated with the accounting estimate; that is, the size of the amount recognized or disclosed in the financial statements for an accounting estimate is not, in itself, an indicator of its estimation uncertainty.

A49. 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, or its measurement at fair value. In such cases, there may be risks of material misstatement that relate not only to whether an accounting estimate should be recognized, or whether it should be measured at fair value, but also to the reasonableness of the disclosures. With respect to such accounting estimates, the applicable financial reporting framework may require disclosure of the accounting estimates and the estimation uncertainty associated with them (see paragraphs A120-A123).

A49A. Not all accounting estimates are affected by high levels of estimation uncertainty. For example, some financial statement items may have an active and open market that provides readily available and reliable information on the prices at which actual exchanges occur. However, estimation uncertainty may exist even when the valuation method and data are well defined. For example, valuation of securities quoted on an active and open market at the listed market price may require adjustment if the holding is significant in relation to the market or is subject to restrictions in marketability. In addition, general economic circumstances prevailing at the time, for example, illiquidity in a particular market, may impact estimation uncertainty.

A49B. A sensitivity analysis may demonstrate that the accounting estimate is sensitive to one or more assumptions that then become the focus of the auditor's attention.

A49C. The degree of estimation uncertainty associated with an accounting estimate may influence its susceptibility to management bias. When the reasons for the assessment given to the risk of material misstatement include estimation uncertainty, the auditor's application of professional skepticism is particularly important.

Responses to the Assessed Risks of Material Misstatement (Ref: Para. 13)

A57A. In designing further audit procedures, ISA 330 requires the auditor to consider the reasons for the assessment given to the risk of material misstatement at the assertion level for each class of transactions, account balance, and disclosure, including the likelihood of material misstatement due to the particular characteristics of the relevant class of transactions, account balance or disclosure (that is, the inherent risk), and whether the risk assessment takes account of relevant controls (that is, control risk), thereby requiring the auditor to obtain audit evidence to determine whether the controls are operating effectively.

A57B. Paragraph A40 of ISA 200[28] states that the ISAs do not ordinarily refer to inherent risk and control risk separately. However, the auditor may make separate or combined assessments of inherent and control risk. Although this ISA neither implies nor requires a separate assessment of inherent and control risk, it highlights the importance of the auditor's consideration of both inherent and control risk in designing and performing further audit procedures to respond to the assessed risks of material misstatement, including significant risks, at the assertion level in accordance with ISA 330.

A57C. In identifying the risks of material misstatement for accounting estimates, paragraph 10 requires the auditor to take into account the extent to which the estimate is subject to, or affected by relevant factors, including complexity, the need for the use of judgment by management in making the accounting estimate, and estimation uncertainty (i.e., the reasons for the assessment given to the risk of material misstatement).

A57D. Accounting estimates, by their nature, will vary and be subject to differing levels of assessed risk of material misstatement. Therefore, the nature, timing and extent of the further audit procedures performed to respond to the assessed risks of material misstatement at the assertion level, in accordance with ISA 330, will also vary in relation to the nature of the accounting estimate, the level of assessed risk and the reasons for the assessment given to the risk.

A57E. In certain circumstances, it may not be possible or practicable for the auditor to design effective substantive procedures that, by themselves, provide sufficient appropriate audit evidence at the assertion level. For example, this may be the case for entities such as large banks, insurers, and telecommunication entities that make extensive use of IT to conduct their business or have a large number of accounting estimates, many of which are highly judgmental or complex. Factors that may indicate that substantive procedures alone may not provide sufficient appropriate audit evidence at the assertion level include:

- The volume of transactions (for example, a high volume of transactions may occur in a large bank, insurer or telecommunication entity, making it more difficult to design substantive procedures that alone provide sufficient appropriate audit evidence at the assertion level).

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28 ISA 200, *Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing*

- Whether significant information supporting one or more relevant assertions is electronically initiated, recorded, processed, or reported. For such assertions, audit evidence may be available only in electronic form. In such cases, the sufficiency and appropriateness of the audit evidence may depend on the effectiveness of controls over the accuracy and completeness of the information. In addition, the potential for improper initiation or alteration of information to occur and not be detected may be greater if information is initiated, recorded, processed, or reported only in electronic form and appropriate controls are not operating effectively.
- The need to combine information from the general and subsidiary ledgers with information obtained from outside the general and subsidiary ledgers (for example, an expected credit loss may require information from the entity's risk management system). In these situations, it may not be possible to design and perform substantive procedures that, by themselves, provide sufficient appropriate audit evidence at the assertion level.

A57F. In some jurisdictions, as part of the audit of the financial statements for certain entities (such as a bank or insurer), the auditor also may be required by law or regulation to undertake additional work to provide assurance on internal controls.

Considerations Specific to Smaller Entities

A57G. Controls over the process to make an accounting estimate may exist in smaller entities, but their formality may vary. 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 response to the assessed risks is more likely to be substantive in nature.

Accounting Estimates with Low Assessed Risk of Material Misstatement but Not Because that Assessment Includes an Expectation that Relevant Controls Are Operating Effectively (Ref. Para: 13(a))

A57H. For some accounting estimates, such as those described in paragraph , the extent to which they are affected by, or subject to, complexity, the need for the use of judgment, and estimation uncertainty may be such that the assessed risk of material misstatement at the assertion level is low, but not because that assessment includes an expectation that relevant controls are operating effectively (in other words, the assessed risk of material misstatement is primarily influenced by lower inherent risk). In these circumstances, the auditor may determine that a procedure that addresses management's point estimate at an overall level is sufficiently responsive to the assessed risk of material misstatement. For such accounting estimates, the following procedures may be appropriate:

- Obtaining audit evidence about events occurring up to the date of the auditor's report;
- Developing a point estimate or range based on available audit evidence to evaluate management's point estimate; or
- Performing substantive analytical procedures.

Accounting Estimates with Low Assessed Risk of Material Misstatement and that Assessment Includes an Expectation that Relevant Controls Are Operating Effectively (Ref. Para: 13(b))

A57I. As indicated in paragraph 13(b), the auditor may have assessed the risk of material misstatement as low and that assessment includes an expectation that relevant controls are operating effectively. When this is the case, the auditor is required to perform tests of the relevant controls to obtain audit evidence about their operating effectiveness in accordance with ISA 330. In some circumstances, the tests of controls may not be sufficient, by themselves, to appropriately address the reasons for the assessment given to the risk of material misstatement. If not, the auditor is required by ISA 330 to perform substantive procedures.

Accounting Estimates with an Assessed Risk of Material Misstatement that is Not Low (Ref. Para: 13(c))

A57J. For some accounting estimates, such as those described in paragraph A44J, the extent of complexity, judgment or estimation uncertainty (either individually or in combination) is more likely to influence the auditor's assessment of the risk of material misstatement for the estimate (that is, the auditor's assessment of the risk of material misstatement may be higher as the extent of complexity, judgment and estimation uncertainty involved increases).

A57K. In these circumstances, paragraph 13(c) requires the auditor to design and perform further audit procedures (whether substantive procedures or tests of controls) to obtain audit evidence about the matters in paragraphs 13A to 13C, when applicable. Such procedures also are required to be responsive to the reasons for the assessment given to the risk of material misstatement in accordance with paragraph 10, recognizing that the higher the assessed risk the more persuasive the audit evidence needed.

A57L. As explained in ISA 330,[29] the nature of the procedures is of most importance in responding to the assessed risks. In addition, the reasons for the assessment given to a risk are relevant in determining the nature of audit procedures.[30] The timing and extent of the further audit procedures will vary based on the assessed risk of material misstatement.

Complexity (Ref: Para. 13A)

A59A. When management uses a complex method, an important factor that the auditor may need to consider regarding the appropriateness of the method, and significant data and assumptions, is whether there were other available valuation concepts, techniques or factors, types of assumptions or sources of data that, in the circumstances, might have been more appropriate, or more generally accepted, in the context of the applicable financial reporting framework. The auditor may also consider whether management was able to obtain access to the appropriate skills and knowledge involved in applying the complex method.

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29 ISA 330, paragraph A5

30 ISA 330, paragraph A10

Complex Modelling

A59B. In some cases, management may use a complex model to make an accounting estimate. Whether the complex model used is appropriate in the context of the applicable financial reporting framework may depend on a number of factors, such as the nature of the entity and its environment, including the industry in which it operates, and the specific item being measured.

A59C. The nature and extent of the procedures that may be performed with respect to the complex model depends on its complexity. When complex modelling is needed, the assessed risk of material misstatement is likely to be higher and, therefore, the more persuasive the audit evidence that may need to be obtained.

A59D. The extent to which the following considerations are relevant depends on the circumstances, including whether the complex model is obtained from a third party, or is a proprietary model. Depending on the circumstances, matters that the auditor may consider include, for example, whether:

- The model is validated prior to usage, with periodic reviews to ensure it is still suitable for its intended use. The entity's validation process may include evaluation of:
  - The model's theoretical soundness;
  - The model's mathematical integrity;
  - The accuracy and completeness of the model's data and assumptions; and
  - The model's output as compared to actual transactions.
- Appropriate change control policies and procedures exist.

Understanding or Interpreting Data (Ref: Para. 13A(c))

A59E. An accounting estimate may be based on data that needs to be understood or interpreted. For example, a contract may include complex terms that management needs to understand and interpret based on the facts and circumstances of the entity. Procedures that the auditor may consider when the accounting estimate is based on complex legal or contractual terms include:

- Considering whether specialized skills or knowledge are needed to understand or interpret the contract;
- Inquiring of the entity's legal counsel regarding the legal or contractual terms; and
- Inspecting the underlying contracts, and:
  - Obtaining an understanding of, and evaluating, the underlying business purpose for the transaction or agreement; and
  - Considering whether the terms of the contracts are consistent with management's explanations.

Integrity of Significant Data and Assumptions (Ref: Para. 13A(d))

A59F. Data may be developed internally, or may be obtained from an external information source. When obtaining audit evidence about the integrity of data and assumptions, it may be appropriate for the auditor to compare the data and assumptions with an external information source.

Judgment

The Selection of Methods and the Significant Data and Assumptions (Ref: Para. 13B(a)(i))

A59G. Audit evidence regarding management's selection of methods and significant data and assumptions may be obtained from inquiries of management regarding management's continuing processes of strategic analysis and risk management and inspection of relevant documents (such as committee minutes). Even without formal established processes, such as may be the case in smaller entities, the auditor may be able to evaluate the significant data and assumptions through inquiries of, and discussions with, management, along with other audit procedures in order to obtain sufficient appropriate audit evidence.

Changes From Previous Periods in the Method, or the Significant Data or Assumptions (Ref: Para. 13B(a)(ii)

A59H. The auditor's consideration of a change in an accounting estimate, or in the method for making it from the prior period, is important because a change that is not based on a change in circumstances or new information is unlikely to be reasonable nor in compliance with the applicable financial reporting framework. Arbitrary changes in an accounting estimate result in inconsistent financial statements over time and may give rise to a financial statement misstatement or be an indicator of possible management bias. (see paragraphs A121B–A121F).

A59I. Management often is able to demonstrate good reason for a change in an accounting estimate, the method for making an accounting estimate, or the significant data or assumptions used 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, are matters of judgment.

A59J. As part of the process of making changes to the methods, assumptions, and data used in previous periods, management may evaluate alternative assumptions or outcomes of the accounting estimates, which can be accomplished through a number of approaches depending on the circumstances. One possible approach is a sensitivity analysis. This might involve determining how the monetary amount of an accounting estimate varies with different assumptions. Even for accounting estimates measured at fair value, there can be variation because different market participants will use 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.

A59K. This is not intended to suggest that one particular approach 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 the effect on the accounting estimate that is important, not the specific manner in which it is done. Accordingly, where management has not considered alternative assumptions or outcomes, it may be necessary for the auditor to discuss with management, and request support for, how it has addressed the effects of estimation uncertainty on the accounting estimate (see paragraph 13C(a)).

Considerations specific to smaller entities

A59L. Smaller entities may use simple means to assess alternative assumptions or outcomes. In addition to the auditor's review of available documentation, the auditor may obtain other audit evidence of management's consideration of alternative assumptions or outcomes by inquiry of management. In addition, management may not have the expertise to consider alternative assumptions or outcomes and, therefore, may need to obtain specialized skills or knowledge from an external party (see also paragraph 8(c)(iii)).

Management's Intent and Ability (Ref: Para. 13B(b))

A59M. The reasonableness of the assumptions used may depend on management's intent and ability to carry out certain courses of action. 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 and ability is a matter of professional judgment, the auditor's procedures may include the following:

- Review of management's history of carrying out its stated intentions.
- Review of written plans and other documentation, including, where applicable, formally approved budgets, authorizations or minutes.
- Inquiry of management about its reasons for a particular course of action.
- Review of events occurring subsequent to the date of the financial statements and up to the date of the auditor's report.
- Evaluation of the entity's ability to carry out a particular course of action given the entity's economic circumstances, including the implications of its existing commitments and legal, regulatory, or contractual restrictions that could affect the entity's ability to carry out the course of action.
- Consideration of whether management has met the applicable documentation requirements, if any, of the applicable financial reporting framework.

Certain financial reporting frameworks, however, may not permit management's intentions or plans to be taken into account when making an accounting estimate. This is often the case for fair value accounting estimates because their measurement objective requires that assumptions reflect those used by marketplace participants.

Model Adjustments (Ref: Para. 13B(c)(iii))

A59N. When management has made adjustments to the output of the model (see paragraph A25A to meet the requirements of the applicable financial reporting framework, consideration of those adjustments is likely to be important in obtaining sufficient appropriate audit evidence over risks of material misstatement related to the use of judgment by management. Several types of methods used for the valuation of accounting estimates that require adjustments are for example, fulfilment value accounting for valuing insurance contracts and overlay adjustments when accounting for expected credit losses. In the case of fair value accounting estimates, it may be relevant to consider whether adjustments to the output of the model, if any, reflect the assumptions marketplace participants would use in similar circumstances.

Estimation Uncertainty

Management's Steps to Understand and Address Estimation Uncertainty (Ref: Para. 13C(a))

A59O. When evaluating the steps, if any, management has taken to understand and address estimation uncertainty, the auditor may consider whether the method's (including, when applicable, the model's) design minimizes estimation uncertainty.

Disclosures of estimation uncertainty for accounting estimates (Ref: Para 13C(a)(ii)(b))

A60A. Even when the disclosures are in accordance with the applicable financial reporting framework, the auditor may conclude that the disclosure of estimation uncertainty is unreasonable in light of the circumstances and facts involved. The auditor's evaluation of the reasonableness of disclosure of estimation uncertainty increases in importance the greater the range of possible outcomes of the accounting estimate is in relation to materiality (see paragraphs A60K–A60L).

A60B. In some cases, the auditor may consider it appropriate to encourage management to describe, in the notes to the financial statements, the circumstances relating to the estimation uncertainty. ISA 705 (Revised)[31] provides guidance on the implications for the auditor's opinion when the auditor believes that management's disclosure of estimation uncertainty in the financial statements is inadequate or misleading. If the auditor's consideration of estimation uncertainty associated with an accounting estimate, and its related disclosure, is a matter that required significant auditor attention, then this may constitute a key audit matter (see ISA 701).[32]

When Management Has Not Appropriately Addressed Estimation Uncertainty (Ref: Para. 13C(b))

A60C. In preparing the financial statements, management may be satisfied that it has appropriately addressed the effects of estimation uncertainty. In some circumstances, however, the auditor may view the efforts of management as inappropriate. This may be the case, for example, when, 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 information 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.

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31 ISA 705 (Revised), *Modifications to the Opinion in the Independent Auditor's Report*

32 ISA 701, Communicating Key Audit Matters in the Independent Auditor's Report

A60D. When the auditor believes that the efforts of management are inappropriate, the auditor may consider requesting management to consider alternative assumptions or to provide additional disclosure relating to the estimation uncertainty.

A60E. If, in the auditor's judgment, management has not appropriately addressed the effect of estimation uncertainty, the auditor is required to develop a point estimate or a range to enable the auditor to evaluate the reasonableness of management's point estimate and the disclosures in the financial statements that describe the estimation uncertainty.

A60F. When developing a point estimate or range, the auditor may use different assumptions or a different method from those used by management. It is important for the auditor to obtain a sufficient understanding of the assumptions or method used by management in making the accounting estimate as these may be relevant to the auditor's development of an appropriate point estimate or range and to understand the differences between the auditor's point estimate or range and management's.

A60G. For example, a difference may arise because the auditor used different assumptions compared with those used by management, but both sets of assumptions could be valid in the context of the applicable financial reporting framework. This may reveal that the accounting estimate is sensitive to certain assumptions and therefore subject to estimation uncertainty. Alternatively, a difference may arise as a result of a factual error made by management. Depending on the circumstances, the auditor may find it helpful in drawing conclusions to discuss with management the basis for the assumptions used and their validity, and the difference, if any, in the approach taken to making the accounting estimate.

A60H. 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 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, when possible, a point estimate.

A60I. The ability of the auditor to develop a point estimate, as opposed to a range, depends on several factors, including the method 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 applicable financial reporting framework, which may prescribe the point estimate that is to be used after consideration of the alternative outcomes and assumptions, or prescribe a specific measurement method (for example, the use of a discounted probability-weighted expected value, or the most likely outcome).

A60J. The auditor may develop a point estimate or a range in a number of ways, for example, by:

- Using a model, for example, one that is commercially available for use in a particular sector or industry, or a proprietary or auditor-developed model.
- Using management's model and selecting alternative assumptions or data sources to develop a point estimate or range.

- Developing a point estimate or range for only part of the accounting estimate (for example, when only a certain part of the accounting estimate is giving rise to the risk of material misstatement).
- Further developing management's consideration of alternative assumptions or outcomes, for example, by introducing a different set of assumptions.
- Employing or engaging a person with specialized expertise to develop or execute the model, or to provide relevant assumptions.
- Making reference to other comparable conditions, transactions or events, or, where relevant, markets for comparable assets or liabilities.

A60K. The appropriate methods, assumption and data to use depend on the requirements of the applicable financial reporting framework, and other factors.

The Boundaries of a Range (Ref: Para. 13C(c))

A60L. A range cannot be one that comprises all possible outcomes if it is to be useful, as such a range would be too wide to be effective for purposes of the audit.

A60M. In certain industries, such as financial services or extractive industries, it may not be possible to develop a range within performance materiality and, in some cases, may be multiples of performance materiality. This does not necessarily preclude recognition of the accounting estimate based on the audit evidence obtained. It may indicate, however, that the estimation uncertainty associated with the accounting estimate is such that it gives rise to a significant risk.

Disclosures Related to Accounting Estimates (Ref: Para.13D)

A120. The presentation of financial statements in accordance with the applicable financial reporting framework includes disclosure of relevant matters. The applicable financial reporting framework may permit, or prescribe, disclosures related to accounting estimates, and some entities may disclose voluntarily additional information in the notes to the financial statements. These disclosures may include, for example:

- The method of estimation used, including any applicable model.
- The basis for the selection of the method of estimation.
- Information that has been obtained from models, or from other calculations used to determine estimates recognized or disclosed in the financial statements, including information relating to the underlying data and assumptions used in those models, such as:
  - Assumptions developed internally; or
  - Data, such as interest rates, that are affected by factors outside the control of the entity.
- The effect of any changes to the method of estimation from the prior period.
- The sources and implications of estimation uncertainty.
- Fair value information, including when produced by management's experts.
- Information about sensitivity analyses derived from financial models that demonstrates that management has considered alternative assumptions.

Such disclosures are relevant to users in understanding the accounting estimates recognized or disclosed in the financial statements, and sufficient appropriate audit evidence needs to be obtained about whether the disclosures are reasonable in the context of the applicable financial reporting framework.

A121. In some cases, the applicable financial reporting framework may require specific disclosures regarding uncertainties. For example, some financial reporting frameworks prescribe:

- The disclosure of key assumptions 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."
- The disclosure of the range of possible outcomes, and the assumptions used in determining the range.
- The disclosure of specific information, such as:
    - o Information regarding the significance of fair value accounting estimates to the entity's financial position and performance; and
    - o Disclosures regarding market inactivity or illiquidity.
- Qualitative disclosures such as the exposures to risk and how they arise, the entity's objectives, policies and procedures for managing the risk and the methods used to measure the risk and any changes from the previous period of these qualitative concepts.
- Quantitative disclosures such as the extent to which the entity is exposed to risk, based on information provided internally to the entity's key management personnel, including credit risk, liquidity risk and market risk.

A121A. When the financial statements are prepared in accordance with a fair presentation framework, the auditor's evaluation as to whether the financial statements achieve fair presentation may include the consideration of the overall presentation, structure and content of the financial statements, and whether the financial statements, including the related notes, represent the underlying transactions and events in a manner that achieves fair presentation. Depending on the facts and circumstances, given the importance of accounting estimates to the overall financial statements, the auditor may determine that additional disclosures related to accounting estimates are necessary to achieve fair presentation. This may be the case, for example, when an accounting estimate is subject to significant estimation uncertainty (see paragraphs A122-A123).

Overall Evaluation Based on Audit Procedures Performed (Ref: Para. 13E)

A121B. ISA 330[33] notes that an audit of financial statements is a cumulative and iterative process. As the auditor performs planned audit procedures, the audit evidence obtained may cause the auditor to modify the nature, timing or extent of other planned audit procedures. In relation to accounting estimates, information may come to the auditor's attention through performing procedures to obtain audit evidence about the matters in

33 ISA 330, paragraph A60

paragraphs 13A–13C, when applicable, that differs significantly from the information on which the risk assessment was based.

A121C. For example, the auditor may have identified that the reasons for an assessed risk of material misstatement are limited to the judgment used by management in making the accounting estimate. However, while performing procedures to address the matters in paragraph 13B, as applicable, the auditor may discover that the accounting estimate is more complex than originally contemplated, indicating that the assessment of the risk of material misstatement may need to be revised (that is, the reasons for the assessment now include complexity). Therefore, the auditor may need to perform additional audit procedures to address the matters in paragraph 13A, as applicable. ISA 315 (Revised) contains further guidance on revising the auditor's risk assessment.[34]

A121D. With respect to accounting estimates that have not been recognized, the focus of the auditor's evaluation may be on whether the recognition criteria of the applicable financial reporting framework have in fact been met. When an accounting estimate has not been recognized, and the auditor concludes that this treatment is appropriate, some financial reporting frameworks may require disclosure of the circumstances in the notes to the financial statements.

Misstatements (Ref: Para.13F)

A121E. ISA 450[35] 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, or the selection or application of accounting policies that the auditor considers inappropriate (judgmental misstatements).
- The auditor's best estimate of misstatements in populations, involving the projection of misstatements identified in audit samples to the entire populations from which the samples were drawn (projected misstatements).

A121F. Based on the audit evidence obtained, the auditor may conclude that there is sufficient appropriate audit evidence supporting a point estimate that does not differ from management's point estimate, or a range that includes management's point estimate, which may lead the auditor to conclude that the accounting estimate is reasonable in the context of the applicable financial reporting framework.

A121G. Alternatively, the audit evidence may support a point estimate that differs from management's point estimate, or a range that does not include management's point estimate. When the audit evidence supports an auditor's point estimate that differs from management's point estimate, the difference between the auditor's point estimate and management's point estimate constitutes a misstatement. When the audit evidence supports a range that does not encompass management's point estimate, the difference

[34] ISA 315, paragraph 31

[35] ISA 450, *Evaluation of Misstatements Identified during the Audit*

between management's point estimate and a point in the auditor's range is a misstatement. In such cases, the misstatement is not less than the difference between management's point estimate and the nearest point of the auditor's range, but could be greater.

A121H. Evaluating whether sufficient appropriate audit evidence has been obtained, and whether the accounting estimate is misstated, for accounting estimates and related disclosures included in the notes to the financial statements involves essentially the same types of considerations applied when auditing an accounting estimate recognized in the financial statements.

Indicators of Possible Management Bias (Ref: Para. 21)

A121I. Examples of indicators of possible management bias with respect to accounting estimates include:

- Changes in an accounting estimate, or the method for making it, 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 that may indicate a pattern of optimism or pessimism.

A121J. Indicators of possible management bias themselves do not constitute misstatements for purposes of drawing conclusions on the reasonableness of individual accounting estimates. However, in some cases the audit evidence may point to a misstatement rather than simply an indicator of bias. For example, when management has changed an accounting estimate, or the method of making it, 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 obtained 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.

A121K. Management bias may be more difficult to detect at an account level than when considering 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.

A121L. For example, if each accounting estimate included in the financial statements was individually reasonable but each management point estimate trends toward one end of the auditor's range, such circumstances may indicate possible bias by management in making the estimates. Bias may also be evident from the cumulative effect of changes in multiple accounting estimates. For example, if the estimates in the financial statements are grouped at one end of the range of reasonable outcomes in the prior year and are grouped at the other end of the range of reasonable outcomes in the current year, such changes may be an indicator of possible bias in seeking to achieve an expected or desired outcome, e.g., to offset higher or lower than expected earnings.

A121M. Indicators of management bias may 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 700 (Revised).

A121N. In addition, in applying ISA 240, the auditor is required to evaluate whether management's judgments and decisions in making the accounting estimates included in the financial statements indicate a possible bias that may represent a material misstatement due to fraud. Fraudulent financial reporting is often accomplished through intentional misstatement of accounting estimates, which may include intentionally understating or overstating accounting estimates. Possible indicators of management bias that may also be indicators of a fraud risk may cause the auditor to reassess whether the auditor's risk assessments, in particular the assessment of fraud risks, and related responses remain appropriate.

Written Representations (Ref: Para. 22)

A126. ISA 580[36] discusses the use of written representations. In obtaining written representations that management and, where appropriate, those charged with governance believe the methods and significant data and assumptions used in making the accounting estimates and their related disclosures are appropriate, the auditor is required to consider the need to obtain representations about specific accounting estimates. These representations may address accounting estimates recognized or disclosed, or about decisions not to recognize or disclose an accounting estimate, in the financial statements and may include representations:

- About the appropriateness of the method selected and, where applicable, the model used for making the accounting estimate in the context of the applicable financial reporting framework.
- That the significant assumptions and data sources, including any external information sources, used as inputs in making the accounting estimates are relevant, reliable and appropriate in the context of the applicable financial reporting framework.
- That the significant judgments made in making the accounting estimate have been taken into account all relevant information of which management is aware.
- About the consistency in the selection or application of the method, assumptions and data used by management in making the accounting estimates in the context of the applicable financial reporting framework.
- 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, including disclosures describing estimation uncertainty, are complete and appropriate under the applicable financial reporting framework.
- That appropriate specialized skills or expertise, where necessary, has been applied in making the accounting estimates.

[36] ISA 580, *Written Representations*

- That no subsequent event requires adjustment to the accounting estimates and disclosures included in the financial statements.

A127. For those accounting estimates not recognized or disclosed in the financial statements, written 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 A114).

Communication with Those Charged With Governance (Ref: Para 22A)

A127A. In applying ISA 260 (Revised), the auditor communicates with those charged with governance the auditor's views about significant qualitative aspects of the entity's accounting practices relating to accounting estimates and related disclosures. This may include, when applicable, why the auditor considers a significant accounting practice, which include management's judgments in making the accounting estimates, although acceptable under the applicable financial reporting framework, not to be most appropriate to the particular circumstances of the entity. In communicating those views, matters specific to the accounting estimates that the auditor may consider communicating to those charged with governance include:

(a) The nature and consequences of significant assumptions used in accounting estimates and the degree of subjectivity involved in the development of the assumptions;

(b) The relative materiality of the accounting estimates to the financial statements as a whole;

(c) Management's understanding (or lack thereof) regarding the nature and extent of, and the risks associated with, accounting estimates, particularly financial instruments;

(d) Significant difficulties encountered when obtaining sufficient appropriate audit evidence relating to data obtained from an external data source or valuations performed by management or a management's expert;

(e) Significant differences in judgments between the auditor and management or a management's expert regarding valuations;

(f) The auditor's views about differences between the auditor's point estimate or range and management's point estimate;

(g) The auditor's views about the appropriateness of the selection of accounting policies and presentation of accounting estimates in the financial statements;

(h) The auditor's views about the qualitative aspects of the entity's accounting practices and financial reporting for accounting estimates; and

(i) The potential effects on the entity's financial statements of material risks and exposures required to be disclosed in the financial statements, including the estimation uncertainty associated with accounting estimates.

A121B. In applying ISA 265, the auditor communicates significant deficiencies in internal control to those charged with governance or management, including significant deficiencies regarding accounting estimates. Such communications may include, for example, significant deficiencies related to controls over:

(a) The selection and application of significant accounting policies related to accounting estimates, and the selection and application of methods, assumptions, and data;

(b) Risk management and related systems;

(c) Data integrity, including when data is obtained from an external information source; and

(d) The use, development and validation of models, including third-party models, and any adjustments that may be required.

A127C. In addition to communicating with those charged with governance, the auditor may be permitted or required to communicate directly with regulators or prudential supervisors. Such communication may be useful throughout the audit or at particular stages, such as when planning the audit or when finalizing the auditor's report. For example, in some jurisdictions, financial institution regulators seek to cooperate with auditors to share information about the operation and application of controls over financial instrument activities, challenges in valuing financial instruments in inactive markets, expected credit losses, and insurance reserves while other regulators may seek to understand the auditor's views on significant aspects of the entity's operations including the entity's costs estimates. This communication may be helpful to the auditor in identifying risks of material misstatement.

Documentation (Ref: Para. 23)

A128. Documentation of indicators of possible management bias identified during the audit assists the auditor in concluding whether the auditor's risk assessment and related responses remain appropriate, and in evaluating whether the financial statements as a whole are free from material misstatement. See paragraph A121E for examples of indicators of possible management bias.

Appendix 1

(Ref: Para. 2A–2B)

Measurement Bases of Accounting Estimates

1. The purpose of this appendix is to explain the range of different types of measurement bases that may be used in making an accounting estimate. It is intended to provide context for the auditor's consideration of the extent to which the factors of complexity, the need for the use of judgment, and estimation uncertainty may be inherent in the use of a particular measurement basis.

2 Depending on the characteristics of the measurement basis applied and on the nature and circumstances of the financial statement item, monetary amounts may need to be estimated. Examples of circumstances when accounting estimates may be required when applying a range of common measurement bases are discussed below.

3. Measurement bases reflect measurement objectives to be applied in determining the required monetary amounts that, by their nature, are generally underpinned by either a historical cost or a current value approach, and either an entity-specific or a market-based perspective of value. The nature of financial statement items also varies widely and gives rise to valuation attributes that would be considered relevant from an entity-specific or a market-based perspective, as applicable. The circumstances relevant to the financial statement items, including general economic, regulatory, technological and market conditions, as well as conditions of more specific relevance to the items, may also give rise to relevant valuation factors.

4. Sometimes, accounting estimates can be made based on values for similar or identical items that are observable in similar circumstances, and that reflect the same measurement basis. In other cases, accounting estimates may be made by modelling a value for the item, based on those attributes that would influence the value of the item in the relevant circumstances (valuation attributes), taking into account:

   - The objectives of the measurement basis; and
   - The nature and circumstances of the item.

5. Modelling an accounting estimate may therefore involve determining:

   - The relevant quantitative and qualitative valuation attributes;
   - To the extent relevant attributes are observable, the sources of data that would be appropriate values for those attributes;
   - To the extent relevant attributes are not observable, the types of assumptions that may represent appropriate values for the relevant attributes and the sources of data that would be appropriate to support those assumptions;
   - The method by which such data and assumptions would be used in determining an appropriate value and in developing information about the sensitivity of that value to possible variations in the data and assumptions used; and
   - Where applicable, the nature and extent of any adjustments that may be made to the output from the application of the valuation method, for example to reflect practical limitations of the method not adequately addressed in its conceptual underpinning.

Examples of Circumstances in Which Accounting Estimates May Be Required in Applying Certain Measurement Bases

Historical Cost Measurement Bases

6. Some measurement bases require the use of monetary amounts exchanged or exchangeable for items recorded in the financial statements, in accordance with the terms of transactions that have occurred before the balance sheet date (historical cost). Such amounts may be directly observable (for example, they may be observed in invoices, remittance or payment advices or contract notes or other primary transaction records). When such amounts are not directly observable it may be necessary to estimate the monetary amount that would be exchanged for the item(s). For example, the amounts exchangeable for an item may only be determinable when the outcome of future events or circumstances is known (such as would be the case when part or all of the amount payable for the acquisition of a business depends on the future earnings of the business).

Adjustments and Allocations of Historical Cost Measures

7. Some measurement bases require the use of a historical cost that has been adjusted due to impairment or onerous obligations or that has been allocated between different items or between different periods. The monetary amounts of such adjustments or allocations will often not be directly observable and will need to be estimated.

Impairment

8. The monetary amount of the impairment, if any, of a historical cost measure of an asset at the balance sheet date may not be directly observable, and may depend on future realizations from the use or sale of the item. Even if the impairment of the asset was realized subsequent to the balance sheet date at a monetary amount that was observable, that amount may not reflect the level of impairment at the balance sheet date, as the level of impairment would have been subject to the effects of changes in circumstances between the balance sheet date and the date of realization.

Depreciation or Amortization

9. The depreciation or amortization of an asset's historical cost during its useful life may only be capable of precise allocation to periods before and after the balance sheet date if, for example, both the extent to which the asset's productive capacity has been consumed through productive use up to that date, and the monetary amount attributable to its residual use, are known with certainty. These amounts may not be determinable with certainty until the asset's total productive use has been observed over its useful life and the residual asset has been disposed of. Ordinarily, therefore, neither of these amounts would be directly observable when accounting estimates for depreciation or amortization are required to be used for inclusion in the financial statements during the asset's useful life.

Current Value Measurement Bases

10. Some measurement bases require the use of monetary amounts that reflect information about conditions at the measurement date rather than information based on historical transactions. Such bases may require the use of a market-participant or an entity-specific perspective.

Fair Value

11. Some current value measurement bases require the use of a monetary amount that would have been exchanged for the item if a transaction had occurred between market participants in an active market (fair value) and therefore such an amount, by its nature, cannot be observed directly. However, an estimate of such an amount can often be made based on quoted prices for identical items that are observable in an active market accessible to the entity (level 1 fair value).

12. If not, it may be possible to make an estimate of fair value based on observable inputs other than those used in a level 1 fair value, such as quoted prices for similar items in an active market or quoted prices for identical items in a non-active market or other inputs observed in or corroborated with active markets (e.g., interest rates, yield curves, implied volatilities or credit spreads) (level 2 fair value).

13. Otherwise, an estimate of fair value may have to be made, sometimes using discounted cash flow techniques, based on the best information available in the circumstances, including unobservable inputs to the extent observable inputs are not available, and taking into account all information about market participant assumptions that is reasonably available (level 3 fair value).

Value in Use and Fulfilment Value

14. Some measurement bases require the use of monetary amounts that reflect the present value of the future cash flows that the entity will obtain from using and disposing of an asset (value in use) or will incur in fulfilling its obligations inherent in a liability (fulfilment value). The monetary amounts required by such measurement bases cannot be observed directly but may be estimated using discounted cash flow techniques. In principle, value in use and fulfilment value accounting estimates reflect an entity-specific perspective but some attributes used in making them may be required to reflect a market-participant perspective.

Discounted Cash Flow Techniques

15. Measurement bases that involve the use of discounted cash flow techniques in making accounting estimates generally require attributes such as the following to be addressed:

    - Estimates of the amount and timing of future cash flows arising from the item;
    - Possible variations in the amount and timing of those cash flows, resulting from uncertainty inherent in those cash flows;
    - Time value of money;
    - Price (a risk premium or discount) for bearing the uncertainty inherent in the cash flows; and
    - Other attributes, such as liquidity, that would be taken into account in the circumstances.

Appendix 2

(Ref: Para. 3, 10)

Factors That May be Indicators of Risks of Material Misstatement for Accounting Estimates

1. Paragraph 2 of this ISA indicates that accounting estimates may be subject to or affected by complexity, the need for the use of judgment by management and estimation uncertainty. The extent to which this is the case affects the auditor's identification and assessment of the risks of material misstatement relating to accounting estimates, and the auditor's responses to those assessed risks. Accordingly, these factors are referred to throughout this ISA and this appendix provides additional background information in relation to them.

2. Paragraphs 3 and 10 of this ISA, respectively, introduce these factors and require the auditor to take them, and any other relevant factors, into account in the identification and assessment of the risks of material misstatement related to an accounting estimate. In responding to the assessed risks of material misstatement the auditor is required, when the criteria in paragraph 13(b) and 13(c) of this ISA are met, to perform procedures to obtain sufficient appropriate audit evidence about certain matters, when specified circumstances are applicable, related to each of these factors.

Circumstances Where the Three Factors Are Likely To Be More Prevalent

3. As explained in Appendix 1, the nature of the measurement basis applied and the nature and circumstances of the financial statement item will also influence the extent to which these factors are present and need to be taken into account, when applicable, in:

   (a) Making an accounting estimate of the required monetary amount;

   (b) Understanding the sensitivity of the accounting estimate to variation in those factors; and

   (c) Considering the related disclosures that may be required.

4. Estimates are more likely to be affected by the interrelationship of these three factors, and to a greater extent, when the method involves modelling. Furthermore, the extent to which accounting estimates are subject to or affected by complexity and the need for the use of management judgment is often related closely to the extent to which they are subject to or affected by estimation uncertainty.

Estimation Uncertainty

5. Estimation uncertainty is the inherent uncertainty that makes accounting estimates susceptible to a lack of precision in their measurement. Depending on the nature of the measurement basis applied and on the nature and circumstances of the financial statement item, the monetary amount of the item may be directly observable before the financial statements are finalized or may only be directly observable at a later date or, in some cases, may not be directly observable at all. Estimation uncertainty arises when the required monetary amount for a financial statement item cannot be obtained by observation before the financial statements are finalized and cannot otherwise be determined with precision.

6. Estimation uncertainty may give rise to variation in the possible methods, data sources and types of assumptions that could be used to make the accounting estimate and therefore may

give rise to the need for the use of judgment in making estimates. This in turn may give rise to variation in the possible outcomes of the estimation process (both in the amount of the accounting estimate and in information developed about the sensitivity of that amount to variations in the data or assumptions used). Such variation is relevant in considering how to depict accounting estimates in the financial statements, in accordance with the recognition, measurement, presentation and disclosure requirements of the applicable financial reporting framework.

7. There are inherent limitations in information about relevant valuation attributes, and in available data and assumptions that may be used to support values used for the relevant valuation attributes. As a result, although it is possible to reduce estimation uncertainty by applying available information, it is not possible to reduce estimation uncertainty beyond certain limits. Furthermore, most accounting frameworks acknowledge that the information that should be taken into account may also be limited (and that it is therefore not practical to reduce estimation uncertainty beyond this limit) when the cost of obtaining it would exceed the benefits (the cost constraint). Residual estimation uncertainty therefore reflects what is not practically knowable or is not known about these matters.

8. The extent to which there is residual estimation uncertainty is reflected in the sensitivity of the amount of the accounting estimate to the use of different methods, or to variations in the available data or in the values for the assumptions that could be used, in making the accounting estimate. Although an estimate subject to higher levels of estimation uncertainty may be less precisely measureable than one subject to lower levels, the accounting estimate may still have significant relevance for users of the financial statements if the nature and extent of the estimation uncertainty is appropriately addressed in the financial statements in accordance with the requirements of the applicable financial reporting framework. This is accomplished by appropriately selecting the point estimate to use in the financial statements and appropriately describing the extent, nature and measurement effect of the residual estimation uncertainty. In some cases, estimation uncertainty associated with an accounting estimate may be so great that the recognition criteria in the applicable financial reporting framework are not met and the accounting estimate cannot be recognized in the financial statements, though there may still be relevant disclosure requirements.

Complexity

9. Complexity in making accounting estimates arises when there are multiple valuation attributes and multiple or non-linear relationships between them. Specialized skills or knowledge may, for example, be needed in relation to:

   - Available valuation concepts and techniques that could be used in the context of the measurement basis and objectives or other requirements of the applicable financial reporting framework and how to apply those concepts or techniques;
   - Experience of the underlying valuation attributes that may be relevant given the nature and circumstances of the financial statement items for which accounting estimates are being made; or
   - The availability of appropriate sources of data (including data relevant to the development of appropriate assumptions) from internal sources (including from sources outside the general or subsidiary ledgers) or from external information

sources, or how to address difficulties in obtaining data from such sources or in maintaining its integrity in applying the method.

10. Complexity in applying valuation concepts or techniques may exist when concepts or techniques involve the use of, for example probability-based methods, option pricing formulae or simulation techniques to predict uncertain future outcomes or hypothetical behaviors. Complexity in relation to the method may also exist when multiple sources of data, assumptions or valuation concepts or techniques need to be used in determining the output(s) of the estimation process, including when such items need to be interpreted or processed to obtain derived data or to support the development of assumptions.

11. Complexity in applying valuation concepts or techniques may also relate to data (including data relevant to the development of appropriate assumptions), including when the data is inherently difficult to identify, capture, access or understand. For example:

    (a) Data may be difficult to obtain when it relates to transactions that are not generally transparent to the public at large. Even when such data is accessible through an external information source, it may be difficult to understand unless the external information source discloses adequate information about the underlying data sources it has used and about any data processing that has been performed.

    (b) Data reflecting an external information source's views about future conditions or events, which may be relevant in developing support for an assumption, may be difficult to understand without transparency about the rationale and information taken into account in developing those views.

    (c) Certain types of data may be inherently difficult to understand because they require an understanding of technically complex business or legal concepts, such as may be required to properly understand data that comprises the terms of legal agreements about transactions involving complex financial instruments or insurance products.

Judgment

12. When an accounting estimate is required, the applicable financial reporting framework may not fully specify, for each type of financial statement item and in each possible circumstance, the most appropriate approach to make that accounting estimate. It is also generally not practical for the applicable financial reporting framework to specify all the particular valuation attributes, concepts and techniques that should be used to determine the accounting estimate and related disclosures. As a result, these considerations generally establish a need for the use of judgment by management in making accounting estimate.

13. Judgments are generally also needed to address the inherent information limitations that give rise to estimation uncertainty. In some cases, the level or nature of the inherent limitations in available information may introduce a high degree of subjectivity in making some judgments.

14. The applicable financial reporting framework may provide a basis for making certain judgments, such as explicit or implied objectives relating to measurement, disclosure, the unit of account, or the application of a cost constraint. The applicable financial reporting framework may also highlight the importance of such judgments through requirements for related disclosures.

15. Judgments are generally needed in determining some or all of the following:

    - To the extent not specified under the requirements of the applicable financial reporting framework, the appropriate valuation approaches, concepts, techniques and attributes to use in the estimation method, having regard to available knowledge;
    - To the extent valuation attributes are observable but there are various potential sources of data available, the appropriate sources of data to use;
    - To the extent valuation attributes are not observable, the appropriate assumptions or range of assumptions to use, having regard to the limited data available, including, for example, market views;
    - The range of point estimates that could be appropriate to use in the financial statements and the relative likelihood that different parts of the range would be consistent with the objectives of the measurement basis required by the applicable financial reporting framework; and
    - The appropriate amount to use for the accounting estimate, and the appropriate related disclosures to be made, in the financial statements.

16. Management may also need to make judgments about cost constraints, including valuation attributes that need to be taken into account but are not directly observable and about the best information available in the circumstances.

17. Making assumptions about future events or conditions involves the use of judgment, the difficulty of which varies with the extent to which those events or conditions are uncertain. The precision with which it is possible to predict uncertain future events or conditions depends on the extent to which those events or conditions are determinable based on available knowledge, including knowledge of past conditions, events and related outcomes. This also contributes to estimation uncertainty, as described above.

18. Not all features of a future outcome may be uncertain and assumptions will only need to be made in respect of those features of the outcome that are uncertain. For example, in considering the measurement of a possible impairment of a receivable for a sale of goods at the balance sheet date, the amount of the receivable may be unequivocally established and directly observable in the related transaction documents. What may be uncertain is the amount, if any, for loss due to impairment. In this case, assumptions may only be required about the likelihood of loss and about the amount and timing of any such loss.

19. However, in other cases, the amounts of cash flows embodied in the rights relating to an asset may be uncertain (for example, the amount of compensation for loss claimed in an ongoing litigation may be highly uncertain). In those cases, assumptions may have to be made about both the amounts of the underlying rights to cash flows and about potential losses due to impairment depending on the creditworthiness of the party against whom the claim is made.

20. Some uncertain outcomes may be relatively easy to predict with a high level of precision for an individual item. For example, the useful life of a production machine may be easily predicted if sufficient technical information is available about its average useful life. When it is not possible to predict a future outcome, such as an individual's life expectancy based on actuarial assumptions, with reasonable precision, it may still be possible to predict that outcome for a group of individuals with greater precision. Measurement bases may, in some

cases, indicate a portfolio level as the relevant unit of account for measurement purposes, which may reduce inherent estimation uncertainty.

21. In other cases, it may be necessary to consider information about past conditions and events, together with current trends and expectations about future developments. Past conditions and events provide historical information from which repeating historical patterns of behavior relating to uncertain valuation attributes may be discerned and extrapolated in evaluating future outcomes. Such historical information may also indicate changing patterns of such behavior over time (cycles or trends). These may suggest that the underlying historical patterns of behavior have been changing in somewhat predictable ways that may also be extrapolated in evaluating future outcomes. Other types of information may also be available that indicate possible changes in historical patterns of such behavior or in related cycles or trends. Difficult judgments may be needed about the predictive value of such information.

22. The extent and nature (including the degree of subjectivity involved) of the judgments taken in making the accounting estimates may create opportunity for management bias in making decisions about the course of action that, according to management, is appropriate in making the accounting estimate. When there is also a high level of complexity or a high level of estimation uncertainty, or both, the opportunity for management bias and the ability to conceal it may also be increased. The need to remain professionally skeptical is important when the nature and extent of judgment, complexity and estimation uncertainty is increased.