# A GUIDE TO STATUTORY AUDIT PROCEDURES ON EXPECTED CREDIT LOSS PROVISIONING UNDER IFRS 9 IN CREDIT INSTITUTIONS

- January 2017 -

**WARNING**

**This is a free translation of the french document « Note relative aux diligences du commissaire aux comptes sur le provisionnement des pertes de crédit attendues en application d'IFRS 9 dans les établissements de crédit" as published in January 2017 by the Compagnie nationale des commissaires aux comptes[1].**

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[1] French institute of statutory auditors.

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## A. PURPOSE AND LIMITATIONS OF THE MEMO

**A1**    IFRS 9 – Financial Instruments, published on 24 July 2014, combines in a single standard three phases of the project to replace IAS 39: classification and measurement, impairment, and hedge accounting. This standard was endorsed by the European Union upon adoption of Commission Regulation (EU) No. 2016/2067 published in the Official Journal of the European Union on 29 November 2016. The standard's mandatory effective is 1 January 2018. This document addresses the statutory audit procedures relating to loan provisioning under IFRS 9 for credit institutions.

**A2**    The implementation of IFRS 9 entails a major overhaul of the principles and models of provisioning:

- loans,

- equity instruments that are not classified at fair value through profit or loss,

- trade receivables and lease receivables,

- contract assets within the meaning of IFRS 15,

- and financial guarantees and loan commitments that are not classified at fair value through profit or loss.

**A3**    For all of the above assets, credit institutions will have to apply a single provisioning method - the expected credit losses (ECL) method as defined by IFRS 9. There is a concern that the implementation of this method will present considerable differences:

- among credit institutions, as a result of the use of numerous proprietary parameters and assumptions to apply this method using one or more business models, involving the credit institution's judgement to a significant degree (similarly to collective provisioning currently applied, but with more parameters and a wider scope), and

- within a single credit institution, depending on the portfolios, as it is difficult to apply a single ECL model to different types of exposure (corporate, retail, consumer finance, etc.).

Given the granularity of the disclosures in the notes to the accounts, these differences will be visible and will have to be explained.

**A4**    In this context, it seemed useful to propose an audit approach relating to the ECL models under IFRS 9 and to specify the appropriate level of documentation to be produced by credit institutions to justify their level of provisioning. The procedures presented primarily concern credit institutions with a high degree of sophistication. Where necessary, they will be adapted for credit institutions with a lesser degree of sophistication.

**A5**    The purpose of this memo is not to present IFRS 9, but to describe an example of an approach applicable to the audit of the impairment of financial assets in credit institutions, i.e., all credit exposures not valued at fair value through profit or loss. Consequently, this memo does not discuss statutory audit procedures relating to the audit of:

- aspects of classification, measurement (apart from impairment aspects) and hedge accounting of financial instruments,

- the disclosures to be made in the notes to the financial statements under IFRS 7: Financial Instruments – Disclosures, as amended by IFRS 9.

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It should be noted that the disclosures to be made in the notes to the financial statements concerning credit risk have been significantly strengthened (§ 35A to 36 of IFRS 7 amended) and they must be given particular attention by credit institutions (see the recommendations of EDTF[2] on this matter) and by statutory auditors.

**A6**   This memo focuses on the statutory auditor's work on financial asset impairment models. Consequently, it does not cover the overall statutory audit approach, relating for example to the understanding of the entity and its environment, the information system and other aspects within the scope of the engagement. This memo is of an operational nature and does not claim to address all the professional standards that relates to the statutory audit approach, or to describe all of the statutory auditor's work. It draws the auditor's attention to certain specific aspects of the audit procedures relating to the impairment of financial assets in credit institutions.

**A7**   Finally, this document should not be considered to be definitive and will have to be updated and adapted in the light of discussions ongoing at international level, in particular the project to overhaul ISA 540 Auditing Accounting Estimates, the forthcoming publications of the GPPC in addition to the text published in June 2016[3], the transcription of BCBS 350 by the EBA, as well as the practical situations encountered by statutory auditors during the performance of their engagements. The statutory auditor will also ensure that his work is properly in step with that of the European supervisor, in particular the findings of the TRIM[4] programme to be implemented over the period from 2017 to 2019, with priority given in 2017 to credit models relating to assets with high default rates.

## B.  CONTEXT OF THE IMPLEMENTATION OF THE AUDIT APPROACH

### 1.  Assessment of accounting estimates

**B11**   With reference to French professional standard NEP-540 (appendix 5).06, "*accounting estimates relating to transactions that are unusual due to their amount and their nature, or that are based on strong assumptions where the management's judgement plays a significant role may result in a high risk of material misstatement (…)". Section 7 states that "when accounting estimates leave considerable room for judgement, the objectives pursued by the management - who could, whether intentionally or otherwise, orient the choice of the assumptions on which these estimates are based – may result in a risk of material misstatement*".

Provisioning for credit risk under IFRS 9 amounts, in most cases, to making one or more complex accounting estimates, and the statutory auditor's work is therefore defined accordingly.

**B12**   From a practical point of view:

- in order to identify and assess the risk of material misstatement resulting from accounting estimates, the statutory auditor implements audit procedures in  order to understand the following:

  • the accounting rules and principles prescribed by the accounting standards applicable to accounting estimates;

  • the process followed by the entity to determine the accounting estimates, any changes in the calculation methods used and the reasons for such changes;

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[2] EDTF: Impact of expected credit loss approaches on bank risk disclosures, 30 November 2015.
[3] GPPC: The implementation of IFRS 9 impairment requirements by banks, 17 June 2016.
[4] TRIM: Targeted Review of Internal Model.

- any use by the entity of the work of a specialist;

- the result or reassessment of accounting estimates of the same nature made in prior years.

  - the statutory auditor implements audit procedures that make it possible to collect sufficient, appropriate evidence to conclude on the reasonableness of the accounting estimates used to prepare the accounts, including the disclosures relating to these estimates made in the notes to the financial statements.

**B13** In general, it should be noted that in order to collect sufficient, appropriate evidence, the statutory auditor may adopt a substantive approach or an approach relying on the entity's internal control.

If the statutory auditor considers that substantive procedures as a whole are not sufficient to reach to a conclusion, he shall obtain reliance on the entity's internal control. This relates, in particular, to situations where all transactions are initiated, processed and recorded solely by computer in an integrated system.

The statutory auditors may also decide to rely on internal control to reduce the scope of the substantive procedures.

In order to be able to rely on the entity's controls, subject to having tested their operating effectiveness:

- specific controls must exist, evidencing the review and approval of the accounting estimates by the management or, when applicable, by governance,

- the accounting estimates must derive from production processes applied regularly.

When the statutory auditor has identified a significant risk (cf.C3), in all cases he performs an annual assessment of the design and operating effectiveness of the entity's controls with regard to this risk.

**B14** In the specific case of work on IFRS 9, given the particularly high number of transactions managed by information systems, it seems essential to rely on internal controls to reach a conclusion. In particular, this means testing the key controls embedded in these information systems via computerized auditing in order to collect sufficient appropriate evidence. The auditor may also consider the use of data analysis where possible.

In certain cases, the statutory auditor may adopt a substantive approach, for instance when the accounting estimates are performed on an *ad hoc* basis (at year-end, for example), on the basis of simple models, or when the audit trail is not or is only very partially computerized.

**B15** When the statutory auditor verifies the calculation method adopted, he assesses the relevance of the basic data used and the assumptions on which the accounting estimates are based, and checks the calculations made by the entity. In addition, he verifies, where necessary, whether the estimate used falls within the scope of adequate "governance"[5], at the appropriate level of responsibility and on the basis of relevant information, in accordance with the process defined by the credit institution.

**B16** The statutory auditor may also decide to use the work of a specialist notably to validate certain assumptions and/or to recalculate certain provisions. This specialist may be an external service

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[5] Regarding this point, see section E.2 hereof.

provider or an employee of the statutory auditor. In both cases, when an expert is used the provisions of French professional standard NEP 620 must be implemented, in particular section 12:

"*12. The statutory auditor shall collect sufficient, appropriate evidence to establish that:*

- *the nature and scope of the expert's work comply with the instructions given to him;*

- *the work performed by the expert enable him to conclude on the compliance of the assertions that he wishes to verify. To that end, the statutory auditor assesses:*

  ▪ *the appropriateness of the information sources used by the expert;*

  ▪ *the reasonableness of the assumptions and methods used by the expert and their consistency with those used, where applicable, in previous years;*

  ▪ *the consistency of the expert's findings with the auditor's general knowledge of the entity and the results of his other audit procedures.*

*The statutory auditor also verifies that the expert's findings are correctly reflected in the accounts or that they corroborate the assertions underlying the preparation of the accounts.*"

**B17** More specifically, the statutory auditor understands and tests the following:

- the method, and when applicable, the model used for the accounting estimate,

- any changes in methods observed or necessary in the development of the accounting estimate compared to the previous period,

- whether or not the management relies on experts,

- the assumptions underlying the accounting estimate, including by analyzing the factors on which the assumptions used are based (historical trends, operating or financial plans, etc.),

- the manual and IT processes generating the data on which the accounting estimates are based,

- the assessment of the design and operating effectiveness of the relevant controls on the accounting estimate process,

- the assessment of the manner in which the management addresses the uncertainty related to the accounting estimates.

In all cases, the statutory auditor exercises professional skepticism, in particular in reviewing assumptions.

## 2. Risks related to extensive use of models

**B21** The objective of the approach described in this memo is to reduce the audit risk, in relation to the amount of the provisions determined on the basis of the models established in compliance with IFRS 9, to a level sufficiently low to obtain the assurance sought that is necessary for the certification of the accounts. This particularly concerns the "completeness" and "valuation" assertions.

The amount of the provisions is the result of the implementation of one or more credit risk impairment models under IFRS 9. The statutory auditor's work will therefore be focused on the said model or models.

**B22**    Definition of a model

The term "model" refers to a quantitative method, system, or approach that applies statistical, economic, financial and/or mathematical theories, techniques and/or assumptions to process input data into quantitative estimates.

The use of a model generates three main types of risk that we set out below, by drawing on the OCC publication, "*Supervisory Guidance on Model Risk Management*[6].

**B23**    Risks related to the model data

The first model risk concerns the model input data. Whatever the level of development of an algorithm, if the input data are wrong or incomplete, the results generated by the model cannot be considered to be reliable.

The risks related to model input data generally concern the following areas:

- definition or qualification of the data,

- relevance of the data used in view of the objectives of the model (use of approximate data, depth of the model, update frequency, etc.),

- completeness,

- data integrity (completeness, format, source).

**B24**    Risks related to the estimates performed by the model

The model applies a calculation process to the data collected. This process is generally based on a methodology or an algorithm, embedding specific risks related for example to:

- the instability/level of uncertainty of the results;

- the complexity of the implementation of the calculation or estimate;

- the obsolescence/validity of the mathematical models used;

- the high sensitivity of the estimate to unobservable/proprietary parameters;

- the management's assumptions/judgements.

**B25**    Risks related to the use of the model

Even the most efficient model will give incorrect results if it is not used correctly. This risk category includes:

- the use of a model for a purpose other than that for which it was designed;

- the users of the model not having sufficient understanding of it;

- the model not undergoing regular verification to ensure that it remains relevant to the transactions to which it is meant to apply;

- changes being made to the model without any prior validation process;

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[6] http://www.occ.treas.gov/news-issuances/bulletins/2011/bulletin-2011-12a.pdf

- the possibility of unauthorized persons changing certain parameters and assumptions; this is notably the case when the IT general controls (ITGC) relating to access to applications and algorithms are not effective;

- the model results being circulated without satisfactory accompanying information.

**B26**    Particularity of the IFRS 9 impairment model

One of the particularities of the model for the valuation of Expected Credit Losses (ECL) within the framework of IFRS 9 is that it is composed not of one but of several potentially interacting models.

Although one speaks of the IFRS 9 credit risk impairment *model*, this model is usually composed of *several* models. In fact, most credit institutions use separate ECL calculation models depending on the nature of the assets concerned (mortgages, consumer credit, corporate loans, etc.).

**B261**    Furthermore, the calculation of ECL for a given portfolio may itself be based on a succession of models. For example, if the ECL is determined as the product of a Probability of Default (PD), an Exposure At Default (EAD) and a Loss Given Default (LGD), each of these components may itself result from a sub-model. The PD, for example, is generally the result of an estimation model based on historical data.

**B262**    For the statutory auditor, the review of the model used to estimate credit loss impairment therefore consists in reviewing several interacting sub-models.

## C. GENERAL PRESENTATION OF THE PROPOSED AUDIT APPROACH

**C1**    The audit approach proposed in this memo aims to apply professional standards in a relevant and effective manner, taking into account the particularities relating to the impairment of financial assets in credit institutions. The approach is based on three stages whose implementation must be subject to ongoing, iterative evaluation, particularly as regards the assessment of risks of material misstatement, which may evolve during the audit.

**C2**    The statutory auditor starts his work by an initial stage of understanding, identifying and assessing the risks of material misstatement relating to the provisioning of credit risk (section D hereof). In particular, the statutory auditor obtains an understanding of the models established by the credit institution. This essential aspect is developed in section D12.

**C3**    The statutory auditor determines whether there is a high inherent risk that requires a specific audit approach within the meaning of French professional standard NEP 315 ("significant" risk). In particular, the complexity of the assumptions and evaluation process and the analysis of fraud risk will be taken into account.

The statutory auditor will exercise his professional judgement to determine inherent risks at the appropriate level of granularity (e.g., the positioning of a material risk at the level of a given portfolio/model, relative to the taking into account of forward-looking information for the evaluation assertion).

**C4**     The purpose of the second stage is to enable the statutory auditor to estimate to what extent the risks identified are reduced by the controls implemented by the credit institution. In general, the statutory auditor assesses the quality of the design and the implementation of the first- and second-level controls (Front Office / Risks / Middle Office / Accounting) which structure the processes for the development, maintenance, implementation and use of the models.

This stage includes:

- the assessment  of the methodological principles and the governance over the IFRS 9 models;

- the identification of the key processes and controls implemented by the entity;

- the evaluation of the design and implementation of these controls.

If the evaluation of the design and implementation of the controls is satisfactory, the statutory auditor will perform tests on the effectiveness of the controls in order to  rely on internal control within the scope of his work.

This second stage is presented in section E of this memo. The review of the methodological principles and the "governance" is detailed in section E2. The control identification and evaluation phase is presented in section 3 for the model input data, in section 4 for the estimates and in section 5 for the use aspect. This stage enables the statutory auditor to determine to what degree he can rely on the entity's internal control procedures and thus assess the residual risk that should be covered. It thus contributes both to the assessment of the risks of material misstatement and to the response to this evaluation.

**C5**     Finally, the third stage of the review includes the substantive procedures to be performed to cover the residual audit risk at the close of the accounts. Section F of this document sets out examples of tests of details that may be implemented. The latter are naturally adapted and strengthened if necessary by the statutory auditor, depending on the findings of the internal control review.

## D. UNDERSTANDING THE CONTEXT AND ASSESSING THE RISKS OF MATERIAL MISSTATEMENT

### 1.  Understanding the context

**D11**     For the implementation of this understanding process, the statutory auditor obtains the credit institution's documentation specific to all the components of the system set up to calculate expected credit losses.

**D12**     Mapping of portfolios/IFRS 9 models/data

For the performance of his engagement, the statutory auditor must first obtain from the credit institution the mapping of the models used to calculate expected credit losses. This preliminary documentation is essential in order to allow the statutory auditor to orient his work.

In particular, this mapping must show:

- **The segmentation of balance sheet assets by homogeneous risk class (or portfolio) and the criteria used to perform this segmentation**: asset class (loans, securities, funding commitments, etc.), nature of the products (mortgages, corporate loans, consumer credit, etc.), geographical sector, economic sector and classification of guarantees related to the assets, ideally with:

    • the related IFRS 9 provisions;

- the Risk-Weighted Asset (RWA) amounts and, where applicable, the amount of the twelve-month ECL within the Basel framework;

- lastly, at the date of initial application, it is also necessary to provide a comparison with provisions under IAS 39.

- **The nomenclature of the IFRS 9 models related to this segmentation by homogeneous risk class specifying**:

    - the level of control performed internally on each model;

    - the IFRS 9 models based on regulatory models validated by the prudential supervisor (advanced models or foundations);

    - the non-validated regulatory models, or other approaches.

- **The list of the main parameters used in the IFRS 9 models, related to each homogeneous risk class**, whether this concerns the parameters used for the allocation of the loan receivables by risk category ("Stage 1, 2 or 3") or those used for the calculation of expected credit losses. These parameters notably include:

    - the components of the calculation of expected credit losses under IFRS 9: indicators and threshold(s) used to assess a significant increase in credit risk, probability of default at maturity, probability of default in one year, loss given default, exposure profile, discount rate and maturity modelling (contractual maturity or behavioural maturity);

    - the macro-economic data or other indicators to which the portfolios in question are sensitive and that are used as forward-looking indicators by the credit institution (gross domestic product by geographical zone, unemployment rate, etc.);

    - indicators of the sensitivity of the expected credit loss to these various parameters.

## 2. Assessment of inherent risks by the statutory auditor

D21　It should be noted that the statutory auditor exercises professional judgement to identify and assess inherent risks at the appropriate level (e.g., significant risk at the level of a given portfolio/model, in relation to the taking into account of forward-looking information in the evaluation assertion).

D22　The expected credit loss models under IFRS 9 are based on numerous estimates. Thus, the credit institution exercises its own judgement to determine in particular:

- portfolios representing homogeneous risk groups;

- when a significant increase in credit risk has occurred;

- the various input data for the expected loss calculation models;

- the forward-looking assumptions used for the calculation of expected losses.

D23　The processes for the calculation of these expected losses are complex and may present considerable operating risks. To handle this complexity and limit the associated operating risks, certain establishments may choose to adopt simplified options, temporarily before reaching the target processes, or on a more lasting basis. In both cases, the credit institution bases its choice on the exercise of its judgement and on documentation of the acceptability of the simplification.

D24　These factors increase the probability of errors in the estimates produced by the credit institution and are taken into account by the statutory auditor. As the aim is to identify risks of

material misstatement, the audit procedures are generally conducted at an appropriate level of granularity, taking into account the information collected during the statutory auditor's understanding of the control environment and the sensitivity of the expected loss measurements to the main assumptions used.

**D25**  Certain portfolio profiles may reveal one or more significant risks:

- high uncertainty in the estimate of the expected loss of a portfolio;

- a significant portfolio given the size of the balance sheet subject to the calculation of expected losses

- a portfolio of financial instruments with a complex credit risk profile and/or a complex process for the calculation of expected losses;

- the calculation of losses on the portfolio in question including their significant impact on the profitability and regulatory ratios of the bank (level of RWA);

- the considerable sensitivity of the expected loss measurements to macro-economic factors (forward-looking assumptions);

- the calculation of the expected losses on the portfolio in question entails numerous manual adjustments, with difficulties of reconciliation between the accounting information and the risk data.

**D26**  Conversely, certain situations could be an indication that the expected loss calculation does not constitute a significant risk, such as a portfolio with very good credit quality (low RWA), substantiated by external information.

## E. EVALUATION OF THE DESIGN AND IMPLEMENTATION OF THE RELEVANT CONTROLS FOR THE AUDIT AND TESTS OF CONTROLS

### 1. Significant risk, significant internal control weaknesses, summary of main consequences

**E11**  It should be noted that when an inherent risk is characterized as significant, each year the statutory auditor evaluates the design and implementation of the relevant controls that address this risk. When the auditor decides to rely on these controls, he carries out operating effectiveness tests (tests of controls) each year (rotation is not possible). Similarly, cross-functional controls (including ITGCs) are also tested annually if the statutory auditor chooses to rely on them.

When a significant internal control weakness is identified during the assessment of the design and implementation of the control or during the operating effectiveness tests, the statutory auditor applies French professional standard NEP-265 – *Disclosure of internal control weaknesses* and discloses the significant internal control weaknesses to the governance bodies (audit committee, risk committee, board of directors or supervisory board, etc.).

### 2. Methodological principles and governance

**E21**  Review of the methodological principles and their compliance with IFRS 9.

In response to his evaluation of the risks, the statutory auditor verifies that the methodological principles adopted for the measurement of the expected losses comply with the principles of IFRS 9 and the interpretations of the IFRS Interpretations Committee, where applicable.

The table provided in Appendix 1 lists the main technical issues concerning the compliance of the model(s) with the requirements of IFRS 9, as well as the main questions enabling the statutory auditor to exercise professional skepticism in the review of the methodological choices made by the credit institution. The statutory auditor may also refer to the various application guides that have been published.

In December 2015, the Basel Committee published a document[7] underlining the 11 main principles to be complied with in the implementation of a robust framework for the calculation of expected credit losses. These principles, set out in Appendix 3 hereto, cover all the areas of focus to be taken into account in the credit risk evaluation framework (governance, documentation, risk segmentation, expert judgement, etc.). The review of principles and methods may notably take account of these principles which are currently being transposed into an EBA document.

In June 2016, the GPPC published a document entitled "*The implementation of IFRS 9 impairment requirements by banks*" intended for boards of directors and audit committees, which statutory auditors may also find useful in this compliance analysis phase.

**E22**    Review of the "governance" system

The credit institutions set up a governance system at group level for IFRS 9 estimates and the related models, whose objectives should be as follows:

- to document the credit institution's internal procedures to decide on the main assumptions used (in particular, forward-looking) and the reasons for the choices made;

- to perform independent validation of the IFRS 9 models when they are initially set up;

- to perform a review, at each closing date, of compliance with the conditions of use associated with each of the models (including any adjustments to take into account local particularities, data quality issues, etc.);

- to perform a detailed analysis, at each closing date, of the impairment amounts and their trend compared to the previous closing date, distinguishing volume effects, parameter effects (PD, LGD, etc.) and effects of changes in methodology;

- to validate changes in existing models;

- to perform a periodic review (at least once a year) of all the models in production and perform backtesting exercises. The governance set up must specify any delegations granted at local level (entity and/or business line) and the methods of control of the delegations granted;

- to follow up the implementation of action plans defined in order to improve the performance of the IFRS 9 models, including recommendations made by the supervisor or by the internal auditors.

The statutory auditor understands the components of this system and reviews them in order to assess their design and implementation.

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[7]    BIS - Guidance on accounting for expected credit losses – December 2015 - http://www.bis.org/bcbs/publ/d350.htm

## 3. Model input data: Identification, evaluation of controls and tests of controls

### 3.1 Summary of the issues involved

**E311** As stated in B23, the risks related to data concern the following four areas: definition, relevance, completeness and integrity.

Factors of risk of misstatement in the data in connection with provisioning for expected credit losses include:

- the use of data originating from different departments within a company and from different systems, notably non-accounting systems;

- the use of external data, notably in terms of macro-economic projections, credit rating and statistical losses provided by private organizations (credit bureaus or government agencies);

- a high volume of exposures within the scope of the calculation of expected losses;

- forward-looking data: an element that will have an impact within the context of this new provisioning model is the forward-looking aspect, which must integrate forward-looking data (from inside or outside the credit institution). The manner in which this forward-looking aspect is taken into account requires the vigilance of the statutory auditor on the following issues: the number of scenarios to be taken into account, the probability associated with each scenario, the obtaining and aggregating of macro-economic projections, the consistency of the maturity of the projections with the maturity of the exposures in particular.

### 3.2 Procedures performed by the statutory auditor

**E321** Understand the entity's controls relating to the collection, use and retention of the entity's data.

To understand the entity's controls, the statutory auditor may notably take into account:

- the data dictionary (cf. E322);

- the description of the cross-functional controls for several financial processes and of the controls specific to the process for the "calculation of impairment with respect to credit risk";

- the results of controls performed on data quality;

- the mapping of the information systems illustrating the data flows from the reference sources or "golden sources" (external or internal sources) to the calculated expected loss, highlighting the treatments and calculations performed on the data and the controls implemented by the credit institution;

- the work and findings of the different control bodies (internal audit, inspection, ECB, ACPR (French supervisory authority for banking and insurance sectors)) concerning data quality.

**E322** Mapping of portfolios / models / data

In addition to the mapping described in section D12, the statutory auditor shall also consider and understand the data dictionary. And understand, for each significant piece of data in the mapping, the following elements:

- qualification of the data;

- the data manager;

- the data source;

- the dependent data;

- the information system(s) in which the data is used and the reference system (internal or external).

With regard to forward-looking and macro-economic data, the statutory auditor understands the credit institution's policy on taking this data into account and with the governance arrangements relating to the macro-economic projections considered.

**E323** Assessment of controls relating to data

**E3231** The statutory auditor shall assess the arrangements for data governance (the Data Quality Manager function), the information systems conveying said data and the related internal control procedures, notably based on the following:

- documentation produced by the credit institution on the relevance of the data used given the methodologies defined

    o documentation on the correct taking into account of the characteristics of the assets/portfolios valued,

    o possible alternative sources and the reasons why these alternative data sources have not been retained,

    o consistency of the data used by the different users: finance, risk, business lines,

    o quality of data from external sources,

    o consistency of data sources from one end of reporting period to the next and justification of any exceptions

- existence of a policy on the control of data completeness and integrity updated periodically (including a system to prioritize data) and a system of related controls:

    o controls of data completeness and integrity in the event of import/export between different systems,

    o setting-up of a tolerance threshold based on missing values,

    o soundness of the calculation of the adjusted data (e.g. number of outstanding loan receivables in the month, valuation of financial assets, solvency ratio),

    o data update history,

    o control of data completeness and integrity in relation to the reference sources,

    o segregation of the functions of production and control of risk data used,

    o reporting to Senior Management on data quality,

    o action plan to improve data quality with follow-up by the Senior Management;

- documentation on the audit trail for any changes made to the official data sources.

**E3232** Regarding forward-looking data in particular, the statutory auditor shall pay special attention to the following:

- the process implemented by the credit institution for the definition of the scenario(s) adopted in connection with the calculation of expected losses,

- the system implemented by the credit institution to ensure uniform use of forward-looking data (e.g., forecast trend in GDP) for all the estimates using these data (expected loss calculation under IFRS 9, goodwill impairment, deferred tax assets, etc.);

- the existence of a comparison with external data if available (e.g., information on the level of CDS premiums) and the documentation on the main differences identified;

- compliance with consistency of methods in terms of data and assumptions used.

**E3233** Certain subjects, notably relating to "risk" data reports, may be addressed by the credit institutions within the context of projects to implement BCBS 239. The statutory auditor also consider the status of compliance of the organization with such regulation.

**E334** Tests of controls (testing the operating effectiveness of controls)

When the statutory auditor relies on the entity's internal control procedures (in the situations referred to in B13), he selects the relevant controls for his audit, the design and implementation of which are satisfactory, and tests their operating effectiveness. In the event that certain key controls on data are automated in the applications (ITAC), he first verifies that the IT general controls (ITGC) necessary for the operation of these ITAC are effective.

## 4. Models: Identification, evaluation of controls and tests of controls

### 4.1 Summary of the issues involved

**E411** Although certain credit institutions use models developed by third parties and adapted to their own situation, most credit institutions, particularly the most significant ones, will develop their own models to calculate expected losses. The overall measurement of expected losses at group level will be the result of the application of different more or less complex models specific to certain portfolios and/or geographical areas. In addition, these models may be used not only to measure expected losses but also to develop the assumptions/inputs for another model

To perform his controls, the statutory auditor generally calls on specialists with specific competencies in the following areas:

- knowledge of the legal and regulatory environments specific to each jurisdiction in which the group operates;

- modelling of expected losses;

- governance and controls relating to the models, data and assumptions;

- credit risk analysis.

### 4.2 Procedures performed by the statutory auditor

**E421** Understand and assess the entity's procedures

The controls presented below are given as an illustration and cannot be considered to be exhaustive. It is up to the statutory auditor to use professional judgement to adapt the approach to each situation. Within this context, reference may be made, for example, to the methodology

for the identification and management of model risk set out by the OCC in its publication "Supervisory Guidance on Model Risk Management[8]".

In addition to the mapping of the products, models and data presented in D12, the statutory auditor conducts interviews and a review of the documentation available for all the models that contribute to significant estimates concerning:

- the breakdown of the portfolios, specifying in particular the rules of segmentation into homogenous groups, the related constraints and how compliance with these constraints is verified by the bank;

- the regulatory loss calculation models (or lack of models) related to these different portfolios and their main characteristics (scope of application of the model, existence of approval, method of governance, internal control procedures, backtesting methods, etc.);

- the IFRS 9 expected loss models (constitution of homogeneous portfolios, measurement of losses in one year and at maturity, criteria for moving from Stage 1 to Stage 2 and from Stage 2 to Stage 3, the taking into account of forward-looking information) and how they may relate to regulatory models;

- the appropriateness of the methodological choices and assumptions used for modelling;

- the controls set up to verify the relevance of the IFRS 9 models and their operational integration, notably concerning:

  • the implementation of a frequent review by management of all the model assumptions (at least annually, and ideally each time they are used for the calculation of ECL);

  • the controls concerning the use of the models: control and governance relating to adjustments based on expert judgement, compliance with the scope of application of the model and/or the taking into account of uncertainties in the application of a model to a given scope, decision-making process and the monitoring of the action plan in the event of a partially or totally invalidated model;

  • the controls over the validity of the mathematical model applied (originally and in the event of change) and the independent monitoring of its operational implementation (including the calculation of indicators of sensitivity to key assumptions). This review must be performed at the outset, upon each modification and at least annually;

  • the relevance of the model input data used, notably in relation to best practices;

  • the backtesting of models, including the reconciliation at portfolio level of the volumes and exposures used for backtesting with the accounting data;

  • the indicators of stability of the model controlsr and accuracy.

- the information and findings of work already performed on the models by the modelling, validation and general inspection teams, and by the prudential supervisor (validation, calibration, assessment of compliance with prudential regulations on capital adequacy, implementation of recommendations).

**E422** Tests of controls (testing the operating effectiveness of controls)

The mapping of models within a banking group is often complex and tests of controls must be adapted depending on the criticality of the models used to calculate ECL and on the planning phase.

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[8] This document (OCC 2011-12) lists the model risks and makes recommendations on controls that can be set up to manage these risks.

Considering the complexity of the models generally used by credit institutions, it will often be necessary to call on the services of valuation ¨credit risk specialists.

The nature, scope and timing of the work to be performed will vary, notably depending on the model's situation:

- **Situation 1: the model is based on regulatory models that have received the independent validation of the prudential supervisor**

  • The statutory auditor reviews the context and environment of the approval of the prudential supervisor. This includes taking into account the following: date of approval, scope of review, full documentation of the work performed by the credit institution to obtain the approval, level of implementation of the recommendations made by the supervisor, current scope of application based on the scope of approval, controls designed and implemented by the credit institution to ensure that the conditions underlying the approval are still met, any further review scheduled by the supervisor. These elements allow the statutory auditor, not only to gain a more efficient understanding of the model, but also to determine whether he can use in his audit approach the work performed by the entity to obtain this approval.

  • When the statutory auditor decides to use the controls implemented by the credit institution to obtain and secure the approval of its models by the regulator, he should apply the procedures described in French professional standard NEP 610 "Understanding and using the work of internal auditors";

  • The statutory auditors performs additional audit procedures on the elements of the IFRS 9 model excluded from the approval scope. In particular, he assesses and tests the adjustments made to the prudential risk estimators in order to comply with IFRS 9 (cf. E423), as well as the specific risk parameters (measurement of significant increase in credit risk, expected losses at maturity), the incorporation of forward-looking information, loss given default for an IRBF model);

  • In other cases, the statutory auditor moves on to situation 2.

*Examples of portfolios corresponding to situation 1:*

  • recently approved IRBA portfolio for which the main recommendations made by the supervisor have been implemented: in accordance with French professional standard NEP 610 "Understanding and using the work of internal auditors", the statutory auditor may be able to use the controls implemented by the entity as described above. He then performs additional controls on the adjustments implemented by the credit institution to make the regulatory estimators compliant with IFRS 9 (for example: change from 12-month default probability to lifetime default probability, elimination of conservative bias in the calculation of LGD, conversion of through-the-cycle indicators to point-in-time indicators);

  • recently approved IRBF portfolio for which the main recommendations made by the supervisor have been implemented: in this case, the approach described in the preceding example applies, but with additional controls also performed on the loss given default estimator (LGD), which is not part of the approval.

- **Situation 2: the IFRS 9 models are based on regulatory models that have not been approved or on models designed entirely for the implementation of IFRS 9**

  • The statutory auditor defines the scope of his work and the tests of operating effectiveness of the controls, generally covering all the components of the expected loss calculation models in their entirety: constitution of homogeneous portfolios, measurement of significant increases in credit risk, calculation of losses in one year and at maturity, the taking into account of forward-looking information.

*Examples of portfolios corresponding to situation 2:*

- standard-formula portfolio, for which a model exists to monitor risks and scoring but which is not yet approved;

- standard-formula portfolio, without any risk-monitoring tool, or whose risk assessment is based purely on expert judgement.

Among the entity controls identified, the statutory auditor pays particular attention to the procedures for backtesting the risk indicators used in expected loss calculation, including the impacts of forward-looking information and the adjustments based on expert judgement, as well as the criteria for the transfer of assets between the different risk categories (Stages 1 to 3).

**E423** Specific areas of focus

For each of the models selected within the framework of his approach, the statutory auditor reviews the methodology documentation describing the structural choices made by the credit institution and ensures that they comply with IFRS 9. The table in Appendix 1 lists the main technical subjects relating to the compliance of the model with the requirements of IFRS 9.

The following are some additional areas of focus which the statutory auditor may integrate into the implementation of his approach.

- **Adjustment of models based on expert judgement[9]**

Adjustments based on expert judgement may be justified for specific parts of a portfolio that have not been modelled or for macro-economic situations that did not exist for the sample used to build and calibrate the model.

Whatever their nature, these adjustments must be justified, quantified and documented appropriately. In particular, they can be used:

- • to remedy imperfections in the models for which adjustments are expected (inaccuracies, volatility, data);

- • to take specific business decisions into account (e.g., the decision to sell part of the portfolio, or the acceleration of the debt recovery process);

- • to handle non-modelled homogeneous exposure subgroups;

- • to integrate non-modelled risk factors (e.g., identification of additional defaults due to low interest rates, sectoral analyses).

- **Statutory auditor's considerations for a re-performance approach to the calculation of expected credit losses**

For the valuation of financial instruments, the statutory auditor could consider to use a re-performance  where the he statutory auditor re-performs an estimate and compares it to that of the credit institution. However, this type of approach is less robust as a procedure for the audit of ECL, as the calculation of expected loss estimators uses numerous data specific to the entity (as opposed to valuations of financial instruments for which both models and data are shared by market participants).

On the other hand, this type of approach may serve as a tool to help the statutory auditor identify significant risks and select the most sensitive models to be subject to audit procedures.

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[9] This concerns adjustments made by the credit institution to models based on expert judgement.

The auditor shall determine whether the re-performance approach provides sufficient assurance to obtain assurance over the ECL calculations and may consider to review the back-testing procedures implemented by the credit institution is a key element of his approach.

## 5. Operational integration and consolidation: identification, assessment of the controls and tests of controls

E51    The notion of operational integration aims to verify whether all the processes analysed separately (data and models) are correctly interfaced and used with a view to producing the accounting data.

The purpose of the procedures performed by the statutory auditor is to verify whether:

- the credit institution's operational framework (adaptation of the information system and the processes surrounding expected loss calculation) comply with the technical specifications of the data model and the calculation engines as documented and validated from a theoretical point of view;

- the calculation system's input data and parameters are correctly integrated;

- the data originating from the calculation system are correctly interfaced with the finance and risk systems, in particular the accounting systems.

E52    The work to be performed mainly comprises the following stages:

- **Assessment of the documentation on the proposed implementation of new IT developments, in particular the assessment of:**

  • the acceptance records detailing the major functions tested in relation to the general specifications and the original specifications;

  • the acceptance results and corrective action taken.

- **identification of the entity's controls that address identified risks such as:**

  • the import of erroneous parameters into the calculation engine;

  • the import of an incorrect or incomplete credit database into the calculation engine;

  • the incompleteness of the risk data entered into the accounting records;

  • the incorrect valuation of expected losses given non-compliance with the segregation of duties in the manual process to adjust the cost of the risk;

  • etc.

  The controls may be manual or automated (also known as application controls, such as the production of rejection reports): for example, the procedures set up by credit institutions to control the scope of loan receivables for which impairment must be calculated (exclusion of loan receivables that are non-SPPI or accounted for according to the fair value option, taking into account of equity portfolios).

- **implementation of tests of procedures for the relevant controls selected within the scope of the audit approach:**

  • it should be noted that the test of the application controls (ITAC) assumes that the IT general controls (ITGC) conducted in the audit approach do indeed cover the applications and interfaces of the system for the calculation of the credit adjustments concerning these automated controls.

## F. STAGE 3: SUBSTANTIVE PROCEDURES

### 1. General reminders

**F11**    First, the requirement set out in French professional standard NEP 330 § 21 is as follows:

*"21. Regardless of the evaluation of the risk of material misstatement, the statutory auditor designs and implements substantive procedures for each category of transactions, account balance and disclosure made in the notes to the financial statements, provided that they are material."*

The higher the statutory auditor considers the risk of material misstatement to be, the more extensive will be the substantive procedures that he performs. In addition, if the results of the tests of procedures are unsatisfactory, the scope of the substantive procedures required will be extended.

**F12**    As stated in § B13 and B14, it should be noted at this stage that, when provisions are managed by an IT system due to their high volume and particular complexity, the substantive procedure alone will generally not constitute sufficient, appropriate audit evidence.

**F13**    Substantive procedures include:

- substantive analytical procedures;

- tests of details.

The selection of tests of details is consistent with the control approach developed for data, models and operational integration, in such a way that substantive procedures combined, where appropriate, with tests of controls make it possible to cover the risk of material misstatement.

These procedures may be performed exhaustively on certain parameters, or concern data identified as being priority data (e.g., selection by stratification of criteria of size and/or risk). This priority may be based on the credit institution's qualification of the data, but must in any case be subject to the exercise of the statutory auditor's professional judgement. To form his judgement, the statutory auditor identifies the most significant portfolios, either in terms of materiality, or in terms of related risk of material misstatement, and determines the priority data by exercising his professional judgement and skepticism and/or in relation with the sensitivity of the expected losses to the input data. This sensitivity analysis, if performed by the credit institution, will be subject to a critical review by the statutory auditor.

The substantive procedures listed below may be conducted at year-end or at an interim date. When they are performed at an interim date, the statutory auditor assesses whether it is necessary to implement additional substantive procedures, whether or not in combination with tests ofcontrols, to cover the subsequent period and enable the statutory auditor  to extend the findings of controls testing from the interim date to the year-end.

### 2. Substantive analytical procedures

**F21**    Analytical procedures are a control technique which "consists in assessing financial information based on the following:

- its correlation with other information, whether or not derived from the accounts, or with previous, subsequent or forecast data of the entity or similar entities,

- and the analysis of any significant variations in relation to expectations defined by the auditor."

(French professional standard NEP 520, section 04).

Under certain conditions, analytical procedures may be used as substantive procedures.

With regard to the provisioning of expected credit losses, the statutory auditor may usefully perform the following analyses:

- an analytical review of the transfers between risk categories (Stage 1 to Stage 2), which has an impact on the calculation of the level of impairment:

  • breakdown of the trend according to volume effects, time effects, model effects (in the event of change compared to the previous close) and parameter effects;

  • calculation of variations in parameters and projection of expected distortions of the ECL based on sensitivities calculated at the beginning of the period;

  • calculation of differences between the ECL variations observed and the expected ECL variations;

  • conclusion on the reasonableness of the ECL variations.

- On the basis of his understanding of the sensitivity of the provisions to the different parameters, the statutory auditor defines his expectations, after verifying the consistency of the economic sense of the sensitivities. He then compares the accounting information with his expectations and analyses any differences that exceed the acceptable level which may in certain cases be equal to the planning materiality threshold.

## 3. Tests of details

**F31** The following is a non-exhaustive list of tests of details that may be performed for the audit of the provisioning of expected losses:

- reconciliation of the ECL calculation base with the risk bases and the loan receivables recorded in the accounts; justification of the differences in the base;

- test of valuations of collateral;

- test of the parameters used:

  • test of the last dates when the parameters imported into the calculation engine were updated;

  • test of the completeness of the data, identification of missing data and abnormal values;

  • test of the correct assignment of rating scales to the corresponding counterparty segments (e.g., assignment of corporate scales to the corporate segment);

  • test of the identity of the reference given with the information available in the source systems;

  • inspect the consistency of the reference PD with the origination date;

  • test the reconciliation between the Basel parameters and the IFRS PD, LGD, and possibly Basel ECL parameters;

  • Inspect the the economic consistency of the parameters and of the correct ranking of the risk over time (an AAA will always be better than a BBB, for example);

  • Inspect the backtestings or backtest the parameters. Example: analysis of the differences between the data used and the other external data available to the statutory auditor (i.e., the statutory auditor will not rely solely on the external data provided by the bank);

  • test that outstanding debts have been correctly taken into account.

- test of the use of the last models validated at the reporting date;

- test the consistency of methods concerning significant deterioration criteria;

- re-calculate if necessary (significant deterioration, ECL, sensitivities) to validate the operational implementation of the calculation;

- reconcile the ECL calculated with the ECL recognized, by risk category (Stage).


**F32** When the calculation and recognition processes implemented by the credit institution include certain operational simplifications (cf. D23. A model that must comply with IFRS 9), the statutory auditor must verify the non-significant nature, both individually and in the aggregate, of the simplifications introduced in relation to the materiality thresholds adopted. For example, the statutory auditor will conduct control procedures and, if necessary, recalculations on the non-significant nature of the difference between an ECL calculation made on data observed before year-end and an ECL calculation made on data observed at year-end.

## G.    APPENDIX 1: Critical review points of an expected loss model and IFRS 9 specificities

|  | Critical points of the model to be tested | Specific IFRS 9 requirements to be tested |
|---|---|---|
| **Segmentation /  Homogeneous risk groups** | 1. Mapping of risks / products<br>2. Review of portfolio segmentation<br>• Size<br>• Type of activity<br>• Type of product<br>• Type of customer<br>• Country / region<br>• Sector<br>• Cohorts<br>• Group entities<br>• Consistency with business practices<br>3. Review of stability of risk profiles<br>• Changes in origination or rating policy,<br>• Changes in nature of collateral<br>• Geographical / sectoral extension related to the development of the activity | 1. Definition of scope of use of models (PD, LGD)<br>• In principle, Basel segmentation applicable for IFRS 9 models<br>• However, attention must be paid to the date of validation of the Basel models and to the follow-up of the Supervisor's recommendations<br>2. Definition of more granular homogeneous groups for the analysis of <u>deterioration</u> at portfolio level<br>• Seen from a different angle from that of the Basel approach, since the deterioration criterion is a relative criterion that depends on credit quality on initial recognition<br>• Necessity of taking into account the initial credit quality of the loans to identify a homogeneous level of deterioration. Deterioration indicators identified at portfolio level must be representative of deterioration for each exposure of the portfolio depending on its credit quality on initial recognition. |
| **Probability of default (PD)  or risk of default** | 1. Methodological relevance<br>• Selection and segmentation of discriminatory variables (statistical and behavioural data) | 1. Default aligned with risk management, with rebuttable presumption that default does not occur later than when a financial asset is 90 days past due |

- Balance of weight of variables
- Weight of expert judgement: determination of certain variables (financial analysis, for example), weighting of variables, override of model
- Definition of default (criteria used, days past due, justification, adjustment of technical defaults, contagion applied / scope)
- Consistency with the business
- Historical depth used
- Specific approach for low-default portfolios
- Homogeneity of data over time (stability of products, origination conditions, of definition of default, of explanatory variables used, changes of model)
- Calibration ("Point-in-time" PIT, "Through-The-Cycle" TTC)

2. Backtesting criteria
   - Verification of discriminatory nature of factors
   - Stability of population and/or its risk profile (risk management, origination conditions, recovery strategy)
   - Accuracy of predictions
   - Possible recalibration

3. Ad hoc models developed for IFRS 9 in the absence of internal models (roll rate models, for example)

- Understand whether default is aligned with Basel default
- If default is different from Basel default: justification and consequences on recalibration of parameters / adjustments
- Analyse any rebuttal of presumptions that default does not occur later than when a financial asset is 90 days past due (cure rate, criteria)

2. Extension to lifetime PD
   - Basel PD limited to 12 months
   - Lifetime PD necessary both for the analysis of deterioration (except if "proxy" type indicators are used – see hereafter) and the measurement of provisions in Stage 2
   - Review of extension models for lifetime PD: justifications for the assumptions used and the calculation formula (cf. general approach for review of model)

3. If the Basel PD is used as a starting point, adjustment of the conservative bias
   - Review of adjustments
   - Specific focus on adjustments for model/data uncertainties

4. Point In Time + Forward Looking calibration of 12-month PD and lifetime PD
   - If Basel PD is used as a starting point, adjustment of Through The Cycle calibration

5. Cancellable revolving facilities (credit cards, overdrafts): modelling of credit risk exposure horizon
   - PD horizon not limited by the termination notice period, when

| | |
|---|---|
| | in practice said period does not limit the risk |
| | • Determination of a differentiated risk horizon in Stages 1 and 2 to take into account management actions that shorten the duration of deteriorated exposures (terminations, reductions of limits, etc.) |
| **Stage 1 / Stage 2 transfer criteria** | 1. Compliance of deterioration indicators identified by the bank for each portfolio<br>• Reminder of the principle: to capture any significant increase in the risk that the borrower defaults during the lifetime of the contract by incorporating current information and forward-looking information (projections) and by reference to the level of risk at the origination of the contract (contract approach)<br>• Identify the indicators used (12-month PD, lifetime PD, ratings, scores, watch lists, delinquency, forbearance)<br>• Assess the nature of the information underlying the indicators (depth + predictability of default)<br>• Verify that forward-looking information is correctly taken into account:<br>    o Directly in the indicators used (depending on the type of information underlying the indicators used)<br>    o Via the calibration of the PDs and ratings (Point In Time + Forward Looking vs. Through The Cycle)<br>    o Via additional analyses where relevant (qualitative or quantitative at portfolio level)<br>• Verify the homogeneity of the data compared to assess the increase in the risk of default<br>    o PD based on origination score vs. subsequent behavioural score<br>    o If lifetime PD is used, take into account the time passed in the assessment of deterioration. The PD estimated for <u>residual</u> maturity is not directly comparable to the PD estimated at the outset for full maturity (the same level of PD does not represent the same level of risk at the outset and at a date closer to maturity).<br>• Review the documentation justifying the use of proxies (variations of TTC 12-month PD for example)<br>    o Test the sensitivity of the deterioration analyses to the various indicators (ratings, scores, 12-month PD vs. lifetime PD)<br>    o Specifically review the consistency of the most qualitative approaches (for example, watch lists or ratings) |

- Verify that the indicators truly reflect any change in the default risk (PD) and not the expected losses.
    - Changes in recovery prospects (LGD) must not be taken into account in the deterioration analysis.
    - Substitution of PD not allowed for guaranteed loans (unless the quality of the guarantee affects the borrower's PD as may be the case for certain types of parent-subsidiary guarantees)

2. Significant deterioration calibration
    - Examples of calibration: additive or multiplicative approach based on levels of PD (PD + x% or PD x y), number of scores, number of ratings, number of days past due, forbearance, etc.
    - Obtain statistical documentation of the thresholds used by type of portfolio and audit the documentation (scope used, statistical representation of the sample, quality of the data, calculations and interpretation of the results, stability of the calculations and situations identified to review the calibration of the thresholds)
    - Verify the **relative** character of the criterion (i.e., taking into account the credit quality on origination) and review of justifications for the implementation of absolute approaches (unique credit quality criterion applied to a set of exposures)
    - Compare calibrations from one portfolio to another and verify their consistency
    - Test the **sensitivity** to an alternative calibration (simulations performed on alternative calibrations)
    - Analyse exposure movements induced by calibration:
        - Allocation of exposures between Stages,
        - Average default rate of exposures in Stages 1 and 2,
        - Consistency of percentage of exposures in Stage 2 based on the portfolio loss rate
        - Volatility of exposures between Stages,
        - Movements directly from Stage 1 to Stage 3
3. Consistency of Stage 1 / 2 transfer criteria with the measurements of PD used to calculate the provision
    - Risk horizon (12-month vs. lifetime)
    - Forward-looking (taking into account macro-economic scenarios)

| | | |
|---|---|---|
| | 4. Review of the internal control framework | |
| **Loss given default** | 1. Methodological relevance<br><br>&bull; Segmentation and type of approach: Unsecured retail exposures, mortgage, loans secured with financial collateral, large corporate loans, SME, specialized financing, etc.<br><br>&bull; Recovery horizon as from default<br><br>&bull; Discount rate<br><br>&bull; Validity of recovery assumptions (legal validity and consistency with the recovery process)<br><br>&bull; Collateral: valuation and projection to the estimated date of recovery<br><br>&bull; Taking into account of sale of defaulted loans<br><br>&bull; Taking into account of surety companies (e.g. "credit lodgement")<br><br>&bull; Weight of expert judgement in the event of lack of data for calibration<br><br>&bull; Calibration (PIT, Downturn)<br><br>2. Backtesting criteria<br><br>&bull; Data horizon used to approximate the actual recovery horizon<br><br>&bull; Stability of the population and/or its risk profile (risk management, origination conditions, recovery strategy) | 1. Modelling of LGD in line with lifetime PD<br><br>&bull; Structure by term of the LGD if it is estimated that the LGD varies according to the default timing<br><br>&bull; Collateral: valuation and projection to the estimated date of recovery in relation to a PD estimated over the lifetime of the instrument (and not only over 12 months)<br><br>&bull; Area of focus: all asset financing<br><br>&bull; Taking into account of loan amortization over time and the changes in the loan to value<br><br>2. Discounting of recoverable flows at the contract effective interest rate (or approximation)<br><br>3. Point In Time + Forward Looking calibration<br><br>4. If the Basel LGD is used, adjustment of certain parameters, including conservative bias<br><br>&bull; Downturn calibration,<br><br>&bull; Floors<br><br>&bull; Recovery costs<br><br>&bull; Discount rate<br><br>&bull; *Ad hoc* justification for fixed LGD<br><br>5. Scope of credit enhancement mechanisms taken into account in the LGD under IFRS 9<br><br>&bull; Limited to mechanisms that are integral to the contractual terms and that are not accounted for separately |

| | | |
|---|---|---|
| | • Accuracy of predictions<br>• Potential recalibration<br>3. *Ad hoc* models developed for IFRS 9 in the absence of internal models | • CDS, notably, are not taken into account (to be restated from Basel LGD where relevant)<br>• Other potential limitations (subject of interpretation) |
| **Exposures in case of default (including credit conversion factors for off-balance sheet commitments)** | 1. Methodological relevance<br>   • 12-month horizon<br>   • Current exposure + unpaid interests until default<br>   • Contractual amortization not taken into account<br>   • Prepayment assumptions not taken into account<br>   • Drawdown assumptions (Credit Conversion Factor – CCF): consistency of drawdown assumptions with business and product profiles<br>2. Backtesting criteria<br>   • Applicable to drawdown assumptions<br>   • Stability of the population and/or its risk profile (risk management) | 1. Modelling of exposures until maturity<br>   • Taking into account of contractual amortization<br>   • Taking into account of early repayment assumptions (taking into account the various Stage 2 population profiles (presenting significant deterioration indicators)<br>   • Consistency with ALM management systems<br>2. Modelling of expected drawdowns on loan commitments<br>   • Horizon of exposure to risk not limited by termination notice period when in practice said notice period does not limit the risk<br>   • Terminable revolving facilities (credit cards, overdrafts): taking into account of management actions (termination, reduction of limits, etc.) in the modelling of drawdowns in Stage 2<br>   • Modelling of expected drawdowns differentiated in Stages 1 and 2 to take into account management actions that limit deteriorated exposure risks (terminations, reductions of limits, etc.)<br>3. Point In Time + Forward Looking calibration<br>4. If Basel data are used, adjustment of conservative bias<br>   • *Ad hoc* justifications for fixed factors |

| **Forward looking assumptions** | 1. Review of quantitative model of the FL approach |
|---|---|
| | &bull; Assessment of the bank's maturity level in terms of stress testing processes |
| | &bull; Identification of relevant macro-economic factors by portfolio |
| | &bull; Review of econometric model (consistency / alignment with stress models) |
| | 2. Quality of documentation and justification of assumptions |
| | 3. Review of governance |
| | &bull; Process to set up forecasts and consistency between the bank's various processes |
| | &bull; Level of intervention, understanding and decision-making of the credit committees (demonstrated through the reports and supporting documents provided) |
| | &bull; Framework and governance of the more qualitative approaches |
| | 4. Review of forecasts |
| | &bull; Analysis of scenarios in relation to the central scenarios (annual forecast, stress test, base case scenario) |
| | &bull; Projection horizon for lifetime PD |
| | &bull; Consistency between the bank's various processes (stress test, depreciation of goodwill, budgetary process, etc.) |
| | &bull; Consistency of forecasts with external data |
| | &bull; Taking into account of multi-scenarios (number of scenarios, weight allocated to each one, strictly quantitative or very qualitative approach) |
| | 5. Absence of bias in assumptions |
| | 6. Consistency of forward looking assumptions between deterioration assessment and impairment allowance measurement |
| **Adjustments based on expert judgement** | 1. Review of the various types of adjustment based on expert judgement and their methods of estimation |
| | &bull; Temporary or permanent adjustment |
| | &bull; Purpose of the adjustments, for example: |
| |     o to overcome imperfections in the models (inaccuracies, volatility, data), |
| |     o to integrate elements of risk not reflected in the existing system as at the reporting date (e.g., additional |

defaults due to low interest rates, sectoral analyses),

- o to take into account specific business decisions (e.g., decision to sell part of the portfolio, acceleration of the debt recovery legal process), or
- o to process uniform subsets of non-modelled exposures.

- Scopes concerned
- Estimation principles

2. Review of the quality of the documentation and justification of the assumptions and of the absence of bias in the assumptions adopted

3. Review of associated governance

- Process to decide whether an adjustment based on expert judgement is required (existence of guiding principles enabling a consistent approach according to the different situations encountered), the methods of evaluation and reversal where appropriate
- Monitoring over time of adjustments based on expert judgement: in particular, correct application of conditions of reversal and ex post review of the relevance of the adjustments based on expert judgement (or of lack of adjustment).
- Level of intervention, understanding and decision-making of the various governance players (notably, allocation of controls between the finance function and the risk function)

4. Review of consistency of adjustments with the impairment system as a whole, and in particular:

- with the deterioration criteria
- with the calculation of expected losses
- with the forward looking assumptions

# H.   OTHER APPENDICES

**APPENDIX 2**: Acronyms

ACPR:        *Autorité de Contrôle Prudentiel et de Résolution* (French supervisory authority for banking and insurance sectors

BCBS:        Basel Committee on Banking Supervision

CDS:          Credit Default Swap

EAD:          Exposure At Default

EBA:          European Banking Authority

ECB:          European Central Bank

ECL:          Expected Credit Loss

GDP:          Gross Domestic Product

GPPC:        Global Public Policy Committee

IAASB:        International Auditing and Assurance Standards Board

IFRS:          International Financial Reporting Standard

IRBA:         Internal Rating Based Advanced

IRBF:          Internal Rating Based Foundation

ISA:            International Standard on Auditing

ITAC:          Information Technology Application Control

ITGC:         Information Technology General Control

LGD:        Loss Given Default

OCC:        Office of the Comptroller of the Currency

PD:          Probability of Default

RWA:        Risk Weighted Asset

SPPI:        Solely Payment of Principle and Interest

TRIM:       Targeted Review of Internal Model

<u>**APPENDIX 3**</u>**: Basel Committee – Guidance on accounting for expected credit losses – December 2015 – Extracts**

Supervisory guidance for credit risk and accounting for expected credit losses

**Principle 1:** A bank's board of directors (or equivalent) and senior management are responsible for ensuring that the bank has appropriate credit risk practices, including an effective system of internal control, to consistently determine adequate allowances in accordance with the bank's stated policies and procedures, the applicable accounting framework and relevant supervisory guidance.

**Principle 2:** A bank should adopt, document and adhere to sound methodologies that address policies, procedures and controls for assessing and measuring credit risk on all lending exposures. The measurement of allowances should build upon those robust methodologies and result in the appropriate and timely recognition of expected credit losses in accordance with the applicable accounting framework.

**Principle 3:** A bank should have a credit risk rating process in place to appropriately group lending exposures on the basis of shared credit risk characteristics.

**Principle 4:** A bank's aggregate amount of allowances, regardless of whether allowance components are determined on a collective or an individual basis, should be adequate and consistent with the objectives of the applicable accounting framework.

**Principle 5:** A bank should have policies and procedures in place to appropriately validate models used to assess and measure expected credit losses.

**Principle 6:** A bank's use of experienced credit judgement, especially in the robust consideration of reasonable and supportable Forward Looking information, including macroeconomic factors, is essential to the assessment and measurement of expected credit losses.

**Principle 7:** A bank should have a sound credit risk assessment and measurement process that provides it with a strong basis for common systems, tools and data to assess credit risk and to account for expected credit losses.

**Principle 8:** A bank's public disclosures should promote transparency and comparability by providing timely, relevant and decision-useful information.

Supervisory evaluation of credit risk practices, accounting for expected credit losses and capital adequacy

**Principle 9:** Banking supervisors should periodically evaluate the effectiveness of a bank's credit risk practices.

**Principle 10:** Banking supervisors should be satisfied that the methods employed by a bank to determine accounting allowances lead to an appropriate measurement of expected credit losses in accordance with the applicable accounting framework.

**Principle 11:** Banking supervisors should consider a bank's credit risk practices when assessing a bank's capital adequacy.

**APPENDIX 4: Reference texts**

- Guidance on Credit Risk and Accounting for Expected Losses – *Basel Committee December 2015*

- External Audit of Banks – *Basel Committee March 2014*

- Supervisory and Regulation Letter 11-7 – Supervisory Guidance on Model Risk Management –*Federal Reserve and Office of the Controller of the Currency 2011*

- Impact on Expected Credit Loss Approaches on Bank Risk Disclosures – EDTF November 2015

**APPENDIX 5**: French professional standard NEP 540 "Assessment of accounting estimates"

# 1. Introduction

01: Certain account items cannot be accurately measured and can only be estimated. These estimates may give rise to a risk of the accounts containing material misstatements.

02: The purpose of this standard is to define specific audit procedures concerning:

- identification and measurement of the risk of material misstatements arising from accounting estimates in the accounts;
- the design of audit procedures in response to this assessment.

03: This standard applies to accounting estimates, including current value and fair value estimates used by the management to prepare the accounts and to disclosures relating to these estimates provided in the notes to the financial statements.

# 2. Characteristics of the accounting estimates

04: Depending on the provisions of the applicable accounting standards and the characteristics of the asset or liability concerned, the accounting estimates may be simple or complex and contain a more or less significant amount of uncertainty or judgment.

05: Some accounting estimates are likely to result only in a low risk of material misstatements.

This is the case, for example, for accounting estimates relating to day-to-day transactions, which are regularly carried out and updated, for which the methods prescribed by the accounting standards are simple and easy to apply.

06: Accounting estimates relating to transactions that are unusual due to their amount and their nature, or that are based on strong assumptions where the management's judgment plays a significant role, may result in a high risk of material misstatement.

This is the case for accounting estimates relating to the costs of certain disputes or accounting estimates for financial instruments for which there is no market.

07: When the accounting estimates leave considerable room for judgment, the objectives pursued by the management – who could, whether intentionally or otherwise, orient the choices of the assumptions on which these estimates are based – may result in a risk of material misstatement.

# 3. Familiarization with the entity's evaluation process and assessing the risk of material misstatements resulting from accounting estimates

08: In order to identify and measure the risk of material misstatement resulting from accounting estimates, the statutory auditor implements audit procedures to familiarize himself with:

- the accounting rules and principles prescribed by the accounting standards applicable to accounting estimates;
- the process followed by the entity to arrive at the accounting estimates, any changes in the calculation methods used and the reasons for such changes;
- any use by the entity of the work of an expert;
- the result or reassessment of the accounting estimates of the same nature made in prior years.

09: The statutory auditor also familiarizes himself with the data used to calculate accounting estimates.

10: As the management is responsible for the internal control set up within the entity and for the preparation of the accounts, and as it may influence the choice of valuation methods used, the statutory auditor makes enquiries of the management concerning:

- the internal control procedures set up to ensure that the process used to make the accounting estimates is in compliance with its directives;
- its intentions and ability to successfully carry out its action plans with regard to the account items that are the subject of significant accounting estimates.

## 4. Audit procedures to be implemented in response to the risk of material misstatement relating to accounting estimates

11: In response to its measurement of the risk of material misstatements in the accounts resulting from accounting estimates, the statutory auditor designs and implements the audit procedures that will allow it to collect sufficient, appropriate information to conclude on the reasonableness of the accounting estimates used by the management and, where applicable, of the disclosures made on these estimates in the notes to the financial statements.

1 : The statutory auditor evaluates whether the accounting estimates comply with the accounting rules and principles prescribed by the applicable accounting standards.

13: Depending on the accounting estimate he wishes to verify, the statutory auditor will decide to implement one or more of the following audit procedures:

- verification of the calculation method used to make the estimate;
- use of his own estimate for comparison with the estimate used by the management;
- assessment of the outcome of the estimate after year-end.

14: When the statutory auditor verifies the calculation method used, he assesses the relevance of the basic data used and the assumptions on which the accounting estimate is based, and verifies the calculations made by the entity.

Further, he verifies, where applicable, that the estimate used was approved by the management at the appropriate level of responsibility, in accordance with the process defined by the entity.

15: The statutory auditor may decide to use an expert's work to implement audit procedures in response to the risk of material misstatements relating to the accounting estimates.

## 5. Management representations

16: The statutory auditor requests that the management make written representations whereby it declares that the main assumptions used are reasonable and that they correctly reflect its intentions and ability to successfully perform the actions envisaged.