

August 2006

Study Group on the Advancement of Credit Risk Management

Discussions on Advancing Credit Risk Management through Internal Rating Systems (2)—Summary of Discussions at the “Study Group on the Advancement of Credit Risk Management”

I. Introduction

The “Study Group on the Advancement of Credit Risk Management” (organized and inaugurated last October by the Center for Advanced Financial Technology, the Bank of Japan; see the attachment for a list of members), consisting of experienced practitioners of credit risk management, published a summary of discussions from the last five sessions in April this year.¹ The Study Group discussed the issues of advancing credit risk management through internal rating systems and possible responses to the raised issues. This paper summarizes the discussions from the sixth to the eighth (final) session as a sequel to the previous publication.

This paper does not intend to draw conclusions for each of the issues discussed. It simply aims to present issues and discussions concerning the advancement of credit risk management. Opinions are those of the members and not necessarily those of the organization to which the member belongs.

¹ The summary of “Discussions on Advancing Credit Risk Management through Internal Rating Systems (1)” is now available on the website of the Bank of Japan:

Japanese version: http://www.boj.or.jp/type/release/zuiji_new/fsc0604a.pdf

English version: http://www.boj.or.jp/en/type/release/zuiji_new/fsc0605b.pdf

II. Discussions at the Sixth Session (Held on March 9, 2006)

A. Issues relating to the estimation of risk factors in retail credits

1. Potential Issues

As specified in greater detail below, the issues that are characteristic of retail portfolios that may cause problems with the estimation of risk factors include: (i) an absence of industry standards for the number of pool categories and a standard definition of default, (ii) inadequate data accumulation, and (iii) dependence of risk management on outsourcing to an affiliate company or a business partner.

The number of pool categories/definition of default

If there is no industry consensus on the number of pool categories among financial institutions (a precondition of risk factor estimation for retail credits), then the estimates of risk factors and the resulting capital requirement may vary even if a similar credit portfolio or credit risk model is selected.

Likewise, differences in the definition of default (for example, the past due trigger may range from 90 to 180 days. Also, there may be a disparity in views regarding the transition from default to nondefault status) may generate different estimates of risk factors and subsequently different capital requirements, even with respect to similar credit portfolios.

Data accumulation

When the available data is not sufficient for pool classification, it may be difficult to identify sufficient risk factors or to make objective judgments. In this case, as data accumulates, the pool classification may be found to be inappropriate.

Moreover, it is not always easy to understand the sensitivity to economic conditions and the seasoning effect of the retail portfolios because of a lack of time series of data. The way these factors are treated may create divergences in risk quantification outcomes among financial institutions.

Risk management by an affiliate company or business partner

In the credit card business, consumer loan business, and other retail businesses, an affiliate company or a business partner sometimes undertakes the task of data accumulation or risk management. In such cases, financial institutions may not have access to sufficient information from business partners, partly because of industry practice regarding the disclosure of retail information. The lack of access to information poses a serious challenge to the estimation of risk factors and their validation. A similar problem may occur in the housing loan business too, if risk management is consigned to an external guarantee company.

2. Participants' Views

With regard to the estimation of risk factors for retail portfolios, the following issues should be considered when developing effective solutions:

The number of pool categories/definition of default

For setting up pool categories of retail portfolios, it is necessary to take the accuracy of estimated risk factors and the size of the data sample into account in accordance with different product attributes.

The definition of default must at least be consistent within a group of products with similar characteristics. In addition, if a different definition is used within a retail credit portfolio, it is preferable to be accountable for the choice of the different definition.

Data accumulation

If the risk factor values associated with the existing pool classification are found to be unstable during data accumulation, it is necessary to review the classification of the pool categories at that point. If it is difficult to change the classification, it is advisable to use conservative values for the risk factors considering the instability in their values.

In estimating the risk factors, it is important to capture the dynamics of their behavior from a long time series data. Even if long time series data is not available, the impact and the seasoning effect of economic fluctuations should be considered using models and scenario analysis.

Risk management by an affiliate company or business partner

Even if the majority of risk management is outsourced to an affiliate company or a business partner, it is desirable to have access to the same information as the affiliate company. If this is difficult, it is necessary to undertake some complementary measures (e.g., detailed results of back testing, some incentives that are provided through contracts to the affiliate company and designed to ensure the validity of their services, use of more conservative estimates of risk factors, and so on) in order to compensate for the lack of information.

B. Issues relating to utilization of internal rating systems from a business standpoint

1. Potential Issues

It is necessary for financial institutions to gain confidence in external parties for their internal rating systems and estimates of risk parameters. For this purpose, it is particularly important to examine whether risk parameters including PDs, LGDs, and other outputs such as assigned internal ratings, are effectively utilized for actual business decisions. Likewise, it is imperative to demonstrate to external parties that the financial institutions have confidence in these outputs.

However, the outputs suitable for the regulation of capital requirements are not always the same as those for the business activities of financial institutions. In that case, a key point to be noted by financial institutions is how to assure the third party of the quality of their outputs for regulatory purposes, and demonstrating their relationships with the elements used in making their business decisions.

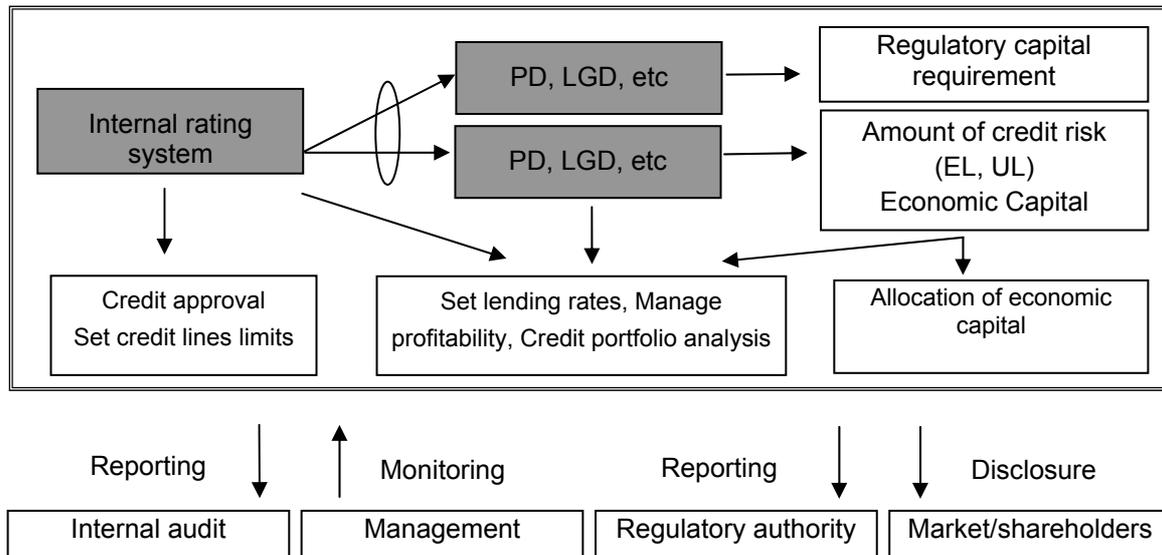
It is also important to identify the departments (or the divisions) within a financial institution that are supposed to use these outputs, and also that are supposed to check their use for business purposes.

2. Participants' Views

The discussions mentioned here may be useful for demonstrating the quality and accuracy of internal rating systems and the validity of risk parameters used in the calculation of regulatory capital requirements to third parties.

First, financial institutions must be accountable for how the various outputs of their internal rating systems are used for business decisions and strategies (see the figure below).

An example of the use of risk factors in the business operations of financial institutions
(an example)



To ensure the credibility of using PDs, LGDs, and other risk elements, or utilizing internal rating systems for business decisions and strategies, key points include the degree of utilization for: (i) credit approval and setting credit line limits, (ii) determining lending rates and operation of lending rate guidelines, (iii) credit portfolio management (monitoring), (iv) economic capital allocation, and (v) the ability to justify the difference, if any, between risk parameters used for internal risk management and those used for regulatory purposes. Furthermore, in terms of the PDs, LGDs, and other risk parameters that may have a direct impact on the calculation of capital requirements, it is particularly important to utilize these elements in a manner that warrants high confidence in their quality by third parties.

These key points must be evaluated based on two yardsticks (see the following chart). First, the “level of importance” in the sense that the way of using risk parameters or internal rating systems affects business decisions. Second, the level of “consistent/ongoing utilization” in the sense that the elements and internal rating systems are used for risk management on a daily basis, while maintaining consistency within the organization.

	Examples of points to be evaluated
Level of importance	-- The degree of influence on the performance (e.g., profits) of the financial institution
Level of consistent/ongoing utilization	<ul style="list-style-type: none"> -- Development of schemes and systems to ensure the continued use of the outputs for the operation of front business lines and the risk control section -- Consistency in the use of information -- Regular reporting to the senior management/the internal audit function -- Active discussions by senior management using the outputs -- Discussions with market participants/shareholders on the outputs through disclosure

In a case where the outputs used for internal risk management are different from those used for regulatory purposes, it is important to be capable of providing a clear explanation to third parties on the relationship between the two different sets of outputs as well as the reasons for the difference. In this context, for example, if it is found that: (i) the same data source is used for estimation, and (ii) there is little room for a bias in the relationship between these two sets of outputs from the long-term and medium-term perspective (in other words, there is no bias from the viewpoint of back testing). This may then indicate the existence of mutual consistency between the two sets of outputs.

Financial institutions are responsible for validating the utilization of the outputs of regulatory requirements for their businesses and internal risk management. Within a financial institution, ultimately, while the front business lines and the risk control functions take charge of utilization and its validation, the senior management and the internal audit function need to develop the process for such validation and approval of utilization.

Furthermore, the scope and degree of utilizing the outputs in business operations or internal risk management of a financial institution should vary depending on the circumstances surrounding the financial institution, such as the degree of data accumulation, customer relationships, and accounting and other schemes. While considering all factors, financial institutions are expected to maintain consistency between the outputs for regulatory purposes and the outputs used for internal risk management.

III. Discussions at the Seventh Session (Held on April 13, 2006)

A. Issues relating to governance of credit risk management

1. Potential Issues

Effective functioning of credit risk management through internal rating systems needs strong support from the corporate governance mechanism. To be specific, the corporate

governance mechanism includes: (i) formulation of rules for risk management, (ii) documentation of the risk management process, (iii) active involvement by senior management in credit risk management through internal rating systems, (iv) establishment of independent risk control functions from the front business lines, (v) appropriate involvement of external institutions to support internal auditing, and (vi) enhanced accountability through appropriate disclosure of risk management. The following discussions focus on (iv), (v), and (vi), as these three issues seem to vary most significantly between financial institutions.

The role and independence of the risk control function

-- How should we establish independence of the sections inside front business lines that are in charge of collating data and also risk management (the so-called “middle office within the front office”), or the credit review section from the other parts of the front business lines? In addition, how should we set up a proper division of work between this middle office within the front office and the independent risk control function (i.e., the real middle office)?

-- How should we define the role of risk control in the area of reviewing individual loan prices?

-- Given the limits in the number of professional personnel who can deal with new finance products and difficulties in shifting these staff from the front to middle offices without damaging front businesses, what kinds of arrangements are necessary in terms of risk management?

-- Is there any risk in adopting an incentive mechanism that may impair the independence of the middle office and credit review sections? What are the minimum requirements for avoiding this risk?

Level of involvement of internal/external audits

-- To what extent should the internal audit function conduct detailed auditing of the internal rating and risk quantification models? Are they feasible?

-- If the internal audit function cannot secure professional personnel in the area of new financial products, then what kind of arrangements are necessary in terms of risk management?

-- To what extent should dependence on an external audit be tolerated? In addition, how should the external auditor collaborate/share the role with the internal audit function?

Ways to validate appropriateness of disclosed information regarding credit risk

-- What should be checked and how?

2. Participants' Views

For the questions mentioned above, consideration of the following could lead to helpful answers:

The expected role and independence of the risk control function

In general, setting up a credit risk control function and credit review section that is independent from front business lines is most important in establishing an effective and functional system capable of providing challenges to front business lines.

In order to ensure the independence of the credit review section, it is important to ensure its independence in the chain of command from front offices (e.g., board members in charge of credit review are not also responsible for front businesses), even if this section is under the same umbrella as the front offices.

The degree of independence of the middle office within the front office may vary depending on the level of importance of the relevant operation from the viewpoint of its scale and degree of risk. In addition, in a business line that is less important in terms of the degree of risk, while the middle office will be mainly responsible for the process of checking the risk management operations of the middle office within the front office, as the level of importance increases, it will be responsible for additional risk control operations in accordance with the increasing level of importance. These may include collection of risk related data, monitoring of the degree of risk, and monitoring of compliance with the risk-related roles.

Pricing of individual loans will be determined primarily by the front office and the credit review section, with reference to the profits of other products, the future outlook for growth in business transactions, and the credit rating of the companies. In such circumstances, the middle office is required to check whether credit costs/risks are taken into consideration when pricing the credit portfolio as a whole. In addition, in cases of pooled-type products for which credit risk is identified as a portfolio, the middle office may conduct in-depth checking of pricing.

If the number of professionals is limited and the middle office function cannot keep such personnel for new finance products, some measures to complement the middle office functions must be considered. For example, the measures may include restrictive operation by the front office until personnel capability in the middle office improves, enhanced qualification examination of new products, comparison by the middle office with the risk evaluations of products with similar characteristics, and rechecking by a third party.

In evaluating the middle office's performance, in order to avoid the risk of adopting an incentive mechanism that may impair the independence of the middle office, the incentive mechanism should be exempt from short-term profits as a minimum requirement. Also, the evaluators of the middle office's performance should be clearly separate from the front office.

Degree of involvement of the internal audit function

Essentially, validation of internal ratings and credit risk quantification models must be conducted by the middle office on an ongoing basis. Admittedly, the internal auditing function is not required to conduct detailed validation work at the same level as that conducted by the middle office, or to follow the process checking associated with the validation by the middle office. It needs, however, to conduct checking of the front office and other audited functions to ensure robustness and objectivity, and to prevent arbitrary operations of the internal rating system. It is also possible to proceed with the

auditing operation in collaboration with an external organization. However, even in such cases, it is the internal auditing function that should assume the ultimate responsibility for the checking of the internal auditing operation.

If the same persons are in charge of the estimation of risk factors and the validation of models and risk factors within the same department, the internal auditing function is required to exercise greater than normal supervisory authority over the department with more specialized knowledge.

If the number of professionals for new finance products is limited and the auditing function cannot keep competent personnel, ways of overcoming the shortage of manpower in the internal auditing function (such as enhancement of process checking and utilization of an external body) must be considered.

Ways to validate appropriateness of disclosed credit risk information

In preparing the basic data to be disclosed, throughout the processes relating to preparation of the data, identification of the risks inherent to each process and evaluations of how the risks are handled should provide an effective means of ensuring the appropriateness of the disclosed information.

IV. Discussions at the Eighth Session (Held on May 29, 2006)

A. Views on losses relating to loan defaults and LGD estimation

1. Potential Issues

Regulatory losses and accounting reserves

The losses from loan defaults vary depending on their definition, i.e., whether we use the regulatory definition or the accounting definition, which is used for specific reserve purposes.² In this regard, it is crucial to consider how to sort out and deal with the conceptual difference between these two definitions, paying due attention to its impacts on accounting and information disclosure.

Additional issues relating to LGD estimation

The basic concepts of LGD estimation were already mentioned in previous sessions.³ To expand upon this, in estimating the LGDs of loan defaults, it may be necessary to consider how we should estimate the effects of a recession period. Admittedly, because the size of the LGD data sample is limited and there is no established method of LGD estimation, it is difficult to address these issues using actual data and empirical analysis at present. However, the following should represent important issues to be considered in LGD estimation.

² The loans called loan defaults are mainly supposed to be loans that are transferred to the debtor categories of “borrowers requiring close supervision” (definition of default for regulatory purposes) or lower, but that has not yet been in the state of statutory bankruptcy.

³ See pages 14–17 of the publication, “Discussions on Advancing Credit Risk Management through Internal Rating Systems (1)” (the “Publication” hereafter).

2. Participants' Views

Regulatory losses and accounting reserves

For the purpose of risk management, as with losses from nondefaulted loans, losses from loan defaults should be estimated based on the data of actual final recoveries. However, because the disposal (or revitalization) process of loan defaults is unique to individual transactions, in some cases it may be inappropriate to apply a uniform methodology in estimation. In this regard, one of the possible approaches may be to consider the specific reserves for accounting purposes as the losses from loan defaults for risk management purposes. However, in such a case, a reasonable validation based on the data is necessary to examine whether this assumption would cause any biases in LGD estimation. This rather opaque description of LGD estimation reflects the current situation of a lack of consensus about best practice in this area. To find the best methodologies of estimating losses from loan defaults, it is necessary for financial institutions and the relevant authorities to accumulate loan default data and to carefully examine the empirical results of loss estimation.

Additional issues relating to LGD estimation

Unlike LGD estimation for nondefaulted loans, the following become issues to be considered in estimating the LGD of loan defaults:

(i) LGD should be estimated based on the assumption that the default status is considered deterministic (either in the form of continued financial assistance, rehabilitation, or liquidation proceedings). On the other hand, in the case of nondefaulted loans, the default status is stochastic and thus LGD estimation is conducted without dependence on the default status information.

(ii) Because part of a loan may be recovered as time progresses, it is necessary to adjust LGD estimation for the remaining debt (defined as EAD [exposure at default] minus recovered amount). <In the case of nondefaulted loans, LGD estimation is made for EAD.>

The above may indicate that the DCF method can be used for LGD estimation of loan defaults. If the DCF method is applied to calculating specific reserves for accounting purposes, it may be considered an alternative for LGD estimation.

However, in this approach, the issue remains as to how the business downturn impact can be taken into consideration as a stress.

In addition, as a general issue of LGD estimation regardless of defaulted or nondefaulted loans, it should be noted that LGD estimation approaches are different between corporate and retail credits (for example, retail LGD is deemed to be based on more empirical/quantitative approaches <modeling of time series data, etc.> than for corporate LGD).

B. Additional issues relating to PDs and LGD estimation for specialized lending

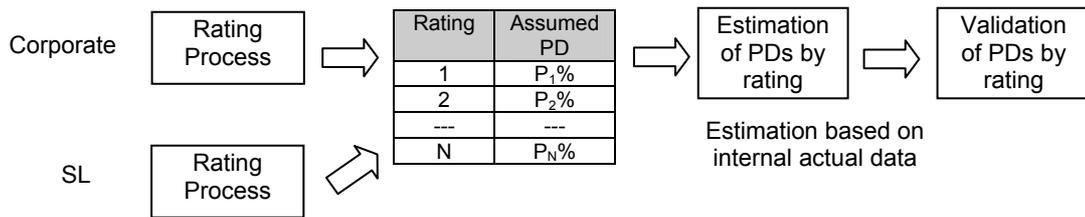
1. Potential Issues

As for specialized lending (SL) that lacks sufficient actual data on defaults and for which parameter estimates are difficult to validate using actual data, the framework for

rating systems/models can be categorized into three conceptual types, as follows. Given the fact that there is as yet no established standard business practice in the industry, it is important to keep some flexibility in interpreting these types, which could vary depending on the circumstances surrounding the financial institutions and the characteristics of each type.

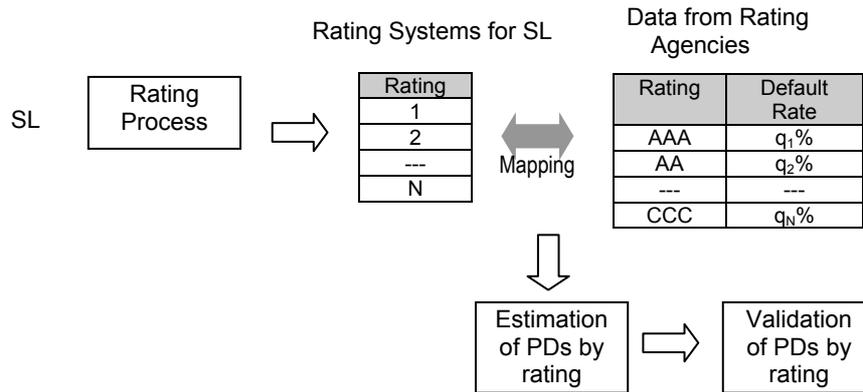
(i) Estimation of PDs under the same rating system used for corporate credits

The internal credit rating is developed based on PDs only and not on the type of credit/business transaction. Consequently, the same PDs are applied to corporate credits and the SLs belonging to the same rating bucket.



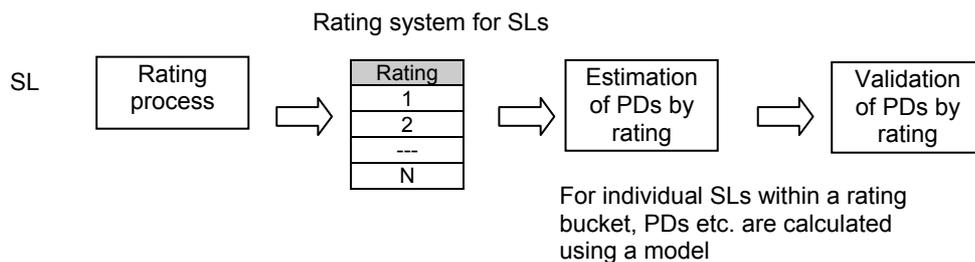
(ii) Estimation using SL-related external data

Default rates published by rating agencies are used by mapping SLs to an external rating.



(iii) Direct estimation using a model

PDs and other risk parameters of individual SLs within a rating bucket are estimated by a model (for example, the Merton type or the scoring model that regards the loan as defaulted when it falls below a certain threshold). If a rating is assigned based on the model's outputs (equal to assumed PDs, etc.), the process follows the one described in (i) above.



In the estimation/validation process, it is also possible to combine the aforementioned three types (for example, "PD estimation is performed as described in (iii) and mapped to the system in (i)", "PD estimation is performed as described in (i) and verified by (ii) or (iii)", etc.).

2. Participants' Views

For the aforementioned three types, it is necessary to pay attention to the following points, respectively:

Type 1

If the SL rating is established based on the same rating system used for corporate credits, it is necessary to conduct ex post validation based on the empirical data to examine whether there is a difference in the actual default rate between the SLs and corporate credits within the same rating bucket, and whether there is a difference in the tendencies of the migration rate, etc. Because defaulted SL samples are scarce, there is a limit to such validations. However, it is still important to ensure that the rating systems for both SLs and corporate loans are of a similar nature by, for example, comparing the migration rates of the business corporations and SLs.

Type 2

When the ratings of securitization transactions are mapped to those of SLs using an external rating without distinguishing securitization transactions from SLs (for example, evaluating the bank's nonrecourse real-estate loans by using CMBS' external ratings), it is necessary to have reasonable explanations about various issues arising from mapping (for example, how to deal with the differences in the risk characteristics of the rated products, correlations between PD and LGD and tranches structures <i.e., whether they should be reflected in the PDs or LGDs>).

Type 3

When establishing the unique rating system for SLs independent of the mapping to the ratings of corporate credits, it is desirable to conduct validations based on actual default data. Because it is currently difficult to set ratings that only cover SLs because of the paucity of data for defaulted SLs, utilization of a common database (data consortium), for example, should be considered as a future possibility.

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<Attachment>

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