SOUND CREDIT RISK ASSESSMENT AND VALUATION FOR LOANS

Principles for sound credit risk assessment and valuation for loans:

1. A banking corporation's board of directors and senior management are responsible for ensuring that there are appropriate credit risk assessment processes and effective internal controls commensurate with the size, nature and complexity of its lending operations to consistently determine, among other things, provisions for loan losses in accordance with the banking corporation's stated policies and procedures, and directives of the Supervisor of Banks.
2. A banking corporation should have a system in place to reliably classify loans on the basis of credit risk.
3. A banking corporation's policies should appropriately address validation of any internal credit risk assessment models.
4. A banking corporation should adopt and document a sound loan loss methodology, which addresses credit risk assessment policies, procedures and controls for assessing credit risk, identifying problem loans and determining loan loss provisions in a timely manner.
5. A banking corporation's aggregate amount of individual and collectively assessed loan loss provisions should be adequate to absorb estimated credit losses in the loan portfolio.
6. A banking corporation's use of experienced credit judgment and reasonable estimates are an essential part of the recognition and measurement of loan losses.
7. A banking corporation's credit risk assessment process for loans should provide the banking corporation with the necessary tools, procedures and observable data to use for (1) assessing credit risk, (2) financial reporting, and (3) determining regulatory capital requirements.

Introduction:

1. This directive is intended to provide banking corporations with guidance on sound credit risk assessment and valuation for loans. The Reporting to the Public Directives of the Supervisor of Banks (hereinafter, "**the Reporting to the Public Directives**") are consistent with the principles set forth in this Directive. Specifically, the Directive addresses how existing data and processes may be used for credit risk assessment, accounting and capital adequacy purposes and highlights fundamental principles for credit loss provisioning that are consistent in all appropriate frameworks.
2. This directive addresses sound credit risk assessment, valuation and control processes, and the responsibilities of the board of directors and senior management for maintaining appropriate provisions for loan losses.
3. A banking corporation's credit risk assessment and valuation policies and practices shall be consistent with existing Reporting to the Public Directives, Proper Conduct of Banking Business Directives, and other supervisory guidance. This directive is not intended to set forth additional accounting requirements for provisions for loan losses beyond those established in Reporting to the Public Directives, or to change instructions established by them. This directive is also not intended to bridge provisioning for credit risk assessment for accounting purposes to capital adequacy measures. In general, there are a number of differences in the measurement of loan losses between the accounting and regulatory capital frameworks according to contemporary approaches. The responsibility for compliance with Reporting to the Public Directives rests with a banking corporation's board of directors and senior management and is subject to verification through formal external audit.
4. Past experience indicates that a significant cause of bank failures worldwide is poor credit quality and credit risk assessment. Failure to identify and recognize deterioration in credit quality in a timely manner can aggravate and prolong the problem. Thus, inadequate credit risk assessment policies and procedures, which may lead to inadequate and untimely recognition and measurement of loan losses, undermine the usefulness of capital requirements and hamper proper assessment and control of a banking corporation's credit risk exposure.

5. The Directive makes use of the Internal Ratings-based approach to credit risk (Proper Conduct of Banking Business Directive no. 204). Nevertheless, with the necessary adjustments, it is relevant to all banking corporations irrespective of the approach they use in the calculation of capital adequacy requirements. However, the extent to which the sound practices recorded below are implemented must reflect the scope and complexity of an individual banking corporation’s operations. This directive is intended to only provide a banking corporation with guidance on sound credit risk assessment and loan valuation, and does not include guidelines related to reporting to the public.
6. The focus of this directive is on sound credit risk assessment and valuation for loans carried at amortized cost. Therefore, the directive does not explicitly discuss these processes with respect to loans carried at fair value or at the lesser of amortized cost or fair value. Credit risk is of course present in banking corporation assets other than loans carried at amortized cost, and in off-balance-sheet exposures. While credit risk assessment and valuation practices relating to such other banking corporation assets and exposures are generally outside the scope of this directive, a banking corporation should ensure that sound credit risk assessment policies and practices are in place in these areas and that credit risk is properly considered in the valuation of these assets and exposures. Further, a banking corporation should aggregate all exposures to assess the overall credit risk to the institution. Thus, the principles in this directive should be relevant in addressing credit risk assessment and valuation issues pertaining to assets other than loans carried at amortized cost and other credit exposures.

Sound credit risk assessment and valuation for loans:

7. The fundamental requirements described below allow a banking corporation to utilize common elements of the credit risk supervisory and control system for credit risk assessment, financial reporting and regulatory capital adequacy purposes.

Principle 1: A banking corporation’s board of directors and senior management are responsible for ensuring that the banking corporation has appropriate credit risk assessment processes and effective internal controls commensurate with the size, nature and complexity of its lending operations to consistently determine, among other things,

provisions for loan losses in accordance with the banking corporation's stated policies and procedures, and the directives of the Supervisor of Banks.

8. It is the responsibility of the board of directors and senior management:
   a. To maintain loan loss provisions at an appropriate level and to oversee and monitor the credit risk assessment and provisioning processes.
   b. To reasonably assure that the banking corporation has appropriate credit risk assessment processes and internal controls in place to consistently determine provisions for loan losses in accordance with the bank's stated policies and procedures, the Reporting to the Public Directives, and any other relevant supervisory directive.
   c. To fulfill these responsibilities, the board of directors shall instruct senior management to develop and maintain a systematic and consistently applied process to determine provisions for loan losses. As new or additional information of relevance about the collectability of loans becomes available, a consistently applied process should allow for the capturing of such information in determining loan loss provisions.
   d. Furthermore, senior management shall receive periodic reports (at least once per quarter) on the state of the credit portfolio, including its problem assets, asset classification, credit loss provisions, and write-offs.
   e. Senior management should create, implement and update suitable policies and procedures to communicate the provisioning process internally to all applicable personnel.
9. The internal control system for credit risk assessment and the provisioning process should, among others:
   a. Include measures to provide assurance regarding the reliability and integrity of information and compliance with laws, regulations, Supervisor of Banks Directives, as well as the banking corporation's internal policies and procedures.
   b. Reasonably assure that the banking corporation's financial statements and its reports to the Banking Supervision Department are prepared in accordance with the applicable accounting framework and Supervisor of Banks Directives relevant to prudential provisioning guidance.
   c. Include a well-defined loan review process that is independent from the lending function containing:

1. An effective credit risk grading system that is consistently applied, identifies and accurately grades differing credit risk characteristics and loan quality problems in a timely manner, and prompts appropriate administrative actions.
2. Sufficient internal controls to reasonably assure that all relevant loan review information is appropriately considered in estimating losses. This includes maintaining appropriate reports, details of reviews performed, and identification of personnel involved.
3. Clear formal communication and coordination among a banking corporation's credit administration function, financial reporting staff, internal auditors, senior management, board of directors and others who are involved in the credit risk assessment and measurement process, as applicable (e.g., written policies and procedures, management reports, audit programs, and committee minutes).

Principle 2: A banking corporation should have a system in place to reliably classify loans on the basis of credit risk.

10. Effective credit risk assessment and loan accounting practices should be performed in a systematic way and in accordance with established policies and procedures. To be able to prudently value loans and to determine appropriate loan loss provisions, it is particularly important that a banking corporation have a system in place to reliably classify loans on the basis of credit risk. Larger loans shall be classified on the basis of a credit risk grading system. Other, smaller, loans may be classified on the basis of either a credit risk grading system or payment delinquency status. Accordingly, in respect of housing loans which meet the definition in the Appendix to this Directive, credit loss provisions shall be made according to delinquency status, as required in the Appendix.

    Credit grading systems serve as a tool for accurate credit risk assessment. All credit classifications, not only those reflecting severe credit deterioration, should be considered in assessing probability of default and loan impairment.
11. A well-structured credit risk grading system is an important tool in differentiating the degree of credit risk in the various credit exposures of a banking corporation. This allows a more accurate determination of the overall characteristics of the loan portfolio, probability of default and ultimately the adequacy of provisions for loan losses. A credit risk grading

system should include the definitions of each credit risk grade and the delineation of responsibilities for the design, implementation, operation and performance of the system. A banking corporation's internal rating system shall include 10 rating categories.

The grading and definition processes shall be anchored in procedures.

12. A credit risk grading system takes into account a borrower's current financial condition and paying capacity, the current value and ability to realize of collateral and other borrower and facility specific characteristics that affect the prospects for collection of principal and interest. A banking corporation may assign a single credit risk grade to a loan regardless of the purpose for which the grading is used (for example, for managing risk and for financial reporting).
13. Credit risk ratings should be formally reviewed periodically (at least once per year), to assure that the rating is accurate and up-to-date. Credit ratings shall be reviewed and updated whenever relevant new information is received. Credit risk grades for individually assessed loans, that are either large, complex, higher risk or "problem credits" should be reviewed more frequently (at least every three months).

Principle 3: A banking corporation's policies should appropriately address validation of any internal credit risk assessment models.

14. Credit risk assessment and loan loss provisioning may involve risk measurement models and assumption-based estimates. Models may be used in various aspects of the credit risk assessment process including credit scoring, estimating or measuring credit risk at both the individual transaction and overall credit portfolio levels, credit portfolio administration, stress testing loans or portfolios, and capital allocation according to the internal ratings-based approach (where implemented). Credit risk assessment models often consider the impact of changes to borrower and loan-related variables such as the probability of default (PD), loss given default (LGD), exposure amounts, collateral values, rating migration probabilities and internal borrower ratings.
15. As credit risk assessment models involve extensive judgment, effective model validation procedures are crucial.

a. A banking corporation shall periodically, and at least once per year, employ, among other things, stress testing and back testing in fundamentally evaluating the quality of their credit risk assessment models.

b. A banking corporation shall establish internal tolerance limits for differences between expected and actual outcomes, and shall update those limits as conditions warrant. Banking corporations should have policies that require remedial actions be taken when policy tolerances are exceeded.

c. Banking corporations shall document their validation process and results. These results should be regularly discussed at the appropriate levels of management.

d. The validation of internal credit risk assessment models should be subject to periodic review by qualified, independent individuals (e.g., internal and external auditors).

The responsibility to validate the models shall be placed on an entity which is independent of the business units, while maintaining a separation between the validating entity and the entity responsible for its development.

Principle 4: A banking corporation shall adopt and document a sound loan loss methodology, which addresses risk assessment policies, procedures and controls, for assessing credit risk, identifying problem loans and determining loan loss provisions in a timely manner.

16. As part of its credit risk assessment process, a banking corporation shall develop and implement comprehensive procedures and information systems to monitor and supervise the quality of its loan portfolio. These should include criteria that identify and report problem loans to reasonably assure that they are appropriately monitored and supervised, as well as suitably administered and provided for.

17. The credit risk monitoring and supervision system shall provide the relevant information for the board of directors and senior management to make experienced judgments about the credit quality of the loan portfolio and provides the foundation upon which a banking corporation's loan loss or provisioning methodology is built. That is, the same information should be utilized by the board of directors and senior management for monitoring and supervising the condition of the loan portfolio, and in the bank's methodology for credit risk

assessment, Reporting to the Public Directives implementation, which includes determining amounts of loan loss provisions, and for capital adequacy purposes.

18. A banking corporation’s loan loss methodology is influenced by many factors, such as a banking corporation’s sophistication, business environment and strategy, loan portfolio characteristics, loan administration procedures and management information systems. However, there are common elements a banking corporation should incorporate in its loan loss methodology, many of which are elements of the banking corporation’s credit risk monitoring and supervising system. A banking corporation’s loan loss methodology shall:
    a. Include written policies and procedures for the credit risk systems and controls inherent in the methodology, including roles and responsibilities of the banking corporation’s board of directors and senior management;
    b. Include guidelines for a detailed analysis of the entire loan portfolio, performed on a frequent basis;
    c. Identify loans to be evaluated for determining allowance for credit losses on an individual basis and segment the remainder of the portfolio into groups of loans with similar credit risk characteristics as noted in Reporting to the Public Directives;
    d. Identify, for individually assessed loans that are impaired, how the amount of any impairment is determined and measured, including procedures describing the impairment measurement techniques available and steps performed to determine which technique is most appropriate in a given situation;
    e. Be based on current and reliable data, incorporate management’s experienced judgments about the credit quality of the loan portfolio and consider all known relevant internal and external factors that may affect loan collectability (such as industry, geographical, economic, and political factors);
    f. Address how loss rates are determined (e.g., historical loss rates adjusted for environmental factors or migration analysis) and what factors are considered when establishing appropriate time frames over which to evaluate loss experience;
    g. Consider current collateral values (less disposition costs from obtaining and selling collateral) and other credit risk mitigants incorporated in the loan agreement, where applicable. To that end the banking corporation shall establish mechanisms for periodic assessment of the value of the risk mitigants;

h. Address the banking corporation's policies and procedures for loan charge-offs and recoveries, as well as policies and procedures related to (legal) debt forgiveness;
i. Require that analyses, estimates, reviews and other provisioning methodology functions be performed by competent and well-trained personnel and be well documented, in writing, with clear explanations of the supporting analyses and rationale;
j. Include a systematic and logical method to consolidate the loan loss estimates and reasonably assure the loan loss provision balance is in accordance with the Reporting to the Public Directives and to other relevant supervisory requirements;
k. Address the methods used to validate models used for credit risk assessment and credit risk management tools (e.g., stress tests and back tests).

19. A banking corporation should have a realistic view of its lending activities and conservatively consider uncertainty and risks inherent in those activities in preparing accounting information.
20. Loan accounting policies and practices should be selected and applied in a consistent way that reasonably assures that loan and loan loss provision information is reliable and verifiable.
21. A banking corporation should use consistent credit risk assessment and valuation policies and procedures from period to period, and consistent measurement concepts and procedures for related items.

Principle 5: A banking corporation's aggregate amount of individual and collectively assessed loan loss provisions should be adequate to absorb estimated credit losses in the loan portfolio.

22. To reasonably assure that the reported amount of loan loss provisions reflects the current collectability of the loan portfolio, the process to assess loan losses should be reviewed annually, or more frequently, if warranted, in accordance with the provisions of the Reporting to the Public Directives and Proper Conduct of Banking Business Directive no. 309, "Control and Procedures relating to Disclosure and Internal Control over Financial Reporting".
23. Estimates of individual and collectively assessed loan losses should reflect consideration of all significant factors that affect the collectability of the loan portfolio as of the evaluation date. For individually assessed loans, these estimates shall reflect consideration of the facts and circumstances that affect the repayment of each individual loan as of the evaluation date.

Principle 6: A banking corporation's use of experienced credit judgment and reasonable estimates are an essential part of the recognition and measurement of loan losses.

25. Assessment and valuation of allowance for credit losses should not be based solely on prescriptive rules or formulae but must be enhanced with judgment by the appropriate levels of management. Historical loss experience or observable data may be limited or not fully relevant to current circumstances; therefore, management may be required to use its experienced credit judgment to estimate the amount of any loan loss. Capital adequacy directives according to the internal ratings-based approach (when implemented), like Reporting to the Public Directives as well, require the use of experienced credit judgment in assessing probability of default, loss given default and loan loss provisioning. While experienced credit judgments may be necessary, the scope for actual discretion should be prudently limited and documentation should be in place to enable an understanding of the procedures performed and judgments made by management, particularly within the following constraints:

    a. Experienced credit judgments should be well defined in established policies and procedures;

    b. There should be an approved and documented analytical framework for analyzing and assessing loan quality, which is applied consistently over time; and which allows retrospective examination of the quality of the decisions.

    c. Estimates should be based on reasonable and supportable assumptions and should be supported by adequate documentation; and

    d. Assumptions concerning the impact on borrowers of changes in general economic activity, both favorable and unfavorable, should be made with sufficient prudence.

26. The method of determining loan loss provisions should reasonably assure the timely recognition of loan losses. While historical loss experience and recent economic conditions are a reasonable starting point for analysis, these factors are not, by themselves, a sufficient basis to determine the appropriate level for the aggregate loan loss provisions. Management shall also consider any current factors that are likely to cause loan losses associated with the banking corporation's loan portfolio to differ from historical loss experience, including:

a. Changes in lending policies and procedures, including issues regarding underwriting, debt collection, charge-off, recovery, and credit for which there are not updated financial statements;
b. Changes in international and domestic economic and business conditions and developments, including changes in various market segments;
c. Changes in the trend, volume and severity of past due loans and loans graded as low quality, as well as trends in the volume and composition of impaired loans, troubled debt restructurings and other loan modifications;
d. Changes in the experience, ability, and depth of lending management and staff;
e. Changes related to new market segments and products;
f. Changes in the quality of the banking corporation's loan review system and the degree of oversight by the banking corporation's senior management and board of directors;
g. The existence and effect of any concentrations of credit, and changes in the level of such concentrations;
h. The effect of external factors such as competition and legal and regulatory requirements on the level of estimated credit losses in the banking corporation's current credit portfolio; and
i. Changes in the credit risk profile of the loan portfolio as a whole.

A complete and determining list of the factors is included in the Reporting to the Public Directives.

27. Experienced credit judgment should also be used to determine an acceptable period that will yield reliable historical loss rates as loss rate periods should not be restricted to a fixed time period to determine the average historical loss experience for any group of loans with similar credit risk characteristics. Additional instructions related to the duration of the period for calculation of historical loss rates for setting credit loss provisions are detailed in Reporting to the Public Directives. A banking corporation should maintain sufficient historical loss data over a full credit cycle to provide robust and meaningful statistical loan loss estimates for establishing the level of collective impairment losses for each group of loans with similar credit risk characteristics. When applying experienced credit judgment, a banking corporation should provide a sound rationale for excluding any historical loss data that is deemed not representative of the performance of the portfolio.

28. In estimating risk components (such as probability of defaults, and loss given defaults) and loan losses, a banking corporation may determine either a single amount or a range of possible amounts. In the latter case, a bank should recognize an impairment loss equal to the best estimate within the range after considering conservatively all relevant and available information about conditions existing at the measurement date. When determining an amount of an impairment loss within a range, a banking corporation will rely upon, among other things, credit risk characteristics that are consistent with characteristics evaluated conservatively and cautiously for credit risk management and for capital adequacy needs according to the internal ratings-based approach (when implemented).

Principle 7: A banking corporation's credit risk assessment process for loans should provide the bank with the necessary tools, procedures and observable data to use for (1) assessing credit risk, (2) financial reporting, and (3) determining regulatory capital requirements.

29. As described above, a banking corporation's credit risk monitoring and supervision systems should meet fundamental requirements and procedures including the appropriate tools to assess credit risk accurately. These fundamental requirements, relevant procedures and tools are equally necessary for the three purposes: assessment of credit risk, accounting and consideration for regulatory capital adequacy purposes. Therefore, appropriate policies and methodologies for credit risk assessment and valuation do not depend on the purpose for which they are used. This commonality allows use of the same systems for each of the three purposes:
    - Use of common systems strengthens the reliability and consistency of the resulting figures, enhances the consistency in the outcomes achieved for the three different purposes, and minimizes the potential risk of disincentives to follow sound provisioning practices for one or more of the measurement purposes.
    - Generally, common types of data used in assessment and valuation processes include credit risk grades, historical loss rates, characteristics used to group loans for collective assessment and observable data used to estimate credit losses or to adjust historical loss rates.

31. A banking corporation may use different methods to group loans for the purpose of assessing credit risk and valuation, subject to the requirements of the Reporting to the Public Directives. For example, loans may be grouped on the basis of one or more of the following characteristics: estimated default probabilities or credit risk grades, product type, market segment, geographical location, collateral type or past-due status. More sophisticated credit risk assessment models or methodologies for estimating expected future cash flows, including credit risk grading processes, may combine several of these characteristics.
32. Sound credit risk assessment and valuation policies and practices are independent of the purpose for measuring provisions or estimated loan losses. That is, the same sound credit risk assessment system provides the information or outputs to be utilized in measuring loan losses for credit risk assessment and accounting purposes and for assessing the adequacy of a banking corporation’s capital according to the internal ratings-based approach (when implemented). Accordingly, this may result in similar loan loss figures being used as input for credit risk assessment, accounting and capital adequacy assessment purposes.
33. While a single credit risk assessment system provides the credit risk information to be used in determining loan loss provisions, the information, once verified for reliability, may be utilized differently depending upon the purpose of the reporting or measurement objective.
38. It should be noted that capital adequacy assessment instructions under the internal ratings-based approach do not result in the creation of a separate loan loss provision for capital assessment purposes. Rather it results in a deduction from or addition to regulatory capital for any difference between accounting loan loss provision amounts and expected losses over a one-year time horizon from the date of valuation, as defined in capital adequacy instructions under the internal ratings-based approach (Directive no. 204).

APPENDIX:

PROBLEM DEBTS IN HOUSING LOANS

Introduction

1. A banking corporation shall calculate the specific provision for doubtful debts in respect of housing loans in accordance with the extent of arrears as specified in this appendix. The provision in accordance with the extent of arrears, derived from that method of calculation, is a minimum provision. If, however, as a result of information that the management of the banking corporation has regarding developments or events connected with the credit portfolio, it becomes apparent that the provision in accordance with the uniform method is not sufficient, the management of the banking corporation must create additional provision, as is required by the information in its possession.

Definitions

2. "Housing loan" - In accordance with its meaning in the definition of "residential mortgage loans" in Section 231 (second bullet) of Proper Conduct of Banking Business Directive no. 204 (Measurement and Capital Adequacy – the IRB approach to credit risk), and including a loan for the purchase of a right to an apartment in return for key money.

Calculation of provision

3. The balance of the minimum specific provision in accordance with the extent of the arrears in respect of a housing loan shall be calculated for each loan separately in accordance with the following formula:

BX%–C

A– Extent of arrears (in months) – balance of arrears (including related payments and interest in arrears), divided by the amount of the last payment whose maturity has come due in accordance with the amortization table (including related payments);

B– Overall balance of debt (including balance in arrears, related payments, and interest in arrears debited to the customer's account)

C– Balance of provision for interest in arrears

X%– Percentage determined, in accordance with extent of arrears, on the basis of the table below:

Extent of arrears, A	X%
$6 < A \leq 9$	8%
$9 < A \leq 12$	16%
$12 < A \leq 15$	24%
$15 < A \leq 18$	32%
$18 < A \leq 21$	40%
$21 < A \leq 24$	48%
$24 < A \leq 27$	56%
$27 < A \leq 30$	64%
$30 < A \leq 33$	72%
$33 < A$	80%

4. The content of the above notwithstanding, the specific loan-loss provision for a loan which is not repaid in periodic payments of principal and/or interest (monthly or quarterly), shall be calculated in accordance with the relevant rules for that loan, and not by the "extent of arrears" method.

Determination of reporting procedures

5. The procedures of the management of a banking corporation for dealing with problem debts in the area of housing loans shall contain, in addition to the aforesaid in the main Directive, procedures for a format of the current reports to the management, in order to enable early detection of developments or events that might affect the credit risk of

groups of mortgagors according to cross-sections determined by the management. These cross-sections may be based on geographic considerations, quality of collateral, use of loan funds (purchase of apartment, renovations, etc.) as well as other socioeconomic criteria of borrowers (age, salary, etc.). The report shall also include an analysis of the balance of arrears in accordance with the extent of the arrears and the cross-sections determined by the management.

* * *

Updates

Circular 06 number	**Version**	**Details**	**Date**
1489		Original circular	20/11/90
---	1	Integration into Proper Conduct of Banking Business Directives	8/91
1561	1	Update (add pages 9, 10)	30/3/92
1625	2	Update	16/2/93
1720	3	Update	27/7/94
---	4	Revised version of Proper Conduct of Banking Business Directives file	12/95
1849	5	Update	9/2/97
1918	6	Update	26/4/98
1922	7	Update	7/5/98
2285	8	Update	27/2/10
2375	9	Update	30/4/13
2534	10	Update	10/07/17