BASEL COMMITTEE ON BANKING SUPERVISION

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Validation of low-default portfolios in the Basel II Framework

The purpose of this Newsletter is to set forth the views of the Basel Committee Accord Implementation Group's Validation Subgroup (AIGV) regarding the appropriate treatment in the internal ratings-based (IRB) approaches in the Basel II Framework of portfolios where banks may have limited loss data. This Newsletter was developed in response to industry questions and concerns regarding such portfolios.

What are low-default portfolios?

The IRB framework in Basel II is intended to apply to all asset classes. Therefore, so-called low-default portfolios (LDPs) are not mentioned as such in the Basel II Framework. Although this document will repeatedly refer to LDPs, neither the AIGV nor the industry has suggested a definition of such portfolios. The AIGV does not believe that bank portfolios are either low-default or non-low-default; rather, the AIGV believes that there is a continuum between these two extremes. A portfolio is closer to the LDP end of this continuum when a bank's internal data systems include fewer loss events, which presents challenges for risk quantification and validation. Thus, a straightforward calculation based on historic losses for a given wholesale rating or retail segment would not be sufficiently reliable to form the basis of a probability of default (PD) estimate, let alone an estimate of loss given default (LGD) or exposure at default (EAD). In addition, backtesting realised outcomes against estimates may not provide strong evidence to support the accuracy of the IRB system. These challenges have resulted in some industry concerns.

Several types of portfolios may have low numbers of defaults. For example, some portfolios historically have experienced low numbers of defaults and are generally—but not always—considered to be low-risk (e.g. portfolios of exposures to sovereigns, banks, insurance companies or highly rated corporates). Other portfolios may be relatively small in size, either globally or at an individual bank level (e.g. project finance, shipping), or a bank may be a recent market entrant for a given portfolio. Other portfolios may not have incurred recent losses, but historical experience or other analysis might suggest that there is a greater likelihood of losses than is captured in recent data (e.g. retail mortgages in a number of jurisdictions).

While all of these portfolios could reasonably be considered to possess some characteristics that are typical of LDPs, each type of portfolio might actually have quite different risk characteristics with varying implications for risk quantification and validation. Moreover, the extent to which a bank can draw on its own experience to gain empirical evidence to support its parameter estimates will vary across portfolios. For example, where a bank does not have sufficient loss experience of its own, it may be able to draw upon industry experience in the form of pooled data or may use other tools to estimate loss parameters.

What are industry concerns regarding LDPs?

The most significant concern expressed by some industry participants is that the lack of sufficient statistical data and the resulting difficulty in backtesting risk parameters will result in LDPs being excluded from IRB treatment. While the Basel Committee has never explicitly given any indication that this would be the case, industry participants have expressed concerns that a literal reading of the Basel II Framework[1] could imply that LDPs do not meet the minimum standards for IRB and would therefore be forced to use the simpler approaches for such portfolios. Moreover, they have argued that this is a particular concern because a substantial portion of banks' assets consist of LDPs.

Notwithstanding the challenges associated with LDPs, the industry and the AIGV are of the opinion that LDPs should not, by their very nature, automatically be excluded from IRB treatment. Rather, a set of tools and techniques, proposed by both the industry and supervisors, can be used to facilitate risk assessment in the absence of sufficient historical loss data.

How does the AIGV view the treatment of LDPs?

The AIGV notes that the Basel Committee has never given any explicit indication that LDPs would be ineligible for either FIRB or AIRB treatment, nor have AIGV members indicated that this would be the case in their jurisdictions.

Fundamentally, the AIGV believes that the Basel II Framework, as well as the principles on validation set forth in the January 2005 Basel Committee Newsletter No. 4, "Update on work of the Accord Implementation Group related to validation under the Basel II Framework" (validation principles), are flexible enough to allow banks to meet the minimum IRB qualifying criteria for all types of portfolios. As a result, an additional set of rules or principles specifically applying to LDPs is neither necessary nor desirable.

The AIGV believes that a relative lack of historic data should not automatically preclude portfolios from use of the IRB approaches.[2] The AIGV recognises that relatively sparse data might require increased reliance on alternative data sources and data-enhancing tools for quantification and alternative techniques for validation. Several of these tools and techniques, most of which are especially relevant for LDPs (and for PDs in particular) but are applicable to a wider range of portfolios, are listed in the Annex. The AIGV also recognises that there are circumstances in which banks will legitimately lack sufficient default history to compare realised default rates with parameter estimates that may be based in part on historical data. In such cases, greater reliance must be placed on other validation techniques, some of which are described in the Annex. None of these techniques is applicable only to LDPs. In fact, the AIGV believes that while LDPs may have some special

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[1] For example, para 449 states that "estimates must be based on historical experience and empirical evidence, and not based purely on subjective or judgmental considerations," and para 501 states that "banks must regularly compare realised default rates with estimated PDs for each grade and be able to demonstrate that the realised default rates are within the expected range for that grade."

[2] This is not to imply, however, that such portfolios should automatically qualify for IRB treatment. As with all other portfolios, LDPs must meet the minimum criteria set forth in the Basel II framework. These criteria include requirements for a meaningful differentiation of risk and reasonably accurate and consistent quantitative risk estimates.

characteristics, they should not be considered or treated as conceptually different from other portfolios.

The AIGV does not believe that it is appropriate at this time to give general guidelines regarding the relative effectiveness of the tools discussed in the Annex. Furthermore, the choice of specific tools and techniques will depend to a large extent on the particular circumstances of the individual bank and the specific portfolio. Nevertheless, the AIGV strongly encourages institutions to consider the tools and techniques in the Annex and to utilise those that are most appropriate to the institution's particular circumstances in order to improve its risk assessments.

The following should guide banks and supervisors in quantifying and validating IRB systems for LDPs:

Parameter estimates should be forward-looking and predictive.

While IRB estimates are grounded in historical experience, they are intended to be forward-looking for all portfolios. This is consistent with the first validation principle. Consequently, relative scarcity of historical loss data in some circumstances may not be a serious impediment to developing PD, LGD and EAD estimates. Where, for example, there is a lack of recent loss data but historical experience or other analysis suggests that this is unlikely to be representative of probable long-term outcomes (e.g. retail mortgages in some jurisdictions), it should be possible to base risk estimates not solely on recent loss data, but also on additional information about the drivers of losses.

The qualitative requirements for the IRB approaches apply to all portfolios.

There is a range of IRB qualifying criteria in the Basel II Framework, of which data and statistical elements are only one part (as recognised in the fifth validation principle). Regardless of whether or not a bank has relatively scarce internal loss data in a particular portfolio, supervisors should expect the bank to satisfy all of the qualitative criteria set forth in section III.H. of the Basel II Framework. It is not our intent to restate all of those criteria or to elaborate on what is in the framework, but to cite several examples, banks' risk rating systems should be expected to satisfy the following:

- Whether achieved through quantitative/statistical methods, expert judgement, business line expertise, or a combination thereof, rating systems should result in an accurate rank-ordering of risk by counterparty (for non-retail assets);

- There should be sufficient human judgement and oversight in the development and use of bank rating systems;

- Elements of rating system design should be adequately documented;

- Rating systems should be subject to effective corporate governance, credit risk control, and internal audit; and

- There should be a credible track record for the use of internal ratings and loss estimates in the bank's credit risk management processes. The industry has suggested that the use of internal ratings in shaping banks' portfolios should offer comfort to supervisors in accepting the use of these ratings and associated loss estimates for regulatory capital purposes. In this regard, banks need to make the case that the uses to which the estimates are put actually demonstrate in a meaningful way the validity of those estimates.

While the qualitative IRB requirements are important for all portfolios, they are of even greater importance where a bank lacks plentiful historical loss data to develop accurate quantitative risk estimates.

A relative lack of loss data can at times be compensated for by other methods for assessing risk parameters.

The AIGV is mindful that for some portfolios (e.g. sovereign and bank), there may be limited loss data. According to the quality of loss data that might be available internally and/or externally, there may be tools that banks can utilise to enhance data richness (see Annex).

Where scarce internal loss data makes it difficult to test risk estimates against actual experience, a variety of validation tools are available.

In some cases, even where tools such as those described in the Annex have been used to enhance data richness, banks and supervisors may find that backtesting risk rating system predictions against realised defaults cannot be done in a manner that strongly demonstrates predictiveness. In such cases, consistent with the fourth validation principle, a bank may find that employing a variety of validation tools, including review of developmental evidence, process verification and benchmarking, can satisfy both itself and its supervisor that its rating estimates are reasonable (see Annex for examples of benchmarking tools).

What is the role of supervisors with regard to bank treatment of LDPs?

Supervisors will review bank estimates and evaluate whether the bank has taken reasonable steps to address the scarcity of internal loss data consistent with the principles set forth in this document and in the Basel II Framework. For example, supervisors will have to be satisfied with any additional conservatism in loss estimates used by the bank as per paragraphs 451 and 462 of the Basel II Framework. Where a bank does not, in the judgement of the supervisor, take adequate steps to address its lack of historic loss data, there is a range of options open to supervisors that will depend on the circumstances of the bank, the jurisdiction and the specific portfolio. Supervisors expect to continue to share their experience in implementing the Framework in the case of LDPs in order to promote consistency.

Annex

Both the industry and AIGV members have set forth a number of possible data-enhancing and validation tools that can be used in the quantification and validation of all portfolios, but that might be especially relevant for the treatment of LDPs. While industry and supervisory practices are still emerging, the preliminary range of tools and techniques summarised below might be useful. Although these tools are more applicable to estimation of PDs rather than LGDs or EADs, the AIGV hopes that additional techniques that are relevant to LGD and EAD will be identified over time. The AIGV strongly encourages institutions to consider the list that follows and to utilise those particular tools and techniques that are most appropriate to their particular circumstances.

Data-enhancing tools for quantification and validation

While a relative lack of loss data may make it more difficult to use quantitative methods to assess risk parameters, there are nevertheless some tools that could potentially be used to enhance data richness or to determine the degree of uncertainty to be addressed through conservatism. Among these possible tools are the following:

- Pooling of data with other banks or market participants, the use of other external data sources, and the use of market measures of risk can be effective methods to complement internal loss data. While a bank would need to satisfy itself and its supervisor that these sources of data are relevant to its own situation, the AIGV nevertheless believes that in principle, data pooling, external data and market measures can be effective means to augment internal data in appropriate circumstances. This can be especially relevant for small portfolios or for portfolios where a bank is a recent market entrant.

- Internal portfolio segments with similar risk characteristics might be combined. For example, a bank might have a broad portfolio with adequate default history that, if narrowly segmented, could result in the creation of a number of LDPs. While such segmentation might be appropriate from the standpoint of internal use (e.g. pricing), for purposes of assigning risk parameters for regulatory capital purposes it might be more appropriate to combine subportfolios.

- In some circumstances, different rating categories might be combined and PDs analysed for the combined category. A bank using a rating system that maps to rating agency categories might find it useful, for example, to combine AAA, AA and A-rated credits, provided this is done in a manner that is consistent with paragraphs 404-405 of the Basel II Framework. This could enhance default data without necessarily sacrificing the predictiveness or risk-sensitivity of the bank's rating system.

- The upper bound of the PD estimate can be used as an input to the formula for risk-weighted assets for those portfolios where the PD estimate itself is deemed to be too unreliable to warrant direct inclusion in capital adequacy calculations.

- Banks may derive PD estimates from data with a horizon that is different from one year. Where defaults are spread out over several years, a bank may calculate a multi-year cumulative PD and then annualise the resulting figure. Where intra-year rating migrations contain additional information, these migrations could be analysed as separate rating movements in order to infer PDs, which may be especially useful for the higher-quality rating grades.

- If low default rates in a particular portfolio are the result of credit support, the lowest non-default rating could be used as a proxy for default (e.g. banks, investment firms, thrifts, pension funds, insurance firms) in order to develop ratings that differentiate risk. When such an approach is taken, calibration of such ratings to a PD consistent with the Basel II definition of default would still be necessary.

While banks would not be expected to utilise all of these tools, they may nevertheless find some of them useful. The suitability and most appropriate combination of individual tools and techniques will depend on the nature of the bank and the characteristics of the specific portfolio.

Benchmarking tools for validation

In addition, where a scarcity of internal historical data makes it difficult to meaningfully backtest risk rating predictions against realised defaults, it may be possible to make greater use of various benchmarking tools for validation. Among the tools that could potentially be used are the following:

- Internal ratings and migration matrices could be compared with the ratings and migrations of third parties such as rating agencies or data pools, or with the ratings and migrations resulting from other internal models.

- Internal ratings could be benchmarked against internal or external expert judgements, for example where a portfolio has not experienced recent losses but where historical experience suggests the risk of loss is greater than zero.

- Internal ratings could be compared with market-based proxies for credit quality, such as equity prices, bond spreads, or premiums for credit derivatives.

- An analysis of the rating characteristics of similarly rated exposures could be undertaken.

- The average rating output for the portfolio as a whole could be compared with actual experience for the portfolio rather than focusing on backtesting estimates for more narrowly defined segments of the portfolio. Similarly, rating grades can be combined in order to make backtesting more meaningful.

This list is not intended to be exhaustive, but rather is intended to provide examples of some benchmarking tools that may be useful in the case of scarce internal loss data. It is important that banks utilise as many tools and techniques, including those other than benchmarking, as they deem necessary to build confidence and demonstrate the predictive ability of their risk rating systems.