



KeyCorp's Response to Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit

Introduction

KeyCorp considers itself privileged to be able to comment on the U.S. Regulatory Agencies' Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit document published in the Federal Register, August 4, 2003 along with the Advanced Notice of Proposed Rulemaking (ANPR).

KeyCorp has actively participated with industry groups such as RMA, IIF and ISDA in constructing their responses to the ANPR as well as Basel II in general. We are honored to have had the opportunity to work with them, as well as all other participating financial institutions. Also, as an individual institution, we have discussed and advanced concepts, analysis and models on numerous occasions and on various topics to regulators active in the Basel II process.

We are in general agreement with the positions taken in the RMA industry group's response to the Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit. Listed below are some issues we believe may not have been adequately covered by the industry working groups, or that we think deserve extra emphasis.

This document only covers KeyCorp's position on items contained in the Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit. Separate documents are being sent as our response to the Advanced Notice of Proposed Rulemaking and Draft Supervisory Guidance regarding Operational Risk Measurement and Management.

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KeyCorp's Response to Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit

Detailed Comments

This paper is KeyCorp's response to the Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit document published in the Federal Register, August 4, 2003. Separate papers deal with our views on the Advanced Notice of Proposed Rulemaking and the Draft Supervisory Guidance regarding Operational Risk Measurement and Management.

Our responses focuses on those areas where an alternative prescription may serve the supervisors better, or where supervisory guidance might be better aligned with best practices, and on those areas where additional clarification is needed. We greatly appreciate this opportunity to engage in constructive dialog on the very important matter of bank supervision of internal ratings systems.

Our responses are grouped by supervisory standard, printed in bold and numbered with the prefix "S". In some cases supplemental text has been included along with the standard. We have restated only those standards that we chose to comment on.

S4. Banks must record obligor defaults in accordance with the IRB definition of default.

The IRB definition of default largely coincides with the situations we use at Key Bank to identify a facility as non-accruing. There are some exceptions. (For example, a company that continues to meet its obligations while in bankruptcy reorganization.) If the IRB definition were identified with non-accrual status, implementation would be made simpler.

S5. Banks must assign discrete obligor grades.

33. While banks may use models to estimate probabilities of default for individual obligors, the IRB approach requires banks to group the obligors into discrete grades. Each obligor grade, in turn, must be associated with a single PD.

This standard seems unnecessary. Why assign all obligors with the same rating the same PD? Why not permit default ratings to be associated with a range of PDs? In situations where the bank is able to estimate a PD, as opposed to merely ascribing an obligor rating, it should be allowed to use the estimated PD rather than the average PD associated with its grade in its economic capital calculation.

S7. Separate exposures to the same obligor must be assigned to the same obligor rating grade.

S19. Banks reflecting the risk-mitigating effect of guarantees must do so by either adjusting PDs or LGDs, but not both.

It is possible that some facilities of a given obligor may involve guarantees while others may not. Applying the risk-mitigating effect of the guarantee to the PD may result in different obligor ratings. Either an exception to S7 needs to be made for this situation, or S19 should direct that the effect of guarantees be applied by adjusting the LGDs.

S8. In assigning an obligor to a rating category, the bank must assess the risk of obligor default over a period of at least one year.

S9. Obligor ratings must reflect the impact of financial distress.

37. In assigning an obligor to a rating category, the bank must assess the risk of obligor default over a period of at least one year. This use of a one-year assessment horizon does not mean that a bank should limit its consideration to outcomes for that obligor that are most likely over that year; the rating must take into account possible adverse events that might increase an obligor's likelihood of default.

In analyzing corporate credit risk at Key, adverse outcomes that may occur beyond a one-year period for obligors to which we have a greater than one year exposure are reflected in estimated mark-to-market losses. M-T-M losses do not enter into the risk rating, which is a simple two-dimensional rating based on a 1-year PD and LGD. M-T-M losses do, however, enter into the formula for economic capital. Expected M-T-M losses and economic capital both factor into the break-even pricing calculation.

If the intent here is that banks "stress" the financial ratio inputs that drive an obligor rating, then we would recommend against implementing this standard. Applying subjective stress tests to each credit would be costly, produce significant non-comparability, and would result in less accurate ratings and PDs than the process typically used now at most banks.

S10. Banks must adopt a ratings philosophy. Policy guidelines should describe the ratings philosophy, particularly how quickly ratings are expected to migrate in response to economic cycles.

S11. A bank's capital management policy must be consistent with its ratings philosophy in order to avoid capital shortfalls in times of systematic economic stress.

We have no disagreement with these two standards. We fully recognize that a bank that adopts a Point-in-Time rating philosophy and therefore a Point-in-Time capital management philosophy will likely require more capital during a recession than during the rest of the cycle. However, these regulations are intended to specify minimum capital requirements. Most banks will continue to maintain capital in excess of the minimum as

a cushion for times of systemic economic stress. The size of the cushion will fluctuate and will allow the bank to avoid having to raise capital during stress periods.

S16. Loss severity ratings must reflect losses expected during periods with a relatively high number of defaults.

51. Like obligor ratings, which group obligors by expected default frequency, loss severity ratings assign facilities to groups that are expected to experience a common loss severity. However, the different treatment accorded to PD and LGD in the model used to calculate IRB capital requirements mandates an asymmetric treatment of obligor and loss severity ratings. Obligor ratings assign obligors to groups that are expected to experience common default frequencies across a number of years, some of which are years of general economic stress and some of which are not. In contrast, loss severity ratings (or estimates) must pertain to losses expected during periods with a high number of defaults – particular years that can be called stress conditions. For cases in which loss severities do not have a material degree of cyclical variability, use of a long-run default weighted average is appropriate, although stress condition LGD generally exceeds these averages.

This standard is problematic for Key Bank. Because the IRB capital model does not include PD-LGD correlation and LGD variability, we agree that a stress condition LGD is appropriate for calculating regulatory capital. But, because these features are built into our internal economic capital models, we would prefer to base internal ratings on a weighted average LGD. We suggest that banks be allowed to use weighted average LGDs when the internal capital model is formulated to replicate stress conditions.

S22. Banks must have ongoing validation processes that include the review of developmental evidence, ongoing monitoring, and the comparison of predicted parameter values to actual outcomes (back-testing).

65. Generally, the evaluation of developmental evidence will include a body of expert opinion. For example, developmental evidence in support of a statistical rating model must include information on the logic that supports the model and an analysis of the statistical model-building techniques. In contrast, developmental evidence in support of a constrained-judgment system that features guidance values of financial ratios might include a description of the logic and evidence relating the values of the ratios to past default and loss outcomes.

We interpret this standard, in conjunction with S31 below, to mean that reliance upon vendor supplied developmental evidence is acceptable assuming that

- 1) The bank has analyzed the logic that supports the model and the statistical model-building technique,
- 2) The bank has verified that PD estimates are long-run averages,
- 3) Reference data used in the default model meets the long-run requirement, and

- 4) The model has been calibrated to capture the default experience over a reasonable mix of good and bad years of the economic cycle.

S24. Banks must develop statistical tests to back-test their IRB rating systems.

S25. Banks must establish internal tolerance limits for differences between expected and actual outcomes.

S26. Banks must have a policy that requires remedial actions be taken when policy tolerances are exceeded.

77. At this time, there is no generally agreed-upon statistical test of the accuracy of IRB systems. Banks must develop statistical tests to back-test their IRB rating systems. In addition, banks must have a policy that specifies internal tolerance limits for comparing back-testing results. Importantly, that policy must outline the actions that would be taken whenever policy limits are exceeded.

These standards are reasonable and reflective of best practice. But we are concerned about the setting of “tolerance limits.” There may be no good actions to be taken when “tolerance limits” are exceeded if the current system already reflects the state-of-the-art.

We advise that **S25** and **S26** be modified to simply require ongoing review of performance with a view toward improvement. Benchmarking and back-testing requirements should be sufficient for this task.

S27. IRB institutions must have a fully specified process covering all aspects of quantification (reference data, estimation, mapping, and application). The quantification process, including the role and scope of expert judgment, must be fully documented and updated periodically.

Data – First, the bank constructs a reference data set, or source of data, from which parameters can be estimated. Reference data sets include internal data, external data, and pooled internal/external data. Important considerations include the comparability of the reference data to the current credit portfolio, whether the sample period “appropriately” includes periods of stress, and the definition of default used in the reference data. The reference data must be described using a set of observed characteristics; consequently, the data set must contain variables that can be used for this characterization. Relevant characteristics might include external debt ratings, financial measures, geographic regions, or any other factors that are believed to be related in some way to PD, LGD, or EAD. More than one reference data set may be used.

Estimation – Second, the bank applies statistical techniques to the reference data to determine a relationship between characteristics of the reference data and the parameters (PD, LGD, or EAD). The result of this step is a model that ties descriptive characteristics of the obligor or facility in the reference data set to PD, LGD, or EAD estimates.

In this context, the term 'models' is used in the most general sense; a model may be simple, such as the calculation of averages, or more complicated, such as an approach based on advanced regression techniques. This step may include adjustments for differences between the IRB definition of default and the default definition in the reference data set, or adjustments for data limitations. More than one estimation technique may be used to generate estimates of the risk components, especially if there are multiple sets of reference data or multiple sample periods. S28. Parameter estimates and related documentation must be updated regularly. 87. The parameter estimates must be updated at least annually, and the process for doing so must be documented in bank policy. The update should also evaluate the judgmental adjustments embedded in the estimates; new data or techniques may suggest a need to modify those adjustments.

We interpret these standards in conjunction with S31 below to mean that reliance upon pooled data, vendor supplied statistical models, and parameter estimates is acceptable. The concern here is with the requirement that parameter estimates "must be updated at least annually." A vendor is unlikely to revise a model so frequently, but rather is more likely to wait to do so until performance of the model can be demonstrably improved.

S31. Parameter estimates must incorporate a degree of conservatism that is appropriate for the overall robustness of the quantification process.

S32. The sample for the reference data must be at least five years, and must include periods of economic stress during which default rates were relatively high.

98. Note that this principle does not simply restate the requirement for five years of data: periods of stress during which default rates are relatively high must be included in the data sample. Exclusion of such periods biases PD estimates downward and unjustifiably lowers regulatory capital requirements.

In some instances all available data may not include a period of stress during which default rates were relatively high. A case in point might be commercial real estate lending for which the last period of stress was the late 1980s to early 1990s. For many banks data is simply not available from this time period. In our view the absence of such data should not preclude a bank from adopting advanced IRB capital provided an appropriate degree of conservatism is applied to parameter estimates for such a portfolio, with the approval of the supervisors.

For other business lines 5 years of historical data may not be available at the start of Basel II. For these we suggest that the "start date" for achieving the minimum historical data requirement be the date on which the final capital rules and supervisory guidance are published. Assuming this occurs, for example, at year-end 2004, core banks would be required to have at least 2 years of historical data by the beginning of Basel II (January 2007). Some business lines, of course, would fulfill the 5-years requirement by January 2007, but some lines would not meet the requirement until year-end 2009. A "phase-in" process of this type is necessary we feel.

S34. Estimates of default rates must be empirically based and must represent a long-run average.

105. Statistical default prediction models may also play a role in PD estimation. For example, the characteristics of the reference data might include financial ratios or a distance-to-default measure, as defined by a specific implementation of a Merton-style structural model.

106. For a model-based approach to meet the requirement that ultimate grade PD estimates be long-run averages, the reference data used in the default model must meet the long-run requirement. For example, a model can be used to relate financial ratios to likelihood of default based on the outcome for the firms – default or non-default. Such a model must be calibrated to capture the default experience over a reasonable mix of good and bad years of the economic cycle. The same requirement would hold for a structural model; distance to default must be calibrated to default frequency using long-run experience. This applies to both internal and vendor models, and a bank must verify that this requirement is met.

See the responses to S22 and S27-28 above.

S41. The sample period for the reference data must be at least seven years, and must include periods of economic stress during which defaults were relatively high.

The comments on S31-32 also apply here.

S49. A validation process must cover all aspects of IRB quantification.

175. Banks must have a process for validating IRB quantification; their policies must state who is accountable for validation, and describe the actions that will proceed from the different possible results. Validation should focus on the three estimated IRB parameters (PD, LGD, and EAD). Although the established validation process should result in an overall assessment of IRB quantification for each parameter, it also must cover each of the four stages of the quantification process as described in preceding sections of this chapter (data, estimation, mapping, and application). The validation process must be fully documented, and must be approved by appropriate levels of the bank's senior management. The process must be updated periodically to incorporate new developments in validation practices and to ensure that validation methods remain appropriate; documentation must be updated whenever validation methods change.

176. Banks should use a variety of validation approaches or tools; no single validation tool can completely and conclusively assess IRB quantification. Three broad types of tools that are useful in this regard are evaluation of the conceptual soundness of the approach to quantification (evaluation of logic), comparison to other sources of data or estimates (benchmarking), and comparisons of actual

outcomes to predictions (back-testing). Each of these types of tools has a role to play in validation, although the role varies across the four stages of quantification.

S50. A bank must comprehensively validate parameter estimates at least annually, must document the results, and must report these results to senior management.

182. A full and comprehensive annual validation is a minimum for effective risk management under IRB. More frequent validation may be appropriate for certain parts of the IRB system and in certain circumstances; for example, during high-default periods, banks should compute realized default and loss severity rates more frequently, perhaps quarterly. They must document the results of validation, and must report them to appropriate levels of senior risk management.

Our reading of these two standards is that validation shall cover all four stages of the quantification process: data, estimation, mapping, and application; and that validation should consist of 1) evaluation of logic, 2) benchmarking, and 3) back-testing. S50 indicates that this must occur at least annually and perhaps quarterly during high default periods. Such intensive validation requirements seem inconsistent with the observation that "it will take considerable time before outcomes will be available" (see paragraph 74 of the Draft), and also inconsistent with the desire for IRB parameters to reflect long run averages. Our concern is that such frequent validation will create pressure on the part of supervisors to constantly revise parameter estimates that ought to reflect long-term averages.

S52. Institutions must collect, maintain, and analyze essential data for obligors and facilities throughout the life and disposition of the credit exposure.

S53. Institutions must capture all significant quantitative and qualitative factors used to assign the obligor and loss severity rating.

S54. Data elements must be of sufficient depth, scope, and reliability to:

- **Validate IRB system processes,**
- **Validate parameters,**
- **Refine the IRB system,**
- **Develop internal parameter estimates,**
- **Apply improvements historically,**
- **Calculate capital ratios,**
- **Produce internal and public reports, and**
- **Support risk management.**

S55. Institutions must document the process for delivering, retaining and updating inputs to the data warehouse and ensuring data integrity.

S56. Institutions must develop comprehensive definitions for the data elements used within each credit group or business line (a "data dictionary").

S57. Institutions must store data in electronic format to allow timely retrieval for analysis, validation of risk rating systems, and required disclosures.

The IRB data maintenance standards do not explain how much history is required for rating assignment data and supporting IRB data, or how long the system is expected to

be operational prior to qualification for IRB capital. More direction is needed on these points.

Some reference data elements required for validation will be in the form of pooled industry data. Although this is not discussed, our assumption is that this is acceptable as long as the data can be compared with internal data and with other sources.

The requirement that institutions must store data in electronic format to allow timely retrieval for analysis, validation, and disclosures could be quite costly if interpreted to mean that everything should be stored electronically, and all in one place. Best practice for many years to come will likely involve some non-electronic formats, multiple electronic-based files, and considerable differences in the designing of warehousing and retrieval systems. We hope that supervisors will be allowed to develop a sense for which data maintenance practices are acceptable over time by comparing practices across banks.

Evans, Sandra E

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Sent: Monday, November 03, 2003 1:58 PM
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Cc: Kris.McIntire@occ.treas.gov; Kyle.Hanson@occ.treas.gov
Subject: KeyCorp's response to the "Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit"



KeyCorp_

Response_ANPR_Corporate_IRB_Sup_Guidance.doc

Dear Sir/Madam,

Attached is a Word document containing KeyCorp's response to the "Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit". Separate documents are being sent containing our responses to the "Advanced Notice of Proposed Rulemaking" and the "Draft Supervisory Guidance regarding Operational Risk Measurement and Management".

Sincerely,

Ashish Dev

(See attached file: KeyCorp_Response_ANPR_Corporate_IRB_Sup_Guidance.doc)

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KeyCorp's Response to the U.S. Banking Agencies' Advance Notice of Proposed Rulemaking Regarding New Risk-Based Bank Capital Rules

KeyCorp appreciates this opportunity to comment on U.S. Banking Agencies' Advance Notice of Proposed Rulemaking (ANPR) which concerns the implementation of the New Basel Accord in the United States. In this response, we follow the structure of the ANPR and answer specific questions posed by the regulators.

Expected Losses versus Unexpected Losses

What are the advantages and disadvantages of the A-IRB approach relative to alternatives, including those that would allow greater flexibility to use internal models and those that would be more cautious in incorporating statistical techniques (such as greater use of credit ratings by external rating agencies)?

When the Basel Committee issued its first version of the New Accord in June 1999, it decided not to allow banks to use the results of internal economic capital models in setting regulatory capital requirements. The Committee suggested, however, that it might reconsider the use of internal economic capital models in the future.¹

KeyCorp supports the eventual recognition of internal models for the direct calculation of capital charges. Using internal models would help meet the New Accord's goal of aligning regulatory capital more closely with economic capital. We expect that in due course internal models will be accepted for calculation of credit risk arising from lending and other credit products as well.

Should the A-IRB capital regime be based on a framework that allocates capital to EL plus UL, or to UL only? Which approach would more closely align the regulatory framework to the internal capital allocation techniques currently used by large institutions? If the framework were recalibrated solely to UL, modifications to the rest of the A-IRB framework would be required. The Agencies seek commenters' views on issues that would arise as a result of such recalibration.

The A-IRB approach embodies a definition of regulatory capital that is not consistent with banks' internal bank credit risk management practices. That is, capital in the A-IRB approach covers both expected loss (EL) and unexpected loss (UL), while banks typically assign economic capital only to UL.

Indeed, common practice is to have expected margins cover EL plus a return to capital (due to the need to generate positive Shareholder-Value-Added). Thus, capital is needed only to cover UL. If the regulators insist on a separate treatment of EL, it should be done under Pillar 2. The appropriate test would be a comparison of the A-IRB measurement of EL with the bank's loss provisions plus expected FMI.

¹ "A New Capital Adequacy Framework," June 1999, p. 41.



Wholesale Exposures: Definitions and Inputs

The Agencies seek comment on the proposed definition of wholesale exposures and on the proposed inputs to the wholesale A-IRB capital formulas. What are views on the proposed definitions of default, PD, LGD, EAD, and M? Are there specific issues with the standards for the quantification of PD, LGD, EAD, or M on which the Agencies should focus? (P. 29)

The definition of default outlined in CP3 and the ANPR should be simplified to correspond more closely to what is commonly used by risk practitioners. That is, loans that fall under the corporate and specialized lending models should utilize a default definition that coincides solely with the incidence of non-accrual or charge-off status (thus excluding the 90 days past due and other isolated conditions present in the Accord's current definition).

We are concerned that, in the absence of moving the default definition for wholesale loans to be based solely on the occurrence of non-accrual or charge-off status, core banks will be forced to track two separate measures of default – one for internal risk assessment and a second for regulatory capital purposes. This would be a costly exercise, but one without much impact on risk measurement. This is because the ultimate measurement of risk is the loss distribution, and shifting the default definition in incremental amounts will only serve to shift the mix of PD and LGD in an offsetting fashion. The impact on measured economic capital will be minimal.

Wholesale Exposures: Formulas and Other Considerations

The Agencies are seeking comment on the wholesale A-IRB capital formulas and the resulting capital requirements. Would this approach provide a meaningful and appropriate increase in risk sensitivity in the sense that the results are consistent with alternative assessments of the credit risks associated with such exposures or the capital needed to support them? If not, where are there material inconsistencies?

The proposed formulas result in a reasonable representation of risk.

Does the proposed A-IRB maturity adjustment appropriately address the risk differences between loans with differing maturities?(P.37)

The proposed maturity adjustment appropriately addresses the risk differences between loans with different maturities, provided that these maturities are above one year. Basel maturity adjustment is a proxy for mark-to-market definition of capital where losses are defined via change of value at the one-year horizon. This change of value includes possibilities of both a default and a downgrade before or at the horizon. However, for exposures with remaining maturity shorter than one year (short-term maturity), downgrades will not produce economic loss at the horizon because, if there is no default, such an exposure simply will not exist at the horizon. Therefore, the proposed maturity adjustment can only be applied to loans with maturities above one year.

However, loans with short-term maturity have less time to default than one year. Therefore, capital requirements for short-term exposures are unjustifiably overestimated. We suggest that, for all loans with remaining maturity less than one year, one-year PD should be



adjusted downwards to reflect the remaining maturity. Under certain assumptions, there is a simple formula for this adjustment. Let us assume that, when we divide the one-year interval into an arbitrary number of smaller periods of equal length, conditionally on surviving up to the beginning of the period, probability of obligor defaulting during each period is the same. Then, probability of default over time T (maturity of short-term exposure in years) PD(T), and probability of default over one year (time horizon) PD(1) are related by this formula:

$$PD(T) = 1 - \exp(\ln[1-PD(1)] T) = 1 - [1-PD(1)]^T$$

This simple formula is very popular amongst practitioners and would be a sound choice for the PD term adjustment.

Retail Exposures: Definitions and Inputs

For the QRE sub-category of retail exposures only, the Agencies are seeking comment on whether or not to allow banking organizations to offset a portion of the AIRB capital requirement relating to EL by demonstrating that their anticipated FMI for this sub-category is likely to more than sufficiently cover EL over the next year.

As indicated above, expected margins must at least cover expected credit and operating losses for all forms of credit, not just qualifying revolving retail credits. Therefore, for all credit exposures, capital should be redefined to cover only UL. If the regulators redefine capital and introduce a separate treatment of EL (as indicated in the Attachment to October 11, 2003 Basel Press Release), the EL treatment (same for all credit exposures, not just QRE) should be done under Pillar 2. As we mentioned above, the appropriate test would be a comparison of the A-IRB measurement of one-year EL with the bank's loss provisions plus expected FMI.

The Agencies are seeking comment on the proposed definitions of the retail AIRB exposure category and sub-categories. Do the proposed categories provide a reasonable balance between the need for differential treatment to achieve risk-sensitivity and the desire to avoid excessive complexity in the retail A-IRB framework? What are views on the proposed approach to inclusion of SMEs in the other retail category?

We agree generally with proposed definitions of the retail sub-categories, but wish to note that, in future iterations of the U.S. regulatory policy, capital for HELOCs and other home equity loans should not be the same as capital for residential mortgages. In particular, we believe that the asset correlations for home equity loans should be lower than the ones for residential mortgages (see explanation below). Ideally, home equity exposures should be put into a separate sub-category with its own correlation function. If this is not feasible, home equity loans and lines of credit could be treated under "other retail" sub-category.

The Agencies are also seeking views on the proposed approach to defining the risk inputs for the retail A-IRB framework. Is the proposed degree of flexibility in their calculation, including the application of specific floors, appropriate? What are views on the issues associated with undrawn



retail lines of credit described here and on the proposed incorporation of FMI in the QRE capital determination process?

The proposed approach to estimating the inputs to the regulatory retail capital models is generally appropriate. However, no floors should be placed on any estimated parameter input. For example, for single-family residential loans (SFRs), high quality loans with low loan-to-values (LTVs) and/or private mortgage insurance (PMI) may have estimated LGDs that are close to zero. The proposed 10% floor on LGDs is not appropriate for such exposures and should be removed.

Retail Exposures: Formulas

The Agencies are interested in views on whether partial recognition of FMI should be permitted in cases where the amount of eligible FMI fails to meet the required minimum. The Agencies also are interested in views on the level of portfolio segmentation at which it would be appropriate to perform the FMI calculation. Would a requirement that FMI eligibility calculations be performed separately for each portfolio segment effectively allow FMI to offset EL capital requirements for QREs?

As indicated above, we believe that Pillar 2 should be used to see whether expected margins plus current reserves cover expected losses. If the EL treatment is at all necessary (assuming that capital is defined to cover only UL), the FMI test should be done under the pillar 2 for all credit exposures (and not just QREs). Moreover, we do not agree with the current definition of the FMI test (FMI covering EL plus two standard deviations of the annualized loss). We believe that one-year FMI plus current reserves should cover one-year EL only. In this definition of the FMI test, portfolio segmentation is immaterial.

The Agencies are seeking comment on the retail A-IRB capital formulas and the resulting capital requirements, including the specific issues mentioned. Are there particular retail product lines or retail activities for which the resulting A-IRB capital requirements would not be appropriate, either because of a misalignment with underlying risks or because of other potential consequences?

As we mentioned above, A-IRB capital formulas should be redefined so that the resulting capital would cover only UL. After such a redefinition, procyclicality of capital will be reduced, and the regulators might want to flatten asset correlations as functions of PD. We do believe that asset correlation for retail exposures should decrease with increasing PD, but Basel asset correlations for revolving exposures and other retail exposures are too steep.

In CP3 and ANPR, home equity loans and lines are treated under residential mortgages category. We believe that there are at least two conceptual arguments in favor of separate risk weight curve for home equity products.

One of the reasons why asset correlation for residential mortgages is set at such a high level is to take into account long-term nature of mortgage loans. Basel retail model does not have the maturity adjustment factor, and the effect of longer maturity on capital is incorporated into the model through higher asset correlation. Since typical maturity for home equity loans (10-15



years) is smaller than one for first mortgages (30 years) by at least a factor of two, the effective asset correlation for home equity loans should be lower than the one for first mortgages.

The majority of residential mortgages in the United States are conforming mortgages, i.e. mortgages insured by the U.S. government and not kept by banks in their books. The mortgages banks keep in their books are those that do not qualify for the government insurance (issued to either consumers with poor credit quality or consumers who buy expensive houses). Home equity loans and lines of credit are based on all kinds of mortgages and thus have a much more diverse customer base than non-conforming first mortgages. Therefore, the asset correlation for home equity products should be lower than the one for first mortgages.

Credit Risk Mitigation Techniques

The Agencies are seeking comment on the proposed nonrecognition of double default effects...The Agencies also are interested in obtaining commenters' views on alternative methods for giving recognition to double default effects in a manner that is operationally feasible and consistent with safety and soundness. With regard to the latter, commenters are requested to bear in mind the concerns outlined in the double default white paper, particularly in connection with concentrations, wrong-way risk (especially in stress periods), and the potential for regulatory capital arbitrage. In this regard, information is solicited on how banking organizations consider double default effects on credit protection arrangements in their economic capital calculations and for which types of credit protection arrangements they consider these effects.

Within the banking book, guarantees can be used to reduce the regulatory capital charge only to the level associated with the guarantor, giving no benefit to either the double-default or double-recovery effect of guarantees. That is, in order for a loss to occur on a guaranteed credit, both the underlying obligor and the guarantor would have to fail. This probability is likely to be significantly lower than the probability of either one failing, therefore the economic capital allocation for the guaranteed credit should be considerably lower than for either a direct obligation of the guarantor or the actual underlying credit. Moreover, some credit guarantees are written in such a manner that the bank, in the unlikely event of double default, can seek recoveries from both the underlying obligor and the guarantor. ANPR recognizes neither of these two risk reduction benefits.

An excellent treatment of this subject can be found in a recent white paper produced by staff at the Federal Reserve Board.² The paper describes an appropriate analytical approach to the issue (in the context of the asymptotic single risk factor model currently being used by Basel's Advanced IRB approach) and lays out the important supervisory concerns over the use of guaranteed credits or credit derivatives that function as guarantees. We believe that these supervisory concerns can be appropriately treated within the Pillar 2 process, while the analytical framework can be implemented relatively quickly within Pillar 1.

² See Erik Heitfield and Norah Barger, *Treatment of Double-Default and Double-Recovery Effects for Hedged Exposures under Pillar 1 of the Proposed New Capital Accord*, Board of Governors, Federal Reserve System, June 2003.



The only parameter necessary for the framework implementation that is not already defined in CP3/ANPR is the measure of the wrong-way risk ψ (see the paper's Appendix). This parameter can be set conservatively at the level of 40%-50% until more research is done.

Securitized: General Considerations

Should the Agencies require originators to hold dollar-for-dollar capital against all retained securitization exposures, even if this treatment would result in an aggregate amount of capital required of the originator that exceeded the pool's A-IRB capital charge plus any applicable deductions? Please provide the underlying rationale.

In absolute terms (i.e., in dollars), the risk of any tranche (or a set of tranches) cannot exceed the risk of the underlying pool. This statement is very general and holds under any definition of risk measure. Therefore, under no circumstances, the amount of capital required of an originator should exceed the pool's A-IRB capital charge.

Dollar-for-dollar capital (whether below or above K_{IRB}) is an arbitrary constraint. This constraint should not be introduced for exposures above K_{IRB} and should be removed from the treatment of originators for exposures below K_{IRB} . Capital for securitization exposures held by originators should be computed according to the modified SFA discussed below. Under this treatment, the total capital requirements for originators will always be below K_{IRB} (it will equal K_{IRB} when the originator holds all the tranches defined on a pool).

The Agencies seek comment on the proposed treatment of securitization exposures held by originators. In particular, the Agencies seek comment on whether originating banking organizations should be permitted to calculate A-IRB capital charges for securitizations exposures below the KIRB threshold based on an external or inferred rating, when available.

Under the proposed rules, both investors and originators are required to use the RBA whenever external ratings of a tranche are available. Only when no external rating available, originators are allowed to use the SFA. The SFA is based on Gordy/Jones model,³ which provides reasonably accurate description of the risk underlying a given tranche. Apart from its dependence upon rating, this risk (represented by capital) depends on the underlying pool's granularity, credit quality and asset correlations, as well as tranche thickness. Therefore, the RBA, which is primarily ratings-based, is necessarily inferior to the SFA in terms of describing the risk underlying a securitization tranche. While the RBA is useful for investors, who typically do not have complete information on the underlying pool, the superior SFA should always be used by originators, who do have this information.

The Agencies seek comment on whether deduction should be required for all nonrated positions above KIRB. What are the advantages and disadvantages of the SFA approach versus the deduction approach?

Deduction is not conceptually justifiable for any tranche – whether it is below K_{IRB} or above. As we argued above, the SFA should always be used by originators regardless of the

³ Michael Gordy and David Jones, *Random Tranches*, Risk, March 2003, pages 78-83.



availability of rating. Moreover, as we suggest below, such supervisory constraints as the capital floor and dollar-for-dollar capital below K_{IRB} should be removed from the Supervisory Formula.

Securitized: Capital Calculation Approaches

The Agencies seek comment on the proposed treatment of securitization exposures under the RBA. For rated securitization exposures, is it appropriate to differentiate risk weights based on tranche thickness and pool granularity?

Apart from its dependence upon rating, tranche capital depends on underlying pool's granularity, credit quality and asset correlations, as well as tranche thickness. Thus, the RBA is necessarily less accurate than the SFA. However, accuracy of the RBA can be improved if some of this dependence is taken into account. This is what was attempted in CP3 and ANPR via introduction of three separate capital factors for each rating. We believe that the regulators are on the right track here, but disagree on the calibration.

We have computed capital according to Gordy/Jones model for underlying pools of different granularity and considered tranches of different ratings. We used Moody's table that relates ratings to expected losses⁴ and considered only infinitesimally thin tranches to remove the difference between the Moody's and S&P rating systems. Our calculations clearly show that granularity has much stronger effect on capital than RBA capital factors suggest, particularly for highly rated tranches. Another result of our calculations is that overall level of capital factors is way too high for high ratings (AAA, AA) and too low for low ratings (BBB and below).

The Agencies seek comment on the proposed SFA. How might it be simplified without sacrificing significant risk sensitivity? How useful are the alternative simplified computation methodologies for N and LGD

The SFA is based on the Gordy/Jones model with two added supervisory overrides: (i) dollar-for-dollar capital up to K_{IRB} and (ii) the floor which sets minimum capital of 0.56% for any tranche. Neither of the overrides can be justified conceptually and both of them lead to significant disparity between the capital charge and the underlying risk. We are particularly concerned with the floor because model-based capital for most senior and super-senior tranches is one or two orders of magnitude less than the floor. On the other hand, dollar-for-dollar capital up to K_{IRB} leads to overestimation of capital for narrow mezzanine tranches with credit enhancement levels in the vicinity of K_{IRB} roughly by a factor of two. Therefore, we believe that both supervisory overrides should be removed from the SFA. As an additional benefit, this removal would significantly simplify the Supervisory Formula.⁵ If not removed completely, the floor should be reduced to a few basis points.

⁴ See Table 2 in Moody's Special Report *The Lognormal Method Applied to ABS Analysis*, July 27, 2000.

⁵ The capital for a tranche with credit enhancement level L and thickness T would be just $K(L+T) - K(L)$, where function K is defined in paragraph 590 on page 117.



KeyCorp's Response to Draft Supervisory Guidance regarding Operational Risk Measurement and Management

Introduction

KeyCorp considers itself privileged to be able to comment on the U.S. Regulatory Agencies' Draft Supervisory Guidance regarding Operational Risk Measurement and Management published in the Federal Register, August 4, 2003 along with the Advanced Notice of Proposed Rulemaking (ANPR).

KeyCorp has actively participated with industry groups such as RMA, ISDA and IIF in constructing their responses to the ANPR as well as Basel II in general. We are fortunate to have had the opportunity to work with them, as well as all other participating financial institutions. Also, as an individual institution, we have discussed and advanced concepts, analysis and models on numerous occasions and on various topics to regulators active in the Basel II process.

We are in general agreement with the positions taken in the RMA industry group's response to the AMA Framework for Operational Risk and Draft Supervisory Guidance regarding Operational Risk Measurement and Management. Listed below are some issues we believe may not have been adequately covered by the industry working groups, or that we think deserve extra emphasis.

This document only covers KeyCorp's position on items contained in Section V ('AMA Framework for Operational Risk') of the Advanced Notice of Proposed Rulemaking (ANPR) and the Draft Supervisory Guidance regarding Operational Risk Measurement and Management. Separate documents have been sent as our responses to other aspects of the Advanced Notice of Proposed Rulemaking (ANPR) and Draft Supervisory Guidance on Internal Ratings-Based Systems for Corporate Credit.

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KeyCorp's Response to Draft Supervisory Guidance regarding Operational Risk Measurement and Management

Detailed Comments

KeyCorp strongly supports the overall regulatory framework for operational risk measurement and management, proposed in Section V of the Advanced Notice of Proposed Rulemaking (ANPR), titled 'AMA Framework for Operational Risk', and the accompanying Supervisory Guidance on Operational Risk (SGOR).

Given the current state of intellectual development and practical awareness surrounding operational risk, the Agencies have quite rightly proposed a flexible framework wherein individual institutions have considerable room to develop their own internal models.

KeyCorp stands firmly in support of an explicit capital charge for operational risk under Pillar 1. Our support rests on the following arguments:

- Moving Op Risk charge to Pillar 2 would necessitate raising the credit risk charge in Pillar 1 in accordance with the principle of maintaining the overall capital charge. Banks with significantly more credit risk, compared to operational risk, would be at a disadvantage.
- Having an explicit capital charge for operational risk will foster convergence in the methodologies for measuring and managing operational risk. This is a good thing for the industry. Such convergence is likely to flounder if each institution's treatment of operational risk is isolated from the rest of the industry. Our past experience with market risk lends support to this viewpoint.
- Pillar 1 capital charge creates a level playing field among the banks that are either required to join the new Basel regime or plan to opt-in. Inclusion of Op risk charge as a Pillar 2 component would introduce an unacceptable level of subjectivity.
- Pillar 1 capital charge is consistent with a comprehensive enterprise-wide risk view, with credit, market and operational risk as the three major risk types. All of these risks lend themselves to measurement and similar statistical techniques for analysis, in particular computation of economic capital. Furthermore, operational risk is intimately linked with both credit and market risk (by way of operations in the credit and market areas). It stands to reason that the goal of fully understanding the risk profile of an institution, and the management of that risk, would immensely benefit from requiring that operational risk be subjected to the same rigor and supervisory treatment as are credit risk and market risk.

- The Basel II process up to now has not only focused on regulatory capital for Operational Risk but also (much more than in credit risk, for example) catalyzed major development in the definition, categorization and management of Op risk. The emphasis on Operational risk has increased significantly across the banking industry. A Pillar 1 treatment will ensure the pace of development needed in methodologies for Op risk and place the emphasis that it deserves.

Along with our support for the general direction laid out in the ANPR and Draft Supervisory Guidance regarding Operational Risk Measurement and Management, there are a number of issues that we seek clarification for or would like to comment on. The issues are divided into six sections:

- I. Transition**
- II. Corporate Governance**
- III. Methodology**
- IV. Internal Data**
- V. External Data & Scenario Analysis**
- VI. Risk Mitigation**

I. Transition:

Allowance of BIA or SA for operational risk

According to the proposed rules, U.S. banks will be able to take advantage of the Advanced Internal Ratings-Based Approach (AIRB) for credit risk only if they also qualify for operational risk AMA. Banks for whom credit risk is the major burden, adopting AIRB is very important. In contrast to the credit risk processes and policies, the operational risk infrastructure is fairly immature and there are uncertainties surrounding the qualification processes, including ambiguities of some of the qualifying criteria. In this light, it seems harsh to disallow a bank from advanced practice if it fails, *in a small measure*, to qualify for operational risk AMA. For those banks that, at the time of implementation of the new rules, are well underway towards a mature operational risk measurement and management framework and have a well-defined roadmap to the finish line, the agencies should consider the option of simpler operational risk capital methodologies, such as the Basic Indicator Approach or the Standardized Approach, as a temporary measure.

II. Corporate Governance:

Standards too prescriptive

The division of responsibilities vis-à-vis management of operational risk is best left to the individual institution. While it may be suitable to mandate that the Board should be aware of the operational risk profile of the institution and the major losses and issues that surface, it is probably inappropriate (certainly impractical) to require them to 'oversee the

development of the firm-wide operational risk frameworks, as well as major changes to the framework' (S2).

III. Methodology:

Consistent treatment of Expected Loss

Recently, the Basel Committee indicated that expected losses will not be included in credit risk capital. A consistent treatment should be meted out to operational risk. Just as in credit risk, banks anticipate and cover for expected operating losses in the form of reserves, product pricing and future margin income, as part of managing their everyday business. Capital should be charged for only the unexpected part of the losses and the adequacy of the coverage for expected losses should be treated as a supervisory matter in Pillar 2.

Indirect Costs

In response to the ANPR question whether indirect losses (for example, opportunity costs) should be included in the definition of operational risk against which institutions should hold capital, we strongly oppose the inclusion. While in principle it is attractive to measure the full economic impact of an operational event, in practice, the endeavor would be plagued by issues of uniform application of rules across banks and accuracy of measurement. Furthermore, today, banks are just learning to collect data on losses that show up in their financial books. The data collection process is too immature to handle more intangible losses such as opportunity costs.

IV. Internal Data:

3-year data requirement rule should not be changed

Implementing and executing a loss data collection is tedious and time-consuming exercise for banks. The difficulty is compounded if information has to be collected retrospectively, especially if there is need to go back more than a few quarters. All along, the Basel documents have spoken of a three-year minimum requirement of internal data for the purposes of qualifying for AMA. KeyCorp started collecting data late-2002, so as to have 3-4 years of data by the end of 2006, the proposed implementation date of the New Basel Accord. It is not appropriate to change the rules midstream and change the minimum requirement from 3 to 5 years, notwithstanding the provision provided for in the footnote on page 153 stating that 'a shorter initial period may be acceptable for institutions that are newly authorized to use an AMA methodology'.

Default Correlations should be less than 100%

Adding operational risk capital estimates across the individual buckets of loss types (and perhaps business lines) amounts to setting the correlation between these various risk processes to 100%. Even though there is likely to be some correlation between the

individual operational risk categories, in most cases it is guaranteed to be very small. For example, the correlation between Internal Fraud risk and Damage to Physical Assets risk is going to be close to zero. The situation is likely to be similar for all loss category pairs, perhaps with the exception of 1) Internal Fraud and External Fraud, and 2) Clients, Products & Business Practices and Execution, Delivery & Process Management. As such, taking perfect correlation as a starting point and insisting on rigorous procedures to demonstrate otherwise, leads to an excessively conservative viewpoint with significant overestimation of the true overall operational risk.

V. External Data & Scenario Analysis:

Scope of Scenario should be expanded

The current language of CP3 gives the impression that External Data & Scenario Analysis are to be used only for high severity events. What does one do in cases where there is almost no data in a certain risk bucket, e.g. Damage to Physical Assets? We believe that External Data & Scenario Analysis provide a rational framework to create "virtual events" and should be used to fill any gaps in data. Typically, most of the gaps will be toward the high severity end. But the principle of generating loss information using External Data & Scenario Analysis remains valid for all potential events.

Identifying a minimum uniform set

While we understand the value (and indeed the necessity) of using external data, leaving the gate wide-open in terms of the particular data institutions would use—"relevant external data (either public data and/or pooled industry data)"—jeopardizes the comparability of the internal models across institutions. Presumably, supervisory oversight under Pillar 2 would ensure a level playing field in the use of external data. Nonetheless, this may not be sufficient comfort to institutions that are peers and competitors.

For the purposes of AMA there should be **one** aggregate industry database (whether maintained by the industry or the national supervisors) and all institutions adopting AMA should be required to take into account all events in this database, with relevancy for their particular institution factored in. This is a tall order but one that would go a long way in insuring uniformity.

Regulating agencies should support safe-harbor laws for data pools

Operational event data consortia, like the ABA's Operational Risk Consortium (ORC), are very important for increasing the knowledge pool of potential operational events and their impact. There are serious confidentiality and privacy concerns because of which the information getting into the database gets restricted and consequently of less use. For example, the ORC does not collect descriptive information about individual loss events, thereby reducing its usefulness as an input for a root cause or scenario analysis.

VI. Risk Mitigation

Floor of 20% is arbitrary

Given the already stringent requirements for an insurance coverage to be eligible as risk mitigation, why should the reduction be limited to 20% of the total operational risk capital charge? We understand the need for a haircut on insurance coverage, as definitely there is a non-zero probability of an insurance payment not coming through. However, a haircut of 80% seems too high. More transparency, on part of the Basel Committee, about the data and rationale leading to the 20% impact limitation would be in order.

The SGOR specifies fairly rigid parameters for an institution to utilize insurance as a primary risk mitigant. In effect, the paper only authorizes the placement of commercial insurance, with underwriters having strong financial ratings, into the institution's adjustment for risk mitigation. For the top banking companies in the United States, including KeyCorp, the exclusion of wholly owned captive insurance companies is inappropriate.

Insurance via captives should get acceptance

There are several shortcomings associated with transferring operational risks to the commercial insurance market.

- **Timeliness of payments**: Significant insurance claims relating to operational risks being presented to commercial underwriters for coverage, seldom, if ever, result in *timely* payouts. It is far more common, and is certainly KeyCorp's experience, that coverage litigation is necessary in order to impose payment from our insurance carriers pursuant to the policy terms and conditions.
- **High deductible**: High deductibles which preclude risk transfer for virtually all operational risk losses are the reality which faces all institutions falling within the scope of the proposed Basel II Capital Accord. For financial insurance coverages including professional liability and blanket bond, KeyCorp retains the initial \$25,000,000 loss before the claim is presented to the commercial insurance carrier.
- **Specificity of coverage**: the explicit mapping of the policies by the commercial insurance industry to cover the various operational risk exposures of the institution may be conceptually attainable but would be subject to subsequent coverage restrictions over time based upon the whim of the commercial markets. What is insurable in one year is deemed uninsurable the next and the insurers react in lock step with each other. Some of the notable coverage exposures that fall within the scope of operational risk that have been abandoned by the commercial insurance market recently are unauthorized trading, various investment banking risks, and property exposures such as mold.

We believe that a detailed evaluation and understanding of the operations of wholly owned captives such as KeyCorp Insurance Company, Ltd., would result in its

endorsement as a primary risk mitigant relating to operational risk. Every characteristic pertaining to the insurance policy as an acceptable risk mitigant, identified in the proposed rulemaking document, coincides with the effective use of a wholly owned captive. Broad policy terms and conditions, realistic deductibles, and timely claims payouts can only depict coverage written through a captive insurance company and not coverage offered through commercial underwriters.

Openness towards other risk mitigation techniques

The new rules should leave the door open for innovation in the area of operational risk mitigation and not declare insurance as the only risk mitigation acceptable at these early stages of development.