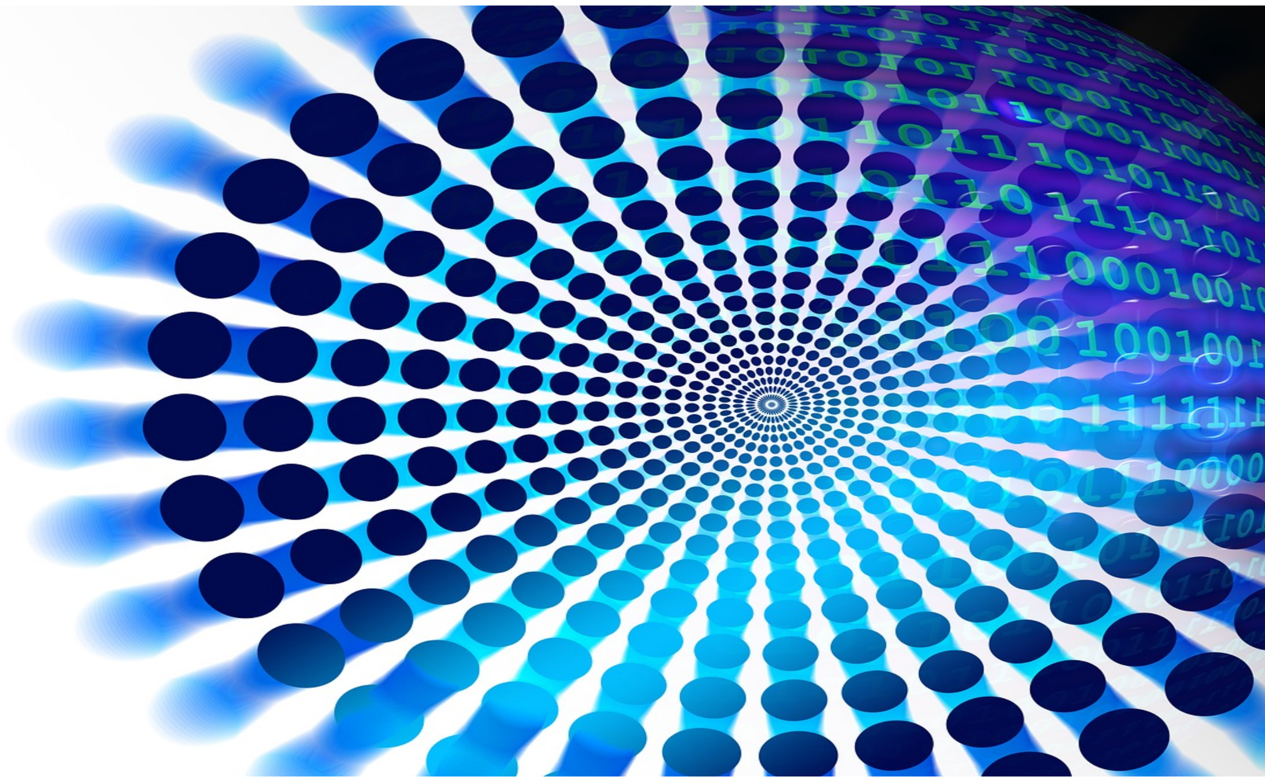
ISA 540 (Revised) Implementation – Expected Credit Losses Illustrative Examples August 2020



International Auditing and Assurance Standards Board

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The IAASB develops auditing and assurance standards and guidance for use by all professional accountants under a shared standard-setting process involving the Public Interest Oversight Board, which oversees the activities of the IAASB, and the IAASB Consultative Advisory Group, which provides public interest input into the development of the standards and guidance. The structures and processes that support the operations of the IAASB are facilitated by the International Federation of Accountants (IFAC).

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ISA 540 (Revised) Implementation – Illustrative Examples

This publication has been prepared by a Working Group of the International Auditing and Assurance Standards Board (IAASB) following the approval of International Standard on Auditing (ISA) 540 (Revised), *Auditing Accounting Estimates and Related Disclosures*. Reading this publication is not a substitute for reading the International Standards on Auditing (ISAs) nor does it amend or override the ISAs, the texts of which alone are authoritative. The illustrative examples include explanations of how certain requirements of ISA 540 (Revised) may be applied but do not represent the audit documentation that would be prepared.

Introduction

The following illustrative examples are designed to illustrate how an auditor could address certain requirements of ISA 540 (Revised), and have been developed to assist the auditor in understanding how ISA 540 (Revised) may be applied:

1.	IFRS 9 Impairment (ECL) – Credit Cards	These examples specifically address audit considerations relating to different characteristics of an Expected Credit Loss (ECL) estimate, in accordance with a financial reporting framework, specifically IFRS 9.[1]
2.	IFRS 9 Impairment (ECL) – Significant Increase in Credit Risk	
3.	IFRS 9 Impairment (ECL) – Macroeconomic Inputs and Data	

The examples illustrate accounting estimates with varying characteristics and degrees of complexity. Each example illustrates a selection of requirements from ISA 540 (Revised). Not all requirements are addressed in each example, nor do they cover all parts of those requirements that have been selected. The requirements selected across each example vary to illustrate different aspects of ISA 540 (Revised) and to focus on those requirements that are most relevant to the example.

In general, due to the complexity surrounding the estimation of ECL, the auditor is likely to follow an approach of testing how management has made the accounting estimate[2] rather than obtaining audit evidence from events occurring after the date of the financial statements up to the date of the auditor's report,

1 International Financial Reporting Standard (IFRS) 9, *Financial Instruments*

2 ISA 540 (Revised), paragraph 18(b)

or developing a point estimate or range.[3] As such, appropriately identifying and assessing the risks of material misstatement in management's approach (and responding to them) may be critical and these examples focus on these aspects of ISA 540 (Revised).

These examples use the following format:

Selection of ISA 540 (Revised) Requirements	Relevant Considerations	Auditor's Understanding and Approach
This column contains extracts from the requirements of ISA 540 (Revised). It is not a substitute for reading the standard and does not contain the objectives, definitions and application material that are necessary to apply the requirements properly.	This column provides guidance on considerations that are generally applicable to the specific scenario and therefore relevant when obtaining an understanding and designing the audit approach. This column also provides, where relevant, additional context of the requirements of IFRS 9 that are necessary to understand the auditor considerations described therein.	This column provides examples of how the auditor may have responded to the requirements, including describing procedures that were performed and possible outcomes. It is not intended to: • Cover other possible outcomes; • Describe every procedure that may be possible to comply with the relevant requirement; or • Address all the relevant considerations in the second column.

The three ECL examples are intended to be read together, as requirements that are addressed in one example may also be relevant to another example. For example, the Macroeconomic Inputs and Data example is focused primarily on the audit implications of such data, and does not repeat material in the other examples, which nevertheless may be relevant and applicable to that example more broadly.

Illustrative Examples Not Covered in this Publication

Simple and complex illustrative examples, which demonstrate how an auditor may address selected requirements of ISA 540 (Revised) in the context of the audit of the financial statements of an entity with simple and complex accounting estimates, respectively, are available at:

https://www.ifac.org/system/files/publications/files/ISA-540-Illustrative-Examples-1-and-2-Simple-and-Complex_Final.pdf.

[3] ISA 540 (Revised), paragraphs 18(a) and 18(c)

Example 1 – Application of Select Aspects of ISA 540 (Revised) to IFRS 9 Impairment (ECL) – Credit Cards

Background

The audited bank issues unsecured credit cards to retail customers. Under IFRS 9, the bank has assessed the credit cards are managed in a held-to-collect business model and the cash flows represent solely payments of principal and interest. As a result, the credit cards are measured at the reporting date on an amortized cost basis adjusted for any impairment allowance. The impairment allowance is measured on an ECL basis. In order to estimate this, the bank has an established a robust internal process to model and validate ECL, based on the following approach:

$ECL = (PD \times EAD \times LGD)_{ES}$

Where:

- PD = Probability of default (12 month or lifetime, as appropriate) of a given credit card
- EAD = Exposure at default of a given credit card
- LGD = Loss given default of a given credit card
- ES = The ECL is estimated in the context of a management determined future economic scenario

The principle of the ECL model is to measure expected credit losses in a way that reflects an unbiased and probability-weighted amount that is determined by evaluating a range of possible outcomes. Adhering to this principle is inherently complex and subjective as it relies on management applying judgment, in a number of areas. Management’s modelling technique is complex, and there are significant assumptions and subjective judgments in assessing the lifetime of the card, the process for determining thresholds applied when assessing significant increase in credit risk (SICR) and in forecasting future levels of credit losses and volatility or future economic conditions, amongst others. Given the extent and complexity of management judgment applied when estimating ECL, the estimation uncertainty results in the ECL estimate being classed by management as a significant accounting estimate.

Application of ISA 540 (Revised)

The table below gives illustrative examples of the auditor's understanding and approach that may be followed in relation to selected requirements of ISA 540 (Revised). The example does not address all the requirements of the standard. In addition, other events, conditions or factors may be relevant in the specific circumstances of an engagement that may also need to be considered.

The auditor has determined a significant risk of material misstatement of the valuation of the ECL estimate.[4]

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
Risk Assessment Procedures and Related Activities		
13. When obtaining an understanding of the entity and its environment, including the entity's internal control, as required by ISA 315 (Revised),[8] the auditor shall obtain an understanding of the following matters related to the entity's accounting estimates. The auditor's procedures to obtain the understanding shall be performed to the extent necessary to provide an appropriate basis for the identification and assessment of risks of material misstatement at the financial statement and assertion levels. (Ref: Para. A19–A22)	Credit card products and the associated interactions with customers vary by geography and other factors such as customer risk profile. These products are often highly regulated, so obtaining an understanding of these constraints as part of planning and risk assessment procedures is important.	The auditor made inquiries of management and understood the legal and regulatory framework to identify the transactions that would give rise to the bank recognising and disclosing an ECL estimate. Based on these enquiries, the auditor determined that the audited bank issues unsecured credit cards to retail customers. The credit cards are grouped into two distinct products, "traveller's cards" and "regular cards." The auditor's understanding is that the **traveller's card** incentivises the cardholder to use the card by offering a free travel insurance for each travel booking paid with the card. The card has the following characteristics:

[4] This is further discussed in the table below.

[5] Refer to the relevant application material.

[6] These aim to provide context to assist in the auditor's understanding and approach - these are not intended to be exhaustive.

[7] These are intended to illustrate possible outcomes for this example - these do not illustrate all possible outcomes.

[8] ISA 315 (Revised), paragraphs 3, 5–6, 9, 11–12, 15–17, and 20–21

The Entity and Its Environment (a) The entity's transactions and other events and conditions that may give rise to the need for, or changes in, accounting estimates to be recognized or disclosed in the financial statements. (Ref: Para. A23)		• The traveller's cards are designed as charge cards (i.e., the cardholder is required to repay the balance in full at every monthly due date). • There is no absolute credit limit. • The bank has established policies and procedures addressing the approval of a transaction at the point of sale. • The bank can suspend or cancel the card at its discretion even if the customer pays on time and the card is not in default. The bank has done so in practice. • The bank determines that a SICR has occurred no later than when contractual payments are 30 days past due. The auditor's understanding is that the **regular card** incentivises the cardholder to use the card by a bonus point system, which allows the cardholder to collect bonus points on every payment made with the card and redeem those bonus points for goods or services. The card has the following characteristics: • The regular cards consist of a credit limit available to customers in good standing. • Once the regular card is used, the draw down remains interest free for a product-specific period of time (the interest grace period) after which it incurs interest at a

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		higher interest rates than would be the case for fixed term secured lending. • Customers may choose to repay at the end of the interest grace period, thereby using the regular card as a convenient payment mechanism, or continue to finance the transaction over a period chosen by the customer, subject to certain minimum payment requirements (i.e., the card agreement has no stated maturity date but drawn balances are subject to minimum repayment schedules). • The bank has the contractual ability to cancel the card account at its discretion even if the customer pays on time and the card account is not in default. • The bank rarely cancels the accounts of customers that have not been and are not delinquent. • The bank determines that a SICR has occurred no later than when contractual payments are 30 days past due. • When contractual payments are 60 days past due, the ability of the customer to draw is put on hold. If the customer then makes all past due payments and is no longer delinquent, then the bank may reinstate the customer's ability to draw.

<table>
<tr><th>Selection of ISA 540 (Revised) Requirements[5]</th><th>Relevant Considerations[6]</th><th>Auditor’s Understanding and Approach[7]</th></tr>
<tr><td></td><td></td><td>When contractual payments reach 90 days past due, the exposure is considered to be in default and the account is considered to be credit impaired. At that time, the commitment is cancelled.</td></tr>
<tr><td>(b) The requirements of the applicable financial reporting framework related to accounting estimates (including the recognition criteria, measurement bases, and the related presentation and disclosure requirements); and how they apply in the context of the nature and circumstances of the entity and its environment, including how transactions and other events or conditions are subject to, or affected by, inherent risk factors. (Ref: Para. A24–A25)</td><td>In order to understand the applicable financial reporting framework, the auditor would obtain an understanding of IFRS 9 and evaluate how it had been implemented by the bank, including considering the IFRS 9 accounting policies and approach to managing model risk.

The IFRS 9 accounting policies are significant because, although IFRS 9 prescribes certain principles for determining ECL, it does not prescribe a single method for how such principles must be applied and, consequently, the bank is required to make a number of significant, often complex, judgments. Management should, as part of its process for developing accounting policies, be able to evidence its evaluation of determining its accounting policies. For open-ended products such as credit cards, understanding the application of the bank’s accounting policy in this area is likely an important consideration.

The applicable financial reporting framework requires the impairment allowance to be measured on an ECL basis.</td><td>The auditor confirmed that the bank’s accounting policy requires the impairment allowance to be measured on an ECL basis.

The auditor documented and evaluated the:
Bank’s interpretation of the requirements of IFRS 9;
Bank’s assessment of the expected life of the credit card products due to the judgment involved in determining the EAD calculation;
Key decisions and judgments made by management in selecting the bank’s policies; and
Processes and controls relating to the bank’s assertion surrounding completeness, compliance and the consistent application of such policies.
Management’s assessment of the products as they relate to expected life highlighted the following:</td></tr>
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Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	ECLs are a probability-weighted estimate of credit losses over the *expected life.* For certain revolving financial instruments within the definition of IFRS 9.5.5.20, the *expected life* represents the period over which the bank is exposed to credit risk (which ECLs would not be mitigated by the bank's normal credit risk management actions), even if that period extends beyond the maximum contractual period (IFRS 9.5.5.20 and IFRS 9.B5.5.39-40).	(a) Traveller's card • The contractual limits are zero and so future drawdowns would not be taken into account. • As there is no undrawn element (i.e., there is no firm commitment to extend credit) the facility falls outside the scope of the exception in IFRS 9.5.5.20. (b) Regular card • The regular cards would fall within the ambit of the exception in IFRS 9.5.5.20, considering the paragraphs requirements. • In determining the period that the entity is exposed to credit risk – and for which ECLs would not be mitigated by credit risk management actions – the bank considered its practice of putting accounts on hold after 60 days past due. • The bank considers its expectations about future drawdowns over the expected life of the portfolio - or over the next 12 months if there has not been a SICR - using its credit risk models.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		The auditor considered how inherent risk factors may affect events or conditions relevant for the credit cards: • The credit risk models are reliant on data that is not traditional financial reporting information. Accordingly, there is significant judgment involved in selecting appropriate data and a risk that it is not complete or accurate. • ECL is an area susceptible to management bias considering the amount of judgment in determining how to apply the ECL principles. The auditor noted that due to the unique nature of revolving facilities, IFRS 9 has specific accounting requirements for revolving products. IFRS 9.5.5.20 contains an exception related to the maximum period to consider when measuring expected credit losses. Further consideration of inherent risk factors with regards to the financial reporting framework, is included, below, within the paragraph 16 inherent risk assessment.
The Entity's Internal Control (e) The nature and extent of oversight and governance that the entity has in place over management's financial reporting process relevant to	Given the highly judgmental nature of the ECL approach, oversight and governance procedures would be expected to have been established by the bank to monitor and evaluate the ECL estimate.	The auditor made inquiries of, and obtained evidence from, those charged with governance and oversight of the impairment process. The following relevant control activities were identified

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
accounting estimates. (Ref: Para. A28–A30).	This would ordinarily be expected to include an evaluation of the bank's approach to managing model risk. • Model risk policies often set out the key activities performed, such as the nature and frequency of model validation and monitoring / back-testing, and controls over assessing the completeness and accuracy of data used in the model. Given the complex nature of the ECL models, the level of sophistication of the bank's model controls may have a significant impact on the auditor's response to the risks of material misstatement. • Understanding and evaluating the design of bank's model risk policies is often key in determining the level of control risk that exists over the calculation, as well as the level of evidence to be obtained from testing of the bank's relevant internal controls.	by the auditor related to the traveller's card and regular card: • The Board of Directors created the *Group Credit Risk Committee* for the oversight of credit risk and the measurement of the ECL.[9] The Committee comprises members of the credit risk and finance functions. • The *Group Finance Department* determines the ECL accounting policies in compliance with IFRS 9 and, where appropriate, relevant regulatory guidance. These policies are approved on an annual basis by the *Group Finance Oversight Committee*. • A separate *Group Credit Risk Department*, reporting to the *Group Credit Risk Committee*, is responsible for managing the Group's credit risk processes and policies (consistent with the ECL accounting policies), including the following: ○ Formulating credit policies in consultation with business units; ○ Establishing the authorization structure for the approval and renewal of credit facilities; and

[9] The bank followed the Basel Committee on Banking Supervision ("Basel Committee")'s *Guidance on Credit Risk and Accounting for Expected Credit Losses* ("GCRAECL") (December 2015). The guidance sets out supervisory guidance on sound credit risk practices associated with the implementation and ongoing application of ECL accounting frameworks.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		○ Developing and maintaining the Group's processes for measuring ECL. This includes processes for: - Assessment of significant accounting judgments in conjunction with the finance function; - Initial approval, regular validation and back-testing of models used; - Determining and monitoring SICR; and - Incorporation of forward-looking information. • Each business unit is required to implement the Group credit policies and procedures, with credit approval authorities delegated from the *Group Credit Committee*. Each business unit is responsible for the quality and performance of its credit portfolio and for monitoring and controlling all credit risks in its portfolio, including those subject to central approval. • Regular audits of business units and Group Credit processes are undertaken by internal audit. Upon inspection of the internal audit report of the Credit Card business unit for

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		the period under review, the auditor determined that the internal auditors had issued a satisfactory report. The report confirmed the auditor's expectation and understanding of the initial risk assessment as it was consistent with the results of other risk assessment activities such as inquiries with management and review of meeting minutes. • The development and maintenance of a model risk policy in compliance with regulatory requirements and guidance. The auditor involved credit risk specialists, with the appropriate skills and knowledge, in order to evaluate the model risk policies due to the complexity of the estimate and to inform the auditor's consideration of the impact of the policies on the risk assessment for the estimate of ECL. Other procedures would be required with respect to the model risk policy.
(i) Control activities relevant to the audit over management's process for making accounting estimates as described in paragraph 13(h)(ii). (Ref: Para. A50–A54)	The bank's ability to support reasonable estimates of ECL will be dependent upon a robust system of internal control over the critical sources of information, processes and models upon which the bank's estimate of ECL is based. Estimates of ECL will be dependent upon the unique information, experience and perspective of each bank. Accordingly, key components of these	The auditor understood and evaluated the design and implementation of the controls in the impairment process as part of their risk assessment procedures and observed that control activities at the audited bank were extensive in nature and the heads of the credit card business units were actively involved in the sign-offs required. The following relevant control

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<tr><td></td><td>estimates will be subjective in nature and susceptible to management bias. The bank's system of internal control would typically be expected to address:
• The relevance and reliability of historical information, including information sourced from outside of the finance function or obtained from third party sources;
• The appropriateness of accounting policies, especially those requiring the exercise of judgment, such as when a credit exposure has experienced a SICR;
• The development, maintenance and validation of models, including the appropriateness of any overlays;
• The development and selection of economic and other assumptions;
• The bank's overall review of the estimate and identifying and mitigating potential management bias; and
• The clarity and reasonableness of related ECL disclosures.
It is important to note that banks will typically have a well-controlled, well-documented, well-supported and repeatable process for estimating ECL. Banks without such robust, end-to-end internal controls over their full estimation process,</td><td>activities were identified by the auditor, which were implemented for both types of credit cards:
• Review by a function independent from the preparer and validation of ECL models by management;
• Review and challenge of key assumptions in the period-end ECL estimation by a management committee, including forecasts of future macroeconomic conditions, probabilities of different possible outcomes and overlays applied to the period-end valuation;
• Governance process around ECL estimation, including multi-layer reviews of key policies, judgments and ECL estimation outcomes by management and those charged with governance;
• General (information technology) IT and reconciliation controls related to data used in the ECL estimation process and data transfers between different systems, particularly reconciliations of data obtained from different risk and finance systems;
• Controls over data inputs used in the ECL estimation process, including inputs or other information obtained from external information sources;</td></tr>
</table>

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	may have estimates of ECL that lack proper evidentiary support.	• Controls over assumptions used in the ECL estimation process, including management review controls that considered whether the assumptions are consistent with each other and with those used in other accounting estimates, or with related assumptions used in other areas of the entity's business activities; • Logical and physical access controls, change management controls and controls over computer operations over the application and IT infrastructure used to implement the ECL calculation process; • Controls to ensure assets are properly assessed for SICR, with reference to the 30-days-past-due criteria; and • Review by a function independent from the preparer of the ECL assessment performed at an individual exposure level, including assessment of expected cash flows under different recovery scenarios and probabilities of these scenarios.
(j) How management reviews the outcome(s) of previous accounting estimates and responds to the results of that review.	The utilization of a retrospective review is a common and accepted practice used to assess whether model behaviour is consistent with a model's intended purpose. Back-testing is one method of using hindsight to validate models or	The auditor observed that management formally reviewed the back-testing performed over modelled effects of economic conditions on probabilities of default for the credit card portfolios.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	components thereof where appropriate; alternatives include stress testing, benchmarking and other, more qualitative methods. Estimates of ECL under IFRS 9 are not the bank's estimate of the losses they expect to experience in a given portfolio, but rather a summation of 12-month (for assets in stage 1) and lifetime ECL (for assets in stage 2) that are probability weighted by different economic scenarios. Accordingly, efforts to compare the bank's actual experienced losses against prior overall ECL estimates may be less insightful for estimates of ECL under IFRS 9. However, various components of the bank's ECL estimation process will more easily lend themselves to evaluation utilizing hindsight. For example, back-testing may be performed to validate the modelled effects of economic conditions on probabilities of default. Another example would be the back-testing of key accounting judgments such as SICR through the use of key performance indicators (KPIs) such as measuring credits defaulting without use of stage 2. The auditor may consider whether models are adjusted appropriately for relevant new historical information, after considering the impact of differences between predicted and actual results.	They also specifically monitor the performance of their SICR criteria by assessing the following parameters: • Time spent in stage 2 before default. • Number of incidents caught by backstop. • Manual overrides of SICR criteria. In addition, the auditor inspected that a formalized validation process was in place as a control activity performed by the bank, which included an assessment of potential updates and change-control procedures to the banks credit card models.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	The auditor may consider whether the models are appropriately updated or adjusted on a timely basis for changes identified as necessary by the bank's model testing and validation process and whether there are appropriate change-control policies over the model.	
15. With respect to accounting estimates, the auditor shall determine whether the engagement team requires specialized skills or knowledge to perform the risk assessment procedures, to identify and assess the risks of material misstatement, to design and perform audit procedures to respond to those risks, or to evaluate the audit evidence obtained. (Ref: Para. A61–A63)	Due to the complexity and subjectivity of the estimate, the auditor may determine that the engagement team requires specialized skills or knowledge in order to evaluate the considerations regarding the ECL value. The auditor may need to involve appropriate experts in disciplines such as credit risk, modelling, economic forecasting and IT systems. In addition to knowledge of the relevant accounting and financial reporting framework, auditors of financial statements of banks require knowledge of, and experience in, the banking industry and its unique risks.	Based on the complexity of the ECL estimate and considering the existing knowledge and skills of the audit team, the auditor determined that the following specialized skills were required in performing the audit procedures: • IT specialists: IT skills and knowledge are required to understand and perform procedures related to the IT implementation of the ECL models. • Modelling specialists: Modelling specialists are essential to understand and perform procedures related to the ECL models in place at the bank.
Identifying and Assessing the Risks of Material Misstatement		
16. In identifying and assessing the risks of material misstatement relating to an accounting estimate and related disclosures at the assertion level, as	ECL estimates often contain a high degree of estimation uncertainty because of inherent inability to measure them precisely, and are affected by complexity in the model applied in calculating the expected loss, and subjectivity in	The auditor's assessment of inherent risk and control risk took into account the following understanding:

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
required by ISA 315 (Revised),[10] the auditor shall separately assess inherent risk and control risk. The auditor shall take the following into account in identifying the risks of material misstatement and in assessing inherent risk: (Ref: Para. A64–A71): (a) The degree to which the accounting estimate is subject to estimation uncertainty; and (Ref: Para. A72–A75) (b) The degree to which the following are affected by complexity, subjectivity, or other inherent risk factors: (Ref: Para. A76–A79) (i) The selection and application of the method, assumptions and data in making the accounting estimate; or (ii) The selection of management's point estimate and related disclosures for inclusion in the financial statements.	the selection of assumptions and valuation attributes. The auditor would take into account the characteristics of the portfolio of credit card exposures when assessing the degree to which the ECL modelling approach is subject to estimation uncertainty and the degree to which the method, assumptions and data in making the accounting estimate or selecting management's point estimate are affected by complexity, subjectivity or other inherent risk factors. Relevant considerations in assessing those inherent risk factors may include: (a) The basis of applying or modelling the requirements of IFRS 9; (b) Economic conditions impacting credit card utilization and credit losses; (c) Credit worthiness, or credit risk, of a bank's borrowers; (d) The bank's credit underwriting standards; (e) Customer behavioral trends impacting borrower repayment patterns or the behavioral lives of credit cards;	**Regular cards** • The bank's **regular** credit card product is structured to provide the customer with both borrowing and payment flexibility. This characteristic creates challenges for calculating expected credit losses for credit card portfolios due to the varied product types, the data and transaction volume and the requirement to incorporate forward-looking information. The auditor concluded that there is a heightened level of complexity with regard to valuation. This overall determination was based on analyzing relevant considerations related to the portfolio, which is expanded on below. • In addition to that, the auditor noted that the bank has changed its internal risk management in a way that new early warning indicators have been implemented in order to allow the bank to anticipate an increase in credit risk and enable a reduction of credit limits as a reaction. This new early warning system and the resulting risk management actions of the bank can have an impact on the EAD of a credit card that was not present in the historical experience. As a result, management

[10] ISA 315 (Revised), paragraphs 25 and 26

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	(f) Impact of credit card incentivization strategies impacting behavioral lives of credit cards; and (g) Changes in the regulatory requirements. Underlying inherent risks may need to be disaggregated into multiple individual financial statement risk points for the purpose of assessing and responding to the risks of material misstatement. For example, if management has chosen to assess whether credit cards have suffered a SICR by using only its own credit data on its customers rather than also using credit bureau data on its customers, this may have an impact on the ECL estimate. In addition, audit attention would be given, when relevant, to methods applied in the determination of post-model adjustments (PMA) or model overlays. Management overlays or PMAs can be recognized in addition to the modelled ECL balance to account for known deficiencies of the model or insufficiency of the data. The auditor would ordinarily obtain and review management's documentation supporting the PMAs and evaluate their validity and valuation, challenging the reasoning and quantification provided by	applied judgment in determining the impact of the new system. The auditor concluded that there is a heightened level of subjectivity with regard to valuation. • Consequently, the new early warning system indicated contradictory evidence over a portion of regular credit cards which had a greater than expected credit risk associated with them. Upon further investigation, this was due to insufficient data covering a small number of specific regular credit cards. Management determined a PMA value to address the matter. The small number of credit cards in the overall regular card portfolio impacted limited management's ability to intentionally bias the PMA value. The auditor inspected the management prepared documents and calculations surrounding the PMA and determined that no risk of material misstatement existed in relation to the value of the PMA. **Traveller's cards** • The bank's **traveller's** card is structured as a charge card and the bank has established policies and procedures addressing the approval of a transaction at the point of sale. The short-dated nature of the card

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	management. This may include considering any available contradictory evidence and performing substantive testing of the quantification workings. The auditor may also evaluate whether any additional PMAs may need to be recognized based on their understanding of the model and the underlying portfolio and challenge management on how they were considered.	provides management with the ability to review the estimate on a timely basis and provides the auditor the option to obtain evidence from events occurring up to the date of the auditor's report. *[Note: This illustrative example focuses on the considerations regarding the basis of applying or modelling the requirements of IFRS 9. It does not cover the other considerations listed in the adjacent column, although the auditor would consider them when identifying and assessing the risks of material misstatements.]* Taking the above circumstance into account, the auditor performed a detailed inherent risk assessment over both portfolios and noted the following characteristics: (a) The credit information required for each credit card indicated that: • Traveller's card: Individual draw down. • Regular card: Internal limit. As this would be applicable for each credit card, considering the size of the portfolio, this consideration indicates the large volumes of transactions and related credit data involved when calculating ECL for the credit card portfolio.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		(b) Upon evaluating the exception under IFRS 9.5.5.20, in line with paragraph 13(b) above: • Traveller's card: Exception does not apply. • Regular card: Exception applies. This impacts the evaluation of the expected life of the products and thereby the uncertainty involved in calculating EAD. (c) Upon evaluation of the PD model inherent risks, which are applicable to both portfolios of credit cards: The PD models are dependent on: • The estimated lifetime of the financial asset; • The estimation of number of customers that become borrowers and ultimately default; and • Large volumes of data. These features increase the estimation uncertainty and subjectivity surrounding the selection and application of the PD method in determining the ECL value.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		(d) Upon evaluation of the LGD model inherent risks, which are applicable to both portfolios of credit cards: The LGD models are dependent on: • The unsecured nature of the product impacting estimates; • The consideration of the treatment of bankruptcy; and • Large volumes of data. These features increase the estimation uncertainty and subjectivity surrounding the selection and application of the LGD method in determining the ECL value. (e) Upon evaluation of the EAD model inherent risks, which are applicable to both portfolios of credit cards: The EAD models are dependent on: • The estimated lifetime of the financial asset; • Contractual credit limits; and • Drawdowns. These features increase the estimation uncertainty and subjectivity surrounding the selection and application of the EAD method in determining the ECL value.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		(f) It was challenging for both portfolios to predict future draw downs, credit risk management actions and repayments as there is no fixed contractual amortization. This increases the estimation uncertainty and subjectivity surrounding the selection and application of the data and assumptions in determining the ECL value. Based on the above, (and taking into account the remaining considerations not detailed above as well as their impact on the inherent risk factors), the auditor assessed the inherent risk of material misstatement of the valuation of the ECL estimate for regular cards to be high and for traveller's cards as low. Based on the auditor's evaluation of the design and implementation of controls, within the control activities component (paragraph 13(i)), the auditor assessed control risk as low, considering the planned reliance on the effective operation of controls that were responsive to the assessed inherent risk. This assessment was reached as the entity's controls were expected to address the risks of misstatement resulting from the ECL estimate at the valuation assertion level. The auditor determined that an approach of testing how management made the accounting

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		estimate was appropriate (see "*Responses to the Assessed Risks of Material Misstatement*" below).
17. The auditor shall determine whether any of the risks of material misstatement identified and assessed in accordance with paragraph 16 are, in the auditor's judgment, a significant risk.[11] If the auditor has determined that a significant risk exists, the auditor shall obtain an understanding of the entity's controls, including control activities, relevant to that risk.[12] (Ref: Para. A80)	When identifying and assessing risks of material misstatement, the auditor considers where in the estimation process risks of material misstatement arise, and what level of inherent risk arises for each, informed by the auditor's consideration of inherent risk factors. For example, relationships between underlying assumptions in the ECL estimates may not be linear - credit card utilization may rise in periods of mild recession but fall in periods of severe recession, while a charge card is likely to generate a lower ECL in most economic scenarios (as the customer cannot use it as a borrowing product). However, severe economic scenarios may display higher instances of default for a charge card as the product provides no ability for the customer to spread repayments. Additionally, where assumptions are highly judgmental, they may be susceptible to risk of management bias, which if intentional and intended to mislead may give rise to fraud risks. Where a risk of material misstatement due to fraud is identified, this is a significant risk.	Based on considering the assessment of inherent risk for the credit card portfolios, which assessed the degree to which the ECL estimate was subject to, or affected by estimation uncertainty, complexity, subjectivity and other inherent risk factors, the auditor determined that there was a significant risk of material misstatement of valuation for the regular cards due to the following reasons: • Inaccurate EADs being generated by the models. These models may be inappropriate if EAD models do not accurately predict defaulted exposures over time, become out of line with internal risk management actions or wider industry experience. The EAD models are more complex because of the impact of customer behavior on revolving balances and more subjective because of the change in the bank's risk management actions with regard to undrawn limits. • A risk due to fraud in the valuation of the regular card ECL with respect to

[11] ISA 315 (Revised), paragraph 27

[12] ISA 315 (Revised), paragraph 29

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	The auditor considers available information, including, but not limited to, industry-level loss trends and financial services regulatory stress tests in informing its views of the drivers and significance of the inherent risk factors.	management judgment relating to the selection of scenarios, the associated scenario probabilities and the material economic variables which drive the scenarios, as well as the related weightings in the regular credit cards portfolio. Because of the need for judgment in the selection of scenarios, and the subjectivity that arises in this process, the estimate is susceptible to management bias. There is a risk that management will exercise intentional bias to make inappropriate selections in order to obtain a desired measurement outcome, resulting in a material misstatement. Due to the short-term nature of the traveller's card (i.e., the cardholder is required to repay the balance in full at every monthly due date) it was determined that there was a lower risk of susceptibility of management bias surrounding this product. Given the significant risk, the auditor determined that the controls in the impairment process were relevant to the audit and obtained an understanding of their design and whether they had been implemented, including: • Validation of the EAD model for the regular cards product including the assessment of

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		management's assumptions performed by the independent model validation; • Post implementation verification control relating to the appropriate implementation of the modelling theory for the regular cards EAD model in the ECL calculation IT tool; • Regular model performance monitoring (back testing) to assess the models continuous performance based on most recent default experience; and • Control over the reasonableness of macroeconomic forecasts, scenario design and selection as well as determination of associated weighting.
Responses to the Assessed Risks of Material Misstatement		
Testing How Management Made the Accounting Estimate 22. When testing how management made the accounting estimate, the auditor's further audit procedures shall include procedures, designed and performed in accordance with paragraphs 23–26, to obtain sufficient appropriate audit evidence regarding the risks of material misstatement relating to: (Ref: Para. A94)	The ECL estimate is likely to be influenced by the methods, assumptions and data used by management, and the judgments made in their selection and application. When developing an audit strategy, the auditor obtains an understanding of management's process, use of management's experts and related internal controls in order to identify, and respond, to the assessed risks of material misstatement relating to the estimate of ECL.	Due to the large population of credit cards, which are of a similar nature and not individually significant, as well as the fact that IFRS 9 generally specifies how management is expected to make the estimate, the audit engagement team designed an audit approach which tests how management has made the accounting estimate. Refer to the responses to ISA 540 (Revised) paragraphs 23-26 below, which include how the auditor challenged management's judgments.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
(a) The selection and application of the methods, significant assumptions and the data used by management in making the accounting estimate; and (b) How management selected the point estimate and developed related disclosures about estimation uncertainty.	When adopting an approach of testing how management has made the estimate, it is important that the auditor challenges the rationale for selection of a method at an early stage of the ECL audit process, as estimating the impact of alternative modelling approaches may be impractical. The specifics of this are noted in the application of ISA 540 (Revised) paragraphs 23-26 below.	
Methods 23. In applying the requirements of paragraph 22, with respect to methods, the auditor's further audit procedures shall address: (a) Whether the method selected is appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from the method used in prior periods are appropriate; (Ref: Para. A95, A97) (b) Whether judgments made in selecting the method give rise to indicators of possible management bias; (Ref: Para. A96)	The auditor would evaluate whether the method / model(s) adequately estimate the respective components of ECL. The auditor typically may use a mixture of tests of controls and substantive tests of detail to audit the methods used in the ECL estimate. Often the bank's approach to method / model(s) selection and judgments is covered by an ECL model governance framework with inter-related control activities (e.g., independent model validation processes may consider both the appropriateness of the model selection and reasonableness of judgments made). Therefore, the individual requirements of paragraphs 23(a) to 23(e) may also need to be mapped and understood in the context of this framework and the precision to which it operates.	In applying the requirements of paragraph 22, with respect to methods, the auditor, with assistance from the auditor's modelling specialist, established the population of the methods utilized to calculate ECL for the credit card portfolios. Numerous methods / models were identified and a scoping exercise was performed, considering inherent risk, materiality and the risk assessment procedures already performed for each method / model, and applying professional skepticism. The auditor obtained evidence over management's controls in its model governance framework, including testing and review of the appropriateness and accuracy of the methods and models selected, noting no issues. Once the auditor established the methods / models to be tested the auditor performed the following for each of the methods / models:

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
(c) Whether the calculations are applied in accordance with the method and are mathematically accurate; (d) When management's application of the method involves complex modelling, whether judgments have been applied consistently and whether, when applicable: (Ref: Para. A98– A100) (i) The design of the model meets the measurement objective of the applicable financial reporting framework, is appropriate in the circumstances, and, if applicable, changes from the prior period's model are appropriate in the circumstances; and (ii) Adjustments to the output of the model are consistent with the measurement objective of the applicable financial reporting framework and are appropriate in the circumstances; and (e) Whether the integrity of the significant assumptions and the data	The auditor is required to exercise professional skepticism, which would include when (potential coverage of the requirements of paragraphs 23(a) to 23(e) in parenthesis): • Assessing the design and effectiveness of ECL model governance, including: policies and governance over model design, build and validation; ongoing model review; and model adjustments and overlays (paragraphs 23(a)-23(e)). • Evaluating and challenging management's technical and modelling approach to ECL estimates (paragraphs 23(a) and 23(d)). • Evaluating how management has considered alternative approaches and judgments and determining whether the approach is unbiased (paragraphs 23(a), 23(b) and 23(d)). • Assessing whether the accounting policies have been accurately and consistently applied by the various operational functions of the bank involved in determining the estimation of ECL, and from one accounting period to the next (paragraphs 23(a), 23(c), 23(d) and 23(e)). Substantive tests of detail could focus on re-performing certain elements of the model code /	• The auditor evaluated and concluded that management's methods / models were appropriate in determining ECL in accordance with the requirements of the applicable financial reporting framework. • The auditor considered and did not identify other practical alternatives to management's method and evaluated and did not identify any indicators of management bias in its selection. • Substantive procedures were designed and performed that provided evidence that calculations applied in the method were mathematically accurate. • Substantive procedures were designed and performed, with assistance from the auditor's modelling specialist which provided evidence that judgments were applied consistently and met the measurement objective of IFRS 9, taking into account overlays. • Substantive procedures were designed and performed that provided evidence that the integrity of management's assumptions and the data used was maintained in applying the method.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
has been maintained in applying the method. (Ref: Para. A101)	logic and comparing elements of the model outputs to alternative information sources (e.g., comparing the modelled LGD to experience of recent debt sales of non-performing loans). The auditor may need to engage other professionals with specialized knowledge to assist in these evaluations.	An example of one of the methods the auditor tested is highlighted below: For the regular cards, those that offer a credit limit to drawdown and a minimum repayment option, the method of determining behavioral lifetime was a key area of judgment in calculating the ECL. Procedures that were performed when considering the appropriateness of management's behavioral lifetime method included: • Testing the design and operating effectiveness of controls over the determination of the lifetime of the cards including: ○ The appropriate application of the exemption on IFRS 9 paragraph 5.5.20; ○ The conceptual soundness of the methodology used and assumptions applied; ○ The completeness, accuracy and relevance of data used to determine the credit card life; ○ The appropriate implementation of the lifetime assumptions within the ECL calculations; and

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		○ The appropriateness of the ECL (including the lifetime assumption) performed by the provisioning committee. • Performing substantive tests of detail including, the evaluation of: ○ The reasonableness of management's methodology to determine lifetime by comparing to actual lifetimes observed on the credit cards; and ○ The completeness, accuracy and relevance of the data used to determine the credit card life. • Evaluating key metrics and significant assumptions to determine if there was evidence of management bias.
Significant Assumptions 24. In applying the requirements of paragraph 22, with respect to significant assumptions, the auditor's further audit procedures shall address: (a) Whether the significant assumptions are appropriate in the context of the applicable financial reporting framework, and, if applicable,	The auditor would seek to understand and evaluate, and challenge, those assumptions that management considers to be significant (as well as those that the auditor would expect to be significant) in estimating ECL allowances in accordance with the requirements of IFRS 9. This process would usually involve determining the appropriateness of management's assessment in terms of those assumptions that it	The auditor obtained from management a listing of assumptions that management deemed significant and those deemed not significant. The auditor performed substantive procedures and involved a modelling specialist in evaluating the listing to assess the accuracy and completeness of the listing information. The auditor ascertained significant assumptions and performed further audit procedures that

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
changes from prior periods are appropriate; (Ref: Para. A95, A102–A103) (b) Whether judgments made in selecting the significant assumptions give rise to indicators of possible management bias; (Ref: Para. A96) (c) Whether the significant assumptions are consistent with each other and with those used in other accounting estimates, or with related assumptions used in other areas of the entity's business activities, based on the auditor's knowledge obtained in the audit; and (Ref: Para. A104) (d) When applicable, whether management has the intent to carry out specific courses of action and has the ability to do so. (Ref: Para. A105)	has deemed to be significant and on what basis this conclusion has been reached. In addition, the auditor would ordinarily consider the assumptions that management has deemed to not be significant and on what basis that conclusion has been reached. When determining an ECL estimate by applying complex modelling, the methodology applied and the use of significant assumptions may be intertwined. For example, the probability of default of a credit card may be estimated using ten years of data from similar credit cards – the period of time used (ten years) and the segmentation of the credit card book (to determine which cards are similar) have both aspects of methodology and assumptions. As noted above, often the bank's approach to method / model(s) assumptions is covered by an ECL model governance framework with inter-related process and control activities. The auditor would seek to obtain an understanding of the process and controls operated by management in accordance with its ECL model governance framework (paragraph 13(i)) and develop an audit strategy to respond to both the methodology applied by management (paragraphs 19 and 22). The individual requirements of paragraphs 24(a) to 24(d) may	addressed the matters noted in paragraphs 24(a)–24(d) accordingly. The auditor determined that: (a) There were no changes from the prior period and that, in this case, default history is a good predictor of future credit card probabilities default and as such is appropriate in the context of IFRS 9. (b) The auditor did not identify indicators of possible management bias related to judgments made in selecting the significant assumption. (c) The auditor confirmed that ten years of data was consistent across the credit card portfolio, where data was available. Where management made assumptions to address insufficiency or deficiency of data, the auditor in addition evaluated the appropriateness of the assumptions made. (d) The auditor determined paragraph 24(d) to be not applicable in the circumstances.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	also need to be mapped to these processes and controls. The auditor would also typically understand and evaluate relevant internal controls over the selection of significant assumptions, such as those that address the reasonableness of significant assumptions, potential for management bias in judgments over the selection of assumptions and the consistency of assumptions with each other and assumptions used to make other estimates.	
Data 25. In applying the requirements of paragraph 22, with respect to data, the auditor's further audit procedures shall address: (a) Whether the data is appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from prior periods are appropriate (Ref: Para. A95, A106); (b) Whether judgments made in selecting the data give rise to indicators of possible management bias; (Ref: Para. A96)	ECL model inputs can consist of large volume of data, underpinned by often complex data interface flows through banks systems and applications. IFRS 9.5.5.17 requires the ECL estimates to be based on *reasonable and supportable information that is available without undue cost and effort*. The auditor will therefore consider whether assumptions are based on information available without undue cost and effort. Examples of data used to develop and subsequently to operate the model include: • Current customer data applied in the ECL calculation at the reporting date; • Historical behavioral data;	Given the highly transactional nature of the bank's credit card portfolios, there was a wealth of data that the auditor needed to consider for analysis and modelling assumptions (from credit bureaus or other data providers). The auditor gave careful consideration to whether relevant data was omitted when reasonable and supportable information, without undue cost or effort, was available. This included understanding whether the data is available in risk management, pricing or regulatory reporting systems. Given the high volume of transactions associated with the credit card portfolios, there was a large volume of data input into the ECL calculation. The auditor, with assistance from the auditor's professional with specialized knowledge,

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
(c) Whether the data is relevant and reliable in the circumstances; and (Ref: Para. A107) (d) Whether the data has been appropriately understood or interpreted by management, including with respect to contractual terms. (Ref: Para. A108)	• Macroeconomic data; • Financial data; • Credit data; and • Disclosure data amongst others. This data may be from the current reporting period or historical periods or indeed be forward-looking. In addition, the data utilized can be grouped into two types of data: (a) Data that flows directly into the estimate. (b) Data that is used to derive an assumption. An assessment may be required to determine which of the numerous data streams and which specific data fields are key drivers of the ECL and are therefore critical to the ECL calculation. This would typically inform management's scope and generation of robust process and controls to ensure these more critical data elements are complete and accurate. When testing how management has made the estimate, the auditor would often look to test the operation of these controls (based on the auditor's assessment of control risk). Historical data used to calibrate model parameters may have not been subject to	performed sensitivity analysis and statistical modelling analysis (e.g., predictability coefficients) to identify the critical data applied in the ECL calculation. In the case of the credit card portfolios, the critical data elements identified included: • Credit card data (origination, limit and balances). • Credit underwriting / bureau scores. • Behavioral scores. • Credit limit utilization patterns. • Payment data. • Impact of the bank's credit risk mitigation strategies. • Delinquency data. • Forbearance data. • Unemployment / employment data. Once the auditor ascertained a population of critical data elements, the auditor performed further audit procedures that addressed the matters noted in paragraphs 25(a)–25(d) accordingly. The auditor determined that:

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	controls commensurate with financial reporting previously. Limitations in historical data may result in simplifications in the modelling, for example, a higher level of aggregation, or reduced model segmentation, in modelling certain portfolios of loans. The auditor uses judgment in determining whether the approach adopted by the bank is reasonable and supportable, and considers whether any bias is introduced into the ECL estimates due to historical data limitations. In addition, long-term historical data is often required to determine the correlation between economic variables and the bank's credit card defaults. Establishing the completeness and accuracy of time series of credit card defaults may be challenging. Substantive testing of key data elements driving the ECL will often comprise validating information in the model inputs back to appropriate underlying supporting evidence, and then substantive attribute sampling of these critical data elements to test that they have been input accurately into the model. Furthermore, the auditor may find data analytics procedures helpful when assessing the risk and criticality of data elements, and these procedures also can be helpful in identifying outliers (e.g., credit cards with very high balances or origination	(a) The data was appropriate in the context of the applicable financial reporting framework; (b) The judgments made in selecting the data did not give rise to indicators of possible management bias; (c) The data was relevant and reliable in the circumstances; and (d) The data has been appropriately understood or interpreted by management, including with respect to contractual terms.

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
	dates prior to the specified behavioral life) or other anomalies which may indicate that the auditor needs to vary the nature, extent and timing of procedures. The auditor may need to engage other professionals with specialized knowledge to assist in these evaluations.	
Overall Evaluation Based on Audit Procedures Performed		
Determining Whether the Accounting Estimates are Reasonable or Misstated 35. The auditor shall determine whether the accounting estimates and related disclosures are reasonable in the context of the applicable financial reporting framework, or are misstated. ISA 450[13] provides guidance on how the auditor may distinguish misstatements (whether factual, judgmental, or projected) for the auditor's evaluation of the effect of uncorrected misstatements on the financial statements. (Ref: Para. A12–A13, A139–A144)	While the auditor will perform detailed audit procedures to test how management made the bank's ECL estimate, the auditor also performs stand-back procedures to consider the estimate of ECL as a whole and in the broader context of the financial statements for both reasonableness and management bias. This may involve considering the directional consistency of changes in the ECL over time in light of changes in the credit card portfolios and the macroeconomic environment, considering peer information and regulatory views, and evaluating whether the bank's assumptions in relation to the ECL estimate are at the high or low end, based on the auditor's professional judgment.	The auditor performed the following stand-back procedures for the ECL estimate on the credit card portfolios: • Performed analytical procedures at both the traveller's card and regular card levels to evaluate whether the overall ECL is consistent with the auditor's understanding of the entity, using comparatives / reference points, which included: ○ Change compared to prior year ECL; ○ Coverage ratio compared to prior year; and ○ ECL estimate reported in regulatory filings;

[13] ISA 450, paragraph A6

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		• Compared the applied discount rate to historical ratios of actual interest income over average outstanding balances; • Evaluated the model projections under different economic scenarios comparing the predicted quarterly losses under those various scenarios against historical experience considering: ○ The magnitude of loss ratios (historical versus projected); ○ The severity of scenario ECLs compared to historical recessionary periods (peak to trough); and ○ The rank of order of loss projections under the different scenarios (pessimistic scenario losses versus base case losses); • Compared the entity's ECL related KPI(s) to appropriate peers (e.g., ECL ratio on gross loan balance, relative percentage of exposures in the 3 stages, year-on-year change in ECL and coverage ratios); and • Evaluated audit evidence identified that may contradict management's ECL estimate (e.g., based on the broader knowledge of the entity's operations, credit

Selection of ISA 540 (Revised) Requirements[5]	Relevant Considerations[6]	Auditor's Understanding and Approach[7]
		quality of financial instruments, current economic environment). The auditor concluded that the ECL estimate for the credit card portfolios, and related disclosures, were reasonable in the context of the applicable financial reporting framework.

Example 2 – Application of Select Aspects of ISA 540 (Revised) to IFRS 9 Impairment (ECL) – Significant Increase in Credit Risk (SICR)

Background

The audited bank manages its loans in a held-to-collect business model and, under IFRS 9, measures the loans at the reporting date on an amortized cost basis, adjusted for an impairment allowance. The impairment allowance is measured on an ECL basis. In order to estimate the ECL on the portfolio of loans, the bank has established a well-controlled internal process to model and validate its estimate of ECL. The models are based on a "probability of default / loss given default" approach, as follows:

$ECL = (PD \times EAD \times LGD)_{ES}$

Where:

- PD = Probability of default (12 month or lifetime, as appropriate)
- EAD = Exposure at default
- LGD = Loss given default
- ES = The ECL is estimated in the context a management determined future economic scenario

The ECL is assessed using a number of key elements, one of which is whether a given loan – or portfolio of loans – has experienced a SICR. Under IFRS 9, impairment is initially based upon 12 months ECL ("stage 1") unless the loan has experienced a SICR or is purchased or originated credit impaired, in which case impairment is based upon lifetime ECL ("stage 2" or "stage 3," as appropriate). The bank's assessment of whether a loan or portfolio of loans has experienced SICR is based on forward-looking indicators, and there is a rebuttable assumption that they will be moved to stage 2 no later than upon becoming 30 days past due. The bank's assessment of SICR is driven by the credit rating of the loan and also considers a combination of other information that is specific to individual borrowers, such as information related to the macroeconomy, commercial sector of the borrower, geographical region (to the extent such information has not been already reflected in the rating process) and other measures consistent with the bank's risk management practices. Whether a SICR has occurred is based on the change in the probability of a default, not on a change in the ultimate expectation of loss.

The bank has a portfolio of commercial loans to manufacturing businesses in a single country. The loans in this portfolio have a contractual term of five years and payment terms that require the borrowers make interest-only payments quarterly and repay par upon maturity. The bank uses its internal credit review process to develop a "credit score" for all loans. The bank then inputs the credit score into a quantitative model that makes use of multiple, probability-weighted economic scenarios to develop both 12-month and lifetime PDs for each loan. To assess whether a SICR has occurred, the bank performs the following analysis:

- Compares the currently developed lifetime PD to the bank's expectation of the current lifetime PD developed at initial recognition of the loan. If the difference in PD initially expected at the current point in the loan's to the actual lifetime PD at the reporting date is above a specified threshold set by the bank, then a SICR is considered to have occurred;
- Considers other early warning indicators, such as whether the loan has been assigned to a watch-list and other credit risk management practices;
- Qualitatively considers macroeconomic factors and idiosyncratic events (such as political or commercial-sector specific factors, such as changes in tax laws, changing national trade agreements, technological disruption, etc.) not captured by the bank's credit review process; and
- Utilizes a quantitative backstop to ensure that all loans that are 30 days past due or more are in stage 2.

Application of ISA 540 (Revised)

The table below gives illustrative examples of the auditor's understanding and approach that may be followed in relation to selected requirements of ISA 540 (Revised). The example does not address all the requirements of the standard. In addition, other events, conditions or factors may be relevant in the specific circumstances of an engagement that may also need to be considered.

The auditor has determined a significant risk of material misstatement of the valuation of the ECL estimate.[14]

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
Risk Assessment Procedures and Related Activities		
13. When obtaining an understanding of the entity and its environment, including the entity's internal control, as required by ISA 315 (Revised),[18] the auditor shall obtain an understanding of the following matters related to the entity's accounting estimates. The auditor's procedures to obtain the understanding shall be performed to the extent necessary to provide an appropriate basis for the identification and assessment of risks of material misstatement at the financial statement and assertion levels. (Ref: Para. A19–A22) *The Entity and Its Environment*	Commercial loans to manufacturing companies are impacted by both idiosyncratic borrower-related risks (such as the industry and geography in which the borrower operates) and macroeconomic risks that may impact the portfolio broadly. Additionally, the bank's credit risk management practices regarding commercial lending activity is subject to regulatory review.	The auditor made inquiries of, and obtained evidence from, management and accessed information available from bank regulators and determined that the audited bank issues one type of loan to manufacturers – 5 year loans with payment terms that require the borrowers make interest-only payments quarterly and repay par upon maturity. However, the pricing offered to borrowers is influenced by the bank's assessment of the borrower's credit risk, considering factors such as: • The borrower's manufacturing products • The borrower's customer base

[14] This is further discussed in the table below.

[15] Refer to the relevant application material.

[16] These aim to provide context to assist in the auditor's understanding and approach - these are not intended to be exhaustive.

[17] These are intended to illustrate possible outcomes for this example - these do not illustrate all possible outcomes.

[18] ISA 315 (Revised), paragraphs 3, 5–6, 9, 11–12, 15–17, and 20–21

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
(a) The entity's transactions and other events and conditions that may give rise to the need for, or changes in, accounting estimates to be recognized or disclosed in the financial statements. (Ref: Para. A23)		• The borrower's geography • The borrower's current level of indebtedness relative to both its assets and gross margin The auditor's understanding is that the loans contain customary debt covenant provisions.
(b) The requirements of the applicable financial reporting framework related to accounting estimates (including the recognition criteria, measurement bases, and the related presentation and disclosure requirements); and how they apply in the context of the nature and circumstances of the entity and its environment, including how transactions and other events or conditions are subject to, or affected by, inherent risk factors. (Ref: Para. A24–A25)	In order to understand the applicable financial reporting framework, the auditor would obtain an understanding of IFRS 9 and evaluate how it had been implemented by the bank. Under IFRS 9, impairment is initially based upon 12 months ECL ("stage 1") unless the loan has experienced a SICR in which case impairment is based upon lifetime ECL ("stage 2" or "stage 3," as appropriate), except if it is purchased or originated credit impaired. The bank's assessment of whether a loan or portfolio of loans has experienced SICR is based on forward-looking indicators, portfolio segmentation, and there is a rebuttable assumption that they will be moved to stage 2 no later than upon becoming 30 days past due.	The auditor documented and evaluated the bank's interpretation of the requirements of IFRS 9. This included the bank's assessment that the SICR is driven by the credit rating of the loan and that it also considers a combination of other information that is specific to individual borrowers, such as information related to the macroeconomy, manufacturing products of the borrower, geographical region (to the extent such information has not been already reflected in the rating process) and other measures consistent with the bank's risk management practices. Whether a SICR has occurred is based on the change in the probability of a default, not on a change in the ultimate expectation of loss. The auditor understands that the bank uses its internal credit review process to develop a "credit score" for all loans. The bank then inputs the credit score into a quantitative model that makes use of multiple, probability-weighted economic scenarios to develop both 12-month and lifetime

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		PDs for each loan. To assess whether a SICR has occurred, the bank performs the following analysis: • Compares the currently developed lifetime PD to the bank's expectation of the current lifetime PD developed at initial recognition of the loan. If the difference in PD initially expected at the current point in the loans to the actual lifetime PD at the reporting date is above a specified threshold set by the bank, then a SICR is considered to have occurred; • Considers other early warning indicators, such as whether the loan has been assigned to a watch-list and other credit risk management practices; • Qualitatively considers macroeconomic factors and idiosyncratic events (such as political or commercial-sector specific factors, such as changes in tax laws, changing national trade agreements, technological disruption, etc.) not captured by the bank's credit review process; and • Utilizes a quantitative backstop to ensure that all loans that are 30 days past due or more are in stage 2. The bank also has a SICR monitoring framework where they assess the assets classified in each

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		stage and the basis for being in stage 2 to assess if the requirements of IFRS 9 are being met. The auditor considered how inherent risk factors may be relevant for SICR: • As the SICR assessment is based on a credit score and additional factors, which are often complex, there is a risk that the scores are not accurate and / or updated on a timely basis and the consideration of multiple factors is not effective. • The SICR assessment is heavily reliant on the data for each loan. As much of this data is not traditional financial reporting information, there is significant judgment involved in selecting appropriate data and a risk that it is not complete or accurate. • SICR is an area susceptible to management bias considering the amount of judgement in establishing the thresholds. • As the par value is repaid on maturity, the effects of potential refinancing, including whether the asset would be assessed as modified or derecognized and the consequent impact on the staging assessment.

<table>
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<td>
The Entity’s Internal Control
(e) The nature and extent of oversight and governance that the entity has in place over management’s financial reporting process relevant to accounting estimates. (Ref: Para. A28–A30)
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Given the highly judgmental nature of the ECL approach, oversight and governance procedures are expected to have been established by the bank to monitor and evaluate the ECL estimate. The auditor would obtain an understanding of these procedures as part of their planning and risk assessment procedures.

This would typically include an evaluation of the bank’s approach to assessing SICR.

• In part, the bank’s assessment of SICR is model-driven. Accordingly, model risk policies are relevant. Model risk policies often set out the key activities performed, such as the nature and frequency of model validation and monitoring / back-testing, and controls over assessing the completeness and accuracy of data used in the model. Given the complex nature of the ECL models, the level of sophistication of the bank’s model controls may have a significant impact on the auditor’s response to the risks of material misstatement. Understanding and assessing the design of bank’s model risk policies will be key in identifying and assessing control risk, as well as the level of reliance that may be placed on testing the operating effectiveness of the bank’s controls.
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<td>
The auditor made enquiries of, and obtained evidence from, those charged with governance and oversight of the impairment process to determine the following:

• The Board of Directors created the Group Credit Risk Committee for the oversight of credit risk and the measurement of the ECL.[19] The Committee comprises members of the credit risk and finance functions.

• The Group Finance Department determines the ECL accounting policies in compliance with IFRS 9 and, where appropriate, relevant regulatory guidance. These policies are approved on an annual basis by the Group Finance Oversight Committee.

• A separate Group Credit Risk Department, reporting to the Group Credit Risk Committee, is responsible for managing the Group’s credit risk processes and policies (consistent with the ECL accounting policies), including the following:
○ Formulating credit policies in consultation with business units;
○ Establishing the authorization structure for the approval and renewal of credit facilities; and
○ Developing and maintaining the Group’s processes for measuring ECL: This includes processes for:
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Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	• Additionally, the bank's SICR assessment is impacted by subjective judgments. These may be subject to reviews regarding how those judgments are made, including the relevancy and reliability of source information utilized and how bank management determined the impact of that information on the portfolio's credit risk. • The bank also assesses if certain manufacturing industries are distressed and therefore borrowers in that industry are collectively assessed for SICR in accordance with IFRS 9 B5.5.1	- Assessment of significant accounting judgments in conjunction with the finance function - Initial approval, regular validation and back-testing of models used; - Determining and monitoring SICR; and - Incorporation of forward-looking information. • Each business unit is required to implement the Group credit policies and procedures, with credit approval authorities delegated from the *Group Credit Committee*. Each business unit is responsible for the quality and performance of its credit portfolio and for monitoring and controlling all credit risks in its portfolio, including those subject to central approval. In addition, there is a Group policy for credit rating exposures and an approval and monitoring framework for these credit ratings.

[19] The bank followed the Basel Committee on Banking Supervision ("Basel Committee")'s *Guidance on Credit Risk and Accounting for Expected Credit Losses* ("GCRAECL") (December 2015). The guidance sets out supervisory guidance on sound credit risk practices associated with the implementation and ongoing application of ECL accounting frameworks.

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		• Regular audits of business units and Group Credit processes are undertaken by internal audit. Upon inspection of the internal audit report of the Commercial Lending business unit for the period under review, a satisfactory report was issued, however further audit work is required to be performed to assess the governance processes in place. *[Note: This illustrative example focusses on the considerations regarding the basis of applying or modelling the requirements of IFRS 9. It does not cover the other considerations listed in the adjacent column, although the auditor would consider them when identifying and assessing the risks of material misstatements.]*
(i) Control activities relevant to the audit over management's process for making accounting estimates as described in paragraph 13(h)(ii). (Ref: Para. A50–A54)	Banks are expected to design and implement high-quality policies, procedures, internal controls, systems and models in accordance with the accounting standard to enable bank management to exercise appropriate judgments when estimating expected credit losses. The bank's ability to support reasonable estimates of ECL will be dependent upon a robust system of internal control over the critical sources of information, processes and models upon which the bank's estimate of ECL is based. Estimates of ECL will be dependent upon the	The auditor made enquiries of, and obtained evidence from, those charged with governance and oversight of the impairment process. The auditor understood and evaluated the design and implementation of the controls in the impairment process as part of the risk assessment processes and observed that control activities at the audited bank were extensive in nature and the heads of the commercial lending business units were actively involved. The following relevant control activities were identified by the auditor

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	unique information, experience and perspective of each bank. Accordingly, key components of these estimates will be subjective in nature and susceptible to management bias. The bank's system of internal control would ordinarily address, with regard to SICR: • The relevance and reliability of data, including information sourced from outside of the finance function or obtained from third party sources; and • The appropriateness of accounting policies, especially those requiring the exercise of judgment, such as when a credit exposure has experienced a SICR. Banks are expected to have a well-controlled, well-documented, well supported and repeatable process for estimating and monitoring whether a SICR has occurred. Banks without such robust internal controls over key elements of their estimation process, may have estimates of ECL which, in the end, lack proper evidentiary support.	related to SICR for the commercial lending portfolio: • Review by a function independent from the preparer and validation of SICR-relevant models by management; • Review and challenge of key assumptions in the period-end SICR assessment by a management committee, including forecasts of future macroeconomic conditions, probabilities of different possible outcomes and qualitative adjustments considered to the modelled results; • Governance process around SICR assessment, including multi-layer reviews of key judgments by management and those charged with governance; • Identification of critical data points used in the SICR assessment and the monitoring of the completeness and accuracy of those data points; • General IT and reconciliation controls related to data used in the SICR assessment process and data transfers between different systems, particularly reconciliations of data obtained from different risk and finance systems and external information;

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		• Logical and physical access controls, change management controls and controls over computer operations over the application and IT infrastructure used to implement the SICR assessment process; and • Controls to ensure assets are properly assessed for SICR, no later than 30 days past due.
(j) How management reviews the outcome(s) of previous accounting estimates and responds to the results of that review.	The utilization of a retrospective review is a common and accepted practice used to assess whether model behavior is consistent with a model's intended purpose. Back-testing is one method of using hindsight to validate models or components thereof where appropriate; alternatives including stress testing, benchmarking and other, more qualitative, methods. Estimates of ECL under IFRS 9 are not the bank's estimate of the losses they expect to experience in a given portfolio, but rather a summation of 12-month (for assets in stage 1) and lifetime ECL (for assets in stage 2) that are probability weighted by different economic scenarios. Accordingly, efforts to compare the bank's actual experienced losses against prior overall ECL estimates may be of little value.	The auditor observed that management utilized back-testing to evaluate the established SICR criteria by assessing the: • Time spent in stage 2 before default. • Loans that moved straight from stage 1 to stage 3. • How many loans were moved into stage 2 only upon enactment of the 30-days-past-due backstop (indicating that the SICR process is not capturing SICR prior actual events of default). • The number of manual overrides of SICR criteria (indicating that the PD-models may not be reflecting management's assessment of changes in credit risk). Additionally, the auditor observed and inspected management's formalized model validation

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	However, various components of the bank's ECL estimation process will more easily lend themselves to evaluation utilizing hindsight. For example, the back-testing of key accounting judgments such as SICR through the use of KPIs such as measuring credits defaulting without use of stage 2. The auditor also considers if the bank has established thresholds which would trigger a reassessment of the staging criteria. The auditor's consideration may typically include whether models are adjusted appropriately for relevant new historical information, after considering the impact of differences between predicted and actual results. The auditor would ordinarily also consider whether the models are appropriately updated or adjusted on a timely basis for changes identified as necessary by the bank's model testing and validation process and whether there are appropriate change-control policies over the model.	process, which was in place as a control activity performed by the bank. As part of the model validation process, the auditor assessed how the findings were addressed and if they were closed on a timely basis. The auditor also assessed how the findings were reported to those charged with governance and the action that was subsequently taken.
15. With respect to accounting estimates, the auditor shall determine whether the engagement team requires specialized skills or knowledge to perform the risk assessment procedures, to identify and assess the risks of material misstatement, to design and perform audit procedures to	Due to the complexity and subjectivity of the estimate, the auditor may determine that the engagement team requires specialized skills or knowledge in order to evaluate the considerations regarding the ECL value.	As the SICR criteria is based on the lifetime PD, the auditor determined that the following specialized skills were required in performing the audit procedures: • The auditor involved credit risk specialists, with the appropriate skills and knowledge.

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
respond to those risks, or to evaluate the audit evidence obtained. (Ref: Para. A61–A63)	The auditor may need to involve appropriate experts in disciplines such as credit risk, modelling, economic forecasting and IT systems. In addition to the knowledge of relevant accounting and financial reporting framework, auditors needs to be knowledgeable of, and experienced in, the banking industry and its unique risks.	• IT specialists: IT skills and knowledge are required to understand and perform procedures related to the IT implementation of the ECL models. • Modelling specialists: Modelling specialist are essential to understand and perform procedures related on the lifetime PD.
Identifying and Assessing the Risks of Material Misstatement		
16. In identifying and assessing the risks of material misstatement relating to an accounting estimate and related disclosures at the assertion level, as required by ISA 315 (Revised),[20] the auditor shall separately assess inherent risk and control risk. The auditor shall take the following into account in identifying the risks of material misstatement and in assessing inherent risk: (Ref: Para. A64–A71): (a) The degree to which the accounting estimate is subject to estimation uncertainty; and (Ref: Para. A72–A75)	ECL estimates often contain a high degree of estimation uncertainty because of inherent inability to measure them precisely, and are affected by complexity in the models applied in calculating the expected loss, and subjectivity in the selection of assumptions and valuation attributes. The models and subjective selection of assumptions used by bank management to assess whether SICR has occurred is one such area that contributes to high estimation uncertainty. The auditor considers available information, including, but not limited to, industry-level loss trends and financial services regulatory stress tests in informing its views of the drivers of the inherent risk factors.	Management's assessment of whether SICR has occurred in the portfolio of manufacturing loans is dependent upon: (a) Quantitative PD models that utilize both objective inputs (loan-level data, which is derived from various different systems within the audited bank) and subjective inputs (probability weighted forecasts of future conditions); and (b) Subjective assessments of borrower-specific and portfolio-level increases in credit risk (the use of watch-lists, assessments of idiosyncratic and other non-modelled economic information).

[20] ISA 315 (Revised), paragraphs 25 and 26

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
(b) The degree to which the following are affected by complexity, subjectivity, or other inherent risk factors: (Ref: Para. A76–A79) (i) The selection and application of the method, assumptions and data in making the accounting estimate; or (ii) The selection of management's point estimate and related disclosures for inclusion in the financial statements.	When considering the SICR assessment of a portfolio of commercial loan exposures, the auditor considers whether the overall ECL estimate is sensitive to the assessment of SICR for a given portfolio of credit exposures. If the overall ECL estimate is sensitive to the SICR assessment, the auditor assesses the degree to which the SICR modelling approach is subject to estimation uncertainty and the degree to which the method, assumptions and data in making the SICR assessment is affected by complexity, subjectivity or other inherent risk factors. Relevant considerations in assessing those inherent risk factors may include: (a) The basis of applying or modelling the SICR requirements of IFRS 9; (b) Economic conditions impacting credit losses and credit risk; (c) Credit worthiness, or credit risk, of a bank's borrowers at origination; (d) The bank's credit underwriting standards; (e) The borrower's repayment terms; (f) Customer behavioral trends impacting borrower repayment patterns; and (g) Changes in the regulatory requirements.	The auditor performed a detailed risk assessment, regarding the valuation of ECL for the portfolio of manufacturing loans, considering factors such as: • The size and complexity of the portfolio of manufacturing loans and their repayment profile. • The complexity of the PD & LGD models used by the bank and the PD models' reliance on subjective inputs. • The risk factors present in the inputs to the SICR assessment, such as credit scores and exposure level performance data as noted in paragraph 13(b). • The difference in ECL coverage between stage 1 and stage 2. • The relevance and potential impact of unmodelled adjustments, including the degree to which such adjustments are based on subjective information or assessments by management. Based on the above, the auditor determined that the degree to which the SICR is subject to estimation uncertainty is high, the complexity of the calculations was high for the portfolio of manufacturing loans also considering the current manufacturing industry performance and the

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	Underlying inherent risks may need to be disaggregated into multiple individual potential risks of misstatement of the financial statements for the purpose of assessing and responding to the risks of material misstatement.	interest only payments made throughout the term of the loan. Additionally, the auditor determined that the overall ECL estimate was sensitive to the assessment of SICR (that is, the overall ECL estimate could vary by a material amount if the SICR assessment was not appropriate). Accordingly, the auditor determined that the inherent risk of material misstatement of the valuation of the ECL estimate due to SICR for the portfolio of manufacturing loans was high. The auditor assessed that control risk was low, as the bank's controls were evaluated as being effectively designed and implemented to address the risks of misstatement resulting from the ECL estimate, and the SICR assessment in particular, and the auditor intended to test the operating effectiveness in responding to the assessed risks. As a result, the auditor determined that an approach of testing how management made the accounting estimate was appropriate (see "*Responses to the Assessed Risks of Material Misstatement*" below).
17. The auditor shall determine whether any of the risks of material misstatement identified and assessed in accordance with paragraph 16 are, in the auditor's judgment,	When identifying and assessing risks of material misstatement, the auditor considers where in the estimation process risks of material misstatement arise, and what level of inherent risk arises for	Based on considering the assessment of inherent risk for the manufacturing loan portfolio, the auditor determined that there was a significant risk of material misstatement of valuation for the manufacturing loan portfolio arising from the

<table>
<tr><th>Selection of ISA 540 (Revised) Requirements[15]</th><th>Relevant Considerations[16]</th><th>Auditor's Understanding and Approach[17]</th></tr>
<tr><td>a significant risk.[21] If the auditor has determined that a significant risk exists, the auditor shall obtain an understanding of the entity's controls, including control activities, relevant to that risk.[22] (Ref: Para. A80)</td><td>each identified risk, informed by the auditor's consideration of inherent risk factors.

For example, relationships between underlying assumptions in the ECL estimates may not be linear. For example, for the portfolio of manufacturing loans, a significant decrease in credit risk after origination may result in relatively low decrease in ECL, while an increase in credit risk after origination may result in a material increase in ECL due to moving the affected loans from stage 1 to stage 2, and therefore measuring lifetime ECL as opposed to 12 months of ECL.</td><td>SICR. This was based on the fact that the SICR assessment could have a material effect on the ECL estimate and has a higher likelihood, considering the following factors:

• The inputs to the SICR assessment, such as credit score and exposure level performance data, have a higher inherent risk.

• The SICR assessment is highly judgmental and may be susceptible to risk of management bias, which if intentional and intended to mislead may give rise to fraud risks. Where a risk of material misstatement due to fraud is identified, this is a significant risk.

As a result, the auditor obtained an understanding of the controls over the valuation for the manufacturing loan portfolio in regard to the assessment of SICR.</td></tr>
<tr><td colspan="3">Responses to the Assessed Risks of Material Misstatement</td></tr>
<tr><td>Testing How Management Made the Accounting Estimate</td><td>The ECL estimate is likely to be influenced by the methods, assumptions and data used by management, and the judgments made in their selection and application.</td><td>Due to risks identified above related to the selection of inputs and the subjectivity of management judgments, the audit engagement</td></tr>
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[21] ISA 315 (Revised), paragraph 27

[22] ISA 315 (Revised), paragraph 29

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
22. When testing how management made the accounting estimate, the auditor's further audit procedures shall include procedures, designed and performed in accordance with paragraphs 23–26, to obtain sufficient appropriate audit evidence regarding the risks of material misstatement relating to: (Ref: Para. A94) (a) The selection and application of the methods, significant assumptions and the data used by management in making the accounting estimate; and (b) How management selected the point estimate and developed related disclosures about estimation uncertainty.	When developing an audit strategy, the auditor obtains an understanding of management's process, use of management's experts and related internal controls in order to identify, and respond, to the risks of material misstatement posed by the estimate of ECL. When adopting an approach of testing how management has made the estimate, it is important that the auditor challenges the rationale for selection of a method at an early stage of the ECL audit process, as estimating the impact of alternative modelling approaches may be impractical. The specifics of this are noted below in the application of ISA 540 (Revised) paragraphs 23-26 below.	team designed an audit approach which tests how management has made the accounting estimate. Refer also to the responses to ISA 540 (Revised) paragraphs 23-26 below, which include how the auditor challenged management's judgments.
Methods 23. In applying the requirements of paragraph 22, with respect to methods, the auditor's further audit procedures shall address:		
(a) Whether the method selected is appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from the method used in	The auditor's considerations may include the following: • Management's governance process to develop, approve, monitor and, when necessary, revise the SICR criteria.	The auditor determined that the method selected is appropriate through performing further audit procedures that addressed or included the following: • Assessed the governance processes to monitor and approve the SICR criteria

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
prior periods are appropriate; (Ref: Para. A95, A97)	• The forward-looking nature of the SICR criteria, whether it is largely based on backward-looking metrics such as days past due or whether it considers forward-looking metrics such as PD. • That the SICR assessment was based on the current likelihood of default as compared to the bank's initial expectation regarding what the loan's PD would be given the current point in its contractual life and not the expectation of loss. • The impact of multiple economic scenarios on the SICR assessment. For example, whether a forward-looking, probability weighted PD was used in the assessment.	considering if they were detailed and robust, to challenge the criteria. The auditor also considered the skills and experience of those performing the assessment. • Evaluated the entity's documentation supporting the SICR criteria selected, as well as evaluated what criteria were considered but not selected. • Assessing if the SICR criteria contained forward-looking elements, such as an IFRS 9 compliant forward-looking PD, and did not rely solely on days past due. • Considered if the monitoring methods included sufficient metrics to challenge its effectiveness. The majority of assets in stage 2 was caused by the PD threshold as opposed to days past due and the PD used was the probability weighted PD which indicated that it contained forward-looking considerations. • The data used by management as inputs to the SICR calculation was determined to be complete, relevant to the portfolio and reliable. The auditor tested the controls around data governance in making that assessment to assess if it was a reasonable basis for the SICR assessment. No material exceptions were noted.

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		• Finally, the auditor observed that management, when assessing whether SICR had occurred, was comparing current lifetime PDs to the expected lifetime PD at origination of the portfolio given the average "age" of the loans in the portfolio. No changes were noted from prior periods and, based on the information evaluated, this was deemed appropriate.
(b) Whether judgments made in selecting the method give rise to indicators of possible management bias; (Ref: Para. A96)	There may be certain portfolios where a risk of management bias is indicated. The auditor would consider any changes to the criteria over time, to assess if those changes were an indication of bias (for instance, if the loans are more or less sensitive to changes in economic conditions, whether loans are less likely to be moved to stage 2 or 3 but more likely to be moved back to stage 1, whether more loans are moved to stage 2 or 3 due to the backstop, etc.)	As noted above, the auditor evaluated key metrics of the portfolio to determine if there was evidence of management bias in the SICR criteria selected by management. The auditor did not identify factors indicating that the SICR criteria were not sufficiently forward-looking, nor biased against identifying a SICR. Specifically, the auditor did not find significant numbers of loans moving directly from stage 1 to stage 3, or significant numbers of loans that moved to stage 2 due to triggering the 30-days-past-due backstop. The SICR criteria used by management was consistent with criteria used in prior periods. The auditor considered whether there were any changes in the portfolio that would suggest that there should be changes to the SICR criteria from prior periods. However, the auditor determined that the portfolio was generally consistent with

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		prior periods and therefore using the same SICR criteria was appropriate. Finally, the auditor determined that the information and processes used by management to assess whether or not a SICR had occurred were generally consistent with the bank's credit risk management process.
(c) Whether the calculations are applied in accordance with the method and are mathematically accurate;	The auditor would consider the complexity of the SICR calculation to assess the need to involve professionals with specialized knowledge in their audit procedures.	The auditor recalculated the stage (between 1, 2 or 3) using the criteria applied by the entity. This testing gave rise to no exceptions.
(d) When management's application of the method involves complex modelling, whether judgments have been applied consistently and whether, when applicable: (Ref: Para. A98–A100) (i) The design of the model meets the measurement objective of the applicable financial reporting framework, is appropriate in the circumstances, and, if applicable, changes from the prior period's model are appropriate in the circumstances; and	The application of the SICR criteria itself generally does not involve complex modelling. However, where the primary indicator of SICR is the PD, this may include complex modelling. The auditor would consider the complexity of the PD models and their procedures on those models when assessing the PD used in making the SICR calculation. Testing the models may involve the use of those with specialized modelling skills to test the method and assumptions used in calculating the PD.	When assessing the PD models used in the SICR assessment, the auditor considered management's model testing, including: • The theoretical soundness of the PD methodology. • The relevance and reliability of the data used to calculate the PD. • The mathematical accuracy of the PD. The PD models used by management were conceptually sound, consistent with the principles of IFRS 9, and produce mathematically accurate results. The auditor utilized a modelling specialist to assist in this analysis. The auditor also evaluated the bank's model governance processes and model documentation and

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
(ii) Adjustments to the output of the model are consistent with the measurement objective of the applicable financial reporting framework and are appropriate in the circumstances; and		evaluated them to be appropriate in the circumstances.
(e) Whether the integrity of the significant assumptions and the data has been maintained in applying the method. (Ref: Para. A101)	The auditor's considerations may include the IT environment where the data is used in the SICR calculation. Relevant considerations include: • The number of source systems needed for all the data points used in the calculation including whether they are finance, risk management, or front office systems. • The complexity and volume of data transfers across different systems to move the data to the SICR calculation system. • The existence of IT controls to assess the completeness and accuracy of the data used in the calculation.	The auditor tested the systems where the SICR calculation is performed to assess whether there are potential weaknesses / flaws in the calculation. This included testing general IT controls and automated controls in the systems where the data is stored and the calculation is performed where applicable, noting no issues. The auditor also tested the data governance controls surrounding the inputs to those models and found that there was sufficient governance around data quality as the critical data points used in the SICR calculation were identified by management and then assessed for completeness and accuracy on an ongoing basis. Finally, the auditor tested for any manual intervention into those models, such as when management considered whether there were any factors not considered by the quantitative model that would have impacted their assessment of SICR. No such manual interventions were noted.

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<tr><th>Selection of ISA 540 (Revised) Requirements[15]</th><th>Relevant Considerations[16]</th><th>Auditor's Understanding and Approach[17]</th></tr>
<tr><td>Significant Assumptions
24. In applying the requirements of paragraph 22, with respect to significant assumptions, the auditor's further audit procedures shall address:</td><td></td><td></td></tr>
<tr><td>(a) Whether the significant assumptions are appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from prior periods are appropriate; (Ref: Para. A95, A102–A103)</td><td>In evaluating whether the significant assumptions are appropriate, the auditor's considerations may include the following:
• The performance of the SICR criteria, considering key metrics such as:
○ Composition of stage 2 by criteria (days past due, PD, other qualitative factors).
○ Assets that moved directly from stage 1 to stage 3.
○ Time in stage 2 prior to moving to stage 3.
○ The volume of loans returning to stage 1 in each period.
○ Whether loans in stage 2 or stage 3 were moved primarily by triggering the 30-days-past-due backstop or other qualitative backstop.</td><td>The auditor considered whether the assumptions used in the model had been consistently applied in the model and throughout the business and whether any inconsistencies are appropriate and justified.
The auditor evaluated other forecasts the bank used in its business, such as in its period budgeting process, its capital planning and its annual goodwill impairment testing, noting no material inconsistencies. The auditor also considered how the bank monitored manufacturing loans and how reactive the credit score was to changes in the industry.
In considering the assumptions, the auditor included an auditor's expert to assist in considering the significant assumptions and their appropriateness. The auditor concluded the assumptions were reasonable.</td></tr>
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Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	• Sensitivity of the SICR criteria to different factors to understand how changes in the criteria impact the ECL. • Peer benchmarking of the SICR criteria and resulting assets by portfolio and stage.	
(b) Whether judgments made in selecting the significant assumptions give rise to indicators of possible management bias; (Ref: Para. A96)	See paragraph 24 (a) above.	As noted above in paragraph 23(b), the SICR criteria used by management was consistent with criteria used in prior periods. The auditor considered whether there were any changes in the manufacturing portfolio that would suggest that there should be changes to the SICR criteria from prior periods. However, the auditor determined that the portfolio was consistent with prior periods. In addition, the auditor noted that the SICR criteria was appropriate and forward-looking. The auditor did not identify any indicators of management bias in either the SICR criteria nor the process to establish credit ratings or other performance indicators used in the SICR assessment. The auditor performed a stand-back evaluation from the detailed estimation process to consider whether changes in the assumptions from prior periods or other known changes to the portfolio and environment may have been made to shift the outcome by considering the changes in their totality.

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(c) Whether the significant assumptions are consistent with each other and with those used in other accounting estimates, or with related assumptions used in other areas of the entity's business activities, based on the auditor's knowledge obtained in the audit; and (Ref: Para. A104)	The SICR criteria are generally based on the entity's risk management practices, such as PDs, risk rating, asset "watch lists" which monitor higher risk exposures.	As noted above in paragraph 23(b), the auditor determined that the information and processes used by management to assess whether or not a SICR had occurred were generally consistent with the bank's credit risk management process.
Data 25. In applying the requirements of paragraph 22, with respect to data, the auditor's further audit procedures shall address:		
(a) Whether the data is appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from prior periods are appropriate (Ref: Para. A95, A106); (b) Whether judgments made in selecting the data give rise to indicators of possible management bias; (Ref: Para. A96) (c) Whether the data is relevant and reliable in the circumstances; and (Ref: Para. A107)	IFRS 9.5.5.17 requires the ECL estimates to be based on reasonable and supportable information that is available without undue cost and effort. The auditor would consider whether assumptions are based on information available without undue cost and effort. ECL model inputs can consist of large volumes of data, often underpinned by complex data interface flows through banks systems and applications. Examples of data used to develop and subsequently to operate the model include:	The auditor, with assistance from the auditor's professional with specialized knowledge, performed sensitivity analysis (e.g., the impact of the SICR criteria on the stage 2 balance) to identify the critical data applied in the SICR assessment. In the case of the manufacturing loan portfolio, the critical data elements identified included: • Historical loan data (origination, terms and balances). • Credit underwriting / bureau scores. • Financial information of the borrowers, such as debt-to-income ratios and other KPIs.

<table>
<tr><th>Selection of ISA 540 (Revised) Requirements[15]</th><th>Relevant Considerations[16]</th><th>Auditor's Understanding and Approach[17]</th></tr>
<tr><td>(d) Whether the data has been appropriately understood or interpreted by management, including with respect to contractual terms. (Ref: Para. A108)</td><td>

- Current customer data applied in the ECL calculation at the reporting date;
- Historical behavioral data;
- Origination credit metrics;
- Macroeconomic data;
- Financial data;
- Credit data; and
- Disclosure data amongst others.

This data may be from the current reporting period or historical periods or indeed be forward-looking.

In addition, the data utilized can be grouped into two types of data:
(a) Data that flows directly into the estimate.
(b) Data that is used to derive an assumption.

An assessment may be required to determine which of the numerous data streams and which specific data fields are key drivers of the ECL and are therefore critical to the ECL calculation.

This would typically inform management's scope and generation of robust process and control to ensure these more critical data elements are complete and accurate. When testing how management has made the estimate, the auditor</td><td>

- Payment data.
- Impact of the bank's credit risk mitigation strategies.
- Delinquency data.
- Relevant macroeconomic data, such as housing starts, GDP, etc.

Once the auditor ascertained a population of critical data elements, the auditor performed further audit procedures that addressed the matters noted in paragraphs 25(a)–25(d) accordingly. These included:
(a) Testing controls over data related to:
(i) How critical data elements for the SICR assessment are determined.
(ii) How data is input into source systems.
(iii) How data is transferred to risk systems.
(iv) How historical data is maintained.
(v) How data quality is assessed for ECL calculation purposes.
(b) Substantively testing a sample of data points from the ECL calculation back to source systems understanding any data transformations or calculation that occurred.</td></tr>
</table>

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	may be required to evaluate the design and implementation of controls and may likely test their operating effectiveness. Behavioral and historic information will be used in the assessment of SICR. Limitations in historical data may result in simplifications in the SICR assessment; for example, an assumption that an exposure is in stage 2 unless data is available otherwise. The auditor uses judgment in determining whether the approach adopted by the bank is reasonable and supportable, and considers whether any bias is introduced into the ECL estimates due to data limitations. Substantive testing of key data elements driving the SICR assessment will often comprise validating information in the model inputs back to appropriate underlying supporting evidence, and then substantive attribute sampling of these critical data elements to test that they have been input accurately into the model. Furthermore, the auditor may find data analytics procedures helpful when assessing the risk and criticality of data elements, and these procedures can be helpful in identifying outliers or other anomalies which may indicate that the auditor needs to vary the nature, extent and timing of procedures.	(c) Tested reconciliations of the gross exposures in the ECL calculation to the general ledger to assess completeness.

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
	The auditor's considerations may include whether the acquisition and development of relevant data, such as comparable origination PDs to enhance assumptions is unduly burdensome. This may include understanding whether the data is available in risk management, pricing or regulatory reporting systems. The auditor may need to engage other professionals with specialized knowledge to assist in these evaluations.	
Overall Evaluation Based on Audit Procedures Performed		
Determining Whether the Accounting Estimates are Reasonable or Misstated 35. The auditor shall determine whether the accounting estimates and related disclosures are reasonable in the context of the applicable financial reporting framework, or are misstated. ISA 450[23] provides guidance on how the auditor may distinguish misstatements (whether factual, judgmental, or projected) for the auditor's evaluation of the effect of uncorrected	While the auditor will perform detailed audit procedures to test how management made the bank's ECL estimate, the auditor also performs stand-back procedures to consider the estimate of ECL as a whole and in the broader context of the financial statements for both reasonableness and management bias. This may involve considering the directional consistency of changes in the staging populations over time in light of changes in the loan portfolio and the macroeconomic environment, considering peer information and regulatory views, and evaluating whether the	The auditor performed the following stand-back procedures for the ECL estimate on the manufacturing commercial loan portfolio: • Performed analytical procedures for manufacturing loans to evaluate whether the overall ECL and staging proportions are consistent with the understanding of the entity, using comparatives / reference points, which included: ○ Change compared to prior year ECL; ○ Coverage ratio compared to prior year; and

[23] ISA 450, paragraph A6

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
misstatements on the financial statements. (Ref: Para. A12–A13, A139–A144)	bank's judgments in relation to the ECL estimate are at the high or low end, based on the auditor's professional judgment.	○ Proportion of exposures in each stage; • Assessed the impact of exposures moving between stages; • Performed peer benchmarking of staging proportions and estimate coverage by stage; • Assessed the model projections by stage under different economic scenarios comparing the predicted quarterly losses under those various scenarios against historical experience considering: ○ The magnitude of loss ratios (historical versus projected); ○ The severity of scenario ECLs compared to historical recessionary periods (peak to trough); and ○ The rank of order of loss projections under the different scenarios (pessimistic scenario losses versus base case losses); • Compared the entity's ECL-related KPI(s) to appropriate peers, focused on similar portfolios of manufacturing loans; and

Selection of ISA 540 (Revised) Requirements[15]	Relevant Considerations[16]	Auditor's Understanding and Approach[17]
		• Evaluated audit evidence that may be contradictory to management's assertions and ECL estimate. The auditor concluded that the assessment of SICR, and related disclosures, were reasonable in the context of the applicable financial reporting framework.

Example 3 – Application of Select Aspects of ISA 540 (Revised) to IFRS 9 Impairment (ECL) – Macroeconomic Inputs and Data

Background

The audited entity has been originating property-backed home loans since 2011. These loans are issued to borrowers in multi-geographical locations in one jurisdiction and are segmented accordingly. One of these locations is heavily dependent on the prosperity of the mining and extraction industry. The mining and extraction industry has experienced a decline in commodity prices and is experiencing higher levels of unemployment as a result. These factors have given rise to depressed demand for housing in the region. The average loan-to-value ratio (LTV) of the portfolio across all locations has been stable at around the 65% mark; however, in the last year this has increased to around 75%. Due to supressed demand, fewer new loans are being originated and when they are, they are being done at lower interest rates with increased loan-to-value ratios.

The audited entity is heavily dependent on external intermediaries to sell the home loans. Underwriting standards have not been enforced strictly throughout the business. The businesses' workforce has historically been primarily front-office / customer-relationship facing with less focus on collections and risk management. This is in light of very low level of defaults in the past. The audited entity has developed its ECL model internally but uses a third party for economic forecasts over a three-year time horizon. It has also modelled four economic scenarios – a central case, upside case and two downside cases of varying severity – with these being based on changes in house prices and unemployment at a jurisdiction level, but not changes in commodity prices.

The applicable financial reporting framework for the company is IFRS. Accordingly, IFRS 9, *Financial Instruments,* is applicable, which requires that increases in credit risk on loans and receivables are assessed for significance and credit losses are estimated and measured on an expected loss basis in profit or loss. It requires disclosures around credit risk management and estimation uncertainty for factors affecting the ECL that is recognized and measured.

The business is operating in a regulated sector.

This example addresses how an auditor could apply the requirements of ISA 540 (Revised) within the context of an audit of management's use of macroeconomic variables and data as well as internal data when it comes to estimating ECL for loan losses, with this being across both stage allocation and the actual estimation of the ECL. This includes consideration of how management have approached estimating forward-looking PDs, LGDs and EADs;[24] PMAs; segmentation of property-backed home loans into portfolios and development of multiple-economic scenarios amongst other aspects.

[24] See the Background section in Example 2 for explanations of these acronyms.

Application of ISA 540 (Revised)

The table below gives illustrative examples of the auditor's understanding and approach that may be followed in relation to selected requirements of ISA 540 (Revised). The example does not address all the requirements of the standard. In addition, other events, conditions or factors may be relevant in the specific circumstances of an engagement that may also need to be considered.

The auditor has determined a significant risk of material misstatement of the valuation of the ECL estimate in respect of property-backed home loans.[25]

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
Risk Assessment Procedures and Related Activities		
13. When obtaining an understanding of the entity and its environment, including the entity's internal control, as required by ISA 315 (Revised),[29] the auditor shall obtain an understanding of the following matters related to the entity's accounting estimates. The auditor's procedures to obtain the understanding shall be performed to the extent necessary to provide an appropriate basis for the identification and assessment of risks of material misstatement at the financial statement and assertion levels. (Ref: Para. A19–A22)	ECLs are affected by various factors, including the wider economy. The auditor would assess the bank's IFRS 9 accounting policies and approach to the use of macroeconomic scenarios in ECL models, including the use of third-party information. The accounting standard does not describe a single method of identifying or incorporating macroeconomic scenarios in the calculation, nor does it explicitly state the number of scenarios that would be required. Given the differing views of economists globally, the use of macroeconomic scenarios and the probability weightings ascribed thereto in ECL	In order to gain an insight into the factors that could affect the economy at a macro level, the auditor: • Determined the geographical location of the entity – the entity operates across multiple regions with different regulatory regimes; • Understood the nature and extent of loans granted – property backed home loans with an average LTV of 65%, tracking up to 75% more recently; • Determined geographical location of underlying collateral to loans – the underlying properties are confirmed to be in the same location as the customer applying

[25] This is further discussed in the table below.

[26] Refer to the relevant application material.

[27] These aim to provide context to assist in the auditor's understanding and approach - these are not intended to be exhaustive.

[28] These are intended to illustrate possible outcomes for this example - these do not illustrate all possible outcomes.

[29] ISA 315 (Revised), paragraphs 3, 5–6, 9, 11–12, 15–17, and 20–21

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
The Entity and Its Environment (a) The entity's transactions and other events and conditions that may give rise to the need for, or changes in, accounting estimates to be recognized or disclosed in the financial statements. (Ref: Para. A23)	calculations, is generally considered an area of significant management judgment.	for the loan; and • Identified macroeconomic circumstances that could affect: ○ Underlying collateral valuations; ○ Timing of cash flows; and ○ Size of cash flows.
The Entity's Internal Control (e) The nature and extent of oversight and governance that the entity has in place over management's financial reporting process relevant to accounting estimates. (Ref: Para. A28–A30). … (g) How the entity's risk assessment process identifies and addresses risks relating to accounting estimates. (Ref: Para. A32–A33) (h) The entity's information system as it relates to accounting estimates, including: (i) The classes of transactions, events and conditions, that are significant to the financial statements and that give rise to	It is expected that management will have put in place a robust governance and control framework to: • Define the relevant transactions and classification of products to identify those required to have ECLs. • Segment the loan portfolios based on geography / local jurisdiction / industry, etc. • Identify the most sensitive macroeconomic variables impacting ECL calculations; • Identify macroeconomic scenarios that would be relevant to the loan portfolio being assessed; • Assign probability weights to the macroeconomic scenarios identified; • Consistently apply these scenarios in the assessment of a SICR and associated ECL calculation; and	The auditor confirmed that the following were identified by management's process as relevant macroeconomic variables: • Underlying house price values and trends over recent years along with expectations for the future; • Levels of unemployment as it relates to the specific geographical area; • Future outlook of the mining and extraction industry; • Impact of commodity prices on the industry and future outlook of prices. Indices were used; • Employment levels in the mining and extraction industry over recent years and expectations for the future; and • Levels of correlation between factors identified above.

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
the need for, or changes in, accounting estimates and related disclosures; and (Ref: Para. A34–A35) (ii) For such accounting estimates and related disclosures, how management: a. Identifies the relevant methods, assumptions or sources of data, and the need for changes in them, that are appropriate in the context of the applicable financial reporting framework, including how management: (Ref: Para. A36–A37) i. Selects or designs, and applies, the methods used, including the use of models; (Ref: Para. A38–A39) ii. Selects the assumptions to be used, including consideration of	• Perform model validation on an ongoing basis to determine model performance and continued assessment of the relevance of macroeconomic data used, including the source of this data. In addition to the above, the auditor would also look to understand which information system has been used in deriving macroeconomic scenarios, along with general IT controls over the system. *[Note: This example focuses on the effects of macroeconomic inputs and data per se not the information systems that relate to the ECL estimate and associated disclosures, so paragraph 13(h) has not been considered here.]*	The auditor also obtained an understanding of the general IT controls in place over the information system used in deriving macroeconomic scenarios. Once an understanding of the above was obtained, the auditor understood the process that management has gone through to: • Determine the relevant macroeconomic variables and scenarios to use in its ECL models; • Understand how the macroeconomic variables and scenarios have been applied through the ECL models; • Understand the impact that the macroeconomic variables and scenarios selected have on the ECL calculation; • Select the point estimate for the relevant point in the future in each macroeconomic forecast scenario; • Review these variables and scenarios, including who performed the review and approval, frequency of review, management's challenge over completeness of variables and any further investigation; • Report internally to the audit, executive and risk committees, including granularity and

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
alternatives, and identifies significant assumptions; and (Ref: Para. A40–A43) iii. Selects the data to be used; (Ref: Para. A44) b. Understands the degree of estimation uncertainty, including through considering the range of possible measurement outcomes; and (Ref: Para. A45) c. Addresses the estimation uncertainty, including selecting a point estimate and related disclosures for inclusion in the financial statements. (Ref: Para.A46–A49) (i) Control activities relevant to the audit over management's process for making accounting estimates as described in paragraph 13(h)(ii). (Ref: Para. A50–A54)		understandability of management information; • Test general IT controls over the information system identified; and • Validate the estimation model, including the impact of macroeconomic factors on the ECL. Having done this, the auditor considered the risk that in the selection of macroeconomic variables management may have demonstrated bias to a particular outcome. The auditor concluded that there did not appear to be evidence of bias as some of the macroeconomic variables appeared conservative while others the opposite.

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
15. With respect to accounting estimates, the auditor shall determine whether the engagement team requires specialized skills or knowledge to perform the risk assessment procedures, to identify and assess the risks of material misstatement, to design and perform audit procedures to respond to those risks, or to evaluate the audit evidence obtained. (Ref: Para. A61–A63)	Due to the complexity and subjectivity of the macroeconomic analysis performed by management, the auditor may determine that the engagement team requires specialized skills or knowledge. In addition to the relevant accounting and financial reporting framework, auditors of the financial statements of banks need to be knowledgeable of and experienced in the banking industry and its unique risks.	Based on the complexity of the ECL estimate and considering the existing knowledge and skills of the audit team, the auditor determined that the following specialized skills were required in performing the audit procedures: • Economic and credit risk experts: Individuals who focus on forecasting and understanding forecasting of the relationships between economic drivers on customers' ability to repay obligations. • IT specialists: IT skills and knowledge are required to understand and perform procedures related to the IT implementation of the ECL models. • Modelling experts: Modelling experts are essential to understand and perform procedures related to the ECL models in place at the bank.
Identifying and Assessing the Risks of Material Misstatement		
16. In identifying and assessing the risks of material misstatement relating to an accounting estimate and related disclosures at the assertion level, as required by ISA 315 (Revised),[30] the auditor shall separately	The auditor will typically look to understand whether and the extent to which judgments made in deriving macroeconomic inputs, variables and scenarios contribute to the degree of estimation uncertainty as part of their risk assessment. In	To identify and assess the risk of material misstatement associated with the macroeconomic variables, the auditor: • Looked for additional evidence in publicly available information, obtained from

[30] ISA 315 (Revised), paragraphs 25 and 26

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
assess inherent risk and control risk. The auditor shall take the following into account in identifying the risks of material misstatement and in assessing inherent risk: (Ref: Para. A64–A71) (a) The degree to which the accounting estimate is subject to estimation uncertainty; and (Ref: Para. A72–A75) (b) The degree to which the following are affected by complexity, subjectivity, or other inherent risk factors: (Ref: Para. A76-A79) (i) The selection and application of the method, assumptions and data in making the accounting estimate; or (ii) The selection of management's point estimate and related disclosures for inclusion in the financial statements.	determining the degree of estimation uncertainty, the auditor would typically consider the following: • An assessment of inherent risk factors including: ○ Economic conditions impacting the specific loan portfolio and subjectivity in determining those most relevant; ○ The relative degree of complexity in estimating the forecast of house price changes and unemployment; ○ The strength of correlation between economic factors and the ECL; and ○ Judgments applied in determining the relevant. • Governance and controls over the models used to estimate ECL: ○ Economic variables relevant to the portfolio being assessed, including the client's assessment over the sensitivity of changing these variables either individually or in combination with other variables; ○ Number of macroeconomic scenarios identified for the portfolio; and	sources such as the internet / local regulatory publications to independently understand prevalent economic conditions that may impact the mortgage portfolio, such as improved unemployment rates, indications that property prices may be rising in the area, etc.; • Assessed the completeness and accuracy of the source data / historical data used to derive the analysis for identifying relevant macroeconomic variables, the selection of scenarios and the probability weighting thereof. Data analytics were used to identify any gaps in the data quality of source data used in the determination of macroeconomic variables, with no material gaps identified; • Enquired of regulatory experts as to any recent changes in the housing or commodity regulations that may affect customers in this portfolio of mortgages; • Used independent economic experts to assess the reasonableness of assumptions around future prospects and forecasts. This was done through comparing management's outlook against independently generated outlook by internal experts. Where differences in forecasts were identified, arranged for internal

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
	○ Probability weighting of macroeconomic scenarios. • Changes in regulatory requirements.	economists to meet with management's economists to understand the reasonableness of assumptions made against the independent challenge raised; and • Reviewed the disclosures in the financial statements to ensure areas that gave rise to inherent risk have been adequately disclosed, along with potential sensitivities to allow the users of the accounts to adequately assess management's assumptions used. It was noted that management should elaborate further regarding sensitivities over macroeconomic scenarios and could benefit from explaining sensitivities on the basis of stress testing performed for capital reporting requirements. With the exception of the finding related to the disclosure above, the auditor concluded that the macroeconomic variables are subject to a significant degree of estimation uncertainty. The selection of macroeconomic scenarios is subjective, and inherently complex when determining the weightings applied to each scenario.
17. The auditor shall determine whether any of the risks of material misstatement identified	ECL estimates, and in particular the input based on macroeconomic scenarios, often have high	The auditor determined that a number of macroeconomic variables may be impacted by a

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
and assessed in accordance with paragraph 16 are, in the auditor's judgment, a significant risk.[31] If the auditor has determined that a significant risk exists, the auditor shall obtain an understanding of the entity's controls, including control activities, relevant to that risk.[32] (Ref: Para. A80)	estimation uncertainty, given the subjectivity of the forecasts used. Typically, the auditor analyzes the identified risks of material misstatement to determine which underlying elements or assumptions used contribute most to this estimation uncertainty, and attribute these elements and assumptions to the assessment of significant risk. Given limitations in knowledge and / or data used in developing scenarios, judgment is required by management and could give rise to complexity in developing these scenarios and, in turn, the measurement of the impact of scenarios applied. This complexity is considered as part of the auditor's assessment and identification of risks of material misstatement. Sensitivity or trend analysis may be utilized to help understand the drivers of estimation uncertainty, such as historical macroeconomic trends and the history of accurate forecasting per our example.	downturn in the mining and extraction industry, including house prices, unemployment, etc. There appeared to be a strong correlation between these variables and, based on sensitivity, the auditor determined that the future macroeconomic outlook for loans to individuals working in this sector and in this geographical location, may be significantly impacted and therefore, impact the ECL estimation. The auditor concluded the identification and application of macroeconomic variables within macroeconomic scenarios was a significant risk. The auditor identified relevant controls related to the determination of macroeconomic variables. The following control (among others) was identified as a relevant control: • The bank's credit department obtained a range of economic variables from the bank's economics department and prepared an analysis to determine: ○ The variables that are relevant to the ECL calculation through regression analysis; ○ The number of macroeconomic scenarios to be considered based on

[31] ISA 315 (Revised), paragraph 27

[32] ISA 315 (Revised), paragraph 29

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
		the behaviour of that variable; and ○ The weightings to be applied to each scenario. The analysis is reviewed by the head of credit risk and discussed and approved at the quarterly credit committee meeting to confirm the analysis remains relevant and if the committee deems it needs to be updated, the analysis is refreshed for the next committee meeting. The auditor tested the control's design and implementation, considering the following factors: • Whether the control was designed to operate at a sufficiently precise level to mitigate risks of material misstatement; • Whether the individuals performing the control were suitably experienced and qualified to perform the control and had the authority within the organisation to enable the control to be effective; • Whether any actions resulting from the performance of the control were adequately followed up; and • Whether the information used in the control was complete and accurate (for example, the macroeconomic data used in the quarterly report).

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<tr><th>Selection of ISA 540 (Revised) Requirements[26]</th><th>Relevant Considerations[27]</th><th>Auditor's Understanding and Approach[28]</th></tr>
<tr><td></td><td></td><td>Based on the above considerations, the auditor failed the design of the control, given the discrepancy between the macroeconomic drivers incorporated in the ECL calculation being at the jurisdictional, not geographical, level without any consideration or documentation in the methodology to compensate for this data limitation. This was reported to management and those charged with governance.</td></tr>
<tr><td colspan="3">Responses to the Assessed Risks of Material Misstatement</td></tr>
<tr><td>Testing How Management Made the Accounting Estimate

22. When testing how management made the accounting estimate, the auditor's further audit procedures shall include procedures, designed and performed in accordance with paragraphs 23–26, to obtain sufficient appropriate audit evidence regarding the risks of material misstatement relating to: (Ref: Para. A94)

(a) The selection and application of the methods, significant assumptions and the data used by management in making the accounting estimate; and

(b) How management selected the point estimate and developed related</td><td>In designing procedures to test how management made the estimate, the auditor independently applies judgment based on the facts and circumstances available to challenge those steps performed by management.

Given the significant number of judgments that need to be applied, the auditor needs to consider the aggregate of the judgments made to assess overall reasonableness.

Typically, the auditor will involve professionals with specialized knowledge and experts in designing and performing audit procedures, including considerations over sufficiency and appropriateness of audit evidence in line with ISA 500, Audit Evidence.

Determining the macroeconomic factors relevant</td><td>The auditor obtained the detailed development methodology document from management alongside the final accounting policy document for ECLs and macroeconomic scenarios and corroborated the content of the document through inquiries with the bank's economics, finance and credit department. Along with the IT specialist, the relevant systems were scoped into the audit, including the secure server where management maintains their analysis and the underlying database.

The credit risk expert was involved in designing and performing procedures to ensure relevant factors were addressed in the planned tests of details, focusing on management judgments.

Modelling experts were used by the auditor to design robust audit procedures, where they</td></tr>
</table>

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
disclosures about estimation uncertainty.	to the portfolio and therefore ECL calculation, requires consideration of a wide range of information sources. Typically, analysis performed to determine if the factor correlates to losses, is based on publicly available historical information. Where possible, the auditor independently obtains this when performing their own analysis.	reperformed regression analysis management had completed to challenge the relevance of the macroeconomic variable. *[Note: Refer to paragraph 24 below for the detailed procedures performed in relation to significant assumptions and the related results.]*
Methods 23. In applying the requirements of paragraph 22, with respect to methods, the auditor's further audit procedures shall address: (a) Whether the method selected is appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from the method used in prior periods are appropriate; (Ref: Para. A95, A97) (b) Whether judgments made in selecting the method give rise to indicators of possible management bias; (Ref: Para. A96) (c) Whether the calculations are applied in accordance with the method and are mathematically accurate; (d) When management's application of	This requirement is relevant to the ECL macroeconomic variables in two key areas: • Firstly, in determining the macroeconomic factors relevant to the portfolio; and • Secondly, in the method to which they are built into the ECL calculation engine, including the different scenario calculations and the weightings applied thereto. To determine those macroeconomic drivers that impact the ECL calculation it is expected that management perform regression analysis against historical loss data to determine if a correlation exists, based on a number of drivers that could reasonably lead to a change in the borrower's ability to repay. This analysis should be updated periodically, to ensure that drivers remain relevant. Where possible, the audit team reperforms this statistical analysis to ensure mathematical	The auditor performed qualitative analysis to independently identify economic drivers that could impact the ECL as noted above to test completeness and appropriateness of drivers used in the ECL model. Using independently obtained house price and unemployment data, the auditor performed regression analysis to test the mathematical accuracy of management's calculations. The output confirmed positive correlation between house price data and unemployment on credit losses. The auditor noted management had not specified in their model methodology document the frequency of reperforming analysis of relevant macroeconomic drivers. This was reported to management as a finding over their control environment. The auditor utilized credit risk experts to review the methodology document for compliance with IFRS 9. The ECL calculation scripts were then

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the method involves complex modelling, whether judgments have been applied consistently and whether, when applicable: (Ref: Para. A98–A100) (i) The design of the model meets the measurement objective of the applicable financial reporting framework, is appropriate in the circumstances, and, if applicable, changes from the prior period's model are appropriate in the circumstances; and (ii) Adjustments to the output of the model are consistent with the measurement objective of the applicable financial reporting framework and are appropriate in the circumstances; and (e) Whether the integrity of the significant assumptions and the data has been maintained in applying the method. (Ref: Para. A101).	accuracy. If available, this reperformance includes independently obtaining driver data and including this in the calculation to ensure no data manipulation has occurred without explanation and governance. When assessing the method of how the macroeconomic drivers are incorporated into the model, the audit team utilizes credit risk and modelling experts. The credit risk expert assesses the model methodology document for compliance with the applicable accounting standard, IFRS 9. Then, the modelling expert reviews the model scripts to ensure the model is performing in line with the policy.	reviewed by the modelling expert to ensure the calculations followed the policy and judgments documented in the methodology document. The expert did not note departure from the standard or discrepancies between the model methodology document and the mathematics built into the calculation engine.

Significant Assumptions 24. In applying the requirements of paragraph 22, with respect to significant assumptions, the auditor's further audit procedures shall address: (a) Whether the significant assumptions are appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from prior periods are appropriate; (Ref: Para. A95, A102–A103) (b) Whether judgments made in selecting the significant assumptions give rise to indicators of possible management bias; (Ref: Para. A96) (c) Whether the significant assumptions are consistent with each other and with those used in other accounting estimates, or with related assumptions used in other areas of the entity's business activities, based on the auditor's knowledge obtained in the audit; and (Ref: Para. A104) (d) When applicable, whether management has the intent to carry out specific courses of action and has the ability to do so. (Ref: Para. A105)	In order to perform the requirements set out in paragraph 24(a) of ISA 540 (Revised), the auditor would seek to understand, evaluate and challenge those assumptions that management considers to be significant (as well as those that the auditor would expect to be significant) in estimating ECL allowances in accordance with the requirements of IFRS 9. This would include consideration of: • The bank's IFRS 9 accounting policies and approach to the use of macroeconomic variables and data in ECL models, including the use of third-party information; • The governance and control environment that management have put in place over estimating ECL; • Information systems that have been used in estimating ECL, along with general IT controls over those systems; • Control findings to date; • Scoping meetings held with specialists and experts; and • Other inherent risk factors as identified when performing the *Risk Assessment Procedures and Related Activities* as outlined above. This process would include determining how management has identified drivers of credit risk,	With respect to paragraph 24(a), the auditor, in this instance, obtained and reviewed an analysis prepared by management that shows how sensitive the ECL allowance is, in material terms, to changes in unemployment and house prices at a geographic level. As the audited entity has not developed specific scenarios for commodity prices, the auditor challenged the rationale of this decision against the potential impact of changes in such prices on the ECL allowance and requested management to show that the impact of changes in commodity prices were incorporated in the recognition and measurement of the ECL allowance, through a PMA. In terms of the PMA itself, the auditor understood, evaluated and validated management's controls over and the governance process applied to the estimating of the PMA, as well as the impact on stage allocation. This was done across geographical location. The auditor also obtained and assessed the result of statistical testing performed by management so as to obtain evidence on the application of macro-economic variables in the estimation of forward-looking PDs, LGDs and EADs. This included consideration of the soundness of the statistical framework that management used to establish causal links (linear regression) and the results of the testing that management carried out to determine statistical significance (coefficients that showed confidence interval scores that are

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	applying appropriate professional skepticism. As such, this may be expected to involve consideration of the appropriateness of management's assessment in terms of those drivers which it has deemed to be key and on what basis this conclusion has been reached, as well as consideration of those drivers which it has not deemed to be key and on what basis that conclusion has been reached. The auditor would also typically seek to understand how relationships between macro-economic variables and (i) default rates, (ii) collateral values and (iii) repayment history have been established to estimate forward-looking (i) PDs, (ii) LGDs and (iii) EADs. This may include identification of what statistical approach / framework has been applied to establish these causal links and what testing has been carried out to determine the statistical significance and unbiased nature of any models. As part of this exercise, the auditor would typically consider how management has assessed expected correlations between assumptions when developing details of specific economic scenarios, for example, an increase in unemployment is expected to result in an eventual decrease in interest rates and GDP in the future. This may include consideration of how management became comfortable that the assumptions are applied in a consistent manner	greater than an acceptable percentage). This work involved the use of auditor's experts in economic forecasting, credit risk and modelling. The auditor assessed and tested the approach that management applied in developing the assumptions that formed the basis of the multiple-economic scenarios. This work included understanding, evaluating and validating management's controls and the governance over this process. Management's approach consisted of taking the weighted average of the credit loss determined for each of the multiple scenarios selected, weighted by the likelihood of occurrence of each scenario plus / minus a separate adjustment for 'additional' factors. As the audited entity had only developed four scenarios, the auditor challenged the number and appropriateness thereof by benchmarking the nature and quantum of the scenarios against peers and external forecasts published by central banks and other bodies. The auditor applied professional skepticism in evaluating whether there were other plausible scenarios that management could have considered and challenged the basis on which four were selected. Management provided sensitivity analysis that showed that stressing the assumptions would not give rise to a material change in the ECL allowance. The auditor assessed the workings supporting this assertion and concluded that

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	so that the scenarios that are developed are realistic. The auditor would ordinarily determine how many economic scenarios management has identified and how those scenarios have been developed and justified, for example, via reference to external data or benchmarking against peers. This would generally take into consideration: • The appropriateness of the audited entity's policy for identifying and developing reasonably plausible scenarios that may arise and impact the ECL allowance; • Management's assumptions around the likelihood of each occurring in terms of the weightings that have been applied to the parameters (PD, LGD and EAD) that have been modelled under each scenario; and • How have these weightings been developed and justified, for example, again via reference to external data or benchmarking against peers. In particular, the auditor may seek to understand, evaluate and validate controls around economic data and forecasts as well as assess independent testing that has been performed to validate assumptions used to estimate the ECL allowance. This includes review of sensitivity tools that are used by management to inform	management's position was appropriate and reasonable. This included consideration of the impact of stage allocation. A difference was noted in this respect – as the significant assumptions were stressed, this gave rise to a difference in the ECL allowance that was lower than performance materiality. Consequently, the auditor took this difference to the summary of uncorrected misstatements. The auditor also assessed the reasonableness of the likelihoods of these scenarios occurring that management have developed and justified, by referring to external data and the results of peer bank stress testing so as to establish whether the audited entity fell within the market consensus. The auditor considered management's overall approach to be appropriate and reasonable based on the work performed above and by the auditor's experts in economic forecasting and credit risk. Management had effected changes to assumptions as they are calibrated over time. The auditor therefore assessed these changes against the amount of the ECL allowance that is recognized and measured so as to determine whether the change unduly impacted the allowance. The auditor did this to be able to conclude on the appropriateness of the change and / or whether the change is indicative of management bias. This work included reviewing

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	oversight of ECL estimate adequacy and assess the impact of alternative economic assumptions. Year-on-year changes in the process adopted by, and assumptions applied by, management are usually understood and assessed for reasonableness. This would include consideration of actual results against expectations and other forms of back testing. In order to perform the requirements set out in paragraph 24(c) of ISA 540 (Revised), the auditor would be cognisant of contradictory information in terms of accounting for financial instruments generally and also vis-à-vis other accounting estimates. The validity of material differences would be understood and corroborated. In order to perform the requirements set out in paragraph 24(d) of ISA 540 (Revised), the auditor seeks to understand and evaluate management's internal credit risk management practices. This is to assess whether assumptions used in estimating the ECL allowance are consistent with such practices particularly in terms of LGDs that are determined via reference to collateral on a forward-looking basis.	management's assessment of the degree to which potential loan losses could be underestimated in a future economic downturn given management's assumptions were based on expectations that credit conditions would be relatively more benign when the loans were originated. The auditor also compared prior year expected assumptions to what actually manifested in practice during the current year, confirming that management were broadly accurate in their forecasting. As part of this work, the auditor understood, evaluated and validated management's controls over how these changes to assumptions are applied to the model, noting no exceptions in this respect. With respect to paragraph 24(c), the auditor, in terms of evaluating the consistency in accounting for financial instruments generally, determined whether the prepayment and early repayment assumptions used in determining the life of the property-backed home loans used for estimating the ECL allowance was different to that which was used for estimating interest income. While differences were identified given the use of proxies for estimating ECL by portfolio, management provided analysis as to their quantum and the auditor re-performed a sample of these calculations and concluded that the differences were in fact not material. In terms of other accounting estimates, the auditor assessed how the audited entity's forward-looking going

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		concern, goodwill impairment and deferred tax asset recoverability assumptions linked to those used in the ECL model. Specifically, the auditor confirmed that, on a sample basis, the cash flows used by management in its goodwill impairment testing, budgeting and forecasting and in assessing deferred tax asset recoverability were consistent with those cash flows and other macro-economic assumptions used in estimating the ECL under the central case economic scenario. With respect to paragraph 24(d), the auditor assessed whether management had the intention and ability to repossess the properties and realize the collateral based on past practice and current business plans. The auditor challenged instances where LGDs were being modelled based on forward-looking collateral values given management had not repossessed properties in the past and concluded that management would do so in the future where there was no realistic prospect of repayment. *[Note: How the auditor applies the requirements set out in paragraph 24(b) of ISA 540 (Revised) is set out under the Indicators of Possible Management Bias sub-section below.]*
Data 25. In applying the requirements of paragraph 22, with respect to data, the auditor's further	The auditor would ordinarily assess the relevance and reliability of data that has been considered by management in its assessment of	With respect to paragraphs 25(c) and 25(d), the auditor considered how management had addressed gaps in data or data quality, such as

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audit procedures shall address: (a) Whether the data is appropriate in the context of the applicable financial reporting framework, and, if applicable, changes from prior periods are appropriate (Ref: Para. A95, A106); (b) Whether judgments made in selecting the data give rise to indicators of possible management bias; (Ref: Para. A96) (c) Whether the data is relevant and reliable in the circumstances; and (Ref: Para. A107) (d) Whether the data has been appropriately understood or interpreted by management, including with respect to contractual terms. (Ref: Para. A108)	drivers of credit risk, including, in relation to completeness, consideration of whether there is any data that has been identified as being pertinent to the estimation of ECL but not considered by management. This may include determining how management have used historical and forward-looking data in the modelling and whether: • It is internal, external or a combination of both; • Whether there is sufficient historical data or gaps in the data; and • How management have checked the quality of data, including that obtained from third party data vendors. The auditor would typically seek to understand and evaluate what key data fields drive the parameters that are used by management in estimating the ECL allowance. This could include consideration of sensitivity analysis that is performed by management so as to identify components that contribute most significantly to the risk of material misstatement. The auditor may also seek to understand and evaluate how historic data sets have been tested for relevance by management and adjusted where necessary. This may include consideration of the need to reflect current conditions and future forecasts that did not affect the period over which the	through the use of any floors or other similar adjustments – for example, LGD floors. This included evaluating the policy and controls that management have put in place over these areas and performing testing over these adjustments and recalculating them where they were significant. The auditor also agreed the contractual terms as per the data set back to underlying source data and agreed other macro-economic data that was used and was publicly available back to those external sources, noting no exceptions when performing both of these substantive tests. The former procedure verifying, on a sample basis, data points used in the audited entity's ECL model back to source systems. With respect to paragraphs 25(a), 25(c) and 25(d) of ISA 540 (Revised), the auditor also performed the following procedures: • In terms of segmentation of home loans, the auditor evaluated how management had determined how many segments they were to use for the purposes of collective assessments in terms of both SICR and recognizing and measuring the ECL allowance. This included consideration of whether each segment was supported by sufficient data points, whether thought had been given to using more segments given the impact that this would have on the ECL

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	historic data was gathered and to remove any effect of historic conditions that are no longer relevant or expected to manifest again. More specifically, the auditor may assess if and how macroeconomic variables have been incorporated by management into the score card / risk rating used to assess the credit worthiness of the audited entity's borrowers at origination and an on-going basis if such is part of the process instead of forward-looking PDs. This data is incorporated into the determination of the PD if it could impact the borrower's credit or payment behaviour, for example, an increase in unemployment will increase default risk. The auditor may understand and evaluate the reasonableness of management's groupings of home loans based on shared risk characteristics, for example, instrument type, credit risk ratings, collateral type, date of initial recognition and remaining term to maturity, by location for each of the groups identified. Due to a lack of data, management may have used proxies. This may be to compensate for a lack of historical defaults, as a simplification (e.g., using country-wide rather than regional-specific variables) or due to forward-looking information not existing over a sufficiently long-time horizon (e.g., use of mean reversion after a five-year time period). These may also be used	allowance and whether there were large concentrations of home loans at the boundaries of the segments that might have indicated that segmentation used by management may have needed amending. Identified anomalies were reported to management who subsequently addressed them by updating the basis on which they performed collective assessments. • The auditor considered what development data set had been used (i.e., from year 2011 to the current date) and evaluated this for changes in the portfolio over time as well as changes in the audited entity's credit risk appetite. This included evaluation of how management had adjusted the data set for these changes so that said data set was appropriate for use. On the basis of work performed, the auditor concluded that changes were appropriate. • The auditor also agreed the data used to run the models at the reporting date in terms of assessing SICR and estimating ECL back to internal and external sources. This was done on a sample basis, with only trivial differences being noted, as well through obtaining evidence over the logic, access and programme change technology controls that management implemented for

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	to implement IFRS 9's requirements by that standard's effective date when there were not enough data available to apply a more robust approach, with PMAs being used in order to mitigate these limitations in the short-term as well as to capture 'latent risks' not incorporated in models. The auditor may identify and assess such use in terms of appropriateness initially as well as consider management's plan for limiting them on an on-going basis. *[Note: How the auditor applies the requirements set out in paragraph 25(b) of ISA 540 (Revised) is set out under the Indicators of Possible Management Bias sub-section below.]*	data feeds. • Management had operationalised the assessment of SICR through the use of triggers due to a lack of historical loss data. The auditor therefore evaluated and challenged management's determination of these triggers through reviewing management's analysis of those triggers against historical performance. This included considering whether the selected triggers were timely and forward-looking rather than simply capturing incurred losses by determining to what extent a SICR would have been identified before the home loan in question or portfolio thereof was past due for a specified period of time. The auditor also evaluated this for bias as outlined under *Indicators of Possible Management Bias* below. Where management had concluded not to use the origination PD as an input to assessing SICR, which was again down to a lack of data, the auditor considered the reasonableness of the decision to use prudent approximates based on pricing bands that were in place around that time and concluded that it was reasonable in this instance. Furthermore, in light of the tightening in underwriting standards over time, the auditor assessed the differences in triggers applied to

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		segments of home loans that were originated less recently than others, noting that differences, in relative terms, were appropriate in the circumstances. With respect to the requirements set out in paragraphs 25(a) of ISA 540 (Revised), the auditor performed the following additional procedures: • The auditor considered the reasonableness of the account level used by management for assessing significant increases in credit risk. Where this assessment could not be performed at the individual instrument level, the auditor checked management's determination that the credit risk characteristics of the individual instruments in the portfolio of home loans were similar, and that this determination included consideration of the forward-looking portfolio-specific and macroeconomic information. In a couple of instances, the auditor concluded that credit risk characteristics were not shared and challenged management on this. Management subsequently reviewed its segmentation and updated this to the auditor's satisfaction. • The auditor evaluated management's periodic review of pre-determined indicators

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		as this review may have indicated that proxies were no longer appropriate (i.e., increasing default levels, concentrations of deterioration in specific regions and increasing indebtedness across peers). • The auditor evaluated the audited entity's reliance on PMAs to address data limitations particularly where they were significant. These were used by management to cover refinancing risk, forbearance, affordability, indebtedness, expected lives and economic scenarios – for example, in light of a lack of up-to-date borrower level data, the audited entity monitored indicators of a build-up of latent risks related to affordability which the auditor examined to check that such data was being monitored sufficiently and closely, and adequately included within the estimate, concluding that it was being monitored sufficiently and closely, and was adequately estimated. *[Note: How the auditor applies the requirements set out in paragraph 25(b) of ISA 540 (Revised) is set out under the Indicators of Possible Management Bias sub-section below.]*
Other Considerations Relating to Audit Evidence 30. In obtaining audit evidence regarding the	The auditor may use the work of management's expert or use their own expert in economics and	To evaluate the work of management's expert, the auditor used experts in economics when

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risks of material misstatement relating to accounting estimates, irrespective of the sources of information to be used as audit evidence, the auditor shall comply with the relevant requirements in ISA 500. When using the work of a management's expert, the requirements in paragraphs 21–29 of this ISA may assist the auditor in evaluating the appropriateness of the expert's work as audit evidence for a relevant assertion in accordance with paragraph 8(c) of ISA 500. In evaluating the work of the management's expert, the nature, timing and extent of the further audit procedures are affected by the auditor's evaluation of the expert's competence, capabilities and objectivity, the auditor's understanding of the nature of the work performed by the expert, and the auditor's familiarity with the expert's field of expertise. (Ref: Para. A126–A132)	credit risk when testing management's significant assumptions and data. This may include areas such as: • Understanding how relationships between macro-economic variables and (i) default rates, (ii) collateral values and (iii) repayment history have been established by management in their estimating of forward-looking (i) PDs, (ii) LGDs and (iii) EADs. • Understanding how management have developed and identified multiple economic scenarios as well as the likelihood of each occurring and the application of weightings to parameters. • Assessing data sets used for sufficiency and quality. • Evaluating the factors incorporated into the assessing significant increase in credit risk and recognizing and estimating the ECL allowance for relevance and completeness. Another aspect in which the auditor could use an expert is assessing whether the appropriate risk characteristic has been used for segmentation of portfolios of property-backed home loans for the purposes of assessing for SICR and recognition	performing the procedures outlined under significant assumptions and data above, specifically in terms of: • Establishing that management had reflected changes in commodity prices through a PMA; • Considering the linear regression that management used to establish causal links between macro-economic variables and (i) default rates, (ii) collateral values and (iii) repayment history as part of management's estimating forward-looking (i) PDs, (ii) LGDs and (iii) EADs; and • Evaluating the forecasts used by management against those published by the central bank and other bodies within the audited entity's jurisdiction for accuracy and representativeness against the audited entity's property-backed home loans. The auditor also engaged an expert in credit risk who considered both the linear regression that management used to establish causal links between macro-economic variables and parameters in collaboration with the economist, and evaluated the appropriateness of management's consideration of internal and external risk drivers in its segmentation of the portfolio as part of the auditor's consideration of

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	and measurement of the ECL allowance.	whether this was in accordance with the requirements of IFRS 9 and market practice. This included consideration of the statistical tests that management have used to support the audited entity's level of segmentation such when selecting variables for segmentation during model build and testing that is performed by management on an on-going basis. As outlined under data above, in a couple of instances, the auditor concluded that, on the basis of the work performed by the auditor's credit risk expert, the credit risk characteristics were not shared and challenged management on this. Management subsequently reviewed its segmentation and updated this to the auditor's satisfaction.
Disclosures Related to Accounting Estimates		
31. The auditor shall design and perform further audit procedures to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement at the assertion level for disclosures related to an accounting estimate, other than those related to estimation uncertainty addressed in paragraphs 26(b) and 29(b).	The auditor would typically seek to understand and evaluate management's process for preparing disclosures. This would include understanding and evaluating the sensitivity of this allowance to the key drivers of the ECL estimate as established by management and audited by the auditor, particularly the subjective elements and inputs that are or could become more fundamental to the amount recognized and measured in relation to internal and external quantitative information about that sensitivity that is available (e.g., house prices and	The auditor read the narrative disclosures and concluded that they were consistent with their understanding of the business and other work that have performed in relation to the ECL allowance, including disclosure of the key drivers of credit risk (house prices and unemployment). The auditor considered whether the disclosures, which included those surrounding critical judgments that are disclosed in accordance with the requirements of International Accounting Standard (IAS) 1, *Presentation of Financial Statements*, are informative to the users of the

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	unemployment). It may also include understanding and evaluating the descriptiveness of the qualitative disclosures in terms of management's process for estimating the ECL allowance, such as the basis on which the four multiple-economic scenarios have been developed and which variables have been called out as being key and why. *[Note: This illustration does not address disclosures relating to estimation uncertainty per paragraphs 26(b) and 29(b) of ISA 540 (Revised).]*	financial statements. This included an assessment of the: • Quantitative disclosures over the macro-economic variables that had been applied to individual multiple-economic scenarios and the likelihood of those four multiple-economic scenarios occurring; and • Qualitative disclosures over how management developed those multiple-economic scenarios, why management placed greater emphasis on certain macro-economic variables (house prices and unemployment) over others (commodity prices). The work that the auditor performed above involved comparison to peers that originated similar products to that of the audited entity. The auditor concluded that management had materially adhered to the requirements of IAS 1 and IFRS 7, *Financial Instruments: Disclosures*, as well as the expectations of its prudential regulator and current market practice.
Indicators of Possible Management Bias		
32. The auditor shall evaluate whether judgments and decisions made by management in making the accounting estimates included in the financial	Throughout the course of the audit, the auditor would typically consider where bias has arisen in the application of judgment exercised by management in relation to the development and	The auditor was cognizant of indicators of possible management bias when performing the procedures outlined under significant assumptions and data above, as well as when they were using

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statements, even if they are individually reasonable, are indicators of possible management bias. When indicators of possible management bias are identified, the auditor shall evaluate the implications for the audit. Where there is intention to mislead, management bias is fraudulent in nature. (Ref: Para. A133–A136)	application of: • Significant assumptions; • Use of data; • In assessing significant increases in credit risk; and • The recognition and measurement of the ECL allowance. This may include consideration of the audit entity's governance, risk and control framework for adhering to the requirements of IFRS 9, including determining whether there is sufficient control and review by those charged with governance and senior management in terms of the key judgments, PMAs and the ECL allowance as they have been recorded and subsequently reported in the financial statements. The ECL allowance that is recognized and measured may be biased due to the selection of particular economic scenarios (whether optimistic or pessimistic), by the use of out-of-date economic scenarios or by using a number or range of scenarios that is too few or too narrow to capture the full extent of risk associated with the loan book and / or non-linearity. When evaluating indicators for possible management bias, the auditor may consider whether the ECL	economist or credit risk modeller in the capacity of management's and / or an auditor's expert – for example, the auditor considered whether all the PMAs were directionally the same, noting that they were. The auditor also determined the basis on which management had identified non-linearity between significant assumptions, data and parameters and how this factor into the audited entity's estimation of the ECL allowance under IFRS 9. As this exercise had been done at a date other than the reporting date, the auditor determined how management had updated this for facts and circumstances that existed at the reporting date, noting no material differences in this respect. As outlined under significant assumptions above, the audited entity had developed four multiple-economic scenarios. The auditor compared the weightings that management applied to the audited entity's four multiple-economic scenarios in terms of each scenarios' likelihood of occurrence to peers and those published by the central bank and other bodies within the audited entity's jurisdiction, and identified that management had applied less severe weightings to the two downside scenarios. The auditor considered this to be a potential indicator of bias as identified peers with similar loan books had similar severe downside scenarios, but greater

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	as estimated would have been higher if: • Realistic but severe downside scenarios had been considered; • High-impact, low-probability scenarios evidencing non-linearity were not included; and • More weight had been given to the base case economic scenario.	weightings were applied to them. Therefore, the auditor requested management to quantify the impact of this, that gave rise to a material difference which management subsequently adjusted in the audited entity's financial statements as they agreed that this represented a misstatement. When forming its conclusion on this, the auditor did not consider the bias to be intentional, nor did they consider this bias to be one directional. The conclusion that the bias was not intentional was made on the basis of an evaluation of work performed and communications with management and those charged with governance. As a result, the auditor also concluded that they did not need to revise the related risk assessment.
Overall Evaluation Based on Audit Procedures Performed		
33. In applying ISA 330 (Revised) to accounting estimates,[33] the auditor shall evaluate, based on the audit procedures performed and audit evidence obtained, whether: (Ref: Para. A137–A138) (a) The assessments of the risks of material misstatement at the assertion level remain appropriate, including when indicators of possible	As the auditor concludes on audit procedures and resulting conclusions and findings, they will "stand-back" to consider the outcome of the audit work performed over the valuation of the ECL estimate, including the judgments made by management in estimating the effects of macroeconomic inputs and data on the ECL estimate. The auditor will consider whether: 1. The risk assessment initially performed on	In undertaking the stand-back evaluation relating to macroeconomic inputs and data, the auditor's work included considering: • The sensitivity analysis performed by management and the independent sensitivity analysis the auditor had performed on the effect of the macroeconomic assumptions and scenarios on the ECL, and concluded there was a

[33] ISA 330, paragraphs 25–26

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management bias have been identified; (b) 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; and (c) Sufficient appropriate audit evidence has been obtained.	the ECL estimate remains appropriate in light of the audit work performed. This evaluation would focus on the estimates identified as most relevant and an overall consideration of how these estimates interact as a whole; 2. Management's estimate of the ECL estimate and its disclosure were in accordance with IFRS 9; and 3. Whether sufficient appropriate audit evidence had been obtained and included in the audit file, including corroborative and contradictory evidence obtained. Where contradictory evidence was obtained, the auditor would consider indicators of management bias in their conclusions. The auditor's consideration includes the impact of the outcome of the stand-back evaluation outlined above on the auditor's opinion and on the need for any additional audit procedures.	greater degree of estimation uncertainty than the initial risk assessment performed had indicated; • The quantum and potential impact of contradictory evidence identified on the ECL, in addition to sensitivities disclosed, to consider any overarching indication of management bias; • The ongoing reliability of the sources used for deriving the macroeconomic forecasts based on knowledge of the expert; • The availability of other relevant macroeconomic variables that could have a material impact on the ECL estimate including commodity prices and national GDP; and • The evidence that had been obtained elsewhere in the audit that commodity prices could have a material impact on the ECL. As a result of the above, the auditor reconsidered the initial risk assessment and determined that the absence of commodity prices in the set of macroeconomic variables used represented a risk of material misstatement. Accordingly, the auditor communicated their conclusion to management and designed additional audit procedures to determine whether there was a material

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		misstatement. The auditor then considered whether the audit evidence included on the file was sufficient – for example, the auditor considered whether there was enough evaluation performed of the relevance and reliability of any prior year audit evidence that was relied upon in the current year. The auditor identified some areas where additional audit evidence could be obtained and obtained this as set out under the preceding sub-sections of this example.
Determining Whether the Accounting Estimates are Reasonable or Misstated 35. The auditor shall determine whether the accounting estimates and related disclosures are reasonable in the context of the applicable financial reporting framework, or are misstated. ISA 450[34] provides guidance on how the auditor may distinguish misstatements (whether factual, judgmental, or projected) for the auditor's evaluation of the effect of uncorrected misstatements on the financial statements. (Ref: Para. A12–A13, A139–A144)	While the auditor will perform detailed audit procedures to test how management made the bank's ECL estimate, the auditor also performs stand-back procedures to consider the estimate of ECL as a whole and in the broader context of the financial statements for both reasonableness and management bias. This may involve considering the directional consistency of changes in the ECL over time in light of changes in the loan portfolio and economic environment, considering peer information and regulatory views, and evaluating whether the bank's judgments in relation to the ECL estimate are consistently at the high or low end of the auditor's judgment.	The auditor's stand-back procedures for the ECL estimate as it relates to macroeconomic data and inputs, included: • Analytical procedures at a product and geographical level to evaluate whether the overall ECL was consistent with the understanding of the entity, using the following comparatives / reference points: ○ Change compared to prior year ECL; ○ Coverage ratio compared to prior year; and ○ ECL estimates reported in regulatory filings; • A comparison of the macroeconomic

[34] ISA 450, paragraph A6

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		variables identified as relevant from prior year to current year; • Evaluation of the model projections under different economic scenarios comparing the predicted quarterly losses under those various scenarios against historical experience considering: ○ The magnitude of loss ratios (historical versus projected); ○ The severity of scenario ECLs compared to historical recessionary periods (peak to trough); and ○ The rank or order of loss projections under the different scenarios (downside case losses versus central case losses); • Comparison of the entity's ECL related KPI(s) to peers (e.g., ECL ratio on gross carrying amount, relative percentage of exposures in the 3 stages, year-on-year change in ECL and coverage ratios) recognizing that there could be a time lag in publicly available information. • Evaluation of audit evidence identified that was inconsistent with management's ECL estimate, for example, current economic environment and contradictory forecasts

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
		from different sources such as newspapers, the internet, etc. Having performed the above procedures, the auditor concluded that the accounting estimates were reasonable although had identified that the absence of commodity prices within the macroeconomic variables had led to an uncorrected misstatement that while not material, needs to be reported to those charged with governance.
36. In relation to accounting estimates, the auditor shall evaluate: (a) In the case of a fair presentation framework, whether management has included disclosures, beyond those specifically required by the framework, that are necessary to achieve the fair presentation of the financial statements as a whole;[35] or (b) In the case of a compliance framework, whether the disclosures are those that are necessary for the financial statements not to be misleading.[36]	This step requires the auditor to evaluate whether the financial statements as a whole fairly present the facts and underlying factors that most significantly affect the business. The auditor may make use of a compliance and disclosure checklist to ensure all required disclosures, in light of the applicable financial reporting framework, have been adhered to. By standing back and reading the financial statements as a whole this may reveal areas where additional information may be required, or even places where explanatory notes could be elaborated upon. The auditor could identify areas of improvement	In performing the stand-back evaluation outlined, the auditor identified that there were areas that they needed to analyze further and discuss with management and those charged with governance, including: • Disclosures that could assist in properly explaining judgments made by management in determining the use of macroeconomic variables and the subsequent estimates feeding into the ECL estimate; • Inconsistencies between the weighting applied to macroeconomic forecasts when comparing with peer lending institutions; and

35 See also ISA 700 (Revised), paragraph 14.

36 See also ISA 700 (Revised), paragraph 19.

Selection of ISA 540 (Revised) Requirements[26]	Relevant Considerations[27]	Auditor's Understanding and Approach[28]
	through a number of ways, including: • Reviewing and benchmarking the disclosures of peers. • Identifying a suitably senior auditor in the firm to perform an independent review of the financial statements, specifically with the objective to identify areas where further explanatory information could be required.	• Identification that the level of granularity in the disclosures in the financial statements relating to macroeconomic conditions, whilst compliant with IFRS, were not as helpful to readers of the financial statements as many of the audited entity's peers. The auditor concluded that, while the above would represent improvements, the audited entity's disclosures materially adhered to the relevant requirements of IFRS and were generally insightful to a reader of the financial statements. Management therefore agreed to make these improvements to the disclosures in the subsequent year's annual financial statements.

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