

GUIDELINES ON THE APPLICATION PROCESS OF INTERNAL RATING BASED APPROACHES AND ADVANCED MEASUREMENT APPROACH

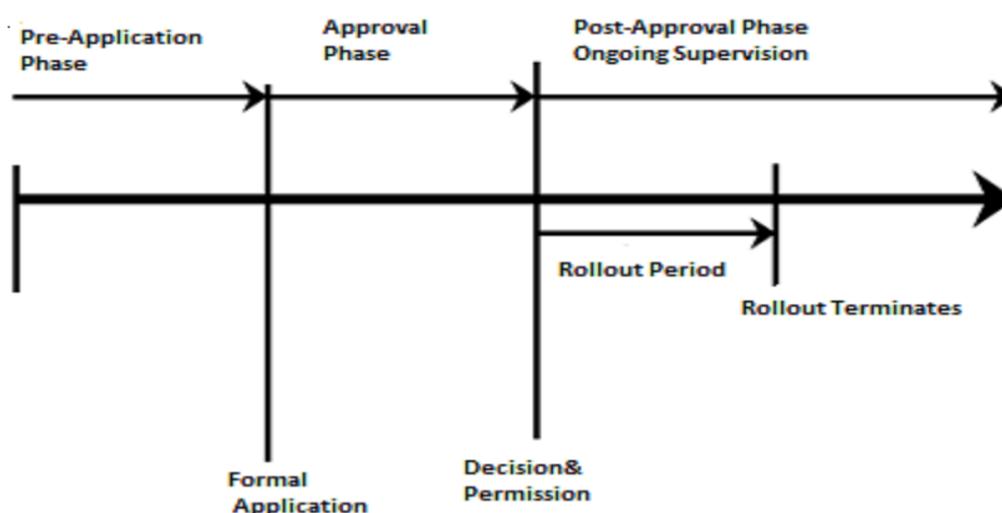
I. OBJECTIVE AND SCOPE

1. The objective of these guidelines is to explain the rules concerning the process to be followed by banks and the Agency concerning the banks' applications within the scope of Communiqué on Calculation of the Risk Weighted Exposure Amount for Credit Risk by Internal rating based Approaches (IRB Approaches) published in the Official Gazette dated October 23, 2015 number 29511 and Communiqué on Calculation of the Risk Weighted Exposure Amount for Operational Risk by Advanced Measurement Approach (AMA) published in the Official Gazette dated September 6, 2014 number 29111.
2. In interpreting these guidelines, banks have to distinguish between two different expressions used. In cases where the guidelines reflect provisions taking place in IRB Communiqué and AMA Communiqué, expressions involving certainty such as "should" etc. In all other cases, a language revealing basic principles is used (e.g.; expressions which are not restrictive such as "could" etc.). If otherwise is not specified by the Agency, banks are free to use solutions which satisfy the conditions determined by the Agency or other stricter solutions.
3. The guidelines contain subjects relating to application, decision and assessment processes. In these guidelines, the minimum document sets to be included within the application are determined, without provisions to the right of the Agency to request extra documents within the aim of assisting in assessment process of an application. Moreover the guidelines also include the matters to be considered in assessing the applications.
4. These guidelines do not contain detailed requirements relating to information systems installation, contingency plans, data integrity or physical security. Even if some of the basic matters about these subjects are given in the guidelines, it is expected that these subjects are evaluated within the scope of the bank's overall audit.
5. The Agency may request, the banks applying to use models within the scope of IRB Communiqué and AMA Communiqué, to perform stricter or more detailed requirements than the ones taking place in these guidelines. In this case, no bank should avoid the additional requirements imposed by the Agency because they are not covered by the guidelines.
6. The Agency may encourage banks to move to advanced approaches for calculating their capital requirements, but there is no specific requirement in the IRB Communiqué and AMA Communiqué for the synchronized use of IRB and AMA Approaches. In other words, adoption of IRB Approach for credit risk does not require the usage of AMA Approach for operational risk (or vice versa).
7. The guidelines do not distinguish between a "Foundation IRB Approach" and an "Advanced IRB Approach". Thus, it is expected that the best practices in these guidelines are applied at the same level for both approaches.
8. In the guidelines, requirements and processes about the application and permission process, Agency's assessment, roll-out process, permanent partial use and use test are explained.

II. APPLICATION AND PERMISSION PROCESS

9. Before the formal application, there will be preliminary contacts (pre-applications) between the Bank and the Agency. Following the submission of the formal application to the Agency, the Agency will assess the application and take a decision. Application and permission process is explained in the **Annex: 1**. In case the application is approved, the Agency will monitor if the related roll-out plan is adopted (IRB Communiqué, Article 5, Paragraph 2-3 and Regulation on Measurement and Evaluation of Capital Adequacy of Banks (Regulation) Article 27, Paragraph 3) and in case the application is approved on conditionally, if the requirements are met. Application and permission process is shown in the Figure 1.

Figure 1: Application and Permission Process



II.1. Application

II.1.1. Pre-Application

10. Pre-application is a process of preliminary contacts between the Bank and the Agency before the formal application. Banks intended to make pre-application shall notify this to the Agency in written between the dates of January 1- January 31 or July 1- July 31 of each year. This writing shall be signed by the audit committee members of the bank. The purpose of pre-application is the pre-negotiation of the banks' approaches by the Agency and to make a preliminary assessment to see if banks meet all requirements necessary to make a formal application. As a result of these pre-applications the Agency may demand a bank not to make a formal application and not to perform a new preliminary interview until the bank decides that it meets all requirements for a formal application.
11. During the pre-application, the integrity of internal documentation, self-assessment of the bank, the appropriateness of the roll-out plan to be implemented, compliance with the minimum requirements set out in IRB and AMA Communiqués and use test will be negotiated. For IRB Approaches, it is expected that banks complying fully or majorly with the minimum requirements set out in IRB Communiqué to make a pre-application. However, the deficiencies of the banks, complying majorly with these requirements, shall be made up during the permit process. Pre-applications may be classified by the Agency considering the scale of banks, the complexity of their activities, sufficiency of their pre-applications etc. for formal applications. In the case of a bank is approved to make a formal application, the date of the formal application will be notified to the bank. Banks approved to make a formal application should make a concession with the Agency about the roll-out plan.

II.1.2. Formal Application

II.1.2.1. Minimum content

12. To decide on an application the Agency needs detailed information about the applicator bank's actual or planned models, the installation, calibration and implementation of these models, data base, technologic infrastructure and control environment of the bank as well as the related policies and procedures.
13. For a bank applying to use IRB Approaches and/or AMA for calculating its regulatory capital requirement, the application document should include these five elements as a minimum. All the documents and information submitted to the Agency are obliged to be in Turkish. However, in case the originals of these documents are prepared in another language, these may be requested additionally for the examinations to be made.
 - a. Cover letter requesting approval.
 - b. Documentation of used or planned IRB approaches and/or AMA (including models used).
 - c. Control environment regarding IRB approaches and/or AMA.
 - d. Implementation plan (including roll-out process) and details on permanent partial use (IRB Communiqué, Article 9).
 - e. Self-assessment.
14. Application documents should be submitted as one autographed physical copy and three CD-ROMs electronic copies. Documents within the CD-ROM should be recorded as an archive file compressed in and this file should be transferred to electronic environment by producing a SHA512¹ Hash code. The code produced should be specified also in application documents.
15. If any of these documents are not provided by the bank, or if they do not meet the standards set out, the application will be considered incomplete. Documents and information listed in the (b) and (e) of the 13th paragraph are considered to be supporting material. Unless otherwise specified, the supporting material should be general information about the implementation of the chosen risk measurement approach.
16. The supporting material provides a summary of the bank's current or planned practices in sufficient depth to enable the Agency to make an initial assessment of the application and more detailed assessments for the future.

II.1.2.1.1. Cover letter

17. Following statements should be included in the cover letter.
 - a) The Bank has applied to the Agency within the scope of IRB Communiqué and/or AMA Communiqué article 4 and a sufficient detailed documentation has been made.
 - b) Roll-out plan submitted in the annex of the letter is binder for the bank.
 - c) Confirmation that the parties which signed the self-assessment study have evaluated the results of this study.
 - d) Confirmation that the supporting materials of the application are composed of accurate and reasonable information regarding the subject.

¹This algorithmic code may be produced using free software (For example HashCalc: <http://www.slavasoftware.com/hashcalc/>).

In the sentence ‘accurate and reasonable information’, ‘accurate’ shall mean that the information given in the documentation is not false or misleading, ‘reasonable’ shall mean that the information given presents a complete summary without skipping significant facts. The cover letter should be signoffed by board chairmen, audit committee members and general managers of the banks applying for IRB Approaches and AMA usage.

II.1.2.1.2. Documentation regarding IRB and AMA systems

18. For an application to use the IRB approaches, documentation should include the following at least.

- A list of all internal documents and a brief summary of each document.

List of documents should be as an evidence for matters such as internal validation process, control environment, compliance with the requirements specified in IRB Communiqué, self-assessment, model methodologies, internal policies etc. In case of some documents handle more than one matter together, sub-titles should be used for significant matters. Documentation list should also include the documentation of models purchased from third parties. Internal documents should be approved/signed by related authorities and the dates of the revisions made should be specified. All documents taking place in the documentation list have to be available in the banks when requested.

- Summary of credit portfolios.

In this part, all credit portfolio hierarchy and significance information based on activity units/risk classes including the bank and its subsidiaries should be provided. To this end, this information should be presented within a top to down approach. For example, initially nominal amounts in a consolidated basis should be given for each risk class. Then, nominal amounts based on all significant risk classes and sub-risk classes of banks and their subsidiaries should be given. Amount information stated here will be instructive for the Agency to assess the exemption requests and the compliance of roll-out process pursuant to the article 9 of IRB Communiqué.

- A map of the models that the bank will use for each of its portfolios.

“Map of models” shall mean exposures, obligors and countries covered (or will be covered) by each rating system.

- General description of each of the models.

This description is about the model usage, methodology, type of data used, model development, validation etc and this information are given in the **Annex: 2**.

19. For an application to use AMA, documentation should include the following at least.

- List of all internal documents and a brief summary of each document.

List of documents should be as an evidence for matters such as internal validation process, control environment, compliance with the conditions specified in AMA Communiqué, self-assessment, model methodologies, internal policies etc. In case some documents handle more than one matter together, sub-titles should be used for significant matters. Internal documents should be approved/signed by related authorities and the dates of revisions made should be specified. All documents taking place in the documentation list should be kept ready in the banks and presentable when requested.

- Summary of operational risks.

In this part hierarchy and significance information of all operational risks based on bank and its subsidiaries should be provided. To this end, these information should be presented in a top (consolidated) to down (by bank) approach.

- Matchup regarding the models used.

For AMA “matchup regarding models” shall mean activities and/or operational risks included by each model.

- General explanations relating to each model.

These explanations should include the information regarding the types of data used (as to include internal data, external data, scenario analyses and activity environment and assessment criteria concerning the internal control system), definitions, classifications, methodologies used and other qualitative and quantitative assessments.

- Allocation of operational risk capital to the bank and its subsidiaries and the use of diversification effect.
- In case the usage of operational risk mitigation techniques, explanations concerning the scope and measurement regarding the expected loss as well as the bank's operational risk insurance policy or other risk transfer mechanisms and correlations.

20. The Agency may request more detailed information, either in the initial application or at the later stage, to allow an effective assessment of the application. The bank is responsible for making these documents available to the Agency upon request, like all internal documents.

II.1.2.1.3. Control environment

21. The documentation of the control environment, implementation procedures and information systems infrastructure concerning IRB Approaches and/or AMA should include the following as a minimum. Detailed explanation of the information required to be provided within the scope of IRB Approach is given in the **Annex: 3**.

- General information relating to internal governance.
- Use test.
- Credit risk control unit for IRB Approaches and operational risk management function for AMA.
- Rating systems for IRB Approaches.
- Validation.
- Processes relating to data.
- Risk mitigation techniques.
- Purchased receivables for IRB Approaches.
- Stress tests used to assess capital adequacy for IRB Approaches.
- Bank systems (information systems etc.), processes and responsibilities.
- Internal audit.
- Independent third parties.
- Documentation policy.

The Agency may request more detailed information within the aim of providing a more efficient assessment of the application. Like all other internal documents, the bank is responsible for providing these documents upon request.

II.1.2.1.4. Implementation plan

22. Banks intending to use IRB Approaches and AMA in their calculations of capital requirements should prepare an implementation plan (including roll-out process) and submit it to the Agency within the application package. The implementation plan is a commitment on the part of the bank to implement these systems for which it is applying for permit to use IRB Approaches or AMA. Implementation plan is a basic part of the application. The terms 'Implementation plan' and 'roll-out plan' shall have different meanings. 'Roll-out plan' refers to the time after the initial approval has been granted, on the other hand, 'implementation plan' also covers the time prior to approval. Accordingly, the implementation plan also covers the roll-out process.
23. Implementation plan concerning IRB will be composed of the 4 main subjects specified below.
- Summary regarding transitory and permanent partial use.
 - Implementation summary.
 - Official requests for transitory and permanent partial use and other permission requiring matters.
 - Detailed implementation plan.
24. In the summary information concerning *transitory and permanent partial* use within the scope of IRB, the exemptions requested by the bank pursuant to the articles 5 and 9 of IRB Communiqué and the periods of these exemptions will be explained. In the *Implementation summary* section, information regarding the dates of the implementation and a commitment regarding the bindingness of the roll-out plan will take place. In the *official requests for transitory and permanent partial use and other permission requiring matters* section, following information shall take place.
- Based on each permanent exemption requested for a bank and/or its subsidiaries, risk class or exposure type;
 - A clear definition of the exemption requested.
 - Size of the portfolio subjected to the exemption. Ensuring that the Agency assesses the significance, the average value of this portfolio in a specified time shall be explained, as well as the bank's forecasts about possible increases in the future.
 - Types of exposures subjected to the exemption and the knowledge of counterparties.
 - Estimation for the difference to appear in capital requirement due to the exemption and evidence to prove that the exemption is not for reducing capital requirement.
 - Cause of the exemption request.
 - Reason for requesting permanent exemption.
 - Brief explanation regarding how to manage the risk belonging to exempted exposures.
 - Detailed legal reason of exemption request (for example, unduly burdensome, limited number of material counterparties, immaterial in term of size and perceived risk profile etc).
 - Method to be applied in monitoring if the reasons of the exemption are continuing and an action plan to be applied in case these reasons become invalid.
 - Based on each transitory exemption requested for a bank and/or its subsidiaries, risk class and exposure type;
 - A clear definition of the exemption requested.
 - Legal justification of the exemption requested.
 - Size of the portfolio subjected to the exemption. Ensuring that the Agency assesses the significance, the average value of this portfolio in a specified time shall be explained, as well as the forecasts of the banks about possible increases in the future.
 - Types of the exposures subjected to the exemption and the information about the counterparties.

- Estimation for the difference to appear in capital requirement due to the exemption and evidence to prove that the exemption is not for reducing capital requirement.
- Cause of the exemption request.
- Current situation of rating system and validation for exposures subjected to the exemption.
- Binding dates for roll-out process (for example; coverage ratio of exposures by the model, specific rating systems and roll-out process for subsidiaries).
- Date of inclusion of all exempted assets to IRB approaches.
- Explanations for the causes for which the applicator bank may comply with the dates determined for the exemption.
- Explanations for the management of risks of exempted exposures during the exemption process.
- General explanations shall be given for both transitory and permanent exemptions considered as a whole, are not for reducing capital requirements.

Other permission requests within the scope of IRB Communiqué shall include following information based on each matter.

- Scope and level of the permission.
- Legal justification of the permission.
- Reason of the permission request.
- Measures taken to cover the weakness which may arise in risk management due to the use of permission.
- Effect of the use of permission on capital requirement.

The Agency will put all transitory and permanent exemptions and other permission requests subject to strict standards and assess them together and accordingly grant the permission.

25. *Detailed implementation plan* within the scope of IRB should be broken down at least by activity units determined in the IRB Communiqué, supervisory exposure classes, sub-risk classes and any IRB parameters that need to be estimated. Implementation steps regarding these breakdowns should be composed of following titles, as to include details concerning time and contents. A *Gantt chart* (or a similar scheme) relating to the detailed implementation plan should also be prepared.

- Development of the rating methodology.
- Preparation of the technical concept for IT implementation of the rating methodology.
- Integration of the model to IT systems.
- Training of the staff, including management staff.
- Transition from the existing rating system to the new system on the basis of current business, if a transition is made.
- Formal internal acceptance of the new rating system and implementation as "the" rating system of the bank.
- The "use" test.

26. Implementation plan steps regarding AMA (including roll-out) should be composed of following titles, as to include details concerning time and content:

- Development of operational risk management processes, in particular for data collection.
- Development of the measurement methodology.
- Implementation of the IT infrastructure which is used for operational risk management and measurement purposes.

- Training of staff, including management staff.
- The "use" test.

II.1.2.1.5. Self assessment

27. The bank should carry out a self-assessment of its state of readiness based on the standards and minimum requirements set out in the IRB and AMA Communiqués and present to the Agency. Following information should be given in the self-assessment.
 - Explication of self-assessment project and project management.
 - People conducting self-assessment.
 - Independence of the people conducting self-assessment.
 - Explications of how to provide consistency based on bank and its subsidiaries and activity units.
 - Explications of how significance levels have been identified in self assessment.
28. Self-assessment should begin with a global assessment, from a consolidated perspective, of how the various models fit together within the bank or its subsidiaries. This global assessment should cover the suitability of the organizational structure in terms of internal governance, the adequacy of resources devoted to the rating system or operational risk measurement system, comparability of aforementioned systems with respect to data and methodology and consistency in IT organization based on bank and its subsidiaries.
29. Self-assessment should also cover all the aspects of the rating system or operational risk system (methodology, data quality, quantitative and qualitative validation procedures, internal governance and IT infrastructures). Self-assessment could be conducted by "credit risk control unit"/"operational risk management function" and if necessary, internal control or internal audit and/or with the support of consultants and resources outside the bank.
30. As a result of the self-assessment, it should be approved that all minimum standards and requirements are met or a list of deficiencies or insufficient areas should be explained and an action plan and schedule should be developed for these.

III. THE AGENCY'S ASSESSMENT

31. The Agency will assess whether or not banks meet the requirements set out in the article 4 of Annex-2 of the IRB Communiqué and/or in the articles 5 and 6 of the AMA Communiqué. The Agency will assess if rating systems conduct a process in compliance with the scheme taking place in the **Annex: 4**.
32. Before entering into the assessment of the details of the rating or operational risk measurement systems, the Agency will make a general assessment. This general assessment should involve following matters.
 - The suitability of the organizational structure, in terms of the responsibilities and functions assigned to the different areas involved in managing, measuring and controlling risks.
 - The sufficiency of the human and material resources assigned.
 - The practicality of the implementation plans for banks adopting a roll-out process.
 - Structure of the bank and its subsidiaries (e.g.; affiliated institutions, data, methodology, controls) and regulatory capital requirements.
33. In order for IRB approaches and AMA to be used in regulatory capital requirement calculation, it must be validated by the bank. The Agency will assess the compliance of the validation realized by bank with the "Guidelines on the Assessment and Validation of IRB Approaches and AMA Approach". Before the bank starts to use AMA for regulatory capital purposes, there will be a monitoring process by the Agency. In this process the Agency will monitor quality and soundness of the bank's operational risk management processes and measurement systems,
34. The bank's validation consists of examining and reviewing all the elements in the rating or operational risk measurement systems and controls, for every portfolio to which the IRB approach is applied and all operations relevant to the AMA, in order to verify that they:
 - Satisfy the use test.
 - Produce outputs suitable for all intended purposes, including regulatory capital requirements.
 - Are suitable for the specific circumstances in which the models are used (e.g., countries, size, and complexity of portfolios in the case of IRB, and business lines in the case of AMA).
 - Meet all other minimum regulatory requirements.
35. The issues that the Agency is expected to assess can be broken down into five phases.
 1. Methodology and documentation.
 2. Data quality.
 3. Quantitative procedures.
 4. Qualitative procedures.
 5. IT systems infrastructure.
36. In assessing IRB; the issues are:
 1. Methodology and documentation: The Agency will examine and assess the rating system methodology and documents relating to rating system.
 2. Data quality: The Agency will assess the quality of data and databases being used for the development of the rating systems, in the rating assignment process, and in the estimation of risk parameters, along with any other databases needed to calculate minimum regulatory capital. This is to ensure the soundness of calibration and of the capital calculation. (The ladder holds true also for the other four items mentioned here.)

3. Quantitative procedures: The Agency will assess the quantitative information provided by the bank relating to performance, validation and monitoring of rating systems. The Agency may ask banks to undertake additional analyses and may undertake quantitative procedures of their own.
 4. Qualitative procedures: This phase has two objectives. The first is to perform an overall assessment of the quality of the internal model. This involves integrating all the information generated in the previous phases and discussing with the bank the appropriate interpretation of the data with respect of the quality of the rating system. The second objective is to assess compliance with the qualitative minimum regulatory requirements determined in the IRB Communiqué. The Agency will conduct this assessment in use test, corporate management and oversight, role of senior management, adequacy of internal controls and internal audit and other areas.
 5. IT systems infrastructure: The Agency will assess the reliability and integration of systems, the functionality of the model, and the quality of information provided by systems.
37. In assessing AMA applications, the issues are:
1. Methodology and documentation: The Agency will examine and assess the risk measurement methodology and the quality of internal documentation supporting the methodology.
 2. Data quality: The Agency will assess the quality of data and databases being used in the risk measurement system, including the four AMA elements stated in the paragraph 2(b) of the article 6 of the AMA Communiqué. This is to ensure the soundness of the data used set used for estimation and also the correctness of the capital calculation (Ensuring the soundness of capital requirement calculation is also valid for the other four parts enclosed in this paragraph).
 3. Quantitative procedures: The Agency will assess the appropriateness of the assumptions and techniques used to model internal data, integrate internal and external data, generate scenario data and incorporate business environment and internal control factors into the operational risk measurement system. The Agency will also assess some of the issues linked to parameter estimation and validation. In this assessment, all the information gathered in previous parts should be consolidated and the interpretation of this information gathered about the quality of risk measurement system will be discussed with the applicant bank. The Agency may request additional analyses from the banks and may undertake quantitative procedures of their own.
 4. Qualitative procedures: The Agency will assess the use test, corporate management, the role of senior management, the adequacy of internal controls, and other areas in order to assess the operational risk management processes and the qualitative aspects of the risk measurement system that have a bearing on the approval.
 5. IT systems infrastructure: The Agency will assess the reliability and integration of bank's systems, the functionality of the model and the quality of information provided by systems.
38. To make the assessment more efficient, the Agency may also rely on work undertaken by the banks' own resources (e.g., internal audit unit, team responsible for internal validation of models, model users) or external resources (e.g., external auditors). Without a previous validation carried out by the bank, the Agency will not take into consideration the applications regarding the use of IRB approaches or AMA. In other words, the validation of models is a prerequisite for assessment by the Agency.

IV. ROLL-OUT, PERMANENT PARTIAL USE and USE TEST

IV.1. Matters concerning IRB

39. Pursuant to the first paragraph of the article 5 of IRB Communiqué, all consolidated and non-consolidated exposures of a bank decided to apply IRB approach should be comprised by this approach. On the other hand, in practice, banks may be not ready to apply IRB for all exposure classes.

IV.1.1. Roll-Out (Implementation)

40. Article 9 of the IRB Communiqué permits banks to exempt certain exposure classes from IRB approach permanently, while article 5 of the same Communiqué gives them the possibility of implementing the IRB approach sequentially across different exposure classes. However, banks should be already using the IRB approach for at least a portion of their business when they apply for approval to use the IRB approach for calculating regulatory capital requirement (IRB Communiqué, Article 5, paragraph 2).

41. As a general principle, the rating systems used should cover all exposure classes (IRB Communiqué, Article 5, paragraph 1). However, it is likely that only some exposure classes will be covered when the formal application is submitted or after the initial approval to use the IRB has been granted. The Agency will examine the bank's implementation plan, for its initial coverage and the pace of roll-out.

42. The Agency has adopted quantitative and qualitative rules for the roll-out. As a quantitative rule, in the application made to the Agency to implement gradually the IRB approaches, the ratio of risk-weighted exposure amount calculated with IRB approach on consolidated and non-consolidated basis to total amount subject to credit risk calculated by IRB approach for exposures requested to use IRB approach and by Standard Approach for the remaining exposures should be at least 50% (IRB Communiqué, Article 5, paragraph 2). As a qualitative rule, exposure classes or portfolios that represent the core business of the bank should be covered. Pursuant to the IRB Communiqué, Article 5, paragraph 3, the ratio mentioned in the second paragraph of the same article should be at least 70% after two years following the permission. The Agency will assess the appropriateness of the roll-out plan also from this point of view. While calculating the coverage ratio, data belonging to the end of previous March are considered for applications made during July and data belonging to the end of previous September are considered for applications made during January.

43. The bank's roll-out policy should indicate at least the time horizon and roll-out sequence (the sequence of calculation of exposures or portfolios with IRB approaches). The roll-out plan should have a definite time horizon. Pursuant to the third paragraph of the Article 5 of IRB Communiqué, IRB implementation based on all exposures shall be within a period of time determined by the bank and approved by the Agency. The Agency will assess if this period of time is reasonable.

44. The time horizon specified in previous paragraph should be short enough to avoid prolonging IRB applications unduly and long enough to ensure the quality of data, methodology and output.

45. The sequence of exposure classes in the roll-out of the IRB approach will be determined by the bank and will be discussed by the Agency during the pre-application. The Agency will assess if the bank has given priority to the portfolios representing its main activity fields in this sequence.

46. Since the application, if accepted, contains a complete roll-out plan, no further application will be needed as each portfolio is rolled out, with the possible exception of a merger or acquisition.

47. Recognizing that it is the responsibility of banks to meet the minimum requirements, banks should carry out a self-assessment against the minimum requirements of the IRB Communiqué before rolling out exposure classes. The Agency will monitor closely the progresses of the bank during the roll-out process, as well its self-assessment studies. The Agency may make additional requests to ensure that minimum requirements are met before the implementation of each step within roll-out process and the calculation of the capital requirements. Banks shouldn't reflect the results of models they have implemented gradually without the Agency's approval to their calculations of regulatory capital requirements.
48. Banks do not have to start a new application process when they transfer their exposures gradually to IRB approaches. The Agency may specify additional binding conditions during the roll-out period (e.g., a certain IRB coverage ratio must have been achieved after some part of the roll-out period is completed).
49. On condition that it is justified reasonably by the bank, changes may be permitted in the roll-out plan in case significant changes take place in the business environment.

Examples that could justify altering a bank's partial use or roll-out policy are changes in strategy and mergers and acquisitions. A change in strategy could result from changes in shareholders or management, or from a new business orientation. In all of these cases, the time horizon for roll-out should remain the same unless there is good reason for delay, but the roll-out sequence can change.

50. A merger or an acquisition is considered an important event that is likely to call for modifying the bank's partial use and roll-out policies. Two merger or acquisition situations can be distinguished: first where an IRB bank acquires a non-IRB bank, and second, a non-IRB bank acquires an IRB bank. In the first case, the IRB bank may be asked to submit a new application with a new partial use and roll-out policy, or it may be asked to submit a plan for bringing the entire bank into compliance with the IRB Communiqué. The second case is more difficult, since the acquiring bank does not have IRB permission, and some requirements, such as senior management understanding, may not be met. The acquiring bank would be asked to make a new application.
51. The rules and criteria for roll-out plans apply to both Foundation and Advanced IRB Approaches. In practice, this means that a bank planning to roll out the IRB approach in two steps for any of the exposure classes mentioned in Article 7(9) of the IRB Communiqué (central governments and central banks, banks and intermediary institutions, corporate) can use the whole roll-out package for each step. However, this bank should have a second time horizon relating to the passage to the Advanced IRB approach. On the other hand, it is expected that the passage to the Advanced IRB approach would be faster as a result of the experiences gained during the roll-out to Foundation IRB approach.

IV.1.2. Permanent Partial Use

52. It is the bank's responsibility to justify permanent exemptions. The justification should include how certain exposures fit its business and strategy, and whether the exposures fit the scope of its core activities.
53. IRB Communiqué, Article 9 paragraph 1(a) provides that exposures in non-significant business units and exposure classes or retail exposures that are immaterial in terms of size and perceived risk profile can also be permanently exempted from the IRB approach.

The term 'business unit' is used in a broad sense. This term may refer to separate organizational or legal entities, business lines, or delimitable homogeneous groups of exposures within a group (these may often be identified separately in the bank's internal

management information systems), or to other branches/units. Geographic location can also be a criterion. A foreign subsidiary or branch or a business conducted in a specific region can sometimes be considered a separate business unit.

For banks having foreign businesses the goal of this rule is to allow units to stay in the Standardized Approach if they are technically, geographically, or organizationally separate from other parts of the bank and its subsidiaries, and implementation for them would be disproportionately costly, or they are small and have customers for which the rating systems of the group are not meaningful, own rating systems cannot be developed, or for which the implementation of own rating systems is too expensive.

Certain conditions must be met for the exemption of delimitable group of exposures. Within this scope, if a sub-portfolio is well-defined as a business unit formed by a certain type of facilities that form a certain type of exposures and that are homogeneously managed, the exemption of this business unit from IRB approach is possible insofar as the bank can demonstrate that this unit is not significant.

54. 'Materiality' refer to both size and the perceived risk profile of the exposure classes. Exposure value could be used as the indicator of size, and risk-weighted exposure amounts for credit risk calculated according to Standard Approach as the indicator of risk profile. However, the Agency may accept a single measure of both size and the perceived risk profile.
55. Materiality calculations are based on both on- and off-balance sheet assets. The threshold for materiality should be applied on solo and consolidated basis for IRB approach.
56. Materiality can be measured:
 - At the aggregated level.
 - At the level of the individual portfolio or business unit.
 - At both levels.
57. The aggregated level of materiality measurement is mandatory. This is to ensure that the sum of all exposures in immaterial exposure classes and non-significant business units does not lead to unacceptably high levels of risk and size in the part of remaining in the Standardized Approach. An additional measurement at the individual level can be regarded as appropriate by the Agency if the aggregate threshold would allow a single business unit to account for the entire amount of exposures remaining in the Standard Approach.
58. The Agency may set minimum levels of coverage of IRB portfolios. Moreover, the Agency may emphasize qualitative assessments. This is why all reasons of permanent exemptions should be revealed and they must be reasonable. In determining the minimum coverage levels, The Agency takes into account the number and size of business units together.
59. The exemption rule should not be exploited to exempt high-risk exposures from the IRB approach.
60. The bank applying the IRB approach is responsible for monitoring the compliance with the materiality criterion in both solo and consolidated basis. Bank should have systems and procedures in place that monitor materiality issues in a timely and appropriate manner. If the materiality thresholds are exceeded, the bank should notify the Agency and present an appropriate remedial action plan over a reasonably short timeframe to be agreed with the Agency. Particular concern should be given to cases where materiality thresholds are breached deliberately (for example, following a strategic decision to expand in a particular sector). In such cases, a roll-out policy prior to actual expansion should be in place.

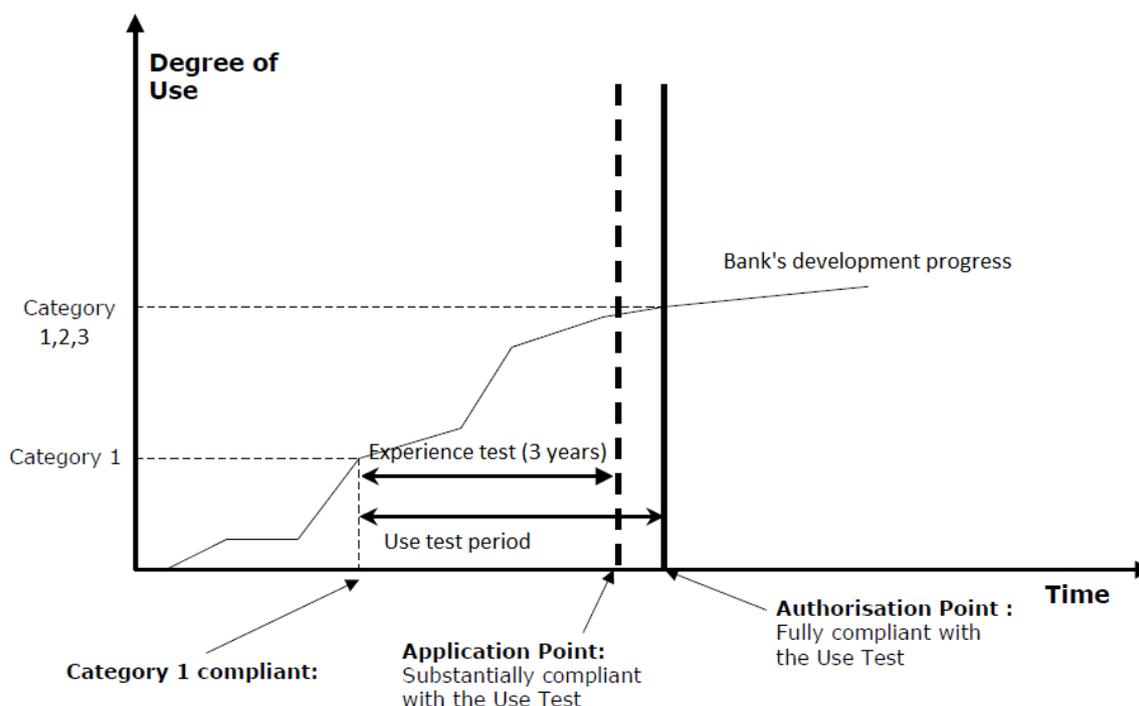
61. Exposures for which the bank plans to use permanent partial use due to reasons other than immateriality pursuant to the IRB Communiqué, Article 9, paragraph 1 (i.e., IRB Communiqué, Article 8, paragraph 1, sub-paragraphs c and ç), are not included within the calculation of materiality thresholds (they are excluded from both the numerator and denominator of the threshold).
62. Banks intending to use the method specified in the IRB Communiqué, Annex-1, Part 1, paragraph 7 for specialised ending sub-exposure class are allowed to add these exposures to the corporate portfolio within the aim of ensuring the coverage level of the IRB.

IV.1.3. Use test for IRB

63. A fundamental requirement for a bank to qualify for the IRB approach is that it demonstrates to the Agency that the information used in or produced by its rating system to determine regulatory capital requirements is also used in the course of conducting its regular business, particularly in risk management. Use test is an important part of negotiations between banks and the Agency during the application process. Use test will be explained under three separate titles which are “Scope”, “Use of data for internal purposes” and “Experience test”.
64. Pursuant to the IRB Communiqué, Article 4, paragraph 2(b), internal ratings and default and loss estimates used in calculating capital requirements, and the associated systems and processes, should play an essential role in the bank's risk management and decision-making process, and in its credit approval, internal capital allocation and corporate governance processes.
65. On the other hand, the notion of “experience test” takes place also in the IRB Communiqué (the difference between use test and experience test is explained in the "experience test" part of these guidelines). Pursuant to the Article 4(4) of the IRB Communiqué, in applications made for the use of IRB approaches, the bank should demonstrate that it has been using rating systems, for the IRB exposure classes in question, that are broadly in line with the minimum requirements for internal risk measurement and management purposes set out in the Annex-2 of the IRB Communiqué, for at least three years prior to its permission to use the IRB approach. Similarly, pursuant to the Article 4(5) of the IRB Communiqué, the bank applying for the use of LGDs and/or conversion ratio estimates should demonstrate that it has been using these estimates that are broadly in line with the minimum requirements set out in the Annex-2 of the IRB Communiqué, for at least three years prior to qualifying to use those estimates.
66. IRB Communiqué, Article 4, paragraph 2(b) indicates that rating systems, ratings and default and loss estimates used to produce data required for IRB approaches are not allowed as long as they play an important role in the bank's relating processes. Even if ratings and default and loss estimates play an important role in the bank's relating processes, this does not mean that they must in every case be the exclusive information or the final parameters used for internal purposes such as pricing. Nevertheless, banks should be required to demonstrate that those ratings and estimates play an essential role in the processes and function listed in the IRB Communiqué, Article 4, paragraph 2(b), and they should indicate where the aforementioned parameters are used internally. In case estimates used for calculating risk weights and those used for internal purposes are different from each other, these differences should be documented and justified to the Agency (IRB Communiqué, Annex-2, paragraph 37(f)).
67. The Agency will distinguish between two aspects of the use test when assessing a bank's compliance with the IRB Communiqué, Article 4, paragraph 2(b).
 - Scope
 - Use of data for internal purposes.

68. The fields in which the use test will be taken into account are given under categories in the **Annex: 5**. Experience test starts once the processes in category 1 have been completed and continues with the development of implementations relating to the usage explained in the categories 2 and 3. For a bank to apply for permission, its rating systems and LGD and/or conversion ratio estimates should be broadly in line with minimum requirements set out in the Annex-2 of the IRB Communiqué. Accordingly, the condition of use test should also be satisfied substantially. The manner of evaluation of the use test is shown in the following figure.

Figure 2: Use Test



69. The Agency expects that banks implement all of the processes taking place in the category 2 in the use test and show the high compliance between the use with internal purposes and regulatory purposes in these activities. However, this expectation may be not appropriate for some institutions and business units. Within this scope, the completion of all processes in the category 2 or the high compliance between the uses for internal purposes and regulatory is not shown, the implementation of business taking place in the category 3 is considered as compensation of this deficiency. Use test must be applied for all exposures.

IV.1.3.1. Scope

70. A bank's rating systems and processes and its internal ratings, default and loss estimates should be an integral part of its business and risk management culture.

71. Banks should use effectively their internal ratings and risk parameters calculated. Ratings and risk parameter estimates used in calculating capital requirements must play an essential role in the risk management and decision-making process, and in the credit approval, internal capital allocation, and corporate governance functions of the bank. If not all these processes and functions are based solely on ratings and risk parameter estimates used in calculating capital requirements, at least an effective and material part of them should be, so that the ratings and risk parameter estimates used in calculating capital requirements have a substantial influence on the bank's decision-making and actions. Banks will ensure that the use of these data is not

marginal, and will assess the validity of differences, (e.g., between a pricing PD and the rating PD). The Agency can stress that risk management elements such as ratings or internal reporting need to be strongly linked with ratings and risk parameter estimates used in the calculation of capital requirements, while for some other functions such as pricing they could be less strongly linked.

72. "Playing an essential role" does not mean that the data/parameters used in calculating capital requirements need to be identical to, or a linear and homothetic function of the data used for credit management. It means that there is a strong relationship between the data/parameters used in calculating capital requirements and the data used for credit management. If banks use different estimates for the calculation of risk weights and internal purposes, this shall be documented and their reasonableness shall be demonstrated to the Agency (IRB Communiqué, Annex-2, paragraph 36(f)).
73. Banks should identify and describe the use they make of internal ratings, relevant risk parameters, and all related systems and processes. They should provide such documentation to the Agency so that the impact of the bank's operations can be assessed. Such documentation should be updated regularly by the credit risk control unit and reviewed by the internal audit unit.
74. Prior to granting permission for use of the IRB approach, the Agency checks the total capital requirements calculated based on all the approaches/methods/rating systems that the bank intends to use at the time of the initial permission to use the IRB approach. An analogous control check should be performed prior to granting permission to use additional approaches, methods, or rating systems, subsequent to the initial permission to use the IRB approach. The purpose of these checks is to ensure that the bank's systems for managing and rating credit risk exposures are sound and implemented with integrity. Banks will be required to report their total capital requirements to the Agency in order to obtain the respective permission.

IV.1.3.2. Use of data for internal purposes

75. It is not always necessary that data used in calculating capital requirements serve directly as the only information or the final parameters for all internal purposes. However, any exceptional case should be assessed carefully by the Agency. The use for internal purposes of the data used in calculating capital requirement should be as comprehensive as necessary to ensure that those data play an essential role in the processes and functions listed in the Article 4, paragraph 2(b) of the IRB Communiqué.
76. Data categories should be distinguished. For example, data published in financial statements should be distinguished from the ones obtained as a result of the bank's calculations. All of the bank's estimates of risk parameters should start with inputs, and those inputs should be essentially the same whether used for credit management purposes or for regulatory capital requirement calculation.
77. The rating systems used for rating obligors and exposures and for estimating risk parameters used in the calculation of capital requirements must also play an essential role in the relevant processes and functions of the bank. Moreover, the structure and design of the rating and capital requirement calculation systems should not be fundamentally different, whatever purpose, internal or regulatory.
78. Any differences between the ratings and risk parameter estimates used in calculating capital requirements and the final parameters used internally should rely on written rationale. All records enabling to realize audits for understanding these differences and rationale should be kept in accordance with a clearly defined internal policy. The purpose of this policy should be to assess the materiality of differences and whether they lead to conservatism or relaxation in

capital adequacy. When pricing is made using non-IRB data, it would be useful for the bank to sort out both types of margins calculations and include conservatism in the calculation of the regulatory capital requirements. The more numerous the differences between the regulatory and the internal systems, the higher the corporate management standards should be.

79. For the purpose of the use test, banks using economic capital models should provide explanations about differences in the data and parameters used in economic capital model and those used to calculate regulatory capital requirements.
80. In areas relating to the credit risk assessment process (rating assignment, etc.) the final parameters used for internal purposes and the data used in calculating capital requirements are expected to be in line. On the other hand, some differences are allowed for pricing and internal capital allocation. No internally used final default or loss estimate should render the estimate used in the calculation of capital requirements implausible.
81. Inputs identified as major for credit allocation, credit risk estimations and/or management for internal purposes should not be set aside for assigning ratings and estimating risk parameters used in the calculation of capital requirements. Ratings used in the calculation of regulatory capital requirement and criteria used in PD estimate should also include evaluations regarding data sources and other related analyses.
82. The models should be consistent with the bank's strategy and technology plans. Risk parameter estimates and modeling should be as accurate as possible, reflecting the different types of exposures in portfolios and sub-portfolios. Banks may have to develop various rating systems, and in such cases the Agency will assess the use test of each rating system separately.
83. Many banks use master scales for internal risk management. While the Agency recognizes their usefulness for this purpose ensuring equivalent risk categories across portfolios, the correct calibration of each individual rating system is more important than their link to the common master scale, as the capital requirements depend on the correctness of the calibration.
84. Strategic plans should provide for extensive training to help the bank's personnel, including senior management, understand the bank's rating models. The complexity of the models, the internal and external processes used by the bank to operate the models, and how the ratings produced should be used need to be well understood. In case the bank uses statistical models in assigning ratings and estimating risk parameters, this matter should be emphasized especially. The effective operation of models has significant human resource and technology implications which should be coordinated by a strategic plan that takes into account the impact of the model on the various functional areas of the bank.

IV.1.3.3 Experience test

85. Article 4(4) and (5) of the IRB Communiqué requires at least three years prior use of rating systems that are broadly in line with minimum requirements of the IRB before regulatory use is authorized (experience test).
86. Experience test stipulated by the Article 4(4) and (5) of the IRB Communiqué has a more limited scope than the use test stipulated by the Article 4 (2(b)) of the IRB Communiqué. While experience test refers to processes and functions relating to risk measurement and management instruments, the use test refers to more processes and functions. Experience test requires rating systems and estimates only to be broadly in line with minimum requirements. In the experience test the length of prior use is considered key, because it takes some time for an appropriate and homogenous use to be reached.
87. The Agency expects an appropriate synthesis of the scope, internal use of data and experience test explained above. This synthesis composing the use test is to be reached prior to

implementation of an IRB approach for a particular type of exposure. Considering the differences between banks' nature, scale, complexity and specific business, different approaches may be used in realizing this synthesis.

IV.2. Matters concerning AMA

IV.2.1. Combination of operational risk methods and approaches

88. Article 27(3) of the Regulation allows the Advanced Measurement Approach (AMA) to be used in combination with other simple approaches. Since there might be some problems in consolidating capital adequacy amounts calculated using different methods and approaches in regulatory capital requirements calculation, explanatory statements are given for the implementation in the Regulation. The Regulation does not distinguish between consolidated or non-consolidated calculations to ensure consistency.
89. Descriptions regarding partial use are as follows:
- ‘Partial use at consolidated level’ means that different operational risk approaches are used simultaneously by the parent bank and its subsidiary or different bank/subsidiaries/business lines under a financial holding company.
 - ‘Partial use at non-consolidated level’ means that different operational risk approaches are used simultaneously for different business lines of the bank.
90. The issue in ‘partial use at consolidated level’ is not whether a subsidiary/business line of a bank is allowed to use a certain calculation method as its own level, but rather whether the parent undertaking is allowed to use the results of that subsidiary/business line in determining its overall consolidated operational risk capital requirement.
91. Similarly, the issue in ‘partial use at non-consolidated level’ is not whether a bank is allowed to use a certain calculation method at the business line (for instance, for internal information purposes or in preparation for a future move to a more sophisticated approach), but rather whether the bank is allowed to use the results of that business line calculation in determining its overall non-consolidated operational risk capital requirement.
92. Since the Alternative Standard Approach (ASA) specified in the Article 26 of the Regulation is a variant of Standard Approach, the possibility for combining SA is also available for ASA.
93. In case the bank uses AMA on consolidated and/or non-consolidated basis, conditions set out in the Second Part of the AMA Regulation should be provided by the parent bank/business line/subsidiaries. On the other hand, in case business lines or subsidiaries which are qualified as insignificant do not meet these conditions, this does not pose an obstacle for the bank to use advanced approach. In those cases, bank shall calculate the regulatory capital requirements of the business line or subsidiary which do not meet necessary criteria using simpler methods and add it to the regulatory capital requirement calculated using AMA.

IV.2.2. AMA Roll-Out

94. The roll-out issues for operational risk (Article 27 of the Regulation) are significantly different from those for credit risk. Conditions required for AMA take place in the Regulation and the AMA Communiqué. Pursuant to the Article 27(3) of the Regulation, banks should meet two following conditions when applying to use AMA.
- On the date of implementation of AMA, a significant part of the operational risks has to be captured by the Advanced Measurement Approach.
 - The bank makes a commitment to roll-out the AMA across a material part of its operations within a time schedule agreed by the Agency.

95. The roll-out policy should include at least the time horizon and the roll-out sequence.
- The roll-out plan should have a definite time horizon. It should be short enough in order to avoid prolonging AMA applications unduly; and long enough to ensure the quality of corporate governance, data, methodology and output.
 - The sequence in which operations are included in the AMA will be chosen by the bank (for instance, giving priority to more risky operations) and the roll-out will be discussed by the Agency during the pre-application.
96. Once a decision to grant AMA approval is taken, no further application process is required, because it involves a full roll-out plan. However, in the roll-out process for AMA, it is expected that banks persuade the Agency whether the additional operations and operational risks covered by AMA roll-out meet the minimum standards in the AMA Communiqué. Since it is the banks' responsibilities to meet minimum standards, banks should complete a self-assessment against the minimum standards in the AMA Communiqué, before rolling-out to the AMA for additional operations or operational risks. The Agency will closely monitor the progresses made by the bank during the roll-out, as well as its self-assessment studies. The Agency may make additional requests to ensure that minimum standards are met before the implementation of each step during the roll-out and the calculation of capital requirement. Banks should not reflect the results of models they adopted gradually without the Agency's approval to their calculations of regulatory capital requirement.
97. Banks should have systems and procedures that monitor in a timely and appropriate manner the consistency of the partial use combinations and the significance, materiality, and time-frame issues of the roll-out plan.
98. Banks should notify the Agency in a timely fashion of any relevant changes in the organizational or business environment, due to either normal or exceptional circumstances (for example, a major acquisition or disposal or a major change in shareholders, management, or organization), that could significantly impact on the banks' initial partial-use or roll-out plans. Banks should discuss with the Agency any changes to the roll-out plan that may be needed.
99. A merger or an acquisition is considered an important event that is likely to call for modifying the bank's partial use and roll-out policies. Two situations can be distinguished: First, where an AMA bank acquires a non-AMA bank, and second, a non-AMA bank Acquires an AMA bank. In the first case, the AMA bank may be asked to submit a new application with a new partial-use and roll-out plan or to submit a plan for bringing the entire bank into compliance with the AMA Communiqué. The second case is more difficult, since the acquiring bank does not have AMA permission and some requirements. In this case, the acquiring bank is asked to make a new application.

IV.2.3. AMA Use test

100. Article 5(1a) of the AMA Communiqué requires the bank's operational risk measurement systems to be an integrated part of its daily risk management processes (use test). Use test for AMA is not detailed in the AMA Communiqué, in contrast to that for IRB Approach in the IRB Communiqué.
101. The bank's operational risk measurement system should involve certain key elements. These elements must include the use of internal data, external data, scenario analysis, and evaluation criteria for business environment and internal control system (AMA Communiqué, Article 6, paragraph 2(b)).
102. The following section establishes a framework of four broad principles which banks would have to consider, at a minimum, in order to satisfy the use test. For each principle, typical

examples of actions that could be undertaken are also provided. The examples illustrate ways to comply with the principles, and are not meant to be either binding or exhaustive.

Principle 1: The purpose and use of the AMA should not be limited to regulatory purposes.

Examples:

- Providing evidence that the risk measurement system is used to manage operational risk exposures across different business lines within the organization structure.
- Providing evidence of how inputs, estimations, predictions, or outputs from the risk measurement system are used in the decision-making process at strategic level.

Principle 2: The AMA should evolve as the bank gains experience with risk management techniques and solutions.

Examples:

- Providing evidence of how the bank ensures that the nature and balance of inputs into the risk measurement system are relevant and fully reflect the nature of the business.
- Providing evidence of how the risk measurement system becomes more responsive and robust.

Principle 3: The AMA should support and enhance the management of operational risk within the bank.

Examples:

- Providing evidence how decision for improving processes and controls are made.
- Providing evidence that operational management objectives and activities are communicated within the bank.

Principle 4: The use of an AMA should provide benefits to the bank in the management and control of operational risk.

Examples:

- Providing evidence that senior management has considered action on its receipt of information from the risk measurement system.
- Providing evidence that the AMA increases transparency, risk awareness, and operational risk management expertise, and creates incentives to improve the management of operational risk throughout the organization.

Practical Framework for Model Approval

Step 1 – Pre-Application

Phases	Matters to be Considered by the Agency
<ul style="list-style-type: none"> ▪ Understanding the extent and nature of the bank's intentions 	<ul style="list-style-type: none"> ▪ The intention to implement internal model approach is discussed with the bank. ▪ A preliminary assessment of the bank's suggestions is made, including the following. <ul style="list-style-type: none"> ○ The readiness of bank in general. ○ Completeness of internal documentation. ○ Self-assessment of the bank. ○ Appropriateness of roll-out plan. ○ Compliance with minimum requirements in legislation.
<ul style="list-style-type: none"> ▪ Preparing an action plan for the audit 	<ul style="list-style-type: none"> ▪ A draft audit plan is prepared in case making a formal application is approved. ▪ Draft audit plan shall include the following matters. <ul style="list-style-type: none"> ○ Significant models and suggested roll-out plans. ○ Allocation of workload with respect to the significant models. ○ Priority issues. ○ A timetable. ○ Standards for judging the completeness and accuracy of the application. ○ Standards for reaching agreement on a final

Step 2 – Formal Application

Phases	Matters to be Considered by the Agency
<ul style="list-style-type: none"> ▪ Formal application submitted and control of the completeness of application documents 	<ul style="list-style-type: none"> ▪ Determine promptly if the application is obviously incomplete (e.g., significant omissions of specified information). In this case, the bank is notified about the incompleteness and which information should be submitted. ▪ The completeness of application documents should be assessed and the final decisions should be communicated with the bank. <ul style="list-style-type: none"> ○ If the application is incomplete, this should be notified to the bank, including the cause of the incompleteness and which information should be submitted to the bank.

	<ul style="list-style-type: none"> ○ If the application is complete, the Agency's examination process will be initiated.
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Step 3 – Model Assessment

Phases	Matters to be Considered by the Agency
<ul style="list-style-type: none"> ▪ Assessment 	<ul style="list-style-type: none"> ▪ Assessment is composed of two phases. Following matters should be assessed in both phases. <ul style="list-style-type: none"> ○ Models, the role of board of directors and senior management and risk management functions. ○ Compliance with minimum requirements. ○ Compliance with the use test. ○ Self-assessment. ○ Roll-out plan, if any. ○ Adequacy of documentation. ▪ First phase is applied as off-site examination and is less detailed than the second phase. As a result of the first phase, the Agency's audit plan regarding the second phase is concretized. ▪ In the second phase, both on-site and off-site examinations are realized in accordance with the audit plan of the Agency.

Step 4 – Decision

Phases	Matters to be Considered by the Agency
<ul style="list-style-type: none"> ▪ Making the decision 	<ul style="list-style-type: none"> ▪ The decision and conditions regarding the decision, if any are made. ▪ Process for handling roll-out is decided. ▪ Timeframe for implementing the decision is determined.
<ul style="list-style-type: none"> ▪ Communication of decision 	<ul style="list-style-type: none"> ▪ The decision document is drawn up and notified to the bank.

Step 5 – Implementation

Phases	Matters to be Considered by the Agency
<ul style="list-style-type: none"> ▪ Implementation of decision 	<ul style="list-style-type: none"> ▪ The decision is implemented to be initiated on the approved date in accordance with the legislation.

▪ Planning, assessing and reporting	▪ Procedures in the Step 3 are repeated within the scope of roll-out plan.
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Step 6 –Regular Review

- The regular review of the continuing appropriateness of the models in used shall be conducted by the Agency within the scope of internal assessment process.

General Explanations Concerning Models

Documentation to be submitted in the application for permission to use IRB approaches should include at least following issues for each model. The documentation is expected to be 4 to 20 pages for each model and that the data requested to be composed of a single sentence. In terms of format, the font size should be 12 and the line spacing should be 1.25.

1. Use:

- Name/code of the model.
- Which risk parameters are the outputs (PD, LGD and Conversion Factor).
- Business lines it is used (Including the information regarding the bank, subsidiary and country in which the model is used).
- Summarized history showing important dates of development and implementation of the model. This history should also include the date on which all conditions set out in the **Annex: 5** within the scope of the use test are met.
- Clear description of credit portfolios in which the model is used including following issues.
 - Portfolio's name/code.
 - Business unit.
 - Portfolio category and/or portfolio sub-category (Portfolio category specified in the Article 6 of the IRB Communiqué and sub-portfolios specified in the Annex-1, Part 1, paragraph 10 to 15 of the IRB Communiqué for retail portfolio).
 - Credit risk approach relating to portfolio (Foundation or Advanced IRB approach).
 - Materiality criteria as to include the following.
 - Calculations made for materiality measurement (amount, risk weighted assets etc.)
 - Number of exposures included by the model (obligors/transactions), as well as their type (products, customers etc.).
 - Details of exposures within the portfolio and exempted pursuant to the Article 9 of the IRB Communiqué.
 - Usage of credit risk mitigation techniques for the portfolio (e.g., commitment, credit derivatives, securitization positions) and its effect on the capital.
 - In case the portfolio is with low default portfolio, the reasons for that.
- The extent of the permission to override in the rating system.
- Historical development and frequency of cases in which ratings produced are changed once or more by override. Summarized results of the analysis made regarding the use of override.
- Bank's point of view concerning the materiality of the rating system and the reason of this point of view (References concerning the bank's internal standards should be made).
- Default history (determining the number and periods of the defaults).
- If the model is replaced by another model, information regarding the previous model.

2. Methodology

- Descriptions of default and loss.
- Type of the methodology (statistical, analytic, expert judgment, hybrid etc.).

- Basic rating logic used in developing the rating system (for example, point-in-time/through-the-cycle) and its justification.
- Criteria on which the outputs produced by the rating system are based as well as their materiality.
- Ratings used by the rating system (number and definitions).
- Brief and technical summary concerning methodology (One paragraph at maximum).
- List and relative materialities of internal models used within the rating system.
- List and relative materialities of external models used within the rating system.
- Explanation of methodology and details of estimations as to include lower fractions of the methodology.
- How the estimations are adjusted as to limit the fluctuation effect of economic downturns on the capital (if it's realized).
- How the estimations are adjusted as to reflect the effect of credit risk mitigation techniques.
- To what extent the conservativeness is applied in the rating system, how it's done and its justification.

3. Data

- Explanation of the data set used for estimation as to include the following.
 - General explanations and data sources.
 - Quality of the data set and activities to increase the quality.
 - Initiating dates and finalizing dates if any (period of the data set).
 - Explanation about external data and its sources, if any.
 - In case external data is used, the ratio of external data to internal data.

4. Model Development

- Explanations regarding the development process of the rating system.
- Difficulties faced during the development process of the rating system.

5. Validation

- Brief history concerning the validation of the rating system.
- History of outstanding dates concerning the validation of the rating system. This history should include the related date, signature information (person and his/her position) and the explanation of the event.
- Numbers of obligors and transactions involved in each rating. This information should also be divided into related diffractions (for example; geographic region, sector, product group etc.).
- As to include the following; brief summary relating to the latest validation of the rating system. Success or failure events according to internal standards should also be explained for following information.
 - Difficulties faced during the validation process of the rating system.
 - Results and details of studies made to provide the accuracy of the inputs.
 - Results of tests of discriminatory power.

- Results of benchmarking tests.
- Results of tests of calibration.
- Results of tests of stability.
- Results of tests of appropriateness (within the scope of qualitative validation).
- Details of expert judgements concerning the rating system and the reasons for their implementation or non-implementation.
- Overall result and recommendations, if any.
- In case the validation of a model for which application for permission will be made during the roll-out has not been performed yet, this should be clearly specified; studies conducted up to this time regarding this matter should be explained, as well as the future activities and their time.
- Situations in which the rating system does not work efficiently.

6. General

- Brief explanation of the differences between rating and risk parameter estimates used for calculating capital requirement and result parameters used internally.
- Explanation of similarities and differences with other models (for example; a model used for the same portfolio but producing a different risk parameter, a model using the same methodology but calibrated with different or the same data etc.)
- Whether or not the applicant bank considers the rating system as significant, and its justification.

The Control Environment

Documentation to be submitted in the application for permission to use IRB approaches should include at least the following for control framework. When assessing the control framework, places where audit weaknesses are identified should be highlighted and the identification of these places should be shown. In terms of format, the font size should be 12 and the line spacing should be 1.25.

1. Corporate Governance

1.1. Organization Concerning the Bank and Subsidiaries (maximum 3 pages and organization charts)

- General explanations concerning the legal structure of the bank and subsidiaries.
- General explanations concerning committees formed for managing purposes for the bank and subsidiaries.
- Organization charts concerning the bank and subsidiaries.

1.2. General Information Regarding Corporate Governance (maximum 4 pages)

- Following general explanations concerning the internal management of credit risk of the bank applied in consolidated and non-consolidated basis:
 - Role and responsibilities of the board of directors regarding the audit function.
 - Role and responsibilities of the board of directors regarding the management function.
 - Functions of committees formed for corporate governance.
 - Role of credit risk control unit.
 - Role of internal audit.
 - Consultancy services provided from outside the bank within the scope of corporate governance.
 - Role of credit allocation personnel.
 - Relationship among all units taking place in the rating systems.
 - Approvals of the board of directors, committee assigned by the board of directors and senior management about the rating and estimation processes.
- Details of credit risk reportings made to the board of directors, committees assigned by the board of directors and senior management as well as the level of consideration of these reports and the rating systems producing these reports in managerial decisions.
- Details of reportings made to the board of directors, committees assigned by the board of directors and senior management about the operation of rating system and significant changes affecting this operation.
- Justification of the approach to be used.

2. Use Test

2.1. Assignment Process to Ratings or Pools (maximum 3 pages)

- Explanation of the process regarding the assignment to ratings or pools.
- Explanation of controls ensuring the required independence and preventing the conflicts of interest. (For example keeping data entry records (log records) within the aim of preventing model users to manipulate the model).
- General explanations about annual updates concerning assignments and updates made when important information is obtained.

2.2. Scope (maximum 15 pages)

- Brief explanations concerning different rating systems used in the bank's activities and how systems and processes relating to these systems are applied and explanations about the degree of reliance each of these activities is based on ratings and risk parameters. In these explanations, the essential role of IRB parameters for each activity should be explained briefly. In each case the areas and business lines where the use is made and for how long should be specified. All uses should be explained in details, especially under the titles of business lines and processes mentioned in the **Annex: 5**.
- Summary of the contributions of the use of IRB estimations to the areas of Risk Management/Decision-Making Processes and Credit Approval Processes and Internal Capital Allocation and Governance within the **Annex: 5**.
- Explanations about the changes and modifications made to the ratings during the use of these ratings in the activities taking place in the **Annex: 5** and different business lines and/or entities.
- Differences in the data used to calculate ratings for different internal purposes.
- Differences between ratings and estimates of risk parameters used in the calculation of regulatory capital, and final parameters used internally.
- Future planned changes to be made in rating systems.
- Trainings taken by personnel including the board of directors.

2.3. Use of Data for Internal Purposes (maximum 3 pages)

- Fields in which different ratings or non-IRB data are used for internal purposes.
 - Different uses and the reasons for them.
 - Internal policies governing the rationale for difference and predicting the maintenance of all records ensuring the audit and training of the related personnel.
 - How conservatism is incorporated into the ratings used for regulatory capital purposes.

2.4. Experience Test (maximum 2 pages)

- Explanation of how requirements concerning the experience test required by the Article 4 (4-5) of the IRB Communiqué are met.

2.5. Allocation of Exposures to Risk Classes within the IRB Communiqué (maximum 3 pages)

- Explanations of how exposures are allocated to risk classes and how the consistency of this allocation is ensured over time.

- Explanations of how exposures are allocated to their related models.
- Explanations of how groups of connected clients are treated

3. Credit Risk Control Unit (CRCU) (maximum 15 pages)

- Information concerning the CRCU should be explained, including the followings:
 - Information concerning the personnel responsible for carrying out CRCU activities, as well as the place of this unit within the organizational structure.
 - Roles and responsibilities of the CRCU.
 - To whom the persons/units CRCU reports.
 - Any services that is outsourced when performing CRCU activities.
 - How the independence of the CRCU is maintained.
 - How appropriate independence within the CRC function carrying out its various roles is ensured.
 - The role of CRCU in the model development processes.
 - The role of CRCU in validation processes.
 - How the competence of the staff of the CRCU is maintained.
 - Adequacy of the CRCU in terms of the size of the bank and the complexity of its activities.

4. Model Development (maximum 15 pages)

- General overview and the following issues should be explained about the model development process.
 - Significant steps involved in the model development process.
 - Policies regarding the records ensuring reporting, authorization and audit at each step.
 - Services provided from external parties.
 - Where and how conservatism is applied to the estimates.
 - Policy in regard to documentation of rating systems.
 - How changes such as those relating to lending practices, data availability, default experience, etc. are factored into the development process.
 - A brief description of how seasoning effects are identified and analysed.
 - How the model development process is handled in the validation.
- Information concerning the personnel responsible for model development process.
- Other responsibilities of the personnel responsible for model development process.
- How conflicts of interest are prevented.
- Assessment concerning the adequacy of resources allocated for model development.
- Difficulties faced within the model development process.
- Differences between the initial version and the ongoing versions of the model.

5. Validation of Models (maximum 20 pages)

- The framework and following issues should be explained about ongoing validation.
 - Personnel within validation process as well as their roles, responsibilities and competence.
 - The scope of validation.
 - The relationships between validation and model development process.

- How the independence of validation process is ensured and how the conflicts of interests have been avoided.
- The significant steps involved in the approval of validation and models.
- Policies regarding the maintenance of records enabling reporting, authorization and audit for each step.
- Frequencies at which various operations concerning validation are carried out.
- How the appropriateness of the drivers of the outputs of rating systems is ensured (obligor vs. transaction risk characteristics).
- Services provided from external parties.
- The use of external validation.
- Comparisons to external data sources.
- Difficulties faced during the validation process of the rating system and how the knowledge obtained is considered and evaluated.
- Specific policies in regard to low default portfolios.
 - Policies to monitor the performance as to include discriminative power and calibration. In these policies, detailed information concerning portfolios with low default portfolios and/or external vendor models should also be specified clearly.
- Policies regarding quantitative validation including tests and minimum thresholds.
- Internal standards to evaluate situations in which the deviations between realised PDs, LGDs, conversion factors and expected losses and expectations are significant enough to question the validation of these estimations.
- Overall assessment tests of accuracy of estimates.
- How the weaknesses of models are detected and treated.
- How estimates are ensured to be representative of long-run experience.
- Policies regarding the changes in rating systems or underwriting standards.
- Policies in regarding to how the conservatism is ensured within the regulatory estimates
- Management systems in place to ensure the periodic and independent review of all elements of internal modelling process.
- Changes or inconsistencies in the validation process that have taken place through time.
- How the use of overrides monitored including performance assessment of overridden exposures.
- How the board of directors ensures that rating systems comply with their purposes.
- Difficulties faced relating to the validation process and its outputs.
- Methodological differences between the initial validation of a model and its ongoing validations.

6. Data Processes (maximum 10 pages)

- Policies regarding data collection and maintenance. In particular how the data maintenance requirements in the paragraphs 21 to 25 of the Annex-2 of IRB Communiqué are met.
- Data examination process, including the evaluation of the accuracy, completeness and appropriateness of the data, as well as the following issues.
 - How missing data is treated.
 - How external/pooled data is treated and the controls surrounding its use.

- Data belonging to previous periods to ensure the compliance with current and foreseeable conditions (for example, data belonging to periods where different underwriting standards are applied) and how the data obtained from different parts of the economic cycle are treated and adjustments made in the estimates accordingly.
- Bank's present portfolios and the comparability of data sets used for these portfolios.
- Policies relating to obtaining new data or information and change of lending or recovery practices
- Definition of default used and the compliance of the data with the definition of default.
- How the data used in model development represents the related portfolio.
- How the data sets, number of exposures and data periods are tested to ensure that estimates are adequate to provide their accuracy and soundness.
- How data relevant to purchased receivables is obtained and used.
- Effect of data examination processes on estimates and capital requirement
- Policies regarding the use of external or pooled data.
- Description of the IT infrastructure supporting data management, as to include a diagram presenting the processes of data collection and maintenance, as well as its consolidation for internal and regulatory purposes.
- Review of data quality conducted by internal audit unit.
- How consistency between risk data and accounting data is ensured.
- Changes made on datasets.
- Documentation policy relating to data policies.

7. Credit Risk Mitigation Techniques (maximum 4 pages)

- General narration of the usage and scope of credit risk mitigation techniques (collateral, credit derivatives, securitization etc.).
- General criteria used to assess the effects of guarantees credit derivatives and other credit risk mitigation techniques on estimates (including purchased receivables).

8. Purchased Receivables (maximum 3 pages)

- General narration of policies regarding purchased receivables, including the following issues.
 - Use and extent of use.
 - How the legal validity is ensured.
 - How the quality of purchased receivables is monitored.
 - How the deteriorations in quality are handled.
 - How internal policies and compliance are ensured.

9. Stress Tests Used in Assessment of Capital Adequacy (maximum 10 pages)

- General narration of the approach to stress test.
- Assessment of results of stress tests to date.
- Reporting frequency of stress tests to senior management.
- How the results of stress test used by senior management.

10. System, Process and Responsibilities (maximum 15 pages)

- Infrastructure supporting the implementation of IRB approach including following issues.
 - IT systems.
 - Manual systems.
 - Personnel.
 - Monitoring facility amounts, current outstandings against committed lines, changes in outstandings per obligor and per grade, risk reporting to senior management.
 - Consolidation of customers within the same risk group but under different systems and monitoring of customers in default within the same risk group.
 - Training programmes including user acceptance programmes.
 - Organizational structure regarding systems.
 - Business continuity.
 - Other relevant areas.
- The overall findings of Internal Audit on these areas.
- Systems architecture diagrams providing an overview of the relationships between various systems.

11. Internal Audit (maximum 10 pages)

- Brief information about internal audit unit.
- Ongoing activities of the internal audit unit as well as the frequency of review of the rating systems, including following issues.
 - PD, LGD, expected loss and conversion factor estimates.
 - The operation of the rating system.
 - The implementation of the rating systems (e.g. IT systems and manual systems).
 - Activities of credit risk control unit.
 - Minimum requirements set out in the IRB Communiqué.
 - How the examinations of internal audit unit encompasses the bank and subsidiaries, and how the concept of materiality is applied to each subsidiary.
- Where external vendor models are used, describe how these are audited.
- Assessment of internal unit regarding the use of services provided from external parties and the independence of these services.
- Forward works of internal audit unit that are planned.
- List of examinations of internal audit unit regarding the implementation of IRB approach (dates of past Internal Audit activities should also be specified in this list) and summary of overall findings relating to these activities.
- Ongoing work by the internal audit unit within the annual Independent Assessment.

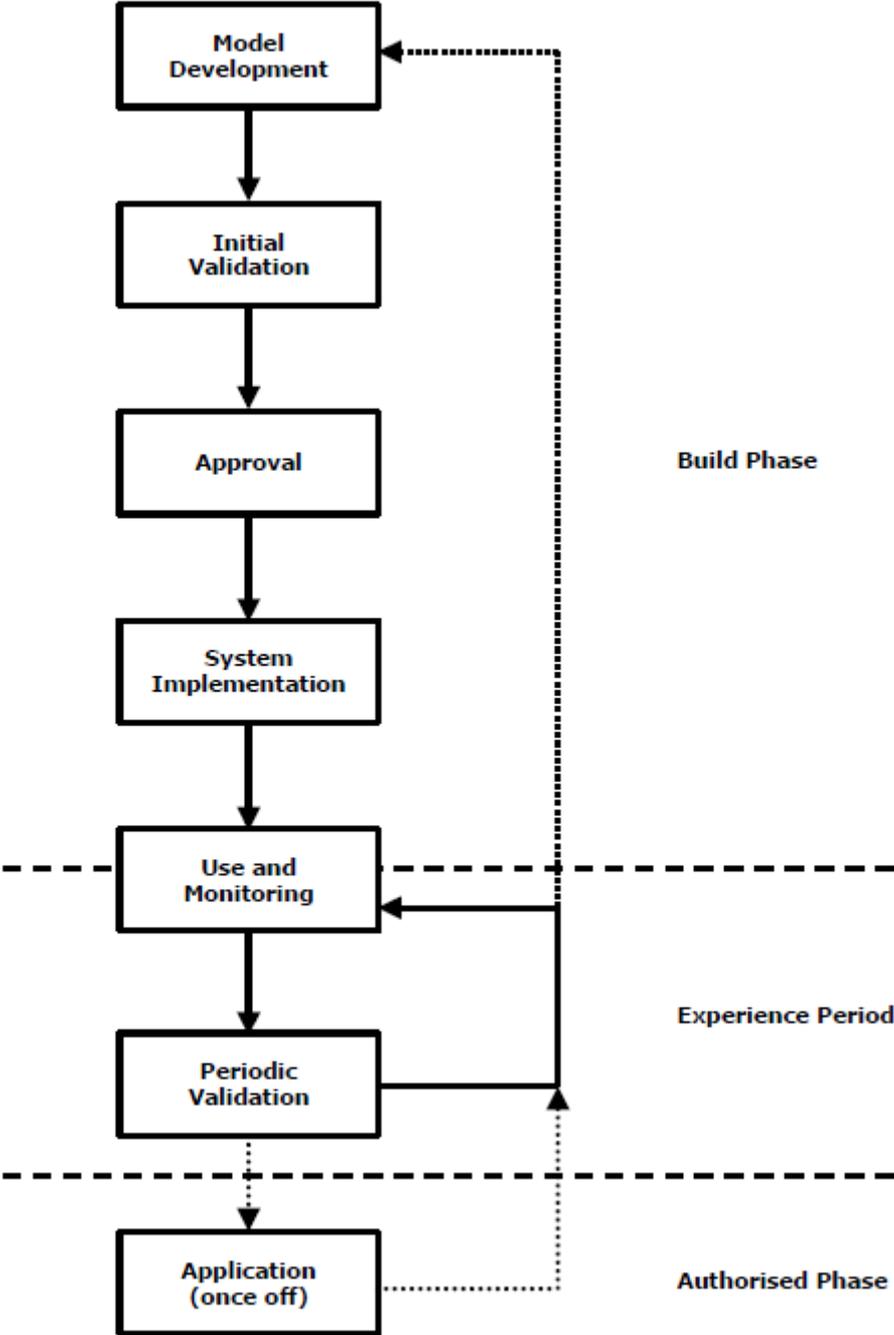
12. External Audit (maximum 5 pages)

- The use of external audit during the review process, including following issues.
 - Activities.
 - How the independence is ensured.
 - Where external vendor models are used, describe how these are audited.
- Forward planning studies of external audit.
- List of examinations of external audit regarding the implementation of IRB approach (examination dates should also be specified in this list) and summary of their overall findings relating to these examinations.
- Support activities provided by external audit within the scope of self-assessment.

13. Documentation Policy

- Internal documentation policies including following issues.
 - Compliance with minimum requirements.
 - Document and version controls.
 - Document lifecycle.
 - Signoff.
 - Distribution.
 - Audit.

General Process Concerning Model Implementation



Category	Field	Process
1	Risk Measurement	<p>Portfolios being fully rated using systems largely compatible with the IRB</p> <p>Initial validation of models being done</p> <p>Regulatory capital requirement to be calculated</p>
	Risk Management	<p>Senior management to have a general comprehension of the rating systems and to have sufficient knowledge about the design and processing of rating systems</p> <p>Internal reporting</p>
2	Risk Management/Decision-Making Processes	<p>Internal reporting</p> <p>Obligor/customer limit allocation</p> <p>Limit allocation in portfolio basis</p> <p>Management of credits</p> <p>Determination of credit risk appetite</p>
	Credit Approval Processes	<p>Approval of credit applications for new obligors/customers</p> <p>Approval of new credit products</p> <p>Credit pricing²</p>
	Internal Capital Allocation	<p>Determination of credit risk appetite</p> <p>Calculation of regulatory capital requirement</p> <p>Provision calculations</p> <p>Use in ICAAP processes</p>
	Corporate Governance	<p>Senior management to have a general comprehension of the rating systems and to have sufficient knowledge about the design and processing of rating systems</p> <p>Corporate governance & activity management</p> <p>Determination of market strategies</p> <p>Reporting of regulatory capital requirement</p>

3	Risk Management/Decision-Making Processes	Allocation of sufficient number and quality of human resources and information systems Strategy (for example, determination of medium and long term strategies)/Acquisitions Pricing Risk transfer Budgeting
	Credit Approval Processes	Credit Pricing ³
	Internal Capital Allocation	Risk transfer Strategy (for example, determination of medium and long term strategies)/Acquisitions Economic capital allocation (for example, distribution of economic capital based on portfolios and business lines) Risk-Adjusted Return on Capital (RAROC) (or other similar criteria)
	Corporate Governance	Allocation of sufficient number and quality of human resources and information systems

² Only used in appropriate fields.

³ Only used in appropriate fields.