Notes to the application form for use of an IRB approach to calculate the capital requirements for credit risk

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1. **Introduction**

A credit institution or investment firm (hereinafter: institution) wishing to make use of IRB models to calculate (sub-)consolidated and/or solo capital requirements for credit risk must submit a formal application to DNB. For this purpose, DNB provides an “Application form for use of an IRB approach to calculate the capital requirements for credit risk”, which can be downloaded from its website (www.dnb.nl), under Supervision/Open Book Supervision.

The present document “Notes to the application form for use of an IRB approach to calculate the capital requirements for credit risk” specifies the information to be enclosed with the application. It explains what information should be submitted, and in what form. This information is intended to enable DNB to assess the application (where necessary in conjunction with one or more foreign (host) supervisors). During such an assessment, DNB or the foreign host supervisor(s) involved may request additional information. Any such request will be dealt with in consultation with the institution concerned.

1.2 **User manual**

The institution must submit its application for use of an IRB approach to calculate the capital requirements for credit risk on an application form provided by DNB.

Under the General Administrative Law Act (Algemene wet bestuursrecht), the decision on the application must be given within at most eight weeks. If DNB is required to consult other (foreign) supervisors, the decision shall, pursuant to section 3:278b (6) of the Financial Supervision Act (Wet op het financieel toezicht (Wft)) be taken within at most six months.

The application must be complete before DNB can commence its assessment. This means that the application form and all its appendices must be completed in full, that the application form must be duly signed, and that DNB must be in receipt of all appendices. DNB has the right to request any additional data and documents which it deems necessary to assess the application. If DNB requests additional data and documents after it has commenced its assessment, the eight-week period in which a decision must be
given under section 4:15 of the General Administrative Law Act is suspended until DNB has received the data and information requested.

The application form and its appendices must be truthfully completed in full and duly signed on behalf of the institution. The institution shall send the application form and all the appendices to:

De Nederlandsche Bank N.V.
Attn: Director of Supervision Banks Division
Postbus 98
1000 AB AMSTERDAM

The institution shall file copies of the completed application form and the appendices submitted to DNB.

If, pending assessment by DNB, changes occur in the data or the documents, or in the institution’s operations as described in the application, the institution shall immediately inform DNB of these changes in writing.

1.3 Requirements as to form
To keep the administrative burden to a minimum, the institution is permitted, where possible, to use internal documentation which is already available. If the institution is required to submit information supplied to DNB on an earlier occasion (for example, with an earlier application or during a pre-validation inspection), which is still up-to-date, a reference to this information will suffice and the information need not be submitted anew.

Language and form in which the application form must be submitted
Institutions with establishments in the Netherlands only can opt to submit the necessary documents in either Dutch or English. Internationally active institutions must submit all documents with an international scope (i.e. non-local documentation) in English. Institutions must reckon with host supervisors demanding to receive documents in a local language.

The institution may choose to submit the documents to DNB as well as to any host supervisors involved on paper, CD-Rom or DVD.
1.4 Information about validation process in other Member States

For internationally active banks, DNB’s role in the assessment of an application is determined by whether DNB is the institution’s consolidated home or host supervisor. The EU Capital Requirements Directive 2 (CRD) and section 3:278b Wft contain stipulations on the procedures governing applications for use of an IRB approach. Both CEBS and the Basel Committee have laid down principles on home/host cooperation. A Dutch-based institution operating exclusively in the Netherlands is subject to supervision by DNB only. Institutions are advised to contact DNB in advance about the application’s submission date and to indicate clearly whether foreign supervisors will need to be involved.

If DNB is the host supervisor, the coordinating role will be fulfilled by the home supervisor in the other Member State involved. The application should then be submitted to that home supervisor in accordance with its application procedure and on its application form.

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1 It may be noted that DNB can be the lead supervisor of an institution within the EU which has its head office outside the EU. In that case, DNB has the coordinating role, referred to below, for this institution within the EU.

2 See articles 129, 131 and 132 of the CRD.
NOTES TO THE APPLICATION FOR USE OF AN IRB APPROACH IN RESPECT OF CREDIT RISK

2.1 Introduction

An application for use of an IRB approach consists of a completed application form and several prescribed appendices. Detailed information on specific internal models used need not be enclosed, although it may have to be supplied at DNB’s request to DNB and/or relevant host supervisors. The institution should be able to deliver this information at short notice (one week).

2.2 Application form

The application for an IRB approach may be combined with an application for other internal methods such as AMA. In addition to 1. General data, the application contains the following elements (see the application form):

2. Scope of application:

2.1. The application for may, in principle, relate to the following options:

- the changeover from the Standard approach to the Foundation or Advanced IRB approach, or
- the changeover from the Foundation to the Advanced IRB approach, or
- the extension of an existing IRB approach (for example, following an acquisition).3

2.2. The list of legal entities (within and outside Member States) to which the application relates and the responsible (prudential) supervisor(s). If the parent institution is not established in a Member State, it and its supervisor should also be included in the list.

The application relates to use of an IRB approach by the applicant in the Netherlands and the joint subsidiaries of a Dutch financial EU parent holding company involved, to calculate capital requirements on a (sub-)consolidated and/or a solo basis.

2.3. Motivation: The institution must give reasons for switching to an IRB approach.

3. Gradual introduction (where relevant)

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3 In consultation with the supervisor, it may be decided whether, when an existing IRB approach is extended, a new application should be submitted or whether the procedure for significant changes described in Open Book Supervision should be followed. In general, a new application will be necessary if a new country (and hence a new host supervisor) comes into play.
- An overview of the assets and entities for which an IRB approach is to be gradually implemented, with a motivation, an estimation of the credit risk involved, and an indication of the relative size of these risk positions.

(section 70, Decree on prudential rules under the Financial Supervision Act (Besluit prudentiële regels Wft); paragraph 3.2.4. of the Regulation on the capital requirements for credit risk (Regeling solvabiliteitseisen voor het kredietrisico)).

This recently updated rollout plan must show which portfolios, which entities and which internal models will switch or have switched to the IRB approach. Next to claims on central governments and central banks, institutions, enterprises, private individuals or medium-sized companies, these include equity positions and securitisation positions. The time lines should be clearly stated; once approved, they are binding for the institution. Every adjustment of the rollout plan must be submitted to DNB for assessment immediately. If, in DNB’s opinion, the rollout plan does not warrant the expectation that the institution will subject all non-exempted risk positions to the IRB approach chosen within three years’ time, the assessment of the application is suspended.

4. Permanent partial use of the Standard approach (where relevant)

- An overview of the assets and entities which are to be permanently subjected to the Standard approach, with a motivation, an estimation of the credit risk involved, and an indication of the relative size of these risk positions.

(section 76, Decree on prudential rules under the Financial Supervision Act; paragraph 3.2 (2) of the Regulation on the capital requirements for credit risk; Policy rule on the partial use of the Standard IRB approach)

5. Other information

The application must include any other information which could be relevant to DNB's assessment of the application.

6. Signature: The application form and the statements enclosed must be signed by at least one member of the institution's Managing Board.

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4 For instance, on the basis of the number of counterparties, outstanding amount or risk-weighted assets.
5 For example, on the basis of the number of counterparties, outstanding amounts or risk-weighted assets.
2.3 **Documentation to be enclosed**

The following documents are to be enclosed as appendices.
**I  Vade mecum**

Institutions' internal documents are not always easily accessible (intelligible) to supervisors. If necessary, institutions must, when compiling their applications, therefore make their documentation suited and accessible to assessment by supervisors. They can do so by adding a vade mecum, which will guide DNB and the host supervisors through the relevant documents and indicate how the various documents interact. A separate vade mecum may be necessary for certain components of the information package (such as the description of an internal model). If the institution fails to supply proper guidance, the assessment may be held up because extra information may have to be sought (possibly unnecessarily). DNB would appreciate it if the information contained in the vade mecum were numbered in accordance with the numbering used in these notes.

The information must further meet the following requirements:

- (Where relevant) the information may be sent to host supervisors. This means that it must be intelligible outside the Dutch context too;
- Differences between business units, entities and/or countries must be clearly indicated;
- It must be clear whether the documents pertain to realisations (position as at the submission date) or to plans (realisation prior to implementation, situation desired in the future);
- The status of each document must be clear (e.g. not yet definitively approved). DNB does not accept draft documents.
II \hspace{1em} \textit{Description of IRB implementation process, including any rollout plan and recovery plan}

To begin with, this appendix must contain information about the processes which have been and/or are to be completed in order to be able to make correct and timely use of an IRB approach; these include processes with regard to IT and data management. This information will be used, among other things, to judge whether the experience requirement has been met. The following aspects must be addressed:

1. The project's set-up and management, the division of responsibilities, the available capacity, the main milestones during the process. The description must also show since when the institution has been broadly compliant, possibly per entity and/or portfolio.
2. The reasons for the rollout chosen from the perspective of risk management and from an operational stance. These include the considerations underlying the choice between a phased rollout or a big bang.
3. A forecast of the development of capital adequacy during the rollout, which includes an elaboration.\textsuperscript{6}

\hspace{1em}\textsuperscript{6} If the sequence chosen and the pace of the rollout give DNB the impression that the institution plans to minimise its capital requirements via a strategic rollout, DNB will not approve the plan. Pillar 2 continues to apply in full throughout the rollout period. If, in DNB’s opinion, an (unduly) low capital adequacy level arises as a result of a delayed rollout, DNB can remedy this situation under Pillar 2.
III  Description of the risk management framework

III.1  Corporate governance and organisation of credit risk management
An (internal) description of the way the internal models have been embedded in the institution’s credit risk management framework. The description should in any case show:
1. The tasks and responsibilities of the institution’s Managing Board, senior management and the specially appointed committee(s) with regard to credit risk management in an IRB approach;
2. The tasks, responsibilities and independence of the institution’s entity (entities) charged with credit risk management, and possibly the audit committee, in the IRB approach;
3. The procedures and arrangements governing the supply of information to the Managing Board, or to the special appointed committee and senior management on the models’ performance;
4. The degree to which analyses and stress tests of the credit risk profile in management reporting are internal ratings-based; and
5. Internal control on the reconciliation of risk and finance, and the production of (sub-)consolidated and solo COREP reports.

III.2  Development, approval and validation of internal ratings

With regard to the development, validation and approval of models, the documentation must at least cover the following subjects. Much of this information is probably laid down in policy documents. Where relevant, distinctions should be made by exposure classes, business units and parameters.
1. The definitions used for, for instance, default.
2. The principles underlying the choice of model.
3. The policy pursued with regard to the use of externally developed models and standards (e.g. quality standards).
4. The development of the model, the parties involved and their responsibilities, and internal documentation requirements.
5. The approval procedure for the model, the parties involved and their responsibilities.
6. The manner in which assets are allocated to internal models.
7. The way ratings are assigned and the internal control structure.
8. The model validation process, with a special focus on the independence of the parties involved in the process, responsibilities, the scope of the validation, the internal documentation requirements.
9. A description of the manner in which the performance and robustness of the models and the risk parameters are monitored, the (qualitative and quantitative) validation instruments used, and the instances in which validation may lead to adjustment of the system.
10. The manner in which low default portfolios are treated.
11. The degree to which double default effects have been taken into account in the calculations.
12. The manner in which allowance is made for an economic downturn in the LGD.
13. The training, education and relevant experience of staff, including senior management, who are to work with the system or will be taking decisions on the basis of information from the rating system.
14. The manner in which the requirement has been met that PD, LGD or EAD estimations include a safety margin which is commensurate with the expected margin of error of the estimations (section 3:76 (5), Regulation on the capital requirements for credit risk).

III.3 Use of internal ratings

A general description must show what role is played by internal ratings and estimations in credit acceptance, risk management (e.g. limits set), internal capital allocation, performance-related remunerations (performance management), management information, provisioning, price-setting and strategies (acquisition and investment decisions). Where relevant, distinctions should be made by exposure classes, business units and parameters. For this purpose, the institution can make use of the survey provided by DNB, which is available on DNB’s website, [www.dnb.nl](http://www.dnb.nl), under Supervision/Open Book Supervision.

III.4 Policy on data quality

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7 In this document, an internal ‘model’ refers to all methods, processes, control measures, data collections and IT components which support the assessment of credit risk, the classification of risk positions (ratings) and the quantification of the PDs, LGDs and EADs for a risk position.
The integrity and reliability of data underlying IRB calculations are of major importance. The institution should therefore outline its policy on IRB data management, including risk/finance reconciliation.

III.5 IT components

The integrity, reliability and availability of data underlying the IRB calculations and of the IRB calculations themselves are of major importance. The institution should therefore outline its policy on IT within the IRB approach. A description should be made of the IT components supporting the following functionality:

- The recording of historical data used to estimate and validate PD, LGD and EAD;
- The calculation of the factors PD, LGD, EAD and M;
- The calculation of the capital requirement on the basis of these factors;
- The production of the reports involved.

The institution must address:

1) The (schematic) set-up of the central and decentral IT architecture (applications, databases, external data, the interaction between platforms, and capacity and performance management). The architecture concerned is that which is most used within the institution; where relevant, distinctions should be made by exposure classes, business units and parameters;

2) The classification of the IT components in terms of reliability, integrity and availability;

3) The approval process with respect to the set-up and organisation of IT components;

4) An overview of the efforts made by Internal Audit’s IT audit function and the outcomes (audit ratings, major findings) over the past two years;

5) A rough outline of the data model within internal rating systems;

6) Set-up of the data flows within rating systems;

7) A rough outline of the control measures in the chain (including general IT controls) to guarantee the integrity, reliability and availability of data within the rating system.

This description should cover the following subjects:

a) Data integrity:
   i) The manner in which the correctness and completeness of the data exchanged between the various IT components are ascertained;
   ii) The manner in which the continued integrity of the databases is ascertained.

b) Logical access security:
i) Quality of the security administration (system support for various user roles/functions, the enforcement of function segregation by the system, unique user IDs, password rules).

ii) Quality of security monitoring (logging of user activities, logging of activities of system/application managers, the regular control of logging, the authorisations awarded and staff who are no longer in service).

c) Continuity:
   i) Back-up /recovery
   ii) The business continuity management of the IT components.

d) Change management and version management
   i) The change management procedure, approval procedure.
   ii) The assignment of responsibilities for change management.
   iii) Segregation of environments according to the OTAP concept (development, test, acceptance, production).

e) System development and/or parameterisation consequent on the periodic adjustment of models:
   i) Function segregation between development, test, acceptance and production.
   ii) The presence of a formal testing process with test plans and test reports.
IV Internal models to which the application relates

IV.1 Overview of models

This part serves to provide DNB with an overview of all internal models used by the institution and their main characteristics. The overview serves to show DNB what rating systems and models are used and where: in which legal entities, which business units and for which portfolios. The overview should also show that the institution’s entire credit portfolio is covered by IRB models, or by permanent or temporary use of the Standard approach.

The documentation to be enclosed shall, in any case, show the following for each model:

- The validation date and the validation department;
- The date of approval by senior management;
- The date on which the model was first used;
- The date on which the model was applied to the entire portfolio;
- The type of rating system (PD, LGD or EAD, and statistical, constrained expert judgement or hybrid);
- The materiality of the rating system or model, expressed in qualitative and quantitative characteristics:
  - the value of the (risk-weighted) assets influenced by the model;
  - scope in terms of business units, countries, entities;
  - average PD, LGD or EAD at portfolio level;
  - possibilities for, and the number of instances of, manual intervention in the model outcomes;
  - percentage of the EAD of the relevant portfolio to which the model has been applied (this should be 100%: section 3:71 (2) and section 3:63 of the Regulation on the capital requirements for credit risk).
IV.2  *Specific information per internal model*

On the basis of the above overview, DNB will make a risk-based selection of models to be examined in depth by the supervisors. To this end, DNB requests that the following information be enclosed:\(^8\)

1)  (Technical) model documentation, which addresses at least the following subjects:
   a)  The theory, assumptions and/or mathematical and empirical principles underlying the statistical models and other mechanical methods used;
   b)  The philosophy underlying the rating system or model, i.e. the objective of the rating system, the relative weight awarded to current versus fixed circumstances, and the consequences for the relative importance of stress testing and rating migration;
   c)  The arguments given for subjective elements in the rating system and their relative importance;
   d)  Data input
      i)  Data history used in the rating system (period, completeness, accuracy);
      ii) Degree of manual data input or adjustment;
      iii) If applicable, the external data sources used by the rating system and their importance (compared to internal data, but also in absolute terms);
      iv) Guarantees that the data used to draw up the model are representative of the existing population of debtors;
      v) If applicable, the reasons for using data which do not (fully) meet the definitions of default and loss, the extent to which they differ and the manner in which the data have been adjusted;
   e)  The possible linkage to external ratings and PDs (mapping to PD master scale);
   f)  Possibilities for subjective overrides (or appeals);
   g)  For LGD models, the manner in which allowance has been made for a downturn in the LGD;
   h)  The indicators used to test the predictive powers and stability of the rating system and model, but also the circumstances under which the model does not function properly;
   i)  Analyses to determine the sensitivity of the system or model to parameters, and the use made of the results of such analyses;

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\(^8\) In the event of an overlap with the general section, a reference will suffice. Here, too, internal documents may be used where possible.
j) Whether, and to what extent, significant concentrations in scale occur within the rating system;

k) The manner in which the requirement has been met that a safety margin should be added to estimations of PD, LGD or EAD, which is commensurate with the expected margin of error of the estimations (section 3:76 (5), Regulation on the capital requirements for credit risk).

l) Reasons for using other estimations to calculate risk weights than those normally used for internal purposes;

2) Initial validation report;

3) Documentation on approval given (by whom and when, any comments made);

4) Latest periodic validation report, including monitoring of model input and output, back testing (comparison of forecast and realisation) and the opinions of users/experts;

5) If available, Internal Audit’s latest examinations of and opinions on the model.


V. Information on other credit risks

V.1 IRB approach for securitisations (excluding IAA)

An institution switching to an IRB approach will also have to switch to an IRB approach for securitisations (excluding the Internal Assessment Approach (IAA)). In its application, this institution shall provide information showing that it has properly prepared the changeover to the IRB approach for securitisation positions. It can do so by, for example, paying explicit attention in its impact study (see VI) to the impact which the switch have will on securitisation positions. NB: For existing transactions, the operational conditions to be met by securitisations (such as significant risk transfer) need not be tested anew when the institution switches to the IRB approach.

V.2 Equities

To calculate risk-weighed assets for claims in the category "equities", an institution can choose between a simple risk weight approach, an IRB approach or the PD/LGD approach (or a combination). An institution can choose different approaches for different portfolios. An institution opting to do so must provide information about the division of portfolios, the methods used, and the rationale underlying this division.

If the institution applies the PD/LGD approach to (parts of) its equity portfolio, the following information must be submitted in any case:
- Exactly the same information as must be submitted for PD models in respect of claims on central governments, central banks, banks, investment firms and enterprises.

If the institution applies the IRB approach to (parts of) its equity portfolio, the following information must be submitted in any case:
- A description of the VaR model;
- The (back) test data for the VaR model;
- The manner in which the minimum requirements under section 3:86 of the Regulation on the capital requirements for credit risk have been met;
- The manner in which allowance is made for non-paid-up credit protection and the ensuing reduction of the capital requirements.
VI  Analysis of impact on capital adequacy

This analysis should show, in detail, the impact on capital adequacy of the switch from the Standard approach to the IRB approach or from the Foundation IRB approach to the Advanced IRB approach. Where possible, this information should be in line with internal calculations made earlier, parallel-run information or submitted COREP reports. It must be stressed that a total impact analysis consists of the total requirements for all Pillar 1 methods (SA, IRB, AMA, IAA, securitisation, market risk, CRM) and large exposures. This analysis should provide insight into the impact on the total capital adequacy ratio, as well as on the individual portfolios. This contributes to a risk-oriented assessment of the application form, as it enables DNB to identify possible bottlenecks at an early stage.

The impact analysis should provide insight into the possible influence on (sub-)consolidated and/or solo capital adequacy ratios for all group entities, including the parent company (holding company), insofar as these entities are required to report on a solo and/or (sub-)consolidated basis. The impact analysis should also provide insight into the possible consequences of adjustments of the capital policy as a result of the introduction of the IRB approach and other advanced methods. Where relevant for the application, insight should be given into the impact per jurisdiction.
VII  Self-assessment

A self-assessment is understood to be an assessment performed by the institution itself of the degree of compliance with the conditions for application of an IRB approach provided for by statutory instruments (sections 69 to 76 of the Decree on Prudential Rules under the Financial Supervision Act and all sections of chapter 3 of the Regulation on the capital requirements for credit risk). The application and the (gradual) introduction of the IRB approach need to be in accordance with the relevant requirements pursuant to the:

- Financial Supervision Act (*Wet op het financieel toezicht* or *Wft*)
- Act on the Implementation of the Basel II Capital Accord (*Wet implementatie kapitaalakkoord Bazel II*)
- Decree on Prudential Rules under the Financial Supervision Act (*Besluit prudentiële regels Wft*)
- Decree on the Implementation of the Basel II Capital Accord (*Besluit implementatie kapitaalakkoord Bazel II*)
- Regulation on the capital requirements for credit risk (*Regeling solvabiliteitseisen voor het kredietrisico*)
- Policy rule on the partial use of the Standard IRB approach (*Beleidsregel partieel gebruik van de standaardbenadering onder IRB*)
- Policy rule on relaxation of the IRB experience requirement (*Beleidsregel versoepeling ervaringsvereiste*).

If the application pursuant to section 3:278b (4) Wft relates to entities established in other Member States, the introduction of the IRB approach for these entities should meet the relevant local requirements in these Member States. A sound and complete self-assessment forms an important source of information for supervisors. The information submitted should provide an overview of the level and scope of the self-assessment, and indicate where reparation is needed and when it will be completed. The self-assessment may contain important indications as to which areas DNB needs to assess in depth. An institution must in any case submit:

- The self-assessment itself, indicating (non-)compliance per section, and the underlying considerations;
- A number of requirements relate to individual models. The self-assessment must ascertain per model whether these requirements are met;
- Explanatory notes to the self-assessment, indicating how the assessment was set up and executed, what departments were involved and the depth of the assessment;
- An overview of the shortcomings and bottlenecks observed and their importance;
- An action plan indicating how and when the shortcomings and bottlenecks will be remedied.

The self-assessment itself is subject to the following requirements:
- It must have been recently updated, at most one month before the date of the application;
- It must be complete which means that all minimum requirements must be met, it must provide a consolidated picture and it must be in accordance with Dutch rules and regulations;
- If relevant, the main discrepancies vis-à-vis the published regulations of host supervisors must be set out;
- It must be performed or, in any case, audited by an independent function, such as Internal Audit, risk management, external auditors and/or external consultants. Internal Audit must in any case subject the self-assessment process, as well as a risk-based assessment of the bottlenecks, to agreed upon procedures.
Overview of involvement and reporting by Internal Audit

The application should also include an overview of Internal Audit’s involvement. This overview should in any case contain the following information with regard to the application for use of an IRB approach:

- Internal Audit’s tasks, responsibilities and independence;
- A description of and motivation underlying the audit approach and the audit plan;
- Explanatory notes to the capacity made available for audit activities;
- An overview of the audits of the progress made with the implementation of the IRB approach, the rollout and compliance with the regulations. These audits shall be accompanied by a rating in conformity with the institution’s internal rating system;
- An overview of all unresolved issues which carry a high risk according to the institution's internal definition, as well as of the actions planned, and the timetable for resolution.

DNB further expects Internal Audit to agree on specific activities with the Managing Board of the credit institution or investment firm (agreed upon procedures), for instance with regard to the completeness and correctness of the information contained in the (appendices to the) application. This shall result in a report on the activities agreed and realised, the results of the agreed upon procedures and their implications.