

# Credit appraisal assignment



Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management These guidelines were prepared by the Oesterreichische Nationalbank (OeNB) in cooperation with the Financial Market Authority (FMA) Published by: Oesterreichische Nationalbank (OeNB) Otto Wagner Platz 3, 1090 Vienna, Austria Austrian Financial Market Authority (FMA) Praterstrasse 23, 1020 Vienna, Austria Produced by: Oesterreichische Nationalbank Editor in chief:

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Salzer Demeter, 100% woodpulp paper, bleached without chlorine, acid-free, without optical whiteners DVR 0031577 Preface The ongoing development of contemporary risk management methods and the increased use of innovative financial products such as securitization and credit derivatives have brought about substantial changes in the business environment faced by credit institutions today. Especially in the field of lending, these changes and innovations are now forcing banks to adapt their in-house software systems and the relevant business processes to meet these new requirements.

The OeNB Guidelines on Credit Risk Management are intended to assist practitioners in redesigning a bank's systems and processes in the course of implementing the Basel II framework. Throughout 2004 and 2005, OeNB guidelines will appear on the subjects of securitization, rating and validation, credit approval processes and management, as well as credit risk mitigation techniques. The content of these guidelines is based on current international developments in the banking field and is meant to provide readers with best practices which banks would be well advised to implement regardless of the emergence of new regulatory capital requirements. The purpose of these publications is to develop mutual understanding between regulatory authorities and banks with regard to the upcoming changes in banking. In this context, the Oesterreichische Nationalbank (OeNB), Austria's central bank, and the Austrian Financial Market Authority (FMA) see themselves as partners to Austria's credit industry. It is our sincere hope that the OeNB Guidelines on Credit Risk Management provide interesting reading as well as

a basis for efficient discussions of the current changes in Austrian banking.

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Management 5 List of Abbreviations Basel II BWG CAPM CCF CCO CRO EAD  
EVA $\alpha$  GL HD IRB-approach LGD M PD RAPM (RA)RORAC ROE RORAC SMEs  
SPV SRC VaR

Revised international capital framework Austrian Banking Act Capital-Asset-  
Pricing-Model Credit Conversion Factor Chief Credit Officer Chief Risk Officer  
Exposure at Default Economic-Value-Added $\alpha$  (registered trademark of Stern,  
Steward & Co. ) Group leader Head of department Internal ratings-based  
approach Loss Given Default Maturity Probability of Default Risk adjusted  
Performance Measure Risk adjusted Return on Risk adjusted Capital Return  
on Equity Return on Risk adjusted Capital Small and medium-sized  
enterprises Special Purpose Vehicle Standard risk cost Value at Risk 6  
Guidelines on Credit Risk Management

Credit Approval Process and Credit Risk Management 1 Introduction This  
guideline on OCredit Approval Process and Credit Risk ManagementO is the  
third volume of the OGuidelines on Credit Risk ManagementO series, a joint  
publication of the FMA and the OeNB, and aims to fulfill two objectives: First,  
credit institutions need to be informed more comprehensively with regard to  
the preparations for Basel II, and second, the guide aims to provide  
information related to the current surge in the reorganization of these  
processes and the corresponding organizational structures in many credit  
institutions.

In some of these institutions, the current developments create the need for an overview of tried and tested concepts and methods. This is where this guideline comes in: It aims to offer credit institutions a sample checklist in assessing the current organization of their credit approval processes and credit risk management and to provide them with guidelines for the future design of these processes.

Due to the heterogeneous character of the Austrian credit industry, however, all concepts and methods presented here will not have the same relevance for all credit institutions. In order to present a generally accepted best practice catalog, the choice was made not to include an explicit differentiation by transaction or type of credit institution in this guideline. The Austrian credit institutions are invited to judge for themselves which of the concepts and models shown here are relevant for their respective business activities.

This guideline shows the procedures and methods relating to the credit approval process and credit risk management considered Obest practiceO by the FMA and the OeNB. Each credit institution can use it as a pool of information from which it can take a piece suitable for its business activities in order to scrutinize its own lending and credit risk management processes and to discover and exploit potential scope for improvement.

Each credit institution has to decide for itself to what lengths it can afford to go. To this effect, this guideline in particular offers suggestions concerning the implementation of the OFMA Minimum Standards for Credit Business and Other Business with Counterparty RiskO, which will be provided to the credit

industry shortly, but it does not contain mandatory regulations for credit institutions.

The guideline is structured as follows: Chapter 2 shows separate components of the credit approval process and their inherent risks based on the multitude of the individual steps in the process, followed by a look at the methods and processes of credit risk management in chapter 3. Chapter 4 then describes risk assessment and monitoring functions and deals with their integration in bankwide capital allocation within the organizational structures of the banks. Chapter 5 looks at issues of internal auditing, and a list of references — intentionally kept short — helps the reader find further sources.

Finally, we would like to point out the purely descriptive and informational character of the guideline; it cannot and does not contain any statements on regulatory requirements on credit institutions relating to the credit approval process and credit risk management, and the relevant authorities are in no way prejudiced by this guideline. Any references to draft directives are based on texts current at the time of drawing up the guideline and are for informational purposes only. Despite the highest level of diligence exercised in preparing this guideline, the editors do not assume any liability for its content.

Guidelines on Credit Risk Management 7 Credit Approval Process and Credit Risk Management 2 Credit Approval Process 2. 1 Introduction The individual steps in the process and their implementation have a considerable impact on the risks associated with credit approval. Therefore, this chapter presents



these steps and shows examples of the shapes they can take. However, this cannot mean the presentation of a final model credit approval process, as the characteristics which have to be taken into consideration in planning credit approval processes and which usually stem from the heterogeneity of the products concerned are simply too diverse.

That said, it is possible to single out individual process components and show their basic design within a credit approval process optimized in terms of risk and efficiency. Thus, the risk drivers in carrying out a lending and rating process essentially shape the structure of this chapter. First of all, we need to ask what possible sources of error the credit approval process must be designed to avoid. The errors encountered in practice most often can be put down to these two sources: — Substantive errors: These comprise the erroneous assessment of a credit exposure despite comprehensive and transparent presentation. Procedural errors: Procedural errors may take one of two forms: On the one hand, the procedural-structural design of the credit approval process itself may be marked by procedural errors. These errors lead to an incomplete or wrong presentation of the credit exposure. On the other hand, procedural errors can result from an incorrect performance of the credit approval process. These are caused by negligent or intentional misconduct by the persons in charge of executing the credit approval process.

In the various instances describing individual steps in the process, this chapter refers to the fundamental logic of error avoidance by adjusting the risk drivers; in doing so, however, it does not always reiterate the explanation as to what sources of error can be reduced or eliminated

depending on the way in which they are set up. While credit review, for example, aims to create transparency concerning the risk level of a potential exposure (and thus helps avoid substantive errors), the design of the other process components laid down in the internal guidelines is intended to avoid procedural errors in the credit approval process.

Still, both substantive and procedural errors are usually determined by the same risk drivers. Thus, these risk drivers are the starting point to find the optimal design of credit approval processes in terms of risk. Chart 1 shows how banks can apply a variety of measures to minimize their risks. 8

Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management Chart 1 2. 2 Segmentation of Credit Approval Processes In order to assess the credit risk, it is necessary to take a close look at the borrower's economic and legal situation as well as the relevant environment (e. . industry, economic growth). The quality of credit approval processes depends on two factors, i. e. a transparent and comprehensive presentation of the risks when granting the loan on the one hand, and an adequate assessment of these risks on the other. Furthermore, the level of efficiency of the credit approval processes is an important rating element. Due to the considerable differences in the nature of various borrowers (e. g. private persons, listed companies, sovereigns, etc. ) and the assets to be financed (e. g. residential real estate, production plants, machinery, etc. as well the large number of products and their complexity, there cannot be a uniform process to assess credit risks. Therefore, it is necessary to differentiate, and this section describes the essential criteria which have to be taken into account in defining this differentiation in terms of risk and efficiency. 2. 2. 1

Basic Situation The vast majority of credit institutions serve a number of different customer segments. This segmentation is mostly used to differentiate the services offered and to individualize the respective marketing efforts.

As a result, this segmentation is based on customer demands in most cases. Based on its policy, a bank tries to meet the demands of its customers in terms of accessibility and availability, product range and expertise, as well as personal customer service. In practice, linking sales with the risk analysis units is not an issue in many cases at first. The sales organization often determines the process design in the risk analysis units. Thus, the existing variety of segments on the sales side is often

Guidelines on Credit Risk Management 9 Credit Approval Process and Credit Risk Management reflected in the structure and process design<sup>1</sup> of the credit analysis units. While classifications in terms of customer segments are, for example, complemented by product-specific segments, there appears to be no uniform model. Given the different sizes of the banks, the lack of volume<sup>2</sup> of comparable claims in small banks renders such a model inadequate also for reasons of complexity, efficiency, and customer orientation.

Irrespective of a bank's size, however, it is essential to ensure a transparent and comprehensive presentation as well as an objective and subjective assessment of the risks involved in lending in all cases. Therefore, the criteria that have to be taken into account in presenting and assessing credit risks determine the design of the credit approval processes. If the respective criteria result in different forms of segmentation for sales and analysis, this

will cause friction when credit exposures are passed on from sales to processing.

A risk analysis or credit approval processing unit assigned to a specific sales segment may not be able to handle all products offered in that sales segment properly in terms of risk (e. g. processing residential real estate finance in the risk analysis unit dealing with corporate clients). Such a situation can be prevented by making the interface between sales and processing more flexible, with internal guidelines dealing with the problems mentioned here. Making this interface more flexible to ease potential tension can make sense in terms of risk as well as efficiency.

#### 2. 2. 2 Accounting for Risk Aspects

The quality of the credit approval process from a risk perspective is determined by the best possible identification and evaluation of the credit risk resulting from a possible exposure. The credit risk can be distributed among four risk components which have found their way into the new Basel Capital Accord (in the following referred to as Basel II).

3 a. Probability of default (PD) b. Loss given default (LGD) c. Exposure at default (EAD) d. Maturity (M)

The most important components in credit approval processes are PD, LGD, and EAD. While maturity (M) is required to calculate the required capital, it plays a minor role in exposure review. The significance of PD, LGD, and EAD is described in more detail below.

2. 2. 2. 1 Probability of Default Reviewing a borrower's probability of default is basically done by evaluating the

borrower's current and future ability to fulfill its interest and principal

repay<sup>1 2 3 4</sup> The structural design is covered in chapter 4 of this guide.

Number of credit applications to be handled. The European Commission

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adopts a major part of the recommendations of the Basel Committee on Banking Supervision and will present a draft directive to this effect.

The resulting EU Directive on Capital Adequacy has to be incorporated into national law by all EU member countries and will thus become legally binding on all credit institutions operating in the EU. In connection with Basel II, this guide will thus frequently refer to this EU draft Directive (Review of capital requirements for banks and investment firms; Commission services third consultation paper; Working document; 1 July 2003), in the following referred to as EU draft Directive.

The planned term of the exposure has to be taken into account in the credit decision. As it is not subject to a separate review, however, it is not dealt with explicitly within this chapter. 10 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management ment obligations. This evaluation has to take into account various characteristics of the borrower (natural or legal person), which should lead to a differentiation of the credit approval processes in accordance with the borrowers served by the bank.

Furthermore, it has to be taken into account that — for certain finance transactions — interest and principal repayments should be financed exclusively from the cash flow of the object to be financed without the possibility for recourse to further assets of the borrower. In this case, the credit review must address the viability of the underlying business model, which means that the source of the cash flows required to meet interest and principal repayment obligations has to be included in the review. 2. 2. 2. 2

Loss Given Default

The loss given default is affected by the collateralized portion as well as the cost of selling the collateral. Therefore, the calculated value and type of collateral also have to be taken into account in designing the credit approval processes.

2. 2. 2. 3 Exposure at Default (EAD) In the vast majority of the cases described here, the exposure at default corresponds to the amount owed to the bank. 5 Thus, besides the type of claim, the amount of the claim is another important element in the credit approval process. Thus, four factors should be taken into account in the segmentation of credit approval processes: 1. type of borrower 2. source of cash flows 3. value and type of collateral 4. amount and type of claim

2. 2. 3 Approaches to the Segmentation of Credit Approval Processes The following subsections present possible segmentations to include the four factors mentioned above in structuring the credit approval process. The lending business in which banks engage is highly heterogeneous in terms of volume and complexity; this makes it impossible to define an optimal model, and therefore we will not show a model segmentation.

After the description of possible segmentations, two principles are dealt with that have to be included in the differentiation of the credit approval processes along the four risk components to ensure an efficient structure of the credit approval processes. — distinction between standard and individual processes in the various segments; — taking into account asset classes under Basel II

2. 2. 3. 1 Type of Borrower In general, type of borrower is used as the highest layer in credit approval processes.

This is due to the higher priority of reviewing legal and economic conditions within the substantive credit review process. The way in which the eco5 The

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special cases that may occur, for example, in connection with off-balance sheet bank transactions will not be discussed in this chapter. Guidelines on Credit Risk Management 11 Credit Approval Process and Credit Risk Management

economic situation is assessed greatly depends on the available data. The following segments can be distinguished: — sovereigns — other public authorities (e. g. regional governments, local authorities) — financial services providers (incl. credit institutions) — corporates — retail

Usually, at least the segments of corporate and retail customers are differentiated further (e. g. by product category).

2. 2. 3. 2 Source of Cash Flows

The distinction of so-called specialized lending from other forms of corporate finance is based on the fact that the primary, if not the only source of reducing the exposure is the income from the asset being financed, and not so much the unrelated solvency of the company behind it, which operates on a broader basis.

Therefore, the credit review has to focus on the asset to be financed and the expected cash flow. In order to account for this situation, the segmentation of the credit approval processes should distinguish between — credits to corporations, partnerships, or sole proprietors; and — specialized lending

Credit institutions have to distinguish between the following forms of specialized lending in the calculation of regulatory capital.

6 1. project finance 2. object finance 3. commodities finance 4. finance of income-producing commercial real estate

This subdivision of Basel II primarily serves to determine the required capital correctly, but it can also prove useful from a procedural point of view. This chapter does not separately address the specific design of credit approval processes in specialized lending

transactions. The general procedural provisions that should be heeded to minimize the risk also apply to the forms of finance collectively referred to as Specialized lending. 2. 2. 3. 3 Value and Type of Collateral Value and type of collateral have a significant impact on the risk involved in lending.

Of particular relevance in this context are those types of collateral which afford the lender a claim in rem on the collateral, 7 and those product constructions under which the lender has legal and economic ownership of the asset to be financed. Two forms of finance are particularly relevant in practice: — mortgage finance and — leasing finance Mortgage finance and leasing are those forms of finance which often give the lender a substantial degree of control over the asset being financed. The strong legal position resulting from such collateral may warrant special treat<sup>6</sup> The HVCRE (high volatility commercial real estate) which can still be found in the EU draft Directive is no longer considered relevant at the time of printing the guide. Other forms of collateral (e. g. guarantees) also represent considerable collateralization. Still, the type of collateral is less important than the type of borrower, so that in practice no segmentation is made in terms of type of collateral. 12 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management ment of the relevant forms of finance. Please refer to 2. 4. 2. for a description of the types of collateral usually accepted by banks and the valuation of such collateral. 2. 2. 3. 4 Level of Exposure The level of exposure has an immediate impact on the exposure at default (EAD). Therefore, any increase in the level of exposure should trigger a more detailed credit review of the respective borrower. This aspect and the risk minimization that can be achieved by standardization and automation are



the rationale behind the separation of low-volume and high-volume lending business that can often be found in the way in which credit approval processes are designed.

In practice, the ensuing sub-segmentation within the claims segments is now commonly referred to as standard process and individual process. 2. 2. 3. 5 Standard and Individual Processes The distinction between standard and individual processes does not create a separate segment. It is rather a common process differentiation within claims segments which are defined in accordance with the criteria described above. In the vast majority of cases, the level of engagement is the decisive element in the differentiation between standard and individual processes.

In addition to the level of exposure, it is possible to describe some general differentiating criteria that characterize the process type in question. Generally speaking, the objective of establishing standard processes is more efficient process execution. As most segments show concentrations of certain product specifications, it is possible to develop processes that specifically address these characteristics. Standard processes are characterized by the fact that they are only intended and suitable for handling certain credit products with limited features and options.

Chart 2 (page 14) shows some commonly found characteristics of the two process types. 8 Limiting the process to certain products and maximum exposure volumes allows for simplifications and automations within the process (in particular with regard to credit decisions by vote<sup>9</sup> and highly automated credit decisions). Individual processes are characterized by an

adaptive design which makes it possible to deal with a variety of products, collateral, and conditions.

Typically, this will be required especially for high-volume corporate customer business, as both the borrowers' characteristics to be taken into account in the credit review and the specifics of the products wanted are very heterogeneous. The higher risk involved with loans examined in an individual process should be addressed by using a double vote (one vote by the front office, and one vote by the back office).<sup>8 9</sup> This list does not claim to be exhaustive. Also, it is possible to find a number of processes in practice that are referred to as standard and individual processes but do not show all of the characteristics described in chart 2.

The chart only intends to illustrate the rationale behind the differentiation. Also see section 2. 5. 2. Guidelines on Credit Risk Management<sup>13</sup> Credit Approval Process and Credit Risk Management Chart 2 2. 2. 3. 6 Asset Classes under Basel II As already mentioned above, the new Basel Capital Accord — in its incorporation into European and thus Austrian law — presents mandatory rules for the regulatory capital requirements of claims under any and all banking book transactions<sup>10</sup> of credit institutions and investment firms. Basel II provides two approaches to determine the capital requirement: 1. standardized approach and 2. an internal ratings-based approach (IRB approach) The IRB approach<sup>11</sup> allows a more risk-sensitive calculation (based on the bank's internal estimates) of the capital required to cover the risks associated with claims than was or will be possible under Basel I and the newly modified standardized approach. The goal is to use the capital required from an economic point of view as the yardstick for the

regulatory capital requirement. However, this will only happen if the banks measure the risks in accordance with the regulatory criteria.

The IRB approach distinguishes 7 asset classes: 1. sovereign exposures 2. bank exposures 3. corporate exposures 4. retail exposures 5. equity exposures 6. securitization 7. fixed assets 10 11 The new Basel Capital Accord also contains rules for trading book transactions, but these are not specifically addressed in this guide. The further division within the IRB approach into the basic and advanced measurement approaches will not be dealt with further here. 14 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management

If banks decide to apply the IRB approach in calculating the capital requirements, these asset classes and the respective sub-segments of corporate and retail exposures have to be accounted for in the segmentation process. Thus, it would make sense to harmonize and match the segmentation and the asset classes mentioned above to allow an efficient design of credit approval processes. In most cases, it will be necessary to refine the segmentation further to address a bank's business orientation. Under Basel II, 12 type of borrower is the only criterion at first (asset classes 1–3), but this changes for retail exposures (asset class 4).

Claims on individuals belong to the retail portfolio. Besides loans to individuals, the retail portfolio can also contain credits to SMEs provided the total exposure of the bank, or more specifically of the credit institution group, vis-a-vis each of these enterprises is less than one million euro. Furthermore, such SMEs must not be treated in the same way as large

enterprises within the bank's internal credit (risk) processes. The allocation to the retail asset class is effected by means of the processes most appropriate in terms of business and from a risk perspective.

Finally, retail exposures must also show a sufficient granularity. This means that an individual exposure needs to be part of a large number of exposures which are managed by the bank in the same way. This differentiation of the retail segment from the other asset classes is highly significant, as Basel II allows a so-called pooling approach in meeting the capital requirements for retail exposures. Under this approach, deriving the risk parameters<sup>13</sup> is not based on an individual exposure, but on a pool of homogenous exposures.

Simplified credit rating processes may be used (only) in this segment. 14 2.

2. 4 Object of Review and Exposure Management Credit approval processes are started on behalf of a credit applicant. Especially in the context of lending to corporate customers, it is often necessary to include several (natural or legal) persons in the credit rating process. This will be required if these (natural and legal) persons are to be considered one economic unit and would thus probably have a mutual impact on each other's credit standing.

In practice, granting an individual loan often involves a large number of (natural and legal) persons. This has to be borne in mind throughout the entire credit approval process, but particularly in the course of the credit review. Credit approval for groups of companies should be designed in a manner which is specific to the risk involved and efficient and should aim to focus the review on the actual risk-bearer, that (natural or legal) person

whose legal and economic situation ultimately determines the ability to fulfill the obligations under the credit agreement.

In any case, Basel II requires the assessment of the borrower's credit standing. This refers to the IRB approach, but the standardized approach also shows this dichotomy of segmenting the asset classes by borrower as well as by other characteristics of the exposure. See section 2.2. The various data requirements and credit rating processes are shown in the ORating Models and Validation guideline. See Annex D-5, 2.1 EU draft Directive. Guidelines on Credit Risk Management 15 Credit Approval Process and Credit Risk Management

Especially in complex and far-reaching company networks, the link to the respective credit institution may often go beyond pure sales contacts (e. g. a foreign holding company and a domestic subsidiary). In practice, this often results in vague guidelines in terms of exposure management within credit approval processes. From a risk perspective, the overall risk of the risk-bearer should always be aggregated over the bank as a whole and then presented to the decision makers; the internal guidelines should contain provisions which clearly define the risk-bearer.

This classification is usually based on loss-sharing arrangements or legal interdependences. Also, it should be stipulated whether aggregation should be effected by one person in charge (at group level) in processing or risk analysis, or in a decentralized fashion by each unit itself. 2.2.5 Overview of the Credit Approval Process The order of the following subsections reflects

the sequence of steps in the credit approval process, with the credit approval process for new customers serving as the general framework.

Credit approval processes for existing customers will be addressed explicitly if they contain process steps that are not found in the credit approval process for new customers at least in a similar form. Chart 3 summarizes the individual process steps: 16 Chart 3 This chapter shows a structured presentation of the criteria which should form the basis for the design of credit approval processes. The definition of exposure segments is an important prerequisite to handle credit approval processes in a manner which is specific to the risk involved and efficient.

Many of the risk mitigation measures described here can only take full effect if they account for the specific characteristics of the credit applicants.

Therefore, the segmentation of the credit approval processes is a central component of risk mitigation. While the risk mitigation measures should be designed in accordance with the 16 As has already been mentioned, credit approval processes differ in the segments defined for each case. This presentation should therefore not be considered to be of general validity, with several process steps possibly occurring at the same time. 6 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management specifics of each segment, there is a uniform basic structure of these measures which are discussed in the following subchapters. A presentation of the specific design of these measures would only be possible with reference to a detailed definition of the individual segments. Such a definition is impossible due to the great heterogeneity among the banks

addressed by this guideline to begin with and can thus only be established for each bank separately.

Thus, the following subchapters will primarily discuss the basic structure of the risk mitigation measures and the way in which they work. At some points, the distinction between standard and individual processes is pointed out as this distinction is a central element in the design of credit approval processes nowadays. In case differences in the process design are considered essential for the effectiveness of the risk mitigation measures, this design will be described in more detail.

### 2. 2. 6 Integration of Sales and IT in the Process Design

An early integration of sales and IT is an essential prerequisite for the success of a reorientation of the credit approval process. In order to facilitate their implementation, changes in processes have to be reflected in the bank's IT structure. The extensive planning and alignment effort involved in IT projects (in particular the coordination of the IT interfaces to all organizational units that use data from the credit approval processes) makes it necessary to check at an early stage whether the project is feasible and can be financed. This depiction of the credit approval processes is highly relevant not only for risk analysis and processing, but has a particular significance for sales. Changes in processes, in particular the introduction of mostly automated credit decisions, entail a considerable change in the user interface in sales applications. Therefore, the success of the implementation is highly dependent on the extent to which employees accept such changes.

### 2. 3 Process Steps Leading up to the Credit Review

The execution of the credit review is based on external and internal data on the credit applicant.

Especially for extensive exposures, considerable resources may be tied up in the process of collecting the data, checking the data for completeness and plausibility, and passing on the data to people in charge of handling, analyzing, and processing the exposure within the bank. These steps can also lead to a large number of procedural errors. As the data included form the basis for the credit review, errors in collecting, aggregating, and passing them on are especially relevant also from a risk perspective. The subchapter thus focuses on measures to avoid such procedural errors.

### 2. 3. 1 Data Collection

The assessment of a credit applicant's credit standing is based on different data sources and data types in accordance with the type of borrower. In any case, a bank must always be interested in having comprehensive and current data on the economic and personal situation of the borrower. In order to ensure consistent customer service, the respective account manager will typically coordinate the gathering of information. The credit review incorporates not only economic data but also qualitative information concerning the borrower. The account manager should thus include a complete and critical

Guidelines on Credit Risk Management 17 Credit Approval Process and Credit Risk Management picture of the borrower. In order to ensure that all the information gathered by the account manager is passed on to the person in charge of the credit review, it would be advisable to prepare standardized and structured reports on customer visits. In practice, this has proven effective in directing conversations with customers as desired (function as



conversation guide). This procedure ensures that information is gathered in its entirety and in an efficient manner.

The layout of the visit reports should be specified for each segment and should be included in the internal guidelines. To make sure that the data collected is complete, mandatory lists showing what data are required should be used. These lists then have to be adapted to the requirements of the credit review process conforming to the type of borrower in each case. In addition to individual borrower data, many cases will require general information on the economic situation of a region or an industry to allow a comprehensive assessment of credit application; here, the bank can make use of external sources.

If a bank's credit portfolio shows a focus on certain industries or regions, banks are advised to conduct their own analyses of the economic situation in these fields — this is particularly true if the available external information lacks the necessary detail and/or currency. With regard to the credit review, it is particularly important to constantly update customer data, 17 and the bank should include according procedures and timeframes in its internal guidelines. In terms of individual processes, it should be ensured that periods should be compared at regular intervals in assessing the exposure.

Therefore, the relevant data should be available for at least the previous two, but preferably the last three years. 2. 3. 2 Plausibility Check and Preliminary Review Before a credit exposure is subjected to a comprehensive credit review, the employee initially in charge should conduct a plausibility check and preliminary review. This check should look at the completeness

and consistency of the documents filed by the borrower to minimize any process loops and the need for further inquiries with the customer. In addition, sales should carry out an initial substantive check based on a select few relevant criteria.

The objectives include the creation of awareness and active assumption of responsibility for credit risk on the part of the sales department. The preliminary check is especially significant in segments with high rejection rates, as a comprehensive credit review ties up considerable resources in these segments. The preliminary check should prevent exposures which will most likely be rejected from tying up capacities in risk analysis. The resulting reduction in number of cases dealt with by risk analysis allows a more detailed scrutiny of promising exposures and is thus desirable in terms of risk as well as efficiency. 7 The EU draft Directive on Basel II also requires IRB banks to maintain current data. 18 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management E x c u r s u s : D e s i g n o f t h e P r e l i m i n a r y C h e c k In practice, the distinction between two types of check criteria has proven successful: — Ored criteriaO, which, if fulfilled, lead to an outright rejection of the exposure (also referred to as knock-out criteria) — Oyellow criteriaO, which, if fulfilled, require the sales staff to present a plausible and well documented justification of the respective situation.

If this justification cannot be made, the exposure also has to be rejected. In terms of efficiency, it may be necessary in certain customer segments not to consider an exposure any further if two or more Oyellow criteriaO are fulfilled at the same time. These criteria should be laid down in a clear and

unambiguous manner in the internal guidelines. Chart 4 shows a sample list of possible criteria. Chart 4 2. 3. 3 Passing on Data Making sure that information is passed on in its entirety is relevant from a risk perspective and concerns those processes in which the credit approval process is not concluded by the account manager himself.

If the internal guidelines provide for a transfer of responsibility, or if the credit review is conducted by two or more people, it is necessary to ensure that the complete set of relevant documents is handed over. It would be advisable to prepare handover reports for this purpose. Handover reports should fully reflect changes in responsibility in the course of the credit approval process as well as any interface occurring in the process. In practice, a modular structure has proven particularly effective for such forms.

If possible, they should be kept electronically<sup>18</sup> or, alternatively, as the first page of the respective credit folder. <sup>18</sup> Also see section 2. 5. 3. Guidelines on Credit Risk Management <sup>19</sup> Credit Approval Process and Credit Risk Management The sales employee has to use the module (table or text module) provided for handing over the exposure to the respective process. This contains, among other things, an enumeration of the documents required for the respective risk analysis segment (Completeness checklist).

On the one hand, this ensures a smooth transfer of the documents, and on the other, it prevents incomplete files from being handed over to risk analysis. In addition, further modules, e. g. notes taken during customer

appointments, should be included in the handover reports. Furthermore, appropriate modules should be included for all other interfaces between sales and risk analysis, or between different persons in processing. To facilitate a consistent application of the handover reports, it would be advisable to prepare detailed interface plans, which should, in particular, show the interfaces between sales and risk analysis.

The internal guidelines have to stipulate the responsibilities along the interface plans in detail, which should ensure a consistent application and minimize the procedural risks resulting from the change in responsibility (e. g. loss of documents). Furthermore, this list serves to clearly assign specific responsibilities. This can help avoid errors in the credit approval process that could result from unclear responsibilities (e. g. failure to carry out a required process step). Chart 5 shows a sample interface plan. Chart 5 . 4 Exposure Assessment: Credit Review and Valuation of Collateral Exposure assessment involves the credit review and a valuation of the collateral based on the data provided by the credit applicant. These steps aim at making the risks resulting from the exposure transparent and allowing a final assessment of the exposure. 20 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management The credit review basically consists of two process components: 1. Standardized models of data evaluation 2.

Documentation and evaluation of other credit assessment factors Credit reviews are increasingly marked by standardized procedures. These procedures support and sometimes even replace the subjective decision making process in assessing credit standing. In practice, we can also find credit review processes that are completely based on standardized and

automated models and thus do not provide for any manual documentation and assessment of other credit assessment factors beyond that. After establishing and assessing the risk involved in lending, the collateral offered by the applicant is examined and evaluated.

The collateralized portion does not affect the applicant's probability of default<sup>19</sup>; and its impact on assessing the exposure thus has to be dealt with independently of the credit review.

#### 2. 4. 1 Standardized Models of Data Evaluation (Rating Models)

Today, we have many different models for the standardized evaluation of credit assessment data. These models can basically be divided into heuristic models, empirical statistical models, and causal models. <sup>20</sup> In addition, hybrid models are used in practice that are based on two or three of the models mentioned.

Heuristic models attempt to take experiences and use them as a basis to methodically gain new insights. These experiences can stem from — conjectured business interrelationships, — subjective practical experiences and observations, — business theories related to specific aspects. In terms of credit review, this means that experience from the lending business is used to try to predict a borrower's future credit standing. Heuristic models thus depend on the fact that the subjective experiences of the credit experts are reflected appropriately.

Thus, not only the credit assessment factors are determined heuristically, but also their impact and their weighting with reference to the final decision are based on subjective experiences. Empirical statistical models, by contrast, try to assess a borrower's credit standing on the basis of

objectifying processes. For this purpose, certain credit review criteria of the exposure under review are compared to the existing database which was established empirically. This comparison makes it possible to classify the credit exposure.

The goodness of fit of an empirical statistical model depends to a great extent on the quality of the database used in developing the system. First, the database must be sufficiently large to allow significant findings. In addition, it must be ensured that the data used also represent the credit institution's future business adequately. Causal models derive direct analytical links to creditworthiness on the basis of finance theory. They do not use statistical methods to test hypotheses on an empirical basis. Hybrid models try to combine the advantages of several systems.

Empirical statistical models are used only for those assessment factors for which a database exists which is sufficient in terms of quality. The other credit assessment factors<sup>19 20</sup> With the exception of personal collateral such as guarantees. For a detailed description, please refer to the guide on ORating Models and Validation<sup>21</sup> Guidelines on Credit Risk Management<sup>21</sup> Credit Approval Process and Credit Risk Management which have to be included in the model are assessed by means of heuristic systems, while causal analysis models are typically not used.

The following subsections deal with the integration of these models in credit decision processes. The basic distinction made here is whether further steps are carried out in addition to the standardized data evaluation to assess the credit standing (individual decision), or whether the standardized data

evaluation essentially forms the basis for a credit decision (mostly automated decision). 2. 4. 2 Individual Decision In an individual decision, the standardized data evaluation is complemented by further process steps to assess the credit standing. After the credit review, the collateral is evaluated.

An integrated look at the detailed results leads to an individual credit decision which is not directly contingent on the results of the individual process components. Chart 6 summarizes the process components. Chart 6 2. 4. 2. 1 Standardized Credit Review (Rating) A typical rating process consists of two components: 1. financial rating (or quantitative rating) 2. qualitative rating Financial rating comprises an analysis of the financial data available for the credit applicant. The analysis of annual financial statements (backward-looking approach) has a central position in this context.

Increasingly, however, the analysis of business planning (forward-looking approach) is being employed in the credit review process. Usually, automated programs are used to calculate indicators from the annual financial statements or the business plan. In most cases, the financial rating is carried out by credit analysts that are not related to sales in terms of organizational structure. The degree of specialization 22 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management of these employees depends on the volume and the complexity of each bankOs business activities.

In the conventional corporate customer business<sup>21</sup> most elements of the financial rating are carried out by specialized employees. There may be

additional specialized units that furnish those employees which are primarily responsible with certain analyses (modular system). In many banks, for example, it is possible to find units specializing in the analysis of foreign companies or real estate finance. Setting up a separate unit should be considered whenever the analysis requires the development of special know-how and the number of the analyses to be handled renders a complete specialization of employees feasible in terms of efficiency.

If analyses that were drawn up by employees other than those primarily responsible for the credit approval process, it is essential to make sure that the administrative process involved is as efficient as possible. There should be a general guideline stipulating that the analysis is confirmed by the person in charge of the organizational unit supplying the module for the credit analysis when this module is handed over to the credit officer managing the exposure.

The common practice of having the people in charge of every single organizational unit involved in the credit approval process also confirm the completed credit application is rejected as inefficient and does not seem necessary in terms of risk, either. In contrast to financial rating, which requires specific technical know-how, qualitative rating requires comprehensive knowledge of the borrower to be successful. In the course of the rating, the qualitative factors are also evaluated in a standardized fashion by means of one of the models described above. Accordingly, this is typically done by the sales employee.



As qualitative rating may be interested in characteristics that go beyond the borrower in question itself (e. g. product positioning within the competitive environment), it is possible to provide for the integration of additional organizational units within the bank. This could, for example, be units specializing in the evaluation of product markets. What was said above also applies to the inclusion of these modules. Using a weighting function, financial and qualitative ratings are combined, with the result usually referred to as base rating. In addition to the process components discussed so far, it is possible to include further information in the credit rating process. In particular, this comprises a bank's internal information on the respective applicant's conduct in the past (e. g. overdrafts) as well as additional information concerning the industry in which the company operates. In practice, the result is often referred to as company rating. If companies are affiliated, it is necessary to look at possible loss-sharing arrangements in the rating process. The inclusion of loss-sharing arrangements makes it possible to determine the risk-bearing entities.

The inclusion of a loss-sharing arrangement can affect the assessment of the probability of default of the company on which the rating is based positively and negatively. <sup>21</sup> This includes any corporate customer transaction with the exception of specialized lending. For specialized lending constructions, it is common to employ units adjusted to the various forms of these constructions. It is not possible to take a closer look at these processes in this chapter, but usually these processes involve a close cooperation of sales and processing employees within a team solution. Guidelines on Credit Risk Management 3 Credit Approval Process and Credit Risk Management —

Positive effect: assumption of support for the company in case of a crisis —  
Negative effect: spillover of a crisis to the company

The inclusion of loss-sharing arrangements should be done in accordance with the relevant members of the sales and credit analysis departments. 22 This typically marks the end of the rating process. The final result is also referred to as borrower rating. The final borrower rating should be awarded and confirmed together by the sales and risk analysis employees primarily in charge of the exposure. 3 The employees should carry out mutual plausibility checks. In addition, external ratings should also be used in the plausibility check. If it is not possible to come to an agreement, the managers in charge look at the exposure, but the final decision should not be left in the hands of the front office. The need for a formal arrangement is underscored by the significance which will be attributed to the rating under the IRB approach in the future. 24 Chart 7 illustrates the process components of a typical rating process.

#### Chart 7 2. 4. 2. 2 Overriding Rating Results

The internal guidelines should contain rules governing the circumstances under which it is permissible to interfere manually in the standardized credit rating models. 25 This might, for example, be necessary in the course of a financial rating if a meaningful ratio analysis is precluded due to a special structure of the enterprise to be examined. Any changes made must be subject to strict documentation requirements to ensure complete transparency of the process. The 22 23 24 25 Also see section 2. 2. 4. See Annex D-5, 2. 2 EU draft Directive. Needed to calculate the probability of default (PD) under Basel II.

This is also in line with the requirements of Basel II. 24 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management authority to do so must be stipulated in the decision-making structure.

Furthermore, the number of overrides represents an indicator of the reliability of the credit rating processes. Therefore, the documentation is also required for validation purposes. 2. 4. 2. 3 Documentation of Other Credit Assessment Factors In addition to the factors evaluated by means of the standardized credit rating process, the employees handling the exposure could include further data/factors in the credit review. 6 The need to offer at least the option to add a description and evaluation of the exposure results from the fact that the standardization of the credit rating process makes it necessary to limit the extent to which all existing credit assessment factors are presented. Ideally, the processes should adequately reflect all factors necessary to assess the credit standing, and the need for a separate description should arise only as an exception. The description and assessment of these factors should be carried out in accordance with clear rules in the internal guidelines.

In practice, the credit applications show fields that help document these factors. Five categories are usually distinguished: 1. legal situation 2. market situation 3. economic situation 4. project evaluation 5. debt service capacity The documentation of the factors to be considered in these categories should contain clear and unambiguous statements describing their potential impact on credit standing. The design of the forms should already be apt to prevent or reduce longwinded descriptions of the factors and unclear assessments with regard to the impact on credit standing.

This can be achieved by using standardized text modules and limited field sizes. 2. 4. 2. 4 Valuation of Collateral The valuation of the collateral provided by the credit applicant is an essential element in the credit approval process and thus has an impact on the overall assessment of the credit risk involved in a possible exposure. The main feature of a collateralized credit is not only the borrower's personal credit standing, which basically determines the probability of default (PD), but the collateral which the lender can realize in case the customer defaults and which thus determines the bank's loss.

Via the risk component of loss given default (LGD) and other requirements concerning credit risk mitigation techniques, the value of the collateral is included in calculating the capital requirement under Basel II. In order to calculate the risk parameters under Basel II correctly, it is important for the valuation of the collateral to be effected completely independently of the calculation of the borrower's PD in the credit rating process. 27 This 26 27 Several criteria that are already evaluated in the course of the rating process may sometimes require further clarification in the credit file. This makes it possible or easier to understand individual decisions in the course of the rating process. The specialized lending segment does not allow a clear distinction. One example would be commercial real estate, where a strong positive correlation exists between repayment of the facility and the realization proceeds in the case of default, as both elements primarily depend on the cash flows generated by the financed property. Guidelines on Credit Risk Management 25

Credit Approval Process and Credit Risk Management should ensure that the probability of default and the loss given default are shown separately in order to meet the Basel requirements of splitting up the review into a customer rating which reflects only the PD on the one hand, and a transaction valuation which also contains a valuation of the collateral to support the credit decision on the other. Collateral is generally divided into personal and physical collateral. In the case of personal collateral, the provider is basically liable with his entire fortune.

Examples of personal collateral are the following: a. suretyship b. guarantee and letter of support c. collateral promise In the case of physical collateral, the bank receives a specific security interest in certain assets of the borrower or the collateral provider. Examples of physical collateral are the following: a. mortgage b. pledge of movable assets (on securities, goods, bills of exchange) c. security assignment d. retention of title The internal guidelines (collateral catalog) should lay down the type of collateral which each bank generally accepts. Banks should take a close look at that collateral whose value is subject to particularly strong fluctuations and/ or whose realization is longwinded or often cumbersome. Liens, for example, usually pose relatively few problems for their holders and provide them with a rather strong creditor position, as the related value of the collateral given is generally easier to assess/value than the personal liability fund of a guarantor. The collateral catalog has to include appropriate instructions on assessing the collateral potentially accepted by the bank as well as determining its collateral value.

A description of the processes and principles in determining the collateral value for each type of collateral will primarily have to be drawn up in accordance with the business orientation of each bank and the complexity of the approved collateral. General principles governing the valuation of collateral such as accounting for sustainable value or valuing the collateral based on the liquidation principle should be included in the determination of collateral value; similarly, it should also include general risk deductions (haircuts) as well as deductions for procedural cost (e. . long time required to sell the collateral). This allows a more accurate estimate of the potential realization proceeds. What all forms of collateral have in common, though, is that while the application of credit risk mitigation techniques reduces credit risks, it also creates new risks for the bank. 29 In particular, it will be up to each bank's capabilities to identify and measure the risk involved with a collateral in order to derive an objective assessment of the total risk inherent to a secured exposure.

Among other measures, Basel II takes this into account by stipulating special requirements concerning the way in which collateral arrangements can be enforced and realized. Furthermore, the new Capital Accord requires the use of sound procedures and processes to control and monitor these risks. This should be 28 29 In addition, this could be specified for each segment to increase efficiency. For example legal and operational risks, market price risks, concentration risks, etc. 26 Guidelines on Credit Risk Management Credit Approval Process and Credit Risk Management achieved by establishing collateral management in line with business volume which uses computer-aided processes (collateral database, valuation). What still has to be noted is

that, as a rule, the valuation of collateral should be carried out by specialized employees and possibly in separate organizational units which do not belong to the front office, or by external providers (e. g. real estate appraisers). 30

2. 4. 2. 5 Exposure Assessment After reviewing borrower rating, other credit assessment factors, and the collateral, it is possible to assess the borrower's creditworthiness with regard to the proposed exposure.

The final assessment of the exposure risk can only be made (especially in the corporate customer business) after a comprehensive evaluation of all sub-processes of credit review. The results of the valuation of the collateral will also be included in this assessment which has to be made by the employees handling the exposure. The credit form should thus provide appropriate fields. Here, it is important to make sure that the internal guidelines contain clear rules on the level of detail and the form in which the explanation has