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Consultative document
"Range of practices and issues in economic capital modelling"

Dear Madam, dear Sir,

On 29 August 2008 the Basel Committee on Banking Supervision published consultative document no. 143. The document addresses general issues associated with using economic capital models to assess economic capital adequacy and examines a range of practices in the field of economic capital modelling applied by international banks.

Comments have been invited by 28 November 2008. We are grateful for the opportunity to respond to the document and outline the position of the German banking industry below. The description of the investigation's findings is largely sound, in our view, and gives considerable insight into best practice at international financial institutions. We do not, however, believe

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that it is possible to derive recommendations from this overview, which deals only with a limited number of big banks. For this reason, we have confined ourselves to some general remarks and to commenting on the recommendations drawn from the range of practices described.

General remarks

The consultative document analyses and assesses internal procedures for calculating economic capital. These procedures are based on a bank's risk management methods and their integration in the organisational and operational structure of the institution.

Unlike the methods that can be used for prudential purposes under Pillar 1,

- which have a standardised structure,
- which for various reasons must be comparable among institutions and
- which greatly reduce in many respects the freedom institutions have in determining their capital requirements,

the use of economic capital models under Pillar 2 is motivated solely by internal considerations. Restrictions that have to be accepted under Pillar 1 are not appropriate for internal risk management models.

Economic capital models are developed to aid senior management in the task of calculating the size of overall economic capital requirements and allocating resources within the institution. They also enable management to determine the bank's risk appetite. It is therefore vital that as good and as accurate an estimate as possible is made on the basis of realistic assumptions and with the institution's risk profile in mind.

Judged by this yardstick, the consultative document is insufficiently principles-based, especially where the recommendations are concerned. This runs the risk of inconsistency with internal, portfolio-based economic capital models. One problem, for example, is that internal estimates are based on the assumption of extreme losses (tail risk), as shown by the internally selected loss distribution quantile (99.95% and over). This is already much more conservative than Pillar 1 requirements. It therefore makes little sense for the document to make repeated calls for additional margins of conservatism.

As we see it, the objective of the document is to establish a common understanding among supervisors concerning the analysis of economic capital models. We also consider it a suitable tool for training supervisors. We do not, however, interpret it as a set of requirements, let alone a timetable, for a model-approval process. Even if some of the recommendations are directed at the supervisory community, we assume that the banks will be affected by them too.

We believe it is important to bear in mind that economic capital modelling is essentially a bank-driven process to be followed by a phase of dialogue with supervisors. This concept should not be turned on its head by setting requirements which the banks have to take into account from the outset. The roles and responsibilities of institutions and supervisors should not be incorrectly assigned.

This view is evidently shared by the Basel Committee on Banking Supervision. As the Committee's chairman, Nout Wellink, said in June 2007: *Pillar 2 really starts with you, the banks. First and foremost, responsibility lies with bank management for developing an internal capital assessment process and setting capital targets that are commensurate with the bank's risk profile and control environment. <….> Excessive participation by supervisors in a bank's capital adequacy assessment process or firms' over-reliance on supervisory review of their assessments are both counter to Basel II's objectives and raise the risk of moral hazard.*

A model-approval process such as that required under Pillar 1 for internal market risk models should consequently not be part of the ICAAP-SREP dialogue under Pillar 2. In our view, Pillar 2 does not envisage "licensing" economic capital models as a condition for recognising diversification benefits in the ICAAP, for example. Nor is such a licensing procedure necessary.

The description of the findings largely reflects the best practices of big international banks. According to the 2005 PWC survey mentioned in the consultative document, the economic capital concept is applied by 27% of the 200 banks interviewed throughout their company and by 16% in certain units. There is a danger of the described standards being used as a yardstick for judging all other institutions as well. The Basel Committee should be conscious of this danger. Owing to the approach of the document, however, it does not make an adequate distinction between the needs and capabilities of smaller institutions and those of large, usually internationally active banks. We believe, for example, that it is feasible, prudentially acceptable and consistent with the principle of proportionality for small institutions and institutions with a low risk profile to refrain from using internal portfolio models. The

consideration of interdependencies between different types of risk is enormously complex both in theory and in practice (e.g. because not enough empirically valid correlation data is available). For this reason, summation of different types of risk should be unrestrictedly possible at least for inter-risk without this giving rise to any additional modelling requirements.

This procedure should not disadvantage these institutions in any way. It is important to retain a sense of proportion when considering the approach of small banks to economic capital models. That applies, for example, to reporting, the scope of documentation, validation cycles and data acquisition.

We welcome the fact that the consultative document does not attempt to deal exhaustively with the relationship between regulatory and economic capital and focuses instead on certain selected aspects. It should at least be made clear, in our view, that differences between the results of calculating regulatory and economic capital requirements will not give rise to additional capital charges. It is a mistake to believe that the results of Pillar 2 models lend themselves to supplementing regulatory capital requirements under Pillar 1. This is not the intended purpose of Pillar II findings. It is often forgotten, for example, that the quantitative results of the two approaches are normally based on totally different procedures and methods which are not comparable, particularly at banks which do not use models for prudential purposes. The results cannot be made comparable, let alone be applied cumulatively. It would therefore make little sense to try to validate Pillar 2 results with the help of Pillar 1 figures, even in the area of intra-risk diversification. Nor are the results interchangeable. Differences merely reveal the shortcomings of regulatory risk measurement. Furthermore, the impression should be avoided that the document’s recommendations are intended to be guidelines for developing an additional Pillar 2 model for SREP purposes.

Comments on the recommendations

We would now like to discuss the Basel Committee’s recommendations, which we believe all need to be revisited at least as far as their wording is concerned. In our view, the passages we comment on should be revised or even deleted. This applies not only to the recommendations themselves, but also to the associated statements in sections II to V.

Recommendation 1: Use of economic capital models in assessing capital adequacy

We do not understand Recommendation 1 (*A bank wishing to use …*) to mean that supervisors may virtually decide from the outset whether or not a bank is allowed to use an economic capital model in the ICAAP/SREP dialogue. As mentioned above, the ICAAP/SREP dialogue is a bank-driven process, which is followed by the dialogue phase. This approach should not be reversed by setting requirements which have to be met from the outset. The roles and responsibilities of banks and supervisors should not be incorrectly assigned.

The recommendation states that the board of directors should be able to *demonstrate awareness of the gap between gross (stand alone) and net enterprise wide (diversified) risk when they define and communicate measures of the bank's risk appetite on a net basis*. We do not consider it the task of a paper on a range of best practices to make such a detailed recommendation on the role of the board of directors. This sentence should be deleted.

We do not share the view that economic capital models provide complementary (in the sense of additional) information to other methods of assessing capital if these refer first and foremost to Pillar 1 (cf. our general remarks on the relationship between Pillars 1 and 2). We do not consider Pillar 2 results a supplement to those of Pillar 1 but believe that, owing to the different approaches of the pillars, the two sets of figures are totally independent of one another. This is precisely the strength of the Basel Framework's pillar concept.

The management incentives mentioned in section II 4 (page 11) – i.e. the relevance to bonuses of achieving certain economic capital targets at business unit level – can in our opinion only be cited as an example, but not as a mandatory element in the context of the use test.

Recommendation 2: Senior management

It is correct to stress the importance of monitoring the viability and usefulness of a bank's internal economic capital processes and to recommend that senior management be involved. Nevertheless, the expectations of senior management in this context should not be too high. Ongoing monitoring of a model's quality, for example, requires an extremely high level of mathematical/statistical expertise, especially when it comes to validation. As we see it, the senior management's responsibility here is to ensure that sufficient personnel and technical

resources are available to handle these tasks – in other words, to put in place a sensible framework for developing and refining models.

The fact that the use of economic capital models is not widespread at present cannot be explained solely by a lack of commitment on the part of senior management. Rather, it is a sign that developing and implementing such models is a long-term process and that some major methodological and practical obstacles have yet to be overcome.

Recommendation 3: Transparency and integration into decision-making

In principle, every bank should be able to decide as part of its risk management strategy which aggregation level of which economic capital data to use in its decision-making processes. Overall, the bank's risk management strategy should be appropriate to the volume and type of its business.

It goes too far, in our view, to recommend that the economic capital model should be integrated into the bank's decision-making process in a way that is externally verifiable at all times. This overestimates the significance of a single risk measurement tool. It would be extremely onerous and bureaucratic to implement such a recommendation, which ignores the fact that an economic capital model is merely one of many instruments used to assist decision making.

As far as the frequency of calculating economic capital requirements is concerned, we would like to point out that this depends largely on the availability of the necessary data, and thus on the category of risk – e.g. market versus credit risk (section II C3, page 15).

It is not clear, in our view, what is meant by the "robustness" of economic capital models.

Recommendation 4: Risk identification

Reputational risk is cited as an example of a risk which, though material, is difficult to quantify. The document nevertheless assumes that it would make good sense for banks to quantify and allocate economic capital to this risk category. We cannot endorse this view. We agree that there is most certainly a need for qualitative management of reputational risk

(cf. also para. 742 of the Basel Framework). But reputational risk is not primarily a direct, quantifiable risk of loss. Though damage to a bank's reputation may have an adverse effect on its future business, it is not possible to put a figure on, or set capital aside against, lost future earnings. In cases where there is a direct risk of loss associated with reputational risk, this is usually already taken into account in the bank's internal economic capital analysis of credit, market or operational risk. For this reason, a survey by Deutsche Bundesbank in 2007 found, unsurprisingly, that even big internationally operating banks in Germany did not include reputational risk in their ICAAP models. We consequently assume that it is also possible for economic capital models to refrain from considering this risk. If the statement that certain *risks that are difficult to quantify … should be captured in some form of compensating controls* is to be understood as meaning no allocation of economic capital is necessary, we would warmly welcome this interpretation.

Recommendation 5: Risk measures

We agree with your assessment that all of the examined risk measures have advantages and disadvantages which need to be understood with respect to their application. Table 1 is extremely helpful in this context. Potential problems associated with using the non-coherent value-at-risk (VaR) measure (cf. III B) are nevertheless manageable, in our view. We consider the reservations concerning VaR to be mainly academic and believe that the problems described are encountered by banks only rarely in practice.

We would like to point out that standard deviation is not a coherent risk measure if coherence is judged on the basis not only of subadditivity, but of the four characteristics set out by Artzner, Delbean, Eber and Heath (monotony, translation invariance, positive homogeneity and subadditivity).

The idea of establishing a procedure to reconcile Pillar 1 and Pillar 2 results makes little sense in our view (III D, page 23). As explained above in our general remarks, the two sets of figures are totally independent of one another owing to the different bases on which they are drawn up. Comparability cannot be imposed on results which are fundamentally non-comparable.

Recommendation 6: Risk aggregation

Owing to a lack of empirically valid information, it is often necessary to use the estimates of experts or proxy approaches when aggregating different types of risk (inter-risk aggregation). It is virtually impossible in such cases to demonstrate that these estimates are representative of the bank's own business and risk profile. Expectations should consequently not be set too high in this respect.

The document rightly draws attention to the problems associated with applying a standard time horizon (IV B 1, page 26). The square-root-of-time rule, which is mentioned as a method of scaling up short-term VaR estimates in the trading portfolio to a common one-year horizon, would usually overstate the risk significantly, however. The criteria for applying this rule are not normally met.

Recommendation 7: Validation

It is extraordinarily difficult to demonstrate that a model-generated level of the overall economic capital required to absorb losses has been estimated with sufficient accuracy (validation of the quantile estimate). An empirical validation along the lines of that preformed in market risk modelling is not feasible for economic capital models. Regulatory backtesting standards in the area of market risk cannot be applied to the validation of an economic capital model. It is therefore hardly surprising that the document notes that backtesting plays virtually no role in validating economic capital models (V A 2(iv), page 35).

It would be helpful to have an assessment by supervisors of what can and, in particular, what cannot be expected from a validation of extreme quantiles (99.95% and above). Owing to the paucity of available data, it is not normally possible to test model results using the usual 99.95% quantile. The findings would at the very least be highly subjective. At most, a simple plausibility test would be feasible in our view.

A replication by supervisors of the model used by a bank is proposed as a possible regulatory validation technique (V A 2(ii), page 34). This procedure would be extremely onerous for both banks and supervisors. At most, it could be used to train supervisors, but is not a suitable investigative approach in the ICAAP/SREP dialogue. Furthermore, it is questionable what

conclusions about the validity of the model could be drawn simply by supervisors duplicating its results.

The document calls for the validation of the entire loss distribution to be carried out by persons independent of those responsible for developing the model and designing and conducting the validation process (V A 2, page 36). This call for a third independent review is totally unrealistic in our opinion due to the lack in the market of suitably qualified personnel. What is more, the question arises as to whether there is really a need to validate the entire loss distribution or whether the considerably less complex quantile validation would be sufficient.

Recommendation 8: Dependency modelling in credit risk

Economic capital models already determine unexpected loss under extreme stress circumstances by virtue of the quantile assumption which is applied. Correlation estimates should be consistent with the quantile used, also under stress circumstances. Normally, the dependency structure will vary according to whether measurement takes place under normal or stressed market conditions. We therefore doubt that it is possible to calibrate an economic capital model for both situations, as is suggested by the wording *under normal circumstances* ***as well*** *as under stress circumstances*.

There are, moreover, strict limits on “conservatism”. Owing to the paucity of relevant data for credit risk measurement, the confidence bands for estimated parameters are very broad and parameters estimated on the basis of a high confidence level may differ sharply from the corresponding point estimators. For highly granular portfolios, in particular, which are largely driven by systematic risk, these effects can lead to extreme and unrealistic economic capital estimates. As a result, a clear and objective interpretation of what is meant by a margin of conservatism is probably not possible.

On the use of internal data for modelling dependency structures, the document states that there is sufficient default data available to calibrate default correlations for corporate portfolios (Annex 1, B 2, page 44). We do not agree with this assumption and believe that there is insufficient data for adequate calibration.

Recommendation 9: Counterparty credit risk (CCR)

It should be examined whether the views expressed here are consistent with the rules on IMM under Pillar 1. Since it may be assumed that banks using models to estimate CCR will apply the same approach under Pillar 1 and Pillar 2, it is important to ensure consistency.

Recommendation 10: Interest rate risk in the banking book

Banks often measure interest rate risk in the banking book using the same VaR methodology as that used for the trading book. It is therefore likely to be difficult in practice for models to take account of all option features in credit agreements, such as termination and special repayment rights, and it may be necessary to focus only on material risks.

We would welcome the opportunity to discuss your recommendations and would naturally be happy to provide further information on any of the issues raised.

Yours sincerely
on behalf of the Zentraler Kreditausschuss,
Bundesverband deutscher Banken

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