

ISDA

International Swaps and Derivatives Association, Inc

A NEW CAPITAL ADEQUACY FRAMEWORK

**COMMENTS ON A CONSULTATIVE PAPER ISSUED BY THE BASEL
COMMITTEE ON BANKING SUPERVISION IN JUNE 1999**

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EXECUTIVE SUMMARY

ISDA welcomes the initiative taken by the Basel Committee to review the 1988 Capital Accord. The Accord divorces capital requirements from the banks' own loss measures. As such, it has given rise to arbitrage opportunities and stands at odds with best risk management practice. ISDA believes that banking book capital charges should be brought into closer alignment with banks' own economic capital measures. To achieve this objective, the new capital adequacy framework should be based on the following principles:

1) **Clarity:** The assumptions underlying the new framework should be made explicit where this is possible. For instance, the horizon set for holding capital (equivalent to the holding period retained in the trading book rules), as well as the loss percentile assumed, should be specified. This is a prerequisite for establishing a consistent, incentive-compatible framework, particularly since relying on portfolio risk models in the longer term future is envisaged, which ISDA strongly supports. ISDA suggests retaining 99th percentile loss over a one year horizon as a basis for setting capital requirements. This would ensure that capital charges constitute a minimum standard that is non-constraining for well-managed banks (see Section I).

2) **Economic consistency:** The regulatory capital charges should be aligned more closely with banks' economic capital, and be sensitive to the same risk drivers that govern economic capital variations. The current Accord and the proposed revisions fail this test. ISDA has identified a range of key factors, and derived capital requirements based on these factors. For instance, credit risk charges are dependent on the tenor of the exposure, the default probability of the issuer, the loss given default on the facility and diversification (see Section II). Similarly, where analysing contingent credit risk, ISDA has linked default correlation with parameters such as the country of incorporation and industry of the obligors. Economic consistency is a condition for the proportionate recognition of risk mitigation (credit derivatives, operational risk insurance) (See Section III). In addition, ISDA strongly advocates the recognition of banks' potential future exposure measures by the supervisors in the calculation of counterparty risk charges.

3) **Simplicity:** Supervisors should seek to avoid excessive complexity in developing the new capital rules. The revised rules need to remain sufficiently simple, although robust, in order not to burden the banks with disproportionately high implementation costs. To this end, ISDA suggests a framework for credit risk, where the same matrix of capital requirements applies whether or not the bank has been allowed to use its internal ratings for regulatory purposes (see Section II). Similarly, the incorporation of credit risk mitigation in the framework is not differentiated according to whether the capital charges are internal ratings or external ratings-based (see Section III).

4) **Incentives for good risk management:** Finally, it is essential that the supervisors consider carefully whether minimum capital requirements are the appropriate tool against the forms of risk under consideration. ISDA does not believe that charging regulatory capital against operational risk is sensible, because this risk is mostly endogenous and should therefore normally be addressed by adopting proper systems and controls. Establishing minimum capital charges against operational risk would lead to arbitrage, and runs the risk of discouraging the development of adequate controls, in particular if the charges applied bear little relation with the underlying risk. ISDA would suggest developing an assessment methodology for banks' operational risk as part of Pillar II of the review, to at least ensure that intervention, if warranted, is proportionate to the amount of risk incurred and quality of the controls in place (see Section IV). Similarly, it is proposed to address interest rate risk in the banking book as part of Pillar II.

From a broader standpoint, ISDA welcomes the Committee's emphasis on improved supervision. We also support Pillar III of the review, in so far as disclosure can effectively foster market discipline.

As capital charges become a function of the risks banks are exposed to and of the quality of their risk management, regulators will need to develop, or place increased emphasis on banks' supervision. The viability of the new approach depends on their ability to structure adequate supervisory reviews. ISDA considers that, although the precise modalities of supervision might be refined at national level, its founding principles should be agreed internationally, to establish or to preserve a level playing field between G-10 institutions. In this process, improved co-operation should be encouraged between banks and their supervisors, to foster mutual understanding on their respective constraints, objectives and tools (see Section V). In order to further shape the Basel Committee's proposals, detailed work is required in a number of fields, notably:

- internal rating systems' reviews and establishment of criteria for the recognition of internal ratings;
- future reliance on portfolio credit risk models ; and
- development of an assessment methodology for operational risk.

Finally, the comparative treatment of banks and securities firms for capital adequacy purposes is not addressed in this paper. ISDA recognises that this is an important issue, but views it as more relevant to the debate currently taking place within the European Union. We will comment on the European Commission's regulatory proposals¹ separately.

¹ European Commission (18 November 1999) "A Review of Regulatory Capital Requirements for EU Credit Institutions and Investment Firms"

INTRODUCTION

The 1988 Capital Accord, by setting minimum capital standards for internationally active banks, has made a major contribution to enhancing the stability of the global banking system. Its widespread adoption in non G-10 countries has further reinforced the soundness of banks world-wide.

However, as pointed out in ISDA's report "Credit risk and regulatory capital" (March 1998),² the current capital regime has serious weaknesses. Its major flaw is the absence of an appropriate link between the regulatory bucketing system and true credit risk. The risk weighting categories are defined by reference to types of counterparties (sovereign/bank/corporate) rather than the exposures' credit quality, which divorces capital requirements from the concept of loss measure. Credit risk fluctuations and the term structure of credit risk are ignored, and the effect of collateral and other forms of credit risk mitigation (guarantees, credit derivatives etc) is acknowledged only very sparsely.

Eleven years after its release, the Accord stands at odds with best risk management practice and has produced inefficiencies and arbitrage opportunities, prompting the erosion of banks' regulatory capital base.

ISDA believes that the Basel Accord review, in order to be effective, will need to ensure that capital requirements reflect economic risk, and as such, capture the effect of risk mitigation and diversification. Directional consistency is important : regulatory capital and internal economic capital calculations should respond similarly to increases and decreases in risk.

The Basel Committee paper offers grounds to presume that supervisors have taken these objectives into consideration: the possibility of using banks' internal ratings as a basis for setting their capital requirements could go a long way to ensuring that economic risk underpins regulatory capital charges. The section of the paper on credit risk mitigation also offers scope for input from the industry, which ISDA hopes will ensure that credit risk hedges can be recognised more fully in the new capital rules.

We believe however that the conceptual framework behind the new proposals should be detailed further. The Basel Committee is suggesting that banks should hold capital against a plethora of risks but its precise objective in setting capital charges in the first place is not stated clearly. Neither is the breakdown of the risks between the Three Pillars fully substantiated, nor are the parameters of the regulatory "model" (minimum capital requirements) specified.

ISDA recognises that the Basel Committee made the conscious choice of issuing a fairly general document, to provide more scope for industry consultation. We welcome the openness of the Committee and are pleased to participate in the consultation process.

Our response on the paper is structured in five main sections: the conceptual framework underpinning the Accord is reviewed first, followed by developments on credit risk capital charges; the third section focuses on the treatment of credit risk mitigation; the fourth, on other risks; the fifth section relates to the implementation of the new capital adequacy rules and the sixth and final section outlines possible areas for further work.

We hope that the comments contained in this document will help the Basel Committee to refine the approach it outlined in June 1999. We would welcome further discussion with the supervisors, both nationally and internationally, and would gladly consider requests for ISDA to conduct further work, should this be considered to be of use in the review process.

² Available from www.isda.org

I. CONCEPTUAL CONSIDERATIONS

One of the objectives of the Basel Committee in reviewing the 1988 Capital Accord appears to be to align capital requirements more closely to banks' economic capital, with a view to reducing the opportunity for regulatory arbitrage. To this end, supervisors have sought to identify the various sources of risk to which banks are exposed, and to render capital charges more sensitive to the economic drivers of risk.

ISDA welcomes the proposed approach, which essentially mirrors banks' own methodologies for measuring potential sources of loss. However, we discuss below six points, whose clarification we believe is beneficial to the objectives of the Basel Committee:

- 1- Supervisory versus economic capital
- 2- Parameters underpinning the minimum capital requirements : percentile and time horizon
- 3- Appropriateness of applying minimum charges
- 4- Risk sensitive charges
- 5- Level playing field among banks
- 6- Overall level of banks' capital

ISDA would also like to offer comments on two additional issues:

- 7- The interaction between Pillars II and III
- 8- The consistency of treatment between the trading and the banking books

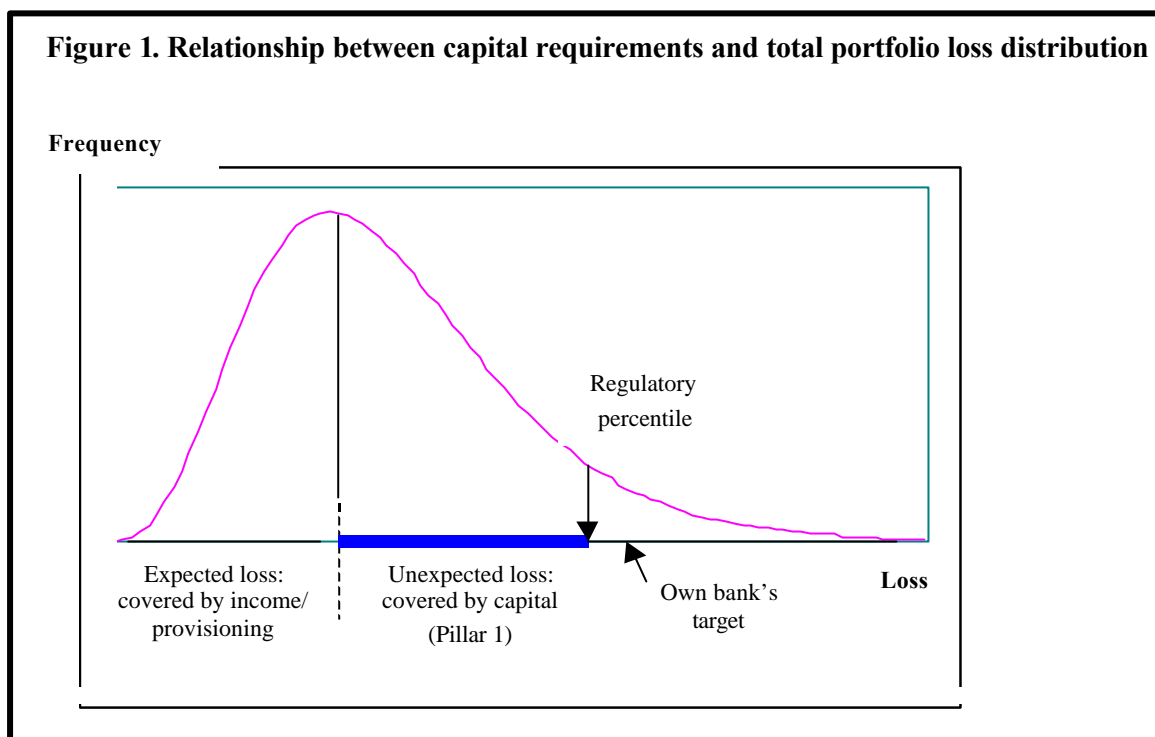
1. Supervisory vs. economic capital

ISDA is encouraged by the fact that supervisors are seeking to promote closer alignment between economic and regulatory capital.

International minimum capital requirements should be based on an insolvency standard³ and may be set using the very tools which banks are implementing to determine their economic capital needs. As is the case for the determination of economic capital, the basis for the regulatory capital calculation would be a loss distribution. The following graph illustrates the approach:

³ In other words, banks' default probability would be capped at a certain level by regulators.

Figure 1. Relationship between capital requirements and total portfolio loss distribution



For a well-managed bank, the minimum capital requirement should be non-constraining. It should, in other words, constitute a trip-wire limit, not a burden on daily operations. Banks' shareholders and managers will in general set economic capital according to a more demanding insolvency target, for instance in order to attain a given external debt rating.

Furthermore, regulatory capital should not as a general rule be required against expected loss. Expected loss is normally factored into the spread charged on particular products and covered by provisioning. ISDA would recommend that supervisors review banks' provisioning policies as part of the supervisory review, and only require that regulatory capital be held against expected loss where the reserve is clearly insufficient. ISDA notes in this respect that the accounting definition of general provisions differs across countries, and that accounting rules sometimes inappropriately restrict the scope of such provisions. It is important that supervisors address this issue with the accounting profession to identify materially inconsistent practices.

2. Parameters underpinning minimum requirements: percentile and time horizon

ISDA believes that setting minimum capital requirements based on an insolvency rate will ensure that the parameters underpinning the regulatory approach are constant throughout the evolutionary framework envisioned in the Basel Committee paper. By using the same standard to calibrate the various steps making up the framework (e.g., for credit risk, from ratings-based through to portfolio credit risk models-based capital) supervisors will set up consistent and incentive-compatible capital adequacy rules.

In this respect, it has been difficult to reconcile the 8% ratio in the Accord with any clear regulatory objective. ISDA believes that it is now both feasible and necessary to clarify the parameters of the Accord.

The evolution of risk management techniques at banks since 1988 has meant that institutions are able to make explicit the way in which their economic capital is determined: the horizon retained to estimate losses and the percentile targeted for calculating economic capital have become common risk management parameters. ISDA would urge the Basel Committee to adopt a similarly explicit approach. This would imply that supervisors state which combination of "percentile, time horizon" underpins the minimum capital requirements.

ISDA believes that the 99th percentile loss could constitute a suitable basis for setting minimum regulatory capital. This would in particular not be restrictive for well-managed institutions as these institutions set economic capital levels above the 99th percentile.

As far as the regulatory horizon is concerned, ISDA would recommend adopting one year. A one year horizon underpins many banks' economic capital calculations and is the period for which most credit related data are available. It is also possible to show that the equivalence established between rating categories and risk weights in the matrix of risk weights proposed on page 31 on the Basel document implies a one year horizon for "normal", i.e. 100% risk weighted risk. For this purpose, we have computed worst historic yearly default rates per rating category :

Table 1. Worst Historic Yearly Default Rates

Ratings	Worst historic annual default rate for 1970-1997*
Aaa	0.0%
Aa	0.61%
A	0.26%
Baa	1.33%
Ba	5.30%
B	23.38%

* Source: Moody's Investors Services, "Historical Default Rates of Corporate Bond Issuers 1920 – 1997"

The Basel Committee proposes to apply a risk weight of 100% for Ba1 down to B rated corporates, which broadly corresponds to the worst observed default rate in these rating categories over a one year period, assuming that (i) the solvency ratio remains of the same order of magnitude under the new rules; (ii) zero recovery rates apply.

Importantly, the calculations performed in Section II of this paper are based on one year, 99th percentile credit loss.

3. Appropriateness of applying minimum charges

It is ISDA's view that minimum capital requirements are not the appropriate form of protection against all forms of risk.

- Operational risk is a case in point. In contrast to credit and market risk, operational risk is typically endogenous. From the point of view of economic efficiency, shareholders would rather reduce such risk at the source by implementing appropriate controls than immobilise capital to offset it. Putting standard capital requirements against operational risk in place could have the unintended consequence of increasing risk: firms might elect not to bear the cost of developing proper controls if capital requirements are too high. Furthermore, there are sub-types of "operational" risk for which losses are so extreme that they are impractical to capitalise (See Section IV for more detail).

As controls are the proper defence against operational risk, supervisors should focus on monitoring the effectiveness of such controls at supervised firms. Only where these controls are ineffective (or where a bank completely fails to address operational hazard) might regulatory action in the form of capital requirements be appropriate. But the decision on this course of action (and the level of any requirements) would clearly be a matter of largely qualitative judgement, and would as such fall under Pillar II of the new framework.

- ISDA also feels that the amount of interest rate risk on a bank's banking book should be assessed as part of Pillar II. This is because the way in which risk arises, is measured and managed by banks is institution-specific and does not lend itself to standardisation. Although many banks seek to transfer interest rate risk from the banking book into a risk warehouse based on transfer pricing mechanisms,

these mechanisms differ widely from one institution to the next. Both the BIS and prominent national regulatory bodies have previously recognised these complexities and supported an individual supervisory approach.

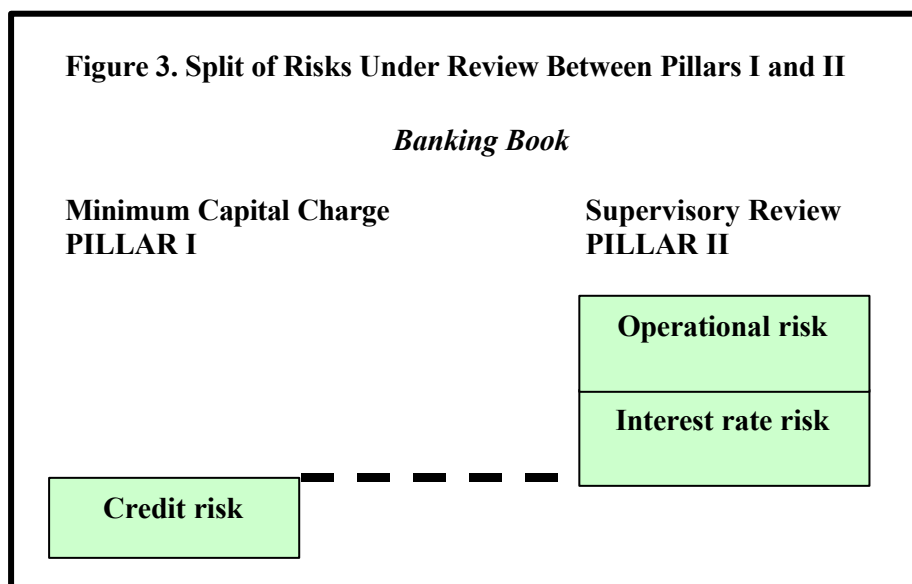
The amount of interest rate risk on a bank's books is sensitive to the particular circumstances of the institution: the complexity of its Asset/Liability portfolio, its ability to monitor and control risk, qualitative factors reflecting the nature of the instruments giving rise to the risk, and its systems, organisational structure and personnel.

Supervisors, by determining benchmark sensitivities or benchmark stress-tests, are bound to ignore the specific circumstances of the bank and create incentives contrary to optimal and transparent risk management.

It should be stressed at this point that measuring interest rate risk in the banking book implies assessing the impact of interest rate changes on liabilities as well as assets. The level of risk is strongly influenced by the banks' strategic choices, the impact of which can only be assessed satisfactorily by supervisors as part of Pillar II.

It should be sufficient for banks to disclose their strategy to the supervisors and let them review their internal measurement and management of interest rate risk. The requirement for additional capital should only arise where the supervisory review has established material failings in a bank's ALM function and if the bank does not take appropriate steps to correct these failings. Given the absence of generally accepted risk models for interest rate risk in the banking book, proactive and preventive supervisory intervention based on meaningful comparisons of methodologies and management environments is far more effective than any model-based calculation. An institution-specific approach has the further benefit of allowing for evolution in both the institutional and supervisory methods used to assess the risk.

- In the light of the above, only credit risk is seen to warrant a minimum capital charge in the banking book, leading to the following distribution of risk categories across Pillars I and II of the Basel review:



4. Risk sensitive charges

While ISDA recognises that, at least initially, the system for determining regulatory capital will involve some simplifications, it believes that the capital number obtained from this simplified approach should respond, at least directionally, to increases and decreases in risk in the same way that

the models for economic capital respond. This in turn suggests that the methods proposed by the Basel Committee should reflect the main risk drivers.

In the longer run, where risk models are more widely tested, supervisors should use them as a basis for setting regulatory capital requirements. Only then can regulatory arbitrage be truly deterred, and equality of treatment between banks be achieved, since the approximation involved in relying on simple measures (e.g.: for credit risk, additive risk weightings based on internal ratings) implies that some important dimensions of risk are captured inaccurately (e.g.: concentration risk). ISDA has expressed views on the use of credit risk models in a recent letter to the Models Task Force (Appendix D).

5. Level playing field among banks

As suggested above, equality of treatment between banks can only be attained if supervisors set capital charges that are sensitive to the economic components of risk; in this sense, the crucial point is not that the same capital formula applies to all banks, but that the approach retained enables supervisors to effectively differentiate banks according to their embedded riskiness.

Importantly, enhancing competitive equality between banks might require further harmonisation of accounting and tax practices across G-10 countries. ISDA believes that supervisors should establish stronger links with accounting bodies. This is a pre-requisite for the satisfactory implementation of the proposed framework.

6. Overall level of banks' capital

The Basel Committee has stated that the new framework should “at least maintain the current overall level of capital in the system”. ISDA believes that this objective is inconsistent with the laudable goal of trying to make international capital rules more risk sensitive. The Basel Committee should in particular refrain from imposing capital charges for operational risk or other risk types as a means of maintaining existing capital levels, even if the overall level of credit risk capital is reduced.

The main purpose of the review should be to establish capital requirements in relation to the underlying risks taken by banks, in order to avoid distorting banks' behaviour.

If supervisors want to keep the banking system from reducing capital levels, minimum standards are not the appropriate tool, given that banks in most countries already operate above the minimum level of required capital. Supervisors should review the consistency of banks' capital levels with the amount of risk embedded in their activities as part of Pillar II of the proposed framework. ISDA strongly supports the approach taken by some supervisors in this matter (e.g. Federal Reserve SR letter 99-18).

7. Interaction between Pillars II and III

In monitoring a specific bank's capital adequacy, supervisors need to take a view of its global riskiness. Market indicators of regulated institutions' credit quality (such as equity and equity option prices, debt ratings, subordinated and senior debt spreads etc) carry useful information in this respect. ISDA would strongly suggest that supervisors use them as a trigger for corrective action in the event of a sudden and material increase in an institution's default probability.

Pillar III of the review, by introducing disclosure requirements that improve the quality of these indicators, will support the exercise of supervision. ISDA recognises that the precise shape of these requirements is currently being discussed between the industry and the supervisors and hopes that these discussions will produce sensible results.

In this respect, supervisors should keep in mind the distinction between regulatory reporting and the disclosure of information to investors. Some data might be made available to the supervisors, which it would be counter-productive to air publicly. A parallel may be drawn in this respect between the supervisory process and the debt rating process: institutions seeking a rating will supply rating

agencies with more information than would be made available to the public. Supervisors find themselves in a position somewhat comparable to that of rating agencies, as guardians of the soundness of the banking system in the eyes of its creditors.

8. Consistency of treatment between the trading and banking books

In its June consultation paper, the Committee states that it will review the treatment of trading book positions to ensure consistency with the banking book and to reduce the incentive for regulatory capital arbitrage. It would be helpful for the Committee to clarify what is meant here. As the Committee develops its thinking on this topic, it might wish to keep the following considerations in mind :

- (i) It would not be productive to reopen the discussion of market risk capital, as the current rules reflect a lengthy, thorough dialogue with the banking community, and banks have been implementing the existing rules only for a short time;
- (ii) The Committee should build on conceptual principles to define criteria for allocating assets between the banking and the trading books (such as intent), rather than rigid product distinctions. For example, where tradable loans meet trading book criteria, they should be treated as such.
- (iii) Should the Committee reopen the discussion of trading book positions, they should ensure that any modified capital requirements take due account of diversification and risk mitigation effects between the trading book and the banking book.
- (iv) There are specific areas where the proposed capital adequacy review offers scope for reducing the gradient between the banking book and trading book regimes: credit risk mitigation is a field where more convergence can be attained (see Section III “Improving the treatment of credit risk mitigation”).
- (v) For risks included in the review which are also relevant in the trading book, the Committee should seek harmonisation as appropriate :
 - (a) For instance, if the Committee designs an operational risk charge applying across the whole of a bank’s activities, we would expect the trading book VaR multipliers to be kept in mind with a view to eliminating any “double counting” of risks.
 - (b) We understand that the revised risk weighting recommended for the banking book will be applied to the counterparty risk weights for OTC derivatives in the trading book. We would request clarification on this issue and would ask that supervisors consider the following four issues:
 - First, we would strongly recommend that for derivatives positions, whether collateralised or not, supervisors accept to rely on the banks’ modelling of potential future exposure. We would seek the acceptance of internally generated time varying expected exposure measures on each counterparty’s portfolio. These measures could replace the current PFE add-ons which are applied to individual transactions and are estimates of the expected exposure on each transaction. Acceptance of internally generated measures of expected exposure would allow for full netting and hedge recognition, recognition of the relative “in and out the moneyness” of the positions in each portfolio, and correlation across market drivers. Sophisticated exposure measurement is a necessary condition for full credit modelling and thus acceptance of internal exposure measures could

be seen as a necessary step in the evolution of credit risk capital requirements.

- Second, in the absence of modelling for PFE, ISDA would recommend that the Capital Accord address exposures where there is a high default correlation between the “in- the-moneyness” of a trade and the inability of a counterparty to pay or perform. For example, for cross currency swaps and fx forwards where the counterparty is domiciled in a sub-investment grade country whose currency it contracts to receive against paying the currency of an investment grade country, a PFE in the amount of 50% of notional would be appropriate. For equity derivative transactions where in-the-moneyness of the trade increases as the value of the counterparty’s own stock declines, a PFE in the amount of 100% of notional would be suitable.
- Third, we recommend that the Committee revisit the current formula for netting of potential future exposure to more fully realise the benefits of netting. The current formula results in capital increasing in proportion to the gross exposure even though counterparties may actually be reducing risk through legally enforceable netting arrangements. Accordingly we would suggest that the PFE for netting be solely a function of the net exposure.
- Finally, ISDA would advise that if a bank manages counterparty credit exposures as trading book exposures, and marks those exposures to fair-value for reporting purposes, the bank should be allowed to have internal models treatment for the specific risk of the relevant exposures, subject to satisfying established criteria for model recognition. Such treatment would replace the Accord’s standard approach to calculating capital for counterparty credit exposure.

The Committee also notes that it will consider adjustments for assets with moderate liquidity. Asset liquidity factors into fair value accounting techniques and it may be most appropriate to address supervisory concerns about liquidity through Pillars II and III.

II. RECASTING CREDIT RISK REQUIREMENTS

1. Recognition of Internal Ratings

A. General comments

The Basel Committee has proposed basing credit risk capital treatment on banks' internal ratings.

ISDA strongly welcomes this move: internal ratings capture a number of the loss characteristics attached to banks' exposures (default probability for obligor ratings, loss given default for facility ratings). Developing an internal ratings (IR) based approach for setting banks' credit risk capital requirements should therefore ensure that regulatory capital charges more closely reflect the banks' risk profile and contribute to greater alignment of regulatory and economic capital.

a. Internal ratings vs. portfolio modelling

ISDA would note, however, that ratings of individual assets only give an indication of the expected default rate or loss attached to these exposures. Founding credit risk capital requirements on ratings hence implies assuming a set level of diversification across banks' portfolios. ISDA believes that greater accuracy can be attained by using portfolio credit risk models, which are currently the best available risk management tool for detecting and measuring credit risk diversification at bank portfolio level. We would urge supervisors to include the possibility of using them for setting banks' minimum capital requirements in their final proposals, even though only at a future date. In the meantime, model reviews should be included as part of the supervisory assessment of banks. Pillar II of the review offers scope for penalising excessive credit risk concentration.

Furthermore, ISDA would like to point out that the difficulties perceived by the supervisors in validating models can be addressed for certain type of portfolios, notably retail, mortgage and project finance assets. We would hope that early recognition of portfolio modelling can be obtained for these asset categories.

The use of internal ratings nevertheless constitutes a useful stepping stone towards reliance on full portfolio modelling. We hope, in particular, that the review of banks' rating systems will help allay some of the concerns expressed by the Basel Committee regarding the quality of the data input into the models.

b. Scope of application of internal ratings based requirements

The Basel Committee has proposed basing capital requirements on internal ratings only for "sophisticated banks". ISDA believes that most G-10 international banks have rating systems in place, and that supervisors should review these systems regardless of whether the bank falls or not within the ill-defined "sophisticated" category. Only if a system clearly lacks robustness or if it does not translate into a default rate or loss measure should it be disregarded for regulatory purposes. The relative degree of sophistication of eligible rating systems could be reflected as part of the supervisory review, by applying add-ons to banks whose systems might be improved substantially.

ISDA would also argue that banks should be able to receive partial internal rating recognition, subject to the absence of "cherry picking". Significantly, the Basel Committee, by ensuring the consistency of approach between the IR based capital requirements and the standardised rules, has the ability to discourage regulatory arbitrage. This will notably require that assets of a similar rating receive identical capital charges under both approaches and that non-publicly rated assets are treated in a sufficiently penal manner. The capital charges proposed by ISDA in Section II.2.B below satisfy these two constraints (see this section for more detail on how capital charges based on external ratings might be derived).

B. Supervisory recognition of internal ratings⁴

The recognition of internal ratings involves an assessment of the concepts behind internal rating models; the use of such models; and the validation methods adopted to provide confidence in the output. Defining criteria for the recognition of internal ratings is an arduous task, since banks' internal rating systems are diverse in both conceptual make-up and practical working.

- (i) The loss concept underpinning the rating differs across models and banks: ratings often reflect counterparty default probability and/or expected loss on facilities, but may in some cases merely constitute an ordinal ranking of the banks' exposures relative to each other.
- (ii) The horizon for assessing the credit quality of counterparty/ exposures varies.
- (iii) The rating system may be calibrated on long-term average default/loss measures (so-called "central tendency" or "through the cycle" approaches) or assess the point-in-time quality of issuers/exposures.
- (iv) The methodologies used to arrive at a rating are themselves diverse: some models directly infer a default probability from market indicators (spread or equity based models), others rely on the statistical analysis of financial indicators relative to the counterparty (score cards, neural networks). Furthermore, although many institutions have financial measures at the basis of their scoring system, they also include a qualitative assessment of management and contingencies, which can modify their initial quantitative analysis.
- (v) Models differ in the way they incorporate the effect of contingent credit risk (e.g. country risk, credit risk mitigation).

Despite the plurality of approaches observed, itself reflective of each bank's organisational structure and business choices, ISDA believes that it is possible to identify both qualitative and quantitative standards by which to assess a rating system. We have assembled below (i) sound practice recommendations on internal ratings processes; and (ii) examples of how internal rating systems might be validated. We hope that in developing their own set of standards, supervisors will find this information useful.

a. Qualitative characteristics: sound practice recommendations

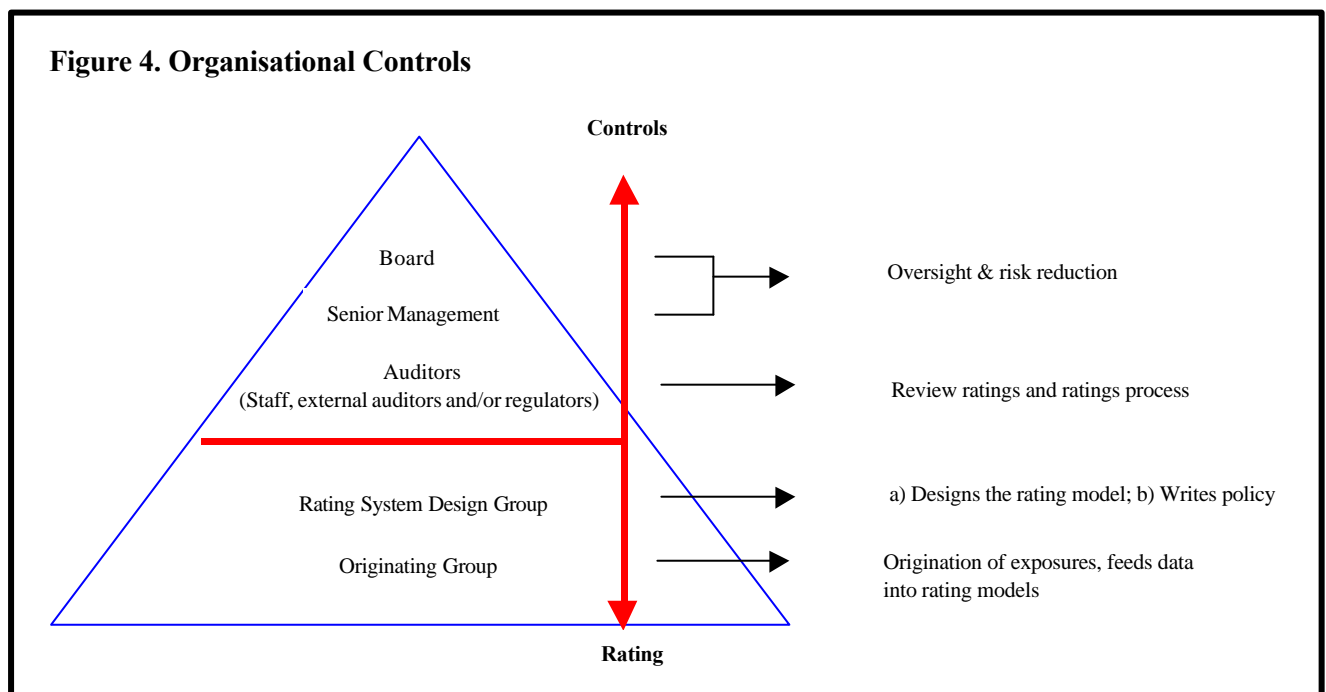
The internal rating process is just as important as the rating methodology itself. Some of the qualitative standards presented below are similar to those outlined in the Basel Committee's "Amendment to the Capital Accord to Incorporate Market Risks" (January 1996).

- 1) *Proactive approach to ratings.* To ensure the effectiveness of a rating system it is fundamental that banks adopt a philosophy that is conducive to high control standards. This involves:
 - **Active use.** Internal ratings should be used internally by banks, for instance for pricing, limit setting, economic capital allocation or provisioning decisions.
 - **Oversight and revision.** Banks should commit to continuous review and regular improvement. In particular, they should commit resources to audit internal models and empower capable staff in the introduction of necessary changes.
 - **"Sound practice".** Banks should aim at "sound practice" both in the design and usage of internal ratings system. There is a well-developed body of literature and experience on the development and enhancement of rating models that should be taken into account where setting up a new system or reviewing it. This includes topics such as the choice of methods, calibration and validation. Concerning systems usage, banks should aim at verifying the use of models and their output; the quality of the input data; and model users' understanding of the workings of the model.
- 2) *Appropriate organisational controls.* Banks should have an organisational structure that has sufficient control mechanisms built-in to ensure that the rating system is properly designed,

⁴ The considerations below are in keeping with the findings of the Models Task Force on internal ratings

implemented, validated and revised. The following illustrates how this might be achieved, drawing on banks' practice :

- **Rating system design group.** The design of the internal rating model(s) of a bank often lies in a group separate from the commercial relationship staff (originating group). Apart from working on the methodology and the technology behind model(s), this group is responsible for producing guidelines on the rating process. The originating group uses model(s) and provides some of the data necessary to allow them to run.
- **Separate rating audit group.** A rating audit group, usually part of the bank's group audit, is typically in charge of controlling the quality of the rating methods and practices, notably:
 - the conceptual adequacy of the rating system used and its validation, including checking on the accuracy and completeness of the input data; the consistency, timeliness and reliability of data sources; and the adequacy of the information system used in the rating process; and
 - the organisation of the rating system design group.
- **Senior management oversight.** The rating and rating-validation processes need to be reviewed by senior management, i.e. managers "with sufficient seniority and authority to enforce reductions in a bank's overall risk exposure".⁵



3) *A bias-averse rating process.* An internal rating system that has appropriate mechanisms in place to avoid biases goes a long way to demonstrating robustness. Biases can be avoided through:

- **Static grids.** Users of rating systems should not, as a general rule, have the ability to modify them. Having "static" internal ratings that can only be amended using specific procedures provides greater certainty.
- **Rating availability.** Internal ratings should be made available throughout the firm to allow users to flag inconsistencies and play the role of control officers.
- **Clear guidelines on the rating process.** For consistency and clarity, the rating system design group should produce guidelines that clearly outline the models used and the rating process within the firm. Proper documentation substantially improves consistency, as well as continuity over time and beyond specific teams of experts. .
- **Validation procedures.** Validation is a key tool to ensure the accuracy and reliability of risk measurement techniques. Validation will be discussed in more detail below.
- **A uniform approach to rating.** Teams with different portfolios of customers should take a consistent approach to rating⁶.

⁵ Basel Committee (1996).

b. Validation

The purpose of validation is to assess both the credit rating process and its outcome in order to identify sources of biases and errors. In this regard, firms may have very valid reasons for operating differently. Accordingly, it would be helpful for supervisors to understand how individual banks operate and the way in which they have improved over time, when making judgements as to the validity of the ratings produced.

b.1. Purpose of validation and main challenges

Supervisors might wish to look at what validation methodologies are in place, how the outcome of such methodologies is interpreted, and how it is used to upgrade the rating systems.

The principal focus should be on whether internal systems properly differentiate exposures according to their loss characteristics (i.e. the likelihood of default or expected loss). Validation methods aim at assessing the accuracy and discriminatory capacity of rating systems, with a view to detecting four main types of flaws:

- *Calibration errors*: Are the central default probabilities (or expected loss levels) corresponding to each grade adequately established?
- *Rating errors*: Are assets graded consistently with their inherent loss characteristics?
- *Granularity errors*: Does the number of gradings allow sufficient differentiation of the exposures in a portfolio?
- *Stability of ratings (if relevant to the rating system used)*: Is the proportional relationship between the average EDFs that define rating categories consistent throughout the cycle, both overall and within market segments?⁷

The first question can be addressed by comparing expected and actual default/loss rates. The second issue may be examined by comparing the ratings awarded to the same company or set of companies by a variety of institutions, including rating agencies. The third question requires breaking down the exposures by bucket on the rating scale. Although a bank may happen to have a large percentage of exposures in one particular grade, it is important to determine whether this reflects the nature of the exposures, or a lack of granularity of the scale. The fourth question calls for a review of the stability of ratings throughout the economic cycle or during economic shocks.

The graph below provides one example of how the validation process relates to the internal ratings process.

⁶ One way of promoting convergence of approach is by rotating staff temporarily (e.g. to have staff responsible for rating oil companies rate banks and vice-versa).

⁷ In other words, the structure of the rating scale should remain constant throughout the cycle, as shown in the following example:

Let us consider a rating scale comprising four classes :

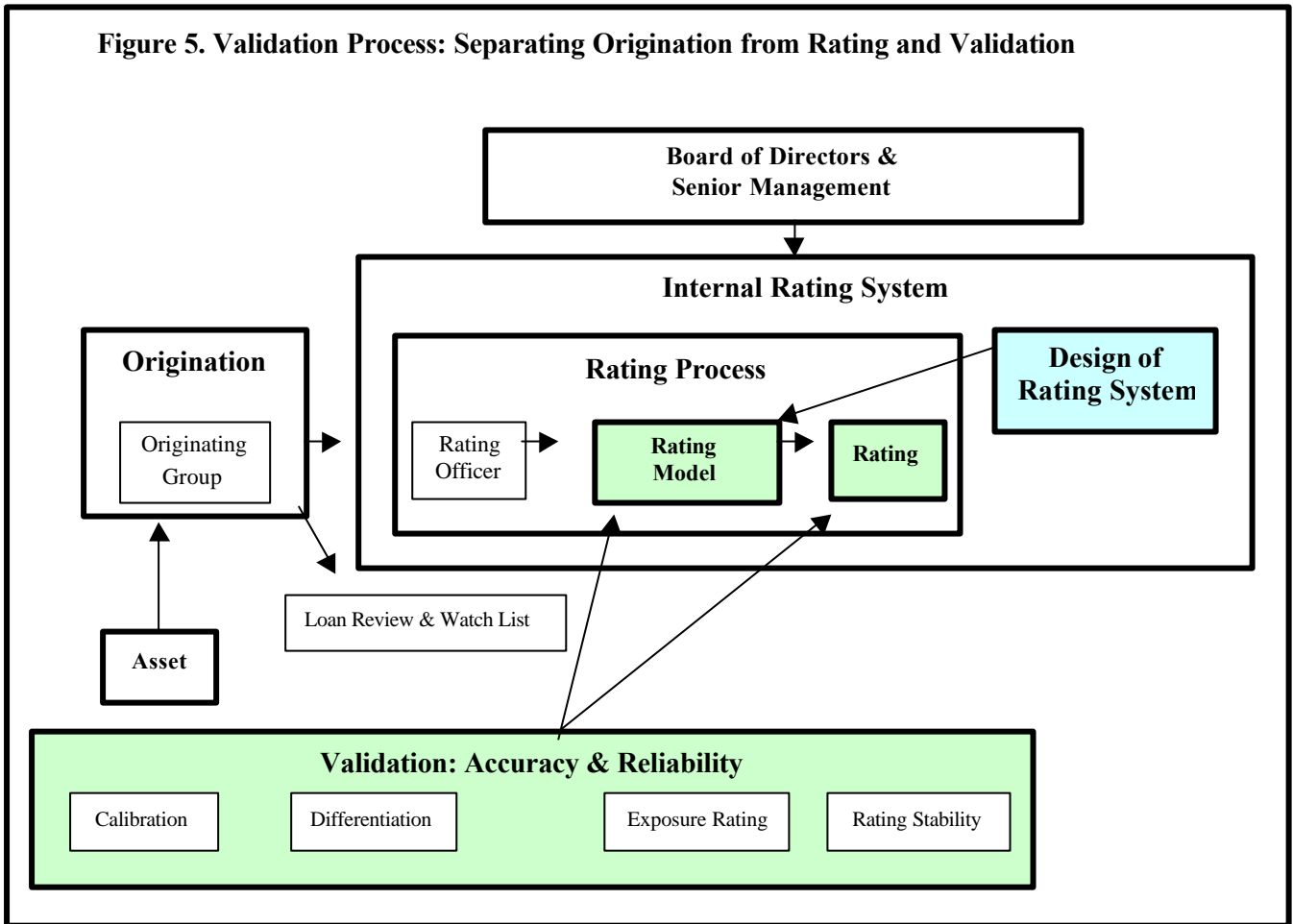
Class A	EDF=	5 bp
Class B		50 bp
Class C		500 bp
Class D		5000 bp

For the rating to be stable, rating classes should react along the pattern below in economic down or up-turns:

Down-turn :		Up-turn :	
Class A	8 bp	Class A	2 bp
Class B	80 bp	Class B	20 bp
Class C	800 bp	Class C	200 bp
Class D	8000 bp	Class D	2000 bp

In other words, the relative calibration should be stable throughout the economic cycle.

Figure 5. Validation Process: Separating Origination from Rating and Validation



Checking for errors in internal ratings systems is not without challenges. Data scarcity in particular is a constraint in certain segments of the market or in certain countries. Partly as a result of this, some of the methodologies that are comfortably applied to market risk can be of limited use where validating internal ratings.

b.2. Validation methods

Validation is generally carried out on a system-by-system basis, reflecting the diversity of models often used by banks across their different portfolio segments. Several methods may be employed to validate internal ratings. These methods, described below, can be grouped in three categories: performance testing; benchmarking; and relying on external assessments.

b.2.1. Performance testing

Performance testing typically amounts to calculating observed default rates/loss rates in each rating category over a sufficient period of time, and verifying the existence of a strong relationship between internal ratings and default/loss rates.

Actual default/loss rates can then be compared to those assumed or predicted by the rating model. Discrepancies might indicate an inadequate specification of the model or the need for re-calibration (due, for instance, to changes in economic circumstances).

The main difficulty posed by this method is the need for a large time series of internal ratings and default or loss events. For some institutions, default is a rare experience and the sample set will be too sparse to enable validation. This is especially true in the higher rating grades.

There are several ways in which a reduced data set may be enlarged for validation purposes. If a bank has few defaults in a one-year period, it could go further back and use older default data in its analysis. It could also use its model to produce a retrospective history of internal ratings, or widen the set of exposures upon which the model is tested, by including non-customer companies in its rating process.

In view of the scarcity of data, however, most institutions also use benchmarking as a validation tool.

b.2.2. Benchmarking

Benchmarking is an efficient way of approaching the validation of internal ratings for publicly traded companies. It involves contrasting the output of an internal rating system against estimations of default/migration probabilities⁸ or losses obtained using other rating sources. For such comparison to be meaningful, the degree of conceptual consistency between the two systems being compared must first be assessed.

Using rating agencies

It is common practice for banks to benchmark their ratings against those developed by agencies such as Moody's and Standard & Poors in order to be able to use the relatively long time series of default/migration rates assembled by these agencies.

Benchmarking against external ratings has potential limitations however :

- (i) First, for banks whose portfolio contains a substantial proportion of externally rated assets, validating against external ratings may create a large selection bias, which would compromise the reliability of the validation process itself.
- (ii) Second, rating agencies' default histories have tended to be US-focused, which may lead to question their relevance in countries where default patterns have been distinct from those observed in North America. However, most agencies are actively expanding their activities into Europe and Asia.

Using collective databases

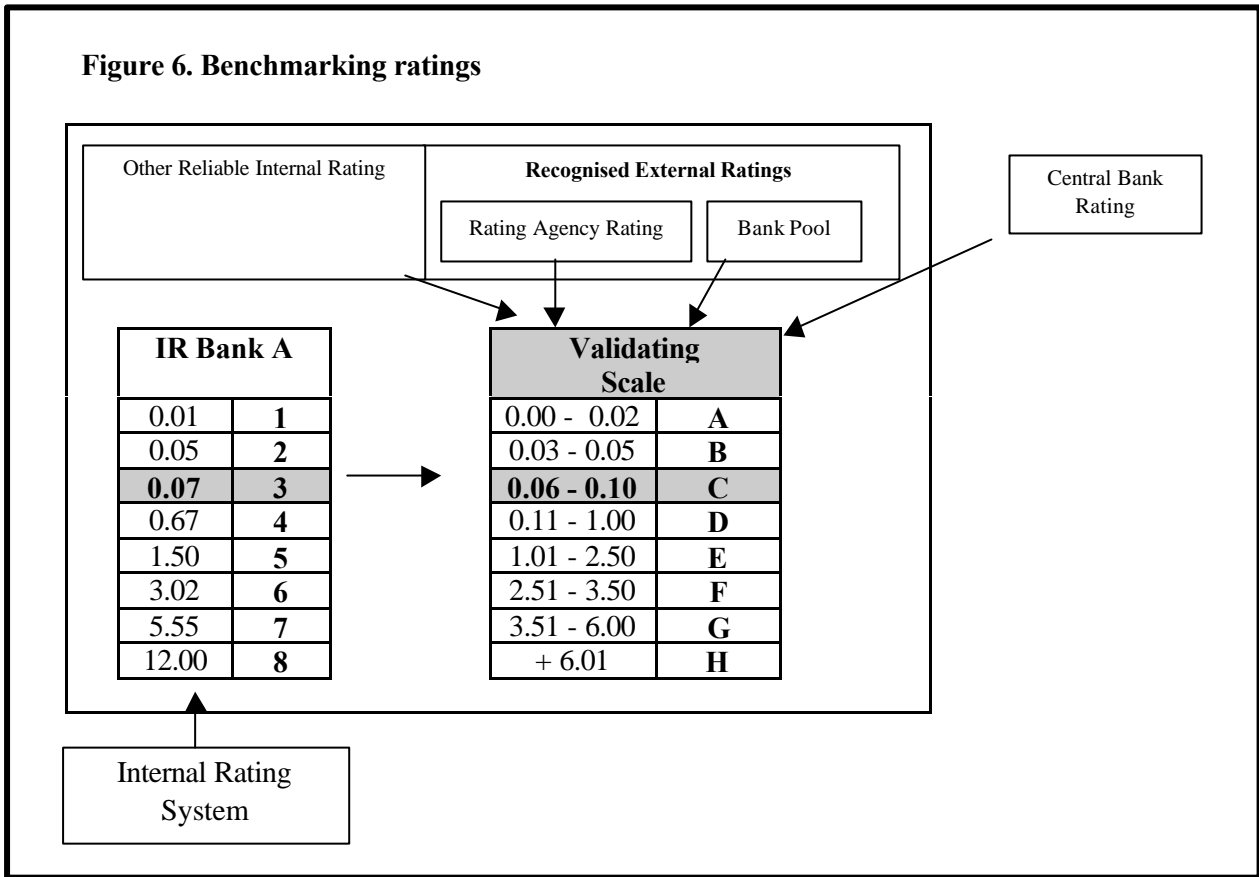
Collective databases offer another potential benchmark. Such databases exist in certain countries, where they have been assembled at the initiative of the industry, commercial firms or even the supervisors themselves. In the context of the Basel review, supervisors might need to consider the need for setting-up such databases, since these are a prime means of checking the distribution of bank ratings across a sample of counterparties. It is important to note in this respect that some supervisors may benchmark banks' ratings against their own rating systems (e.g. Banque de France).

Using other model outputs

Banks may also assess the outcome of their internal rating models by running other models and comparing outputs. For this purpose, they may for example attempt to replicate KMV's CreditMonitorTM. They can feed the same data used in their internal model (and other pertinent information) to an alternative methodology. The study of differences in output between the internal rating system and the alternative method can reveal inconsistencies.

⁸ In principle, validating migration is easier, since more events are contained in the data set.

Figure 6. Benchmarking ratings



b.2.3. External assessments

Internal ratings can further be subjected to external assessments.

Assessment by rating agencies.

Banks may use external rating agencies to validate their own ratings. Public securitisation involves precisely this process: rating agencies review the loss characteristics of the underlying portfolio in order to be able to rate the notes issued to investors.

Assessment by consultants.

Consultants can also play a role in validating internal systems, including the audit of the validation process itself.

Assessment by the supervisors

In some countries, supervisors have already reviewed their banks' internal rating systems. This practice would become standard with the implementation of the proposed capital adequacy standards.

The market test

One should not forget that a compelling validation process is already performed by the market. The price which investors are ready to pay for CBOs/CLOs is itself a function of the underlying portfolio's credit quality and may be used as a basis for assessing the underlying rating system.

Table 2. Validation Methods: Pros and Cons

<i>Validation Methods</i>	<i>Definition</i>	<i>Pros</i>	<i>Cons</i>
Performance Testing	<i>Calculation of observed default rate/loss rates in each rating category over a period and comparison with rate predicted or assumed by the rating model</i>	<i>No external benchmark required</i>	<i>Large time series is necessary (problem of data scarcity)</i>
Benchmarking	<i>Assessment of internal ratings by contrast with ratings produced by other organisations</i>	<i>Enables access to external default/loss data</i>	<i>Lack of data in some market segments (particularly so for high quality assets)</i> <i>Large selection bias</i> <i>Only available for public firms</i> <i>Potential selection bias</i>
- <i>Using rating agencies</i>	<i>Comparison of internal ratings with external ratings</i>	<i>Large amount of data in certain jurisdictions</i>	
- <i>Using a collective database</i>	<i>Comparison of internal ratings with collective databases</i>	<i>See above</i>	<i>See above</i>
- <i>Using other model outputs</i>	<i>Comparison of IR with different model outputs</i>	<i>Same data set used in internal system can be used in other models</i>	<i>Time- consuming and may be costly</i>
External assessments			
- <i>Assessment by rating agencies and consultants</i>	<i>Delegation of validation to an external body</i>		<i>Costly</i>
- <i>Assessment by the market</i>	<i>The market assesses internal system through CBOs and CLOs</i>		<i>Will depend on how thorough investors are</i>
- <i>Assessment by supervisors</i>	<i>Systems are certified by supervisors</i>	<i>Supervisory capital benefit</i>	

C. Definition of a common metric

In order to be able to translate banks’ internal ratings into capital requirements, supervisors will first have to translate them into a common metric. Since a majority of the ratings conceptually relate to default probabilities over a given time horizon, ISDA would suggest that these form the basis upon which the Basel Committee builds the future capital requirements. In the next section, we propose that banks’ exposures attract a capital charge as a function of their one-year default probability.

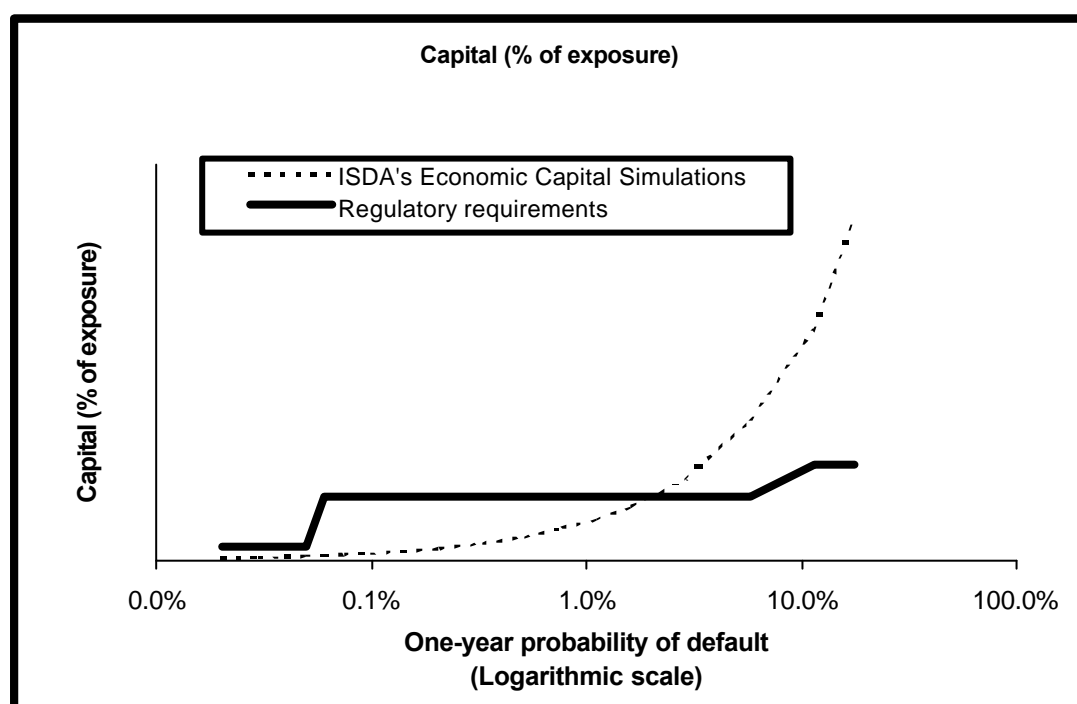
We recognise that for some types of assets where typically the rating refers to expected loss (retail, mortgage and project finance), this approach might not be practical. However, as stated above, ISDA would hope that for these assets the abundance of data permits the use of portfolio modelling for regulatory purposes.

2. Revising Risk Weights

A. Introduction

The appropriateness of the Basel Committee's proposed new risk weights can be assessed by comparison with economic risk capital calculated for a realistic bank portfolio (using credit risk capital models). In the graph below, the proposed regulatory capital requirements (based on applying an 8% solvency ratio) are charted against mean capital per default probability bucket calculated for a realistic portfolio of bank assets.

Figure 7. Capital Relative to Default Probabilities



The results demonstrate that there would still be a significant divergence between the regulatory regime and many banks' approaches to economic capital. As proposed, the revised risk weights would continue to foster incentives to arbitrage regulatory capital by holding lower quality assets and, at the margin, to discourage banks from incurring exposure to certain investment grade assets.⁹

ISDA members believe this would be an undesirable outcome of the exceptional opportunity the Committee has created to modify the Accord. Accordingly, ISDA members wish to suggest for the Committee's consideration a modified approach. In formulating this approach, the members kept in mind four key principles.

- Regulatory capital rules should be minimum standards below which some form of intervention may be warranted. Minimum capital requirements should not themselves necessarily be the target for banks' own economic capital management.
- Continued use of standardized rules for minimum regulatory capital requirements is appropriate, provided revisions reduce the existing large divergence between the way standardized rules and

⁹ For more on this type of analysis please see Breitling, Frank: Aligning Regulatory and Economic Capital Allocation for a Hypothetical Portfolio of Credit-Risk Bank Assets, Parts I and II; Journal of Lending and Credit Risk Management; November 1999 and December 1999/January 2000.

banks' internal economic capital calculations treat the risks of a given asset or transaction. Directionally, regulatory capital and internal economic capital calculations should respond the same way to increases and decreases in risk based on the three following factors: credit quality (default likelihood and loss severity, taking into account any credit risk mitigation), maturity, and diversification.

- The revised rules should strike an appropriate balance between simplicity and accuracy.
- Insofar as possible, key assumptions underlying capital rules should be clear.

B. ISDA's "Index Approach"

We suggest a relatively simple approach that would involve an index table from which regulatory capital could be calculated by reference to a benchmark asset. We give an example of such an index table below. The index table shown is an average of results supplied by a small set of ISDA member banks. The index has default probability as its vertical axis and maturity as its horizontal axis. We include maturity as a key dimension to the index in order to reflect the risk associated with longer duration assets¹⁰. The purpose of the index is to display the relative proportion of capital required for an asset compared to the benchmark.

For purposes of the index, the benchmark asset (weight 100%) is an asset with a default probability in the range of 0.17%- 0.25% with a maturity of 3 years. The asset is a loan/bond equivalent for a corporate client, understood to be held in a large international bank's portfolio.

Table 3. Index Relative to 3 Year Asset with Default Probability of 0.17%-0.25%=100

Prob. Def. %	£ 0.5 Yr	0.5-1 Yr	1-2 Yr	2-3 Yr	3-4 Yr	4-5 Yr	5-6 Yr	6-7 Yr	7-8 Yr	8-9 Yr	> 9 Yr
0.00 [≅] 0.025	6	8	12	17	21	25	28	32	36	40	43
0.025 [≅] 0.035	9	12	17	23	29	35	40	46	51	56	60
0.035 [≅] 0.045	13	17	24	31	38	46	52	58	66	73	80
0.045 [≅] 0.055	16	20	28	36	44	52	59	65	74	81	89
0.055 [≅] 0.065	18	24	32	41	49	58	65	73	81	89	98
0.065 [≅] 0.085	22	29	38	47	56	65	73	81	91	100	109
0.085 [≅] 0.115	27	34	45	56	66	76	85	94	104	114	123
0.115 [≅] 0.165	36	46	59	72	86	97	108	119	130	140	151
0.165 [≅] 0.255	48	60	80	100	118	134	149	164	178	191	203
0.255 [≅] 0.405	72	86	108	130	150	168	186	202	216	230	241
0.405 [≅] 0.635	100	119	145	172	195	216	236	254	269	283	294
0.635 [≅] 0.915	140	163	190	215	238	257	275	292	305	317	327
0.915 [≅] 1.335	181	207	231	253	273	290	307	321	331	342	351
1.335 [≅] 1.945	240	271	293	312	330	345	359	371	379	388	395
1.945 [≅] 3.875	370	409	420	430	440	450	457	463	466	473	476
3.875 [≅] 7.705	662	716	719	721	724	726	727	727	727	727	727
7.705 [≅] 14.995	1083	1163	1164	1166	1166	1168	1168	1168	1168	1168	1168
14.995 [≅] 20.000	1619	1718	1718	1718	1718	1718	1718	1718	1718	1718	1718

Benchmark Capital = 2.5%

The index is simple to use. For example, the amount of capital required for a three-year asset with a default probability of 0.02% would be 17% of the capital required for the benchmark asset. The requirement would be 312% of the benchmark capital for a three-year asset with a default probability of 1.64%. Please be aware that there is nothing special or correct about choosing the benchmark. This

¹⁰ For purposes of the proposed index the maturity is generally the remaining maturity of the asset; for amortising assets, maturity is the average life of a series of bullet payments (excluding interest cash flows).

particular benchmark was chosen because it seemed to characterise an asset credit quality and maturity that would be found in many banks' portfolios.

- The amount of capital suggested for the benchmark asset is based on the average economic capital calculated by a small set of ISDA member banks for an asset with that particular default probability and maturity. Specifically, the amount of capital we suggest for the benchmark asset is 2.5%. Based on the example above, the capital required then for an asset with a default probability of 1.64% would be 7.8% (2.5% times 3.12). The key underlying assumptions used by the banks in calculating the suggested capital for the benchmark were as follows:

- 99% confidence interval
- 1 year horizon
- Loss given default of 100%

- Significantly, the index was created by a small set of banks using their internal models on typical portfolios of corporate bonds and loans, reflecting the banks' large size, geographic reach, and multiple business lines. The index therefore takes account of diversification, as measured by banks in relation to corporate portfolios. It is important to note however that the risk distributions associated with some types of assets are likely to have shorter tails than the distributions associated with corporate assets (reflecting different levels of portfolio diversification).

Retail-oriented exposures are a prime example. ISDA hopes that portfolio modelling can be used as a basis for setting credit risk capital requirements for these exposures. Validation of portfolio loss measures is facilitated for retail portfolios by the abundance of data (long rating/ loss histories) available, as well as the correlation assumptions and modelling methodologies used. Should supervisors exclude the possibility of using portfolio models, it would be sensible to establish a specific benchmark capital and index approach for retail exposures.

- The index table above should be viewed as illustrative of how supervisors may wish to link capital requirements to the two key credit risk drivers: default probability and tenor. Its high granularity and alignment with a subset of banks' economic capital calculations ensure that it provides better incentives than the table of risk weights proposed in the Basel Committee's consultative paper. We would be happy to discuss it further with the Committee, should this be deemed useful.

- The proposed capital ratios show a dependence on maturity which can be broadly characterised as weakly upward - sloping for higher quality exposures and essentially maturity - independent for lower quality exposures. Participants generally agree that risk shows a positive dependence on maturity for some credit qualities.

However, there is no general consensus that risk is always positively dependent on maturity. Some of the individual contributors' results that have been incorporated into the consensus ratios had a humped or decreasing dependence on maturity for some credit qualities, while others had an increasing dependence. The ratios are averages reflecting the need to arrive at a consensus and do not reflect these variations. It can be stated, however, that the dependence of risk on maturity is generally weak compared to the dependence on credit quality, which was the main driver of the ratios for all contributing calculations.

Other considerations

Usage given default -- The factors in the matrix apply to exposures. In the case of loan commitments, the exposure is simply the product of the commitment and the usage given default. We recommend that banks be allowed to use their estimates of usage given default, where such estimates are reasonable and derive from meaningful processes. This can be assessed in the supervisory review.

Loss given default -- We note that the loss given default assumption underlying the index is 100%. We encourage the Committee to allow banks to employ their own loss given default assumptions when calculating the amount of capital that would be determined from the index. This will allow banks to make use of the analysis involved in their normal course of business, which is based on empirical studies and experience. This consideration is particularly important when considering exposures that are collateralised with real property, such as mortgages. Different methods exist to derive LGD assumptions, ranging from statistical to judgement-based. Such methodologies are currently used by banks and should be recognised where they are meaningful and yield reasonable results.

While it would be possible for supervisors to pre-determine a menu of loss given default assumptions that all banks would have to choose from, we do not expect this would yield tremendous benefits in terms of accuracy, and it would only complicate the implementation process. Applying standardised LGD assumptions would also restrict the scope for recognition of credit risk mitigation techniques (see Section III below).

Sovereigns -- We recommend that sovereigns be incorporated into the index approach in a manner consistent with the way individual banks would assign default probabilities to those particular assets. We anticipate that supervisors, through the Pillar II process, would assure themselves that banks were approaching sovereign risk assessments with integrity.

Banks -- Exposures to banks should be treated in the same way as exposures to non-financial corporates, i.e. purely as a function of their default probability and of the tenor of the exposure.

Unassessed assets -- ISDA members believe it would be appropriate to impose a penalty capital charge on assets of a significant size for which a bank has not determined default probabilities. We suggest that such assets default to a high default probability, sub-investment grade status for purposes of the index and capital calculations. The default assignment should be onerous enough to provide a strong incentive for banks to assign default probabilities to all significant exposures.

External ratings based capital requirements -- External ratings based credit risk capital requirements would be derived using the same index matrix used for assets whose internal rating has been recognised. A facility to a counterparty rated AA would be mapped into the bucket corresponding to its tenor and the default probability equivalent to a AA rating. Because a substantial proportion of the portfolio is likely to be unrated and would accordingly receive the penal treatment proposed above for unassessed assets, basing capital requirements purely on external ratings for a portfolio will in principle yield higher numbers than using internal ratings.

Impaired assets -- ISDA would recommend that the supervisors review the banks' loss assumptions (both specific provisions and capital allocation) for impaired assets as part of Pillar II, and rely on these assumptions for regulatory purposes.

Figure 8 below shows two examples of how our proposed index would work.

Figure 8. Examples of the Regulatory Requirements Calculation

Example 1: Regulatory Capital for Asset XX

Asset XX	Commitment	\$5,000
	Usage Given Default	50%
	Default Probability	0.21%
	Maturity	5 years
	Loss Given Default	50%

Index Table

Tenor	3-4 yrs	4-5 yrs	5-6 yrs
Default Prob.			
0.115 ≥ 0.165	86	97	108
0.165 ≈ 0.255	118	134	149
0.255 ≥ 0.405	150	168	186

**Asset XX
(5yrs & 0.21%DP)**

$$\begin{array}{ccccccccccc}
 \text{Commitment} & * & \text{UGD} & * & \text{LGD} & * & \text{Weight} & * & \text{Benchmark} & = & \text{Regulatory} \\
 \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow \\
 \$5,000 & * & 50\% & * & 50\% & * & 1.34 & * & 2.5\% & = & \$41.9 \\
 & & & & & & & & & & [0.84\%]
 \end{array}$$

Example 2: Regulatory Capital for Asset YY

Asset YY	Loan	\$5,000
	Usage Given Default	100%
	Default Probability	8%
	Maturity	1 year
	Loss Given Default	70%

Index Table

Tenor	≤ 0.5 yrs	0.5-1 yrs	1-2 yrs
Default Prob.			
3.875 ≥ 7.705	662	716	719
7.705 ≈ 14.995	1083	1163	1164
14.995 ≥ 20.000	1619	1718	1718

**Asset YY
(1yr & 8%DP)**

$$\begin{array}{ccccccccccc}
 \text{Commitment} & * & \text{UGD} & * & \text{LGD} & * & \text{Weight} & * & \text{Benchmark} & = & \text{Regulatory} \\
 \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow \\
 \$5,000 & * & 100\% & * & 70\% & * & 11.63 & * & 2.5\% & = & \$1017.6 \\
 & & & & & & & & & & [20.35\%]
 \end{array}$$

C. Rationale for the “Index Approach”

ISDA members believe the modified approach is fully consistent with the principles outlined above.

Minimum standards -- The parameters underlying the suggested capital and the index based on the benchmark asset would represent minimum standards that would not be constraining in the normal course of business for most banks. In this way, regulatory standards would not be confused with internal economic capital targets that banks might set for themselves. It is, of course, for supervisors to set the prudential standard they deem appropriate. Moreover, it is reasonable for supervisors to expect well-managed banks to operate above minimum levels. The extent to which banks would operate above the minimum would properly be addressed as part of Pillar II, as the Committee has proposed.

Directionally correct -- The use of internal estimates of default probabilities and internal ratings has the advantage of reducing the divergence between the regulatory regime and banks' approaches to economic capital, thereby reducing incentives to arbitrage overly crude risk weights. What matters to banks is that the relative capital required for assets of different credit quality reasonably reflects the differences in risk. The index approach is designed to achieve that objective.

Balancing simplicity and accuracy -- A major strength of the index approach is that it is relatively easy to implement. Once a bank has identified the default probability associated with an asset, it need only multiply the appropriate index weight and the benchmark capital percentage. At the same time, the index achieves a sufficient level of accuracy, recognizing that for any one institution the benchmark capital percentage and the index weights are unlikely to be exactly what it would calculate internally.

Clearer assumptions -- The use of a suggested benchmark capital percentage, based on the key parameters specified above, serves to make the assumptions underlying minimum capital requirements clearer. Moreover, the basis for regulatory capital charges will be even clearer to banks if they are able to use their own loss given default assumptions, as suggested above.

ISDA members hope the Committee finds the proposed modified approach appealing and stand ready to discuss it further at the Committee's convenience.

III. IMPROVING THE CREDIT RISK MITIGATION REGIME

Principles

The need to review the Capital Accord stems partly from the recognition that it does not adequately capture credit risk mitigation techniques. By not recognising widely used risk mitigants, the Accord increases the gap between regulatory capital and economic capital, and gives rise to regulatory arbitrage opportunities. ISDA believes that capital relief should be obtained where credit risk is reduced by the use of risk mitigation tools.

ISDA's proposals below are not limited to the case where a bank is allowed to use its internal ratings for regulatory purposes. It is indisputable however, that the use of internal ratings would vastly improve the treatment of credit risk mitigation.

This section is organised as follows: the scope of collateral/guarantees is reviewed first, followed by contingent risks, asset mismatches, maturity mismatches, securitisation/CLOs and on-balance sheet netting. ISDA believes that the approach proposed below is precise enough to incorporate the right incentives for banks. This may sometimes be at the expense of simplicity; credit risk mitigation is undoubtedly a field where simplicity is difficult to reconcile with accuracy.

1. Scope of collateral/guarantees

A. General considerations

ISDA agrees strongly that the scope of eligible collateral should be expanded to include all financial assets. The 1988 Accord excludes the use of some assets which could offer a more effective form of credit risk mitigation than certain assets whose use is permitted. For instance, "blue-chip" equities may at certain times be preferable to some government bonds. Furthermore, to the extent that assets whose use is permitted by the 1988 Accord are not readily available, limiting the scope of collateral hampers effective risk reduction. Even where these assets are available, there is a danger of credit risk concentration in the issuers of the collateral.

In particular, in addition to the assets specified in the 1988 Accord¹¹ and those assets mentioned in the Consultative Paper (i.e., AAA/AA and derivatives receivables), supervisory authorities should permit the appropriate use of non-government debt, namely that of supranational agencies and corporate entities. Similarly, the use of equity and letters of credit should be allowed.

ISDA does not agree that recognition of collateral use or guarantees for capital adequacy purposes should be limited to assets of a lower risk weighting than the exposure that is being hedged. The capital charge applied should be a function of the joint default probability between the underlying issuer and the guarantor/collateral issuer, which will be substantially lower than any of these obligors' single default probability¹² provided that the default correlation between them is small.

As a matter of principle, any rules on collateral/guarantees should allow recognition of the mitigation of risks on combinations of diverse products and positions, to reflect risk management best practice in the markets.

B. Controls

Naturally, any expansion in eligible collateral/guarantees will make it doubly important to address related legal and operational issues. These will be dealt with to a great extent via current organised efforts to ensure the highest possible standards of netting and collateralisation legislation and

¹¹ Cash and securities issued by OECD governments/public sector entities and multilateral development banks.

¹² And this regardless of whether the protection seller is rated worse than the underlying issuer

enforceability. In addition, the industry is committed to improving existing systems and operations with regard to netting and collateralisation.

As the March 1998 ISDA paper (“Credit Risk and Regulatory Capital”) pointed out, “In the absence of uniform regulatory standards concerning capital recognition, it is possible that some firms are accepting collateral without an appropriate internal risk management framework in place. This clearly exposes the firm to legal and credit risk and, if the collateral is being used to reduce regulatory capital, means that an inaccurate picture of the risk profile of an institution is potentially being provided to the regulatory community and the market. Moreover, even if the firm wishes to implement internal control procedures, there is no internationally acceptable minimum standard in place. Finally, for those firms that do go to the sometimes considerable expense of putting in place proper legal controls for collateral use, they are treated on an equal footing with less well managed firms that are not addressing the potential legal and credit risks.” ISDA has further emphasized the need for proper collateral management, and laid out good practice in its 1999 Collateral Review.

C. Legal framework

We would like to repeat a further point made in the March 1998 ISDA paper. “While somewhat out of the terms of reference of this paper, ISDA would like to take the opportunity to note the importance of action by national legislative and regulatory authorities to tackle the legal risks posed by collateral use. The complexities and difficulties raised could in many instances be resolved through appropriate changes to national law. We also note that legal issues are minimised by greater consistency in legal approaches.”

We therefore recommend that Basel members and other regulatory authorities conduct an assessment of their local jurisdiction and as necessary work with legislators to ensure that certain basic principles are adhered to (see Appendix II for a brief overview of this issue).

A co-ordinated approach to expansion of collateral and guarantees, covering all the legal and other points mentioned above, should ensure maximum scope for risk reduction while maintaining prudent standards.

2. Treatment of contingent market and credit risk

A. Contingent market risk

Contingent market risk is the risk of seeing the value of the hedge decline against the value of the underlying¹³, as a result of adverse market movements. It arises with all types of collateral, with the exception of cash denominated in the same currency as the underlying. It is also relevant for currency mismatched unfunded protection (credit default swaps, guarantees). This form of market risk is contingent on the default of the underlying issuer, because no loss is incurred on the collateral unless it has to be realised.

In addressing this risk, ISDA would recommend that supervisors root their approach in banks’ practice as much as possible, with a view to facilitating implementation and reflecting developed risk management. Banks tend to have different processes depending on whether collateral is taken in the form of a financial instrument or not. These distinctions could usefully be employed in the regulatory framework.

¹³ It should be noted that, at most banks, the underlying exposure is valued on an accrual basis. The market value of the collateral is hence compared against the book value of the underlying, rendering pointless any consideration of the potential correlation in market values between the former and the latter. Following the same principle, ISDA does not propose to apply a charge on excess collateral or on short credit risk positions.

a. Financial instrument used as collateral

Where a financial instrument is used as collateral, market practice suggests that most firms apply one or more haircuts¹⁴ on its value to reflect market and FX risk. The purpose of the haircuts is to protect against price declines during the holding period, as well as the costs likely to be incurred in liquidating the collateral. Haircuts are typically expressed as a percentage deducted from the value of the collateral asset and calculated following Value at Risk methods (change in value at a given percentile over a period of time). The holding period assumed in the calculation varies across banks, but tends to not exceed two business weeks where daily margining applies.

In the light of the above, ISDA would suggest that the supervisors apply an evolutionary approach to charging for contingent market risk:

- As a first step, the Basel Committee could publish a table of haircuts taking account of the credit quality, type of collateral obligor¹⁵ and maturity of the collateral, i.e. the three factors explaining most of the volatility in collateral value. The following table, produced by bringing together a number of firms' internal grids could be used as a starting point:

Figure 9. Collateral Haircuts

	£ 5 year	> 5 year
Cash	0%	0%
Sovereigns rated AA and above (1) (2)	0.5%	1%
Other investment grade sovereigns	2%	5%
Non investment grade sovereigns	10%	15%
Corporates rated A and above (1)	7%	10%
Corporates (BBB) (1)	10%	15%
Non-Investment Grade Corporates	20%	25%
Equity Main Index:		
- Inv. Grade Issuers		20%
- Others		30%
Precious Metals		10%
FX Haircuts:		
- In Major Currencies (3)		5%
- In Others		10%

(1) Or equivalent
(2) Sovereigns are broadly defined to include supra-nationals
(3) A major currency is a floating currency, following the International Monetary Fund approach
The use of financial assets not covered in this table should be reviewed by supervisors as part of Pillar II.

Importantly, the haircuts above assume daily margin calls¹⁶ and a liquidation period of no more than two weeks. If collateral values are adjusted less frequently or if liquidation requires more time, these percentages should be scaled up to reflect the increased potential for loss in value. ISDA does not intend to propose a formula for increasing the haircuts, but would suggest that supervisors review collateral practice with their banks as part of the supervisory process. Where daily margining is not applied, the bank would need to demonstrate that the level of haircuts retained is commensurate with the risk incurred for capital relief to be obtained.

¹⁴ Haircuts appear more appropriate than add-ons as they make it possible to take account of over-collateralisation.

¹⁵ Collateral obligor type can be conceived as an indicator of the liquidity of the security.

¹⁶ If margin calls only occur above a certain threshold, this threshold should itself be deducted from the value of the collateral asset for regulatory purposes. The threshold should be adjusted to reflect minimum transfer amounts.

It is also important to note that this standardised set of haircuts is intended as a convenient set of benchmarks for use in regulatory capital calculations. It is specifically not intended, and should not be used, for the purpose of specifying haircuts in actual collateral documents, or otherwise governing market practice. A standard model is convenient for regulatory capital calculations, but will not reflect the context-specific views of risk, credit quality, liquidity and other factors that will lead institutions to the commercial decision to accept or reject specific types of assets as collateral, and the haircut that will be applied in practice. ISDA believes it is important that firms are free to set the range of eligible assets and applicable haircuts used in counterparty documentation according to context and their commercial judgement.

Finally, as can be seen above, separate haircuts are proposed for FX risk. For instruments denominated in a currency distinct from that of the underlying, these haircuts ought to be added to the general market risk haircuts to arrive at the collateral value taken as a basis for capital calculations.

The proposed set of market risk haircuts may also apply for the treatment of repos in the trading book. However, a difference of approach might be justified between the two books, on the grounds that both legs of a repo are marked to market in the trading book. This feature may warrant some analysis of the price correlation between the two legs, where this dimension can validly be ignored in the banking book.

- As a second step, since the calculations involved in producing haircuts are similar to those performed for calculating VaR in trading book models, it should be possible for firms to use their own VaR haircut measures, subject to model approval by the supervisors. Model recognition should logically extend to the calculation of add-ons for potential future exposure in the trading book.

b. Non-financial Collateral

Where collateral takes a non-financial form (real estate, etc), it is generally not re-assessed daily and might indeed not be valued on any market. In view of the diversity of such forms of collateral, and of the variety of practice across the G-10, ISDA believes it impossible to arrive at any meaningful normalised regulatory approach. The use of non-financial collateral generally impacts on the loss given default retained on the underlying. We would suggest that the supervisors review the banks' LGD assumptions, and where these seem reasonable, rely on them for the purpose of calculating credit risk capital.

c. Capital treatment: a worked example using financial collateral

The following example will clarify how the haircut approach described above might translate into a credit risk capital charge:

EXAMPLE

Underlying: Loan of a nominal of \$100, Loss given default on the unsecured underlying: 70%, default probability of 1%, maturity of 1 year

Collateral: corporate bond, market value of \$80, haircut of 25%

Joint loss given default on the secured underlying: 50%

The collateral value net of haircut is \$60. The underlying is therefore hedged for \$60 of the total exposure. The hedged portion of the exposure, taking into account loss given default (50% .x \$60= \$30) would be treated as per B (Contingent credit risk) below.

On a default, the net claim on the bankrupt after netting collateral would be for \$40, with an expected loss of \$28 (70% x \$40). This residual exposure would feed into the credit risk capital matrix proposed at table 3 above as a function of the maturity and default probability of the underlying, and attract the corresponding capital charge. The calculation is shown below :

Asset	Loan	\$40
	Usage Given Default	100%
	Default probability	1%
	Maturity	1 year
	Loss Given Default	70%
Risk Weight	For a 1 year asset with a 1% PD	2.07
	Benchmark capital	2.5%

Regulatory capital = \$40 x 70% x 2.07 x 2.5%
= \$ 1.45

B. Contingent credit risk

Contingent credit risk is the risk of joint default by a protection seller/collateral issuer and the underlying issuer. Under the current rules, maximum default correlation is assumed between the two obligors. Although where the correlation between the protection seller/collateral issuer and the underlying issuer is high, ISDA would support the substitution approach¹⁷, we find it harsh and unjustified in most other circumstances. As banks recognise the need for improving returns on economic capital by reducing concentrations and increasing diversification, it is important that the means by which concentrations can be reduced, and risk transferred, are afforded appropriate regulatory treatment.

Since the Basel Committee is considering relying on banks' internal ratings for assessing the credit risk inherent in their exposures, ISDA would suggest that supervisors make use of the banks' assessment of joint default probabilities¹⁸ for charging capital against hedged exposures. Once hedged, the rating of an exposure is normally improved, which should warrant capital relief. The degree of rating enhancement is itself a function of the bank's assumption regarding the default correlation between the pair of obligors involved.

While it might not be feasible to specify pair-wise default correlation assumptions in a modified regulatory framework, ISDA believes it possible to at least separate between pairs of obligors according to their degree of correlation, whether strong, medium or low. Simple criteria could be retained for distinguishing between these three categories, an example of which features in the table below:

¹⁷ Substitution only applies where the protection provider is of a better credit quality than the underlying asset

¹⁸ As well as joint loss given default assumptions (see financial collateral example above)

Table 4. Criteria for Differentiating Levels of Correlation¹⁹

	Criteria	Capital treatment
<i>Low correlation</i>	Obligors in different countries or same investment grade country but different industries* - If both obligors are investment grade : - If not:	Full credit risk offset (trading book approach) 50% haircut on substitution based charge
<i>Medium correlation</i>	Obligors in same investment grade country and same industry*	30% haircut on substitution based charge
<i>High correlation</i>	Other situations	Full substitution approach (i.e. maximum default correlation)

* Unless legally connected, where correlation is high

The capital treatment would reflect the degree of pairwise default correlation between the obligors:

- The substitution approach (current treatment) would continue to apply to all strongly correlated pairs of obligors, which in itself is conservative (since strong correlation does not systematically mean maximum correlation).
- For medium and low degrees of correlation, ISDA would suggest that supervisors apply a standard haircut on the substitution charge (i.e. the charge received by the best rated of the two obligors), of 30% and 50% respectively. These haircut levels are consistent with the correlation assumptions retained by rating agencies for the purpose of producing joint default probability tables: applying a haircut on the substitution charge is equivalent to regarding the secured exposure as a distinct asset and assigning it an improved rating. The haircut approach is easy to implement and more precise than the current system of replacement of the risk of the underlying obligor by that of the protection seller.
- For obligors of good individual rating (investment grade) and low joint default probability, a 50% haircut overestimates contingent credit risk, in this instance close to zero. ISDA accordingly recommends that a total credit risk offset is recognised, while applying a counterparty risk charge on the protection where unfunded. This in effect amounts to extending the trading book approach to offsets into the banking book, although in very specific cases. One key assumption is that a replacement cost can be determined for the protection, which for investment grade underlyings should be feasible. ISDA would suggest that the supervisors rely on the banks' PFE estimates, rather than applying standardised add-ons, in the calculation of the counterparty risk charge. If one of the existing trading book add-ons was to be used however, we would recommend the interest rate add-on.

3. Treatment of asset mismatches

Currently, the regulatory treatment of asset mismatches for credit derivatives (i.e. where the asset against which the credit derivative is referenced differs from the underlying asset) in the banking book is not consistent as between national supervisors. The Basel Committee proposes to bring the various national practices into line by requiring, for capital relief to be obtained, that the two assets have a common obligor, that the reference asset is pari passu with or more junior than the underlying and that a cross default clause applies between the two assets. ISDA feels that the latter requirement is unduly restrictive. A more flexible yet nevertheless prudent requirement would be that a failure by the obligor to perform on the underlying asset is demonstrably an event that will trigger a payout under the credit derivative²⁰. A sound definition of credit event is essential in this matter (covering bankruptcy, failure to pay, restructuring and repudiation). ISDA has taken active steps to promote harmonised definitions for users of credit derivatives (1999 ISDA Credit Derivatives Definitions).

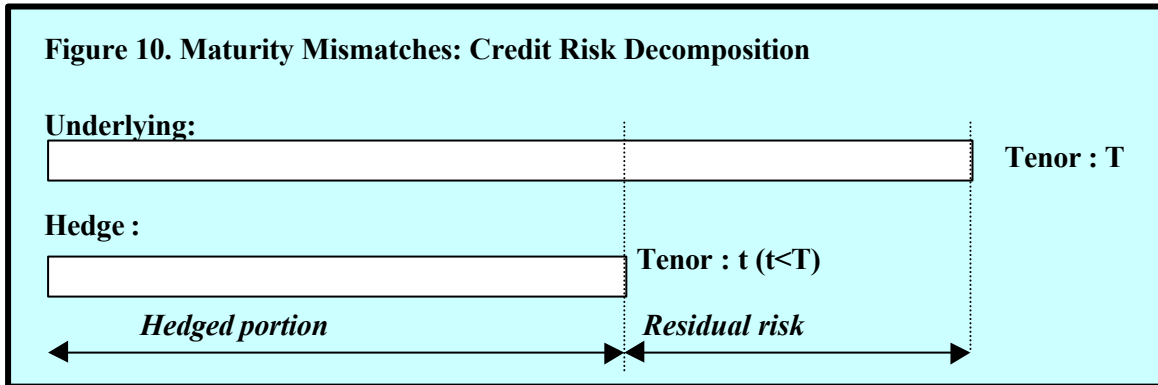
¹⁹ Exceptions to the rules set out above should be obtained as part of the supervisory review.

²⁰ A "cross default" clause should be conceived as a fairly generic provision, encompassing notably cross acceleration clauses.

4. Treatment of maturity mismatches

The treatment of maturity mismatches cannot be dissociated from that of credit risk in general. As indicated above (see Section II), credit risk capital requirements should reflect the positive relationship observed between credit risk and tenor. ISDA has accordingly developed a maturity bucketing scheme for credit risk capital requirements (see table 3), which allows for a simple and consistent treatment of both existing and forward exposures.

It is possible to decompose credit risk arising from the use of a maturity mismatched hedge into two parts: the residual credit risk corresponding to the unhedged portion of the underlying exposure, and the credit risk remaining on the hedged portion:



A. Residual risk

Based on ISDA's table, the residual risk arising from an imperfect maturity match would attract a capital charge equal to the difference in capital requirements between the naked underlying (long position) and a position of the same rating, but of the maturity of the hedge (short position):

Figure 11. Maturity Mismatches: Residual Risk

Underlying : Tenor : 8.5 years / yearly PD : 1% / Nominal : \$ 100
Hedge : 4 year guarantee. Nominal : \$ 100

	Def. Proba (%)	Maturity:		
		0.5 < ...	3 to 4 y ...	8 to 9 y
Hedge	...			
Underlying	0.915 > 1.335		-\$ 100	+\$ 100

The residual capital charge is calculated as follows:
 The capital ratio for a 4 year exposure with a default probability of 1% is 2.73 x 2.5% as per the ISDA table. This ratio for an exposure of similar credit quality but 8.5 years of tenor is 3.42 x 2.5%. The residual capital charge would therefore be: $\$100 \times 2.5\% \times (3.42 - 2.73) = \$ 1.72$ ²¹.

²¹ Practically however, the bank would net all exposures in each bucket and apply the corresponding capital ratios, then sum the capital charges across the buckets to arrive at a global credit risk charge.

This approach has the advantage of conceptual consistency and ease of implementation. Partial hedges, mismatches arising in the context of on-balance sheet netting and forward exposures can be incorporated simply.

For prudence, hedges should be in place for at least 6 months to justify any capital relief, unless the underlying itself had less than six months of outstanding maturity and the hedge was matched. Mismatches arising beyond 9 years of maturity would be ignored.

B. Hedged portion of the exposure

The hedged portion of the exposure (in the above example, of a tenor of 4 years) would receive a capital charge reflecting contingent credit risk between the underlying and the hedge, as per our proposals detailed in Section III.2.B above.

5. Treatment of securitisation and synthetic CBO/CLOs

Banks have since 1988 increasingly engaged in transactions enabling the transfer of credit risk on pools of assets, with a view to achieving a better allocation of economic capital. Such techniques or products as securitisation and synthetic Collateralised Bond (or Loan) Obligations have flourished despite the total lack of an appropriate regulatory framework.

ISDA believes that the current review of the Basel Accord provides an opportunity to align the capital treatment of such structures more closely with the underlying credit risk retained by the originating bank and assumed by investing banks.

Securitisation is an area where there has been lack of consistency between national supervisors. The Basel Committee should review it in detail, so that national supervisors can adopt the agreed rules as they stand, without the need for local additions.

A. Securitisation

The Basel Committee proposes to charge securitisation tranches more harshly than other investments of the same default probability. ISDA would question the economic grounds for this distinction : securitisation tranches, where they are rated, carry the same risk as similarly rated bonds. A recent Moody's study²² even shows that asset-backed securities have in the past been less risky than equivalently rated bonds. From a general standpoint, the treatment of securitisation should not be disconnected from that of unsecuritised portfolios: any treatment of securitisation that introduced considerable arbitrages between the whole (the unsecuritised) and the sum of the parts would clearly encourage arbitrage.

For unrated first loss securitisation tranches (i.e. notes with no external rating, or notes the internal rating of which has not been recognised by the supervisor), ISDA would accept that deduction from capital is appropriate²³. Interestingly, by deducting these tranches from capital, supervisors effectively recognise the rating agencies' approach to modelling portfolio risk in structured transactions. Thus supervisors seem to have already accepted a particular form of credit risk modelling, albeit one which takes into account cashflow and legal structures alongside default and loss severity.

Furthermore, ISDA would find it useful if the Basel Committee could clarify whether originating banks can hold senior securitisation tranches on their (banking) books without losing the benefit of the risk transfer. This would seem a logical extension of the recognition of the validity of the rating of tranches of portfolio risk (see below-Synthetic CBOs/CLOs).

²² "Rating changes in the asset-backed securities market : an update" [August 7, 1998]

²³ The treatment of such notes would in effect be more penal than that of unrated notes as per Section II above, because (i) they concentrate loss; (ii) banks investing in first loss pieces should have an internal rating system in place allowing them to measure the risk taken. To an extent, this requirement can only be fulfilled if the issuer releases sufficient information to investors. ISDA believes adequate disclosure to be absolutely essential in this field and views a penal capital treatment as a very efficient means of achieving this purpose.

B. Synthetic CBOs/CLOs

ISDA has read with interest the guidance issued by the Federal Reserve Board and the Office of the Comptroller of the Currency on Synthetic CLOs (SR 99-32, November 15, 1999). We strongly support the thrust of the approach taken by the US authorities, although some clarification is necessary in order to ensure that the guidance effectively delivers the refined capital treatment it is seeking to promote. ISDA would further note that the precise charges mentioned in the guidance are still bound to the 1988 framework and would need to be updated following the revision of the Accord.

In synthetic CBO/CLOs, the credit risk embedded in the underlying exposures, as opposed to the exposures themselves (as in standard securitisation) is transferred through the purchase of credit protection on the portfolio in the form of credit derivatives.

Synthetic CBO/CLOs can be broken down into two main categories for capital purposes : those transferring credit risk on the full underlying portfolio, and those transferring only part of the risk (first or second loss, etc).

In the first type, credit risk on the underlying pool of assets is usually transferred to the Special Purpose Vehicle by issuing a credit linked note. In this instance, cash collateral is available against the underlying assets and these should accordingly receive a 0% capital charge (in the absence of a currency mismatch- see Section III.2.B above).

In the second type of structure, credit protection is purchased from a SPV to cover losses up to a certain level only (usually to a AAA confidence level). This practically means that the true economic risk on the underlying portfolio has been transferred to third parties. Under most regulatory regimes it is currently necessary to purchase credit protection from an OECD bank in order to reduce the capital charge on this residual “riskless” position, even though usually rated AAA. The guidance recently issued by the OCC and the Fed allows banks to reduce the capital weighting on this residual position without purchasing further protection, subject to certain conditions. We believe this is a welcome development which should be adopted by the Basel Committee.

Banks investing in the notes issued by the SPV should receive a capital charge defined as a function of the rating of these notes (internal or external). Unrated first loss notes would be fully deducted from capital, as recommended above for securitisation.

6. On-balance sheet netting

ISDA welcomes the proposal from the Basel Committee to expand the scope of on-balance sheet netting to include all assets and liabilities in the banking book.

ISDA believes that the standards currently set in the Capital Accord for netting FX and derivative contracts can be utilised for on-balance sheet netting and that a bank meeting these standards should be allowed to net its exposures for regulatory purposes²⁴.

As an example, the ISDA Master has a well-established procedure (summarised below), which supervisors could use as a starting point for establishing whether an institution can net its banking book exposures:

²⁴ The standards in question are:

- 1) In order to be netted, a transaction needs to be governed by a legally robust agreement incorporating a methodology for netting ;
- 2) The netting agreement needs to be legally enforceable even in the event of insolvency or bankruptcy in all relevant jurisdictions (i.e. the country of incorporation of the counterparty, the law governing the Master Agreement and the domicile where the counterparty books the transactions)
- 3) The enforceability of the netting provisions needs to be supported by a well-reasoned legal opinion

- 1) In an event of default, the non-defaulting party closes out all of the existing transactions. This generally involves the obtaining of market quotes to replace the transactions of the defaulting party. Once the close out occurs, a series of future cash flows is established.
- 2) The series of future payments is accelerated to the present and becomes due and owing, i.e. the non-defaulting counterparty is owed on certain transactions and owes on others.
- 3) The non-defaulting party then performs an offset of the amounts he owes against those he is owed to arrive at a net amount due or owed.
- 4) Where the non- defaulting counterparty owes money, it proceeds with payment and where it is owed money, it makes a claim with the trustee.

These steps can be followed for banking book assets and liabilities, with few modifications necessary. For instance, the contract governing the netting of cash items on the balance sheet would need to follow all of the steps listed above except for Step 1 because the amounts due are already known. The contract would need to provide for (i) a mechanism that would permit the acceleration of future amounts owed and owing; (ii) an offset of the amounts that have been accelerated to arrive at a net amount the non-defaulting party owes or is owed.

Maturity or currency mismatches arising in the context of on-balance sheet netting should be treated as per Sections III.2 and III.4 above (unless roll-off risk is actively managed). A worked example will clarify the overall approach:

Asset: 10 year loan to a BB rated counterparty for \$100
Liability: demand deposit from the same counterparty for \$100

A statistically meaningful **tenor** is retained for the deposit based on the banks' depositors' mean behaviour, for instance **7 months**.

The **Asset and the Liability are netted**, but a **forward exposure** arises for the period stretching from 7 months to 10 years. This attracts a **residual charge** as per section III 4. A above.

IV. TREATMENT OF OPERATIONAL AND OTHER BUSINESS RISKS

1. Introduction

A. The proposal

The Basel Committee has proposed that an explicit capital charge be introduced to cover risks other than credit and market risk and has solicited comment on how to achieve this objective. This charge would be in addition to those proposed for liquidity risk and interest rate risk in the banking book.

In particular, the Committee argues that a rigorous control environment is necessary but insufficient to deal with such risks and that they should therefore be quantified and treated as a separate item within the capital framework as a means of ensuring safety and soundness. It perceives there to be various possible approaches to this, including a number of simple benchmarks and the possibility of using models. But it also notes that the current experimental state of the more “analytical” approaches and the current absence of industry standard practice make it hard to propose an industry-wide approach that is truly risk-sensitive. The Basel Committee adds that supervisors should, in addition to any capital charge, make a qualitative judgement based on their assessment of the adequacy of the control environment in each institution. This would take into account that institution’s own internal assessment of its operational risks.

ISDA recognises that matters of control are a serious issue in banking and supports the principle of improving the supervisory framework to address this. However, as stated above (Section I.3 “Appropriateness of Applying Minimum Capital Charges”), ISDA has reason to believe that a minimum charge would prove highly problematic and that, in order to ensure risk-sensitivity and an appropriate incentive structure, an alternative approach based on supervisory review should be pursued.

B. Objectives

ISDA would welcome a thorough elaboration of the Committee’s objectives in proposing such a charge. ISDA supports attempts to draw greater attention to the area of operational risks and agrees that there is value in attempting to quantify and protect against such risks in a systematic fashion. But operational risk is not new and ISDA believes:

- 1) that supervisory efforts should be directed towards supporting rather than over-riding current and evolving techniques and functions for dealing with operational risks, and;
- 2) that extensive preliminary dialogue with the industry will be essential to achieve this alignment of supervisory and industry objectives.

Banks already manage operational risk through the twin mechanisms of control and oversight. In particular, day-to-day control by both function and region is a mature discipline, based on prolonged and intensive experience. The current industry debate primarily concerns oversight mechanisms, especially the ability of senior management to form an overview of operational risks firm-wide within a financial institution and to compare that with the profile of the industry as a whole. Such an overview relies on an overall framework, within which a particular policy is implemented, backed up by standards and (wherever possible) assessment methodologies.

(The nature of industry developments is highlighted in a recent survey.²⁵ Given that techniques and functions for addressing other risks are currently going through advanced stages of evolution, ISDA expects in future to have more to contribute above and beyond the current response.)

²⁵ “Operational Risk: The Next Frontier”, published by ISDA jointly with the British Bankers Association and Robert Morris Associates, January 2000.

ISDA proposes that the proper and shared objective of both banks and supervisors should be to identify and contain operational risks so as to minimise their impact. Potential techniques of risk quantification and mitigation should be actively explored but not set in stone, as flexibility of approach will offer the greatest possibility of properly addressing these underlying concerns.

In order to achieve the above – and simultaneously avoid an impractical level of supervisory micro-management – it follows that supervisors should have two triggers for action over operational risk: 1) inadequate procedures on the part of a bank for assessing its operational risk; 2) overall capitalisation which is poorly suited to the general risk profile of the bank. The challenge must therefore be to develop and refine this system of supervisory triggers.²⁶

2. Characteristics of operational risk

A. General

It is true that banks can suffer loss for reasons other than market or credit exposure. Capital, meanwhile, is typically held to sustain a bank through higher-than-average loss, given that the timing of such loss can be hard to predict. But, for either of two key conceptual reasons, ISDA considers that ‘operational’ loss does not share those characteristics of market or credit loss that make capital a suitable defence on a routine basis.²⁷

Firstly, many operational risks are endogenous, arising from within a specific bank in particular circumstances, and can therefore be considered to be within a bank’s control or responsibility. By contrast, variability of returns associated with market or credit positions is outside a bank’s direct control.²⁸

Secondly and relatedly, it is by no means clear that the relationship between risk and return is always the same for operational risks as it is for market/credit risk. For, while market and credit exposure give rise to occasional ‘unexpected’ loss *as an integral part of the time-series of returns*, operational loss arises from events which are in many cases *extraneous to the generation of returns*. (See Section IV.B below on “Frequency/impact” for a discussion of the importance of pricing expected loss as part of a cost-benefit framework.)

In reality, the cost involved in entirely eliminating the potential for operational loss is likely to be prohibitive. This makes it necessary to further analyse the nature of operational risks and the appropriate measures to deal with them (see section IV. B.b below). However, as outlined above, holding regulatory capital against operational risks implies that they are inevitable. This is not necessarily true. Indeed, the opposite could well be the case – some operational risks may not be inevitable. Nor would it seem prudent to promote the idea that all operational risks are inevitable.

‘Other risk’ (or, as we shall refer to it for convenience, ‘operational risks’) remains a generic, descriptive term, in spite of concerted and sustained efforts to turn it into a definition.²⁹ It is positive rather than normative. And it includes a large number of elements. For these reasons, deriving a regulatory capital charge from such ‘risk’ is highly problematic. At the same time, the incentive effects of requiring capital against it are at best untested and potentially dangerous.

²⁶ It may be useful in this context to refer to the ‘Qualitative Standards’ section (§B.2) of the 1996 ‘Amendment to the Capital Accord to incorporate market risks’ (Basel, January 1996). Another relevant document is ‘Framework for Internal Control Systems in Banking Organisations (Basel, September 1998).

²⁷ ISDA’s recommendation to the Basel Committee is that, in collaboration with the industry, it develops a solution under Pillar II. Some banks have added that, if it were possible to quantify operational risks, it would be natural to consider them under Pillar I.

²⁸ Brand value and ‘reputational risk’ are properly considered under Pillar III – see below.

²⁹ ISDA’s working definition, developed in conjunction with the British Bankers’ Association and Robert Morris Associates, is: ‘The risk of direct or indirect loss resulting from inadequate or failed people, process and systems or from external events.’

Furthermore, we consider it wrong to include general business/strategic risk in any regulatory capital charge. This is the risk shareholders explicitly take on through their ownership of a firm and the allocation of regulatory capital against it is therefore neither required nor welcome. In the event that a bank's strategy proved to entail dangers for the system, this should be addressed by supervisors on a case-by-case basis.

B. Frequency/impact

Operational loss generally falls into two distinct categories: high-frequency-low-impact and low-frequency-high-impact. The former can be characterised predominantly as an expectation. As such, it seems appropriate that firms should price it as an 'overhead' cost of doing business, while striving to minimise its impact.³⁰

As regards low-frequency-high-impact events, the problem is of a different nature. Rather than constituting the 'tails' of a continuous operational risk 'distribution', these are isolated events, reflecting a particular (often extreme) set of circumstances which need not have been allowed to develop. Only an extremely high solvency ratio would provide any capital protection against such 'binary' events (in which, somewhat impractical case the moral hazard would be appear to be intolerably high).

High severity, low probability events are best managed through loss-prevention procedures, business-recovery planning, risk diversification, insurance³¹ and other risk-reduction actions.³² Experience suggests that the routine policing of basic procedures could have prevented the high profile failures of recent years. Supervisors, it should be recalled, retain strong powers (including withdrawal of authorisation) for any institution whose behaviour proves pathological in not adequately addressing their operational risks from a control perspective.

3. Disadvantage of a minimum charge

A. Mis-specification

The introduction of a standard capital charge for operational risks would have two notable disadvantages.

- 1) It could divert the focus from internal controls.
- 2) All the possible forms of minimum charge remain crude, and so a poor (ie, unreliable) representation of the risk.

Rather than complementing the controls that are the proper defence against operational risk, a charge could interfere with them, thereby introducing a form of moral hazard. That is, a firm which believed itself to be protected from the consequences of operational failure would feel less need to address the risk of failure or inefficiency. At the same time, as the Basel Committee acknowledges, no currently envisaged charge would reflect the risk in question.

Apart from dubious incentive effects, the calculation of a capital charge has serious resource implications for banks.³³ Also, a charge that was crude would entail problems in terms of consistency

³⁰ It is worth noting, in connection with both this point and the debate about the role of Pillar III of the proposed new capital adequacy framework, that accounting standards frameworks do not readily permit provisioning for such risk.

³¹ It may well be worth further investigation of the greater role that insurance techniques could potentially play than in dealing with other forms of risk. It would provide systemic back-up based on a form of market discipline but without the moral-hazard associated with immobilised capital. Its use by a given bank could be factored into qualitative regulatory assessment of that bank's viability. The speed with which funds are available does, for the moment, remain an issue.

³² A study published by PricewaterhouseCoopers in May 1999 suggests that fraud is "the most significant type of operational loss".

³³ Apart from the resources needed to compute a charge, there is a clear risk of duplication of existing buffers built into charges for credit risk and, through the regulatory multiplier, model-assessed market risk. Even if operational risks were correlated with credit and/or market risks (which is itself debatable), such duplication would be unwarranted.

and predictability of effect. Moreover, a formulaic charge would almost certainly lag behind bank practice, right from the start and by a rapidly increasing margin as time went on. And, in order for there to be any incentive to improve operational procedures, there would have to be some mechanism for reducing the charge, which would render the overall process judgmental. (See Section IV.4.B below for a discussion of Pillar II.)

B. Aggregate systemic capital

A charge which averaged out perceived system-wide operational risks would reintroduce the sort of failings that undermined the 1988 Capital Accord, by making it insensitive to the true risks being run by any one bank. In this regard, it is worrying when the Basel Committee states that “the new framework should at least maintain the overall level of capital currently in the banking system”.

Using a targeted aggregate level of capital in the system to determine charges for operational risk is flawed, in that it prejudices the level of risk in the system and ‘hard-codes’ that assessment in capital levels. The 8% ratio set by the 1988 Accord is arbitrary and therefore likely to be wrong for any individual institution’s credit risk – it could be too low or too high, depending on the firm’s portfolio at a given time.³⁴ Any charge for operational risk built into the existing 8% charge is, therefore, variable only as a function of the *inaccuracy* of that 8% in estimating a bank’s credit risk. The new framework proposes to make capital charges better suited to the credit risk that an individual firm actually runs. Yet, any attempt to set a charge for operational risks by referring back to aggregate capital levels in the system simply renders worthless any such changes in the treatment of credit risk.

C. Regulatory arbitrage and competition effects

A danger of regulatory arbitrage clearly exists if a charge encourages banks to outsource certain functions which would otherwise attract a capital requirement. This could have the unwelcome effect of taking these functions outside the scope of supervision, thereby potentially increasing systemic risk rather than reducing it. By the same token, banks would face unfair competition from entities outside the banking industry which are not charged capital for running such risks.

4. Risk assessment

A. Pillar I

Given these reasons of principle, it is clear that a minimum capital charge for operational risks would prove extremely difficult to structure. Even so, a number of means of attempting to achieve this have been discussed in the banking industry and ISDA has studied these. Each remains experimental, with no single method or combination of methods currently deemed satisfactory by the institutions that have reviewed them. Each has serious and readily apparent drawbacks, consistent with the general philosophical problem of providing capital against operational risk. An analysis of these methods is included at Appendix III.

To summarise this analysis:

- ‘Activity-based’ measures of the sort apparently favoured by the Basel Committee (eg, proportional charges based on the balance sheet or profit & loss account) have no demonstrable link to the risks in question and, even if they did, would create no incentive to reduce those risks. In particular, these measures are unlikely to reflect the net (mitigated) level of operational risks in a firm. As mentioned above, some forms of outsourcing could be an issue in the context of such measures. Cost-based measures are particularly pernicious in introducing perverse incentives *not* to invest in measures which might reduce the risk of operational loss. Asset-based measures would tend to encourage reduction of assets, not operational risks. Any measure derived from general

³⁴ See ISDA (March 1998) “Credit Risk and Regulatory Capital”

banking industry characteristics would be likely to reflect the risks inherent in certain business lines which a given bank might not actually be engaged in. This could only sharpen the incentive to avoid the charge rather than the risk, as well as undermining the key Basel Committee review objective of a level playing field. Overcapitalisation does of course introduce a potentially dangerous incentive to cut overheads and/or incur more risk.

- Methods of predictive quantification of operational risks may evolve in future in relation to some categories of operational risk and the new capital adequacy framework should *explicitly* recognise this possibility and be flexible enough to factor in banks' use of such measures as soon as appropriate. As a more general point, banks' internally specified approaches to operational risks – subject to supervisory approval – offer the best prospect of a solution which is both conceptually sound and practical to implement.

Because of the practical difficulty involved, breaking operational risks into sub-categories does not necessarily lead to a better specification. In fact, it may obscure the importance of the one factor common to operational risks in any business line – effective controls. Combining various approaches ostensibly matched to various sub-categories of risk could only complicate the task of deriving a charge, while many of the elements of operational risk have long been identified and targeted by various means which are applicable across a variety of business lines.³⁵

It is noteworthy that financial institutions are in many cases reorganising themselves to better coordinate their approach to operational risks. This may involve the creation of a central function; the nomination of a risk 'owner' in each business line; or some combination of the two. This often represents a means of reinforcing and as far as possible standardising existing controls, procedures and arrangements.

B. Pillar II

The Basel Committee has stressed the role of qualitative supervisory judgement in assessing the adequacy of controls in a given bank. As a fundamental principle, ISDA believes that qualitative judgement is indeed a powerful approach, not least because it is aligned with that adopted by banks' management in the form of control and oversight.

Perhaps its most attractive feature is the adaptability qualitative judgement brings, given that each business line and combination of business lines merits its own operational risk analysis, and that diversity of such combinations is increasingly a feature of the modern financial system. Moreover, significant changes in the business environment – the rise of 'e-commerce' being a major topical example – have the potential to radically alter the nature of operational challenges faced by banks, making such adaptability of supervisory approach all the more crucial.

This approach also means that risks can be more precisely targeted as and when they arise, which in turn offers a clear incentive to firms to remedy any specifically identified deficiencies. It is equally significant that operational hazard frequently arises out of behavioural effects and that it is therefore vital to assess quality of management of a firm. Neither management quality nor business profile can readily be factored into an algorithm.

The approach to Pillar II described in the June Consultative Paper covers a majority of the issues relevant to the systemic containment of operational risks. To the extent that a charge for operational risks may ever be justified (due to a weak control environment), this should be a Pillar II matter. ISDA does note the Basel Committee's assumption that "a modified version of the existing Accord should remain the standardised approach"; in response, it urges the Committee to move beyond the standardised approach to one based on Pillar II wherever possible.

³⁵ New-product review processes are an example in this area. Market and credit risk management also provide strong discipline in relation to many forms of operational risk. ISDA believes that any attempt to introduce a system of regulatory treatment of operational risk should be based a full list of all relevant existing practices and procedures.

To the extent that judgement needs to be backed up by a systematic approach to the risks in question, this can be and is achieved to a considerable extent through existing control and audit procedures as well as through techniques borrowed from industry, such as 'total quality management' and 'continuous business process improvement'. It is also addressed through co-ordinated approaches to major change, such as a merger, Y2K or the launch of the Euro. ISDA's preference would be for dialogue between banks and supervisors specifically on further developing a systematic framework in which judgement could be exercised (without compromising the objective of a level playing field nationally and internationally).³⁶

C. Pillar III

One area that remains to be studied is the role of market discipline in reducing operational risks. It is striking that certain high profile failures of recent years were preceded by wariness towards the firms in question by other market players. Corporate governance initiatives in some jurisdictions have provided a basis for discussing the possible value of an enhanced framework of qualitative disclosure.³⁷

It is worth stressing that disclosure in relation to operational risk is generally envisaged as covering qualitative matters, not quantitative. The link between risk and capital should be clear for all stakeholders, and attempting to quantify an opaque operational element could make it harder to assess the underlying soundness of a bank's core credit business.

A focus on Pillar III would be more appropriate than attempts to model brand value or reputational risk and to a large extent subsumes these more subjective measures.

5. The supervisory approach

To the extent that management of operational risks can be improved, the introduction of a minimum capital charge will not encourage development of the discipline or safeguard the system. Rather effort will be focused on avoiding the effect of an inevitably arbitrary charge.

At the same time, this is an area where banks have consistently taken the initiative. (For instance, ISDA itself originated as a manifestation of the industry addressing legal risks.) Instead of mandating how banks should cover themselves, supervisors should support banks' efforts to continuously improve their risk management practice, reserving intervention as a threat for any individual institution whose delinquency acts as a focal point for operational danger.

If any one bank reduces its level of operational risks, then risk declines for the system as a whole. This suggests that targeting individual operationally unsound banks, including any with material risk concentrations, will be effective from a public policy point of view.

ISDA recognises that, for a variety of reasons, not all supervisors may be ready to apply a purely qualitative approach to operational risks. At the same time, for the reasons given above, it is unsatisfactory to pursue a standardised charge. This would constitute a questionable attempt to adapt the risk to the supervisor, rather than the supervisor to the risk. ISDA therefore proposes that more time be allowed before developing any international approach at all to operational risks. As this approach does develop, harmonisation of international supervisory standards will be a key objective, in which it will be essential to ensure: that a level playing field is maintained within and around

³⁶ Failure on the part of a bank even to assess its operational risk would clearly constitute grounds for regulatory action. Co-operation between bank and regulator to minimise operational hazard should, by contrast, be rewarded. The Basel Committee's own paper on the subject, published in September 1998 ('Operational Risk Management') provides a useful basis for discussion.

³⁷ A recent example is the work of the Turnbull Committee in the UK, looking at control issues in publicly listed companies. The October 1999 BIS/IOSCO paper on disclosure does, of course, touch on this too.

financial services; and that the process more generally is transparent. ISDA also stands ready to assist in the development of such an approach and to work closely with supervisors on standards for operational risk management practice.

6. Conclusion

In conclusion, ISDA believes supervisors should resist the temptation to introduce a routine charge for a subordinate set of risks of a different nature from market or credit risk. All the current evidence indicates that such a charge would be poorly specified and would introduce many distortions into the world's financial system, just when these are being reduced in the area of credit risk. Instead, through the concerted and thorough development of Pillar II of the supervisory framework, involving extensive dialogue with the industry now and in the future, supervisors should support and promote the continuous and harmonised improvement of practice, consistent with the goal of the identification and containment of operational risks. Capital should be used to reinforce the goal of identification and containment only where minimum control standards are not met by a bank.

Finally, it would be helpful in this respect if the Basel Committee could specify a point at which further formal review of the supervisory approach to operational risks would take place. In the meantime, the potential role of insurance and market discipline should be explored further.

V. IMPLEMENTATION OF THE BASEL COMMITTEE PROPOSALS

1. Organisation of supervision

A. Harmonising the regulators' supervisory approaches

By placing greater reliance on a detailed review of banks' risk management processes, supervisors will undoubtedly come closer to the reality of banks' default risk.

It will be important to ensure that the way in which the supervisory review translates into additional capital requirements is harmonised internationally, in order to ensure the comparability of banks' capital treatment. Going forward, the Bank for International Settlements will need to ensure that the approach taken, the norms applied and the quality of supervision do not differ widely from one country to the next.

Supervisors are not all equally equipped to deal with the challenge of having to develop Pillar II of the review. ISDA would like to offer assistance, notably by producing best practice guidance and organising training on topics of interest to the regulatory community.

B. Developing lead regulation

The development of lead regulation agreements could further allay the burden of supervision : one supervisor would review the entirety of a bank's or banking group's risk management and make its conclusions available to other interested supervisors, subject to regulations governing confidentiality.

Such agreements would reduce the costs of supervision for both the supervisors and the banks, foster the emergence of common supervisory standards, and above all, reflect the growing trend towards a centralisation of risk management functions at banks' head office.

Lead regulation de facto applies in the EU, where host countries only supervise the liquidity of banks' branches.

Efforts should be made to foster the development of lead regulation among the G-10.

C. Relying on external auditors

To further streamline the supervisory process, it might also be sensible for the supervisors to rely on external auditors, at least to conduct some of the more specialised parts of the reviews (e.g. : aspects of operational risk measurement or management, review of provisioning policies). Using international auditors as part of the supervisory process should help harmonise the approach taken across national boundaries.

2. Implementation time-schedule

ISDA hopes that it will be possible to implement the new Capital Accord soon. We realise that translating the new rules into an EU directive will require time, but would hope that the directive can be structured in a way that facilitates its adoption by the European Parliament.

VI. Next Steps

The capital adequacy review embraces many issues, some of which have only been addressed briefly in the response above.

ISDA believes additional work is appropriate in the following fields:

- Operational risk, where we advocate the development of an assessment methodology by supervisors internationally as part of Pillar II; ISDA would be pleased to participate in its elaboration.
- Credit risk, where we have suggested that supervisors rely on banks' portfolio credit risk modelling for retail, mortgage and project finance exposures and would, should the Committee wish to pursue this approach, be ready to provide a description of the workings of the models, as well as validation methodologies. We are also willing to assist the Models Task Force with any project where they believe that co-operation could be fruitful.
- Counterparty risk, where ISDA has recommended that supervisors should rely on banks' potential future exposure estimates and is willing to provide the Committee with information on how these estimates are derived.

Finally, in order to be able to implement the proposed framework, it is important that banks have access to sufficiently large default and loss data sets: the validation of internal rating systems, default probabilities and loss given default assumptions is partly dependent on the availability of such data. ISDA has launched a joint project with the British Bankers Association and Robert Morris Associates to set up a loss given default database in Europe. We believe that this will contribute to the setting-up of a benchmark for European banks.

ISDA hopes that the Basel Committee will find the work programme outlined above of interest and would be happy to discuss it further.

APPENDIX I. ISDA Letter to the Models Task Force

**Mrs Daniele Nouy
Chairman
Models Task Force
Basel Committee of Banking Supervision
Bank for International Settlements
Central Bahnplatz 2
CH-4051 Basel
Switzerland**

30 September 1999

Dear Mrs Nouy,

The International Swaps and Derivatives Association (ISDA) is pleased to enclose brief comments on the document released by the Basel Committee of Banking Supervision on “Credit risk modelling : current practices and applications”.

While the report was not as positive as we would have hoped, we are encouraged by the indications that supervisors are taking a genuine interest in credit risk modelling techniques and are considering the possibility of relying on models for setting regulatory capital requirements in future.

Credit risk modelling is an area where financial institutions have invested considerable resources. Understandably, it is important for them to see that this effort, driven by the will to improve the measurement and hedging of credit risk, can also have an impact on how capital requirements are defined.

The current capital adequacy framework shows little sensitivity to credit risk embedded in banks' portfolios. Regulators are well aware of the consequences of the discrepancy between economic and regulatory capital, in terms of regulatory arbitrage. ISDA feels that arbitrage can be contained only if the techniques for calculating the two come closer together and believes that there are strong conceptual grounds for promoting convergence.

Convergence will necessarily entail increased reliance by the regulators on the banks' assessment of their exposures' credit quality. This process can be incremental, with reliance placed on an additive weighting based measure first, and on portfolio loss distributions as a second step. The new capital adequacy framework outlined in the document released in June by the Basel Committee (“A new capital adequacy framework”) incorporates this evolutionary dimension and ISDA views the proposed recognition of internal ratings as a crucial step towards increased regulatory confidence in credit risk models.

However, ratings of individual exposures by themselves have been shown to be inadequate gauges of capital adequacy. Losses that threaten capital are highly associated with adverse portfolio concentrations. Failure to recognise diversification differences among bank portfolios will continue to encourage capital arbitrage. Unfortunately, regardless of how imperfect regulators perceive credit risk models to be, they remain the key to assessing portfolio concentration risk as well as determining portfolio loss distributions.

While recognising the limited data availability, ISDA is convinced of the conceptual soundness of models; these offer a suitable framework for assessing the various components of credit risk: default/rating migration rates, loss given default and default/downgrade correlations. Further, different

models, if calibrated in a similar way, produce comparable capital requirements when run on similar portfolios³⁸.

Regulators need to set practical standards for validation and not make them so onerous that no credit risk model can pass the hurdle. Default is a rare event. Estimation through the use of historical data of the joint default probability for two borrowers is by its nature infeasible. It is not possible to thoroughly back-test a credit risk model, given that the standard time horizon is of a minimum of one year, which would necessitate an extremely long time series of data.

However, input data to the models, such as internal ratings, default probabilities, loss given default or even loan equivalencies, can be tested. Banks conduct studies of loss given default and are able to test the performance of their internal ratings against external benchmarks. Beyond validation of the input, the key to validation of structural models is to examine their conceptual soundness. This is an area where practitioners can work with the regulators to help them attain a more accurate view of an institution's credit risk, as well as further assess the sensitivity of models to the drivers of risk. This sensitivity is precisely what makes portfolio modelling a reliable tool for ensuring the comparability of capital requirements across banks.

Most of the more sophisticated banks have implemented internal models that are designed to measure economic capital requirements. The models' results are used in the banks' credit portfolio decision-making processes either directly or indirectly (through risk adjusted transfer prices). Models assist bank decision-making and behaviour. Ignoring the context and use of these models in setting regulatory capital standards constrains the objectives of the regulatory process.

Given the above, ISDA would, at a minimum, urge the regulators to include credit risk models within the scope of their supervisory review of banks, i.e. as part of Pillar II of the proposed review. This would not only ensure cross-fertilisation between the practitioners and the supervisors' modelling expertise, but also set the stage for model recognition in future. While different banks may vary in their use and interpretation of internal or off-the-shelf models, it is important for supervisors to understand how these models are constructed and relied upon. ISDA would suggest that banks with sound credit risk modelling practice receive regulatory capital relief: regulators would in this manner incentivise the use of models³⁹ and, by ensuring that active credit risk management practices develop, increase the availability of the very data necessary to run and estimate the models.

Finally, ISDA is encouraged that some of the proposals formulated by the Basel Committee in the June paper do represent steps towards the recognition of diversification effects within banks' portfolios, hence lay the ground for more reliance on modelling in the longer run:

- Regulators propose to take default correlation into account in the treatment of guarantees, by applying a haircut on the substitution approach; this marks the beginning of a portfolio modelling approach.
- The proposed treatment of public securitisation transactions (or equivalently CBOs/CLOs) is an implicit recognition of the rating agencies' credit risk models. If both internal ratings and CLO structures are satisfactorily accounted for under the new rules, it should be possible for banks to obtain appropriate treatment for first loss basket structures; this in essence will mimic the effect of portfolio modelling over segments of portfolios.

Credit risk models, as noted in the Task Force's report, are perfectible. It is ISDA's intention to devote resources to researching further some of the issues identified by the Task Force, notably data availability and validation.

³⁸ From a mathematical standpoint, it is further possible to translate models into each other (studies by Koyluoglu and Hickman, Gordy)

³⁹ Regulators should keep in mind that developing (or even implementing vendor) models is expensive, and that some banks might not sustain the required effort if no regulatory benefit is expected.

As you will appreciate, our membership is currently devoting significant resources to responding to the Basel Committee's proposals for a new capital adequacy framework. Our future credit risk modelling research will for this reason most probably start only next year. We will be happy to present our findings to the Models Task Force in due course.

Models are still developing, and as their accuracy and coverage improves, it is hoped that the regulators will reconsider using them as a basis for setting the banks' capital requirements.

I look forward to the meeting planned at the Financial Services Authority on 15 October.

Yours sincerely,

Emmanuelle Sebtou

APPENDIX II. Legal principles for collateral use.

The following text is based on the ISDA publication 'Collateral Arrangements in the European Financial Markets – The Need for National Law Reform.', prepared by the ISDA Collateral Law Reform Group.

Taking collateral is one of the principal ways in which financial market participants reduce credit risk. Lack of legal certainty seriously impedes the efficient use of collateral and needlessly limits the amount of business that could otherwise be done on a collateralised basis. This in turn restricts access to financial services and raises costs, particularly for small- and medium-sized businesses.

Some legislative improvements have been made in recent years. In the European Union, for example, implementation of the Settlement Finality Directive⁴⁰ has generally brought additional clarity to one important legal issue affecting collateral arrangements, namely, which law governs the proprietary effect of the arrangement.

It remains the case, however, that current laws and rules relating to the use of collateral are in many instances complex, inconsistent, impractical and/or out-of-date. They therefore create uncertainty and unpredictability regarding the effectiveness of the intended protection, leading to inefficiency, cost and increased risk for financial markets.

Major legal impediments to the efficient use of collateral are:

- cumbersome and impractical rules hampering implementation of pledge collateral arrangements
- cumbersome and impractical rules hampering enforcement of pledge collateral arrangements
- legal restrictions on the use of pledge collateral by the secured party
- uncertainty regarding the enforceability of title transfer collateral arrangements
- uncertainty under existing conflict of laws rules as to which law applies to key aspects of the collateral arrangement, including enforcement
- vulnerability of collateral arrangements to the rights of third parties
- vulnerability of “top-up” deliveries of collateral under mark-to-market collateral arrangements to avoidance under preference and similar insolvency rules

The set of principles that an effective and efficient modern legal regime for collateral arrangements should embody are:

- rules and procedures for implementing and maintaining a collateral arrangement should be simple, clear and cost-effective
- cumbersome formalities such as registration, notification, filing and similar requirements should be abolished
- a collateral taker should be free to deal with the collateral until it is required to return it

⁴⁰ European Directive 98/26/EC of May 19, 1998.

- a giver of pledge collateral (a pledgor) should be protected from the insolvency of the taker of that collateral (the pledgee)
- the law governing the creation and priority of the collateral arrangement should be the law chosen by the parties
- where no law has been chosen by the parties, the governing law should be the law of the place where the collateral is held, collateral held through an intermediary being deemed held where the intermediary maintains the account, register or other official record representing such collateral
- the legal nature of a party's holding of securities in a clearing system should be clarified
- collateral arrangements should be protected from the rights of third parties
- "top-up" deliveries of collateral under mark-to-market collateral arrangements should be protected from avoidance under preference and similar insolvency rules

APPENDIX III. Analysis of Proposed Methods of Deriving a Capital Charge for Operational Risk

TECHNIQUE	DESCRIPTION OF THEORY	ACTIVITY/ RISK-BASED	NOTABLE DISADVANTAGES
1. Balance sheet and P&L	This technique calculates the firm's capital requirement as a weighted sum of a number of factors selected from audited accounts (eg, annualised overall costs, balance sheet size, total revenue), which are assumed to be of value as indicators of the amount of operational risk in a firm.	Activity	<ul style="list-style-type: none"> - Lacks the precision or risk-sensitivity of more sophisticated approaches (viz, large firms do not necessarily have weaker controls.) If weights are assigned in order to target a desired system-wide level of capital, risk-sensitivity is reduced even more. - Does not create positive incentives for developing good OpRisk management practices. - Vulnerable to manipulation by targeting the items in the financial statements that are to be weighted. - If based on costs, would have <i>perverse</i> incentive, discouraging investments that would improve OpRisk controls.
2. Proportional charge	Percentage of risk-weighted assets	Activity	<ul style="list-style-type: none"> - No meaningful relation to OpRisk and therefore disincentive to manage it - May encourage cavalier attitude toward risk management - Disincentive to invest in risk control
3. Plug percentage figure	Adds to existing capital requirement to make total up to a charge expressed as percentage of risk-weighted assets (ie, same as current approach)	Activity	<ul style="list-style-type: none"> - Disincentive to manage OpRisk. - May encourage cavalier attitude toward risk management. - Disincentive to invest in risk control. - Destroys sensitivity of capital charge to credit risk.
4. Expense-based model	Capital charge based on operating expense.	Activity	<ul style="list-style-type: none"> - Disincentive to manage OpRisk - May encourage cavalier attitude toward risk management - Disincentive to invest in risk control
5. Causal modelling	Based on a firm-wide OpRisk framework with four areas of OpRisk losses (process, assessment, reliability and assurance), this interactive technique sets out a model to determine regulatory capital allocation. The model is trained with the existing data and continuously updated with new data. It can be stress-tested using Monte Carlo simulations, scenario analysis and back-testing.	Activity	<ul style="list-style-type: none"> - Seems to work best as a way of identifying the area where a problem lies, rather than identifying its root cause. - The structure of the model must be described a priori and is likely to be complex.
6. Box approach	This methodology divides OpRisk into a series of business units and defines the capital to be allocated to each as the score resulting from multiplying three sets of data: a. The OpRisk score for the business unit b. The regulator's score for the firm's control environment in each individual unit c. Volumes	Activity/Risk	<ul style="list-style-type: none"> - Requires a rigorously calibrated, internationally harmonised approach, particularly to avoid pitfalls associated with balance-sheet method. (To work effectively, should be combined with self-assessment.) - Time consuming: <ul style="list-style-type: none"> a. Each unit will require a unit of throughput b. Work on cross-box risk comparisons will be required - As scores are based on industry-wide experience, the need for additional information (loss-benchmarking and the development of loss databases, etc) is pressing. - First box on OpRisk score needs clarification. For example, it may be subdivided into a further layer, ie, generic bank type and generic risk categories broadly common to all banks types. - Is a compromise between the desirable qualitative assessment of controls and other, more problematic methods outlined in this table.
7. Extreme value theory (Operational VaR)	Provides an estimation method that considers those low-frequency/high-impact events characteristic of operational loss in financial institutions. For this purpose it attempts to define i) a distribution and ii) the tail of that distribution.	Risk	<ul style="list-style-type: none"> - Technically not easy to manipulate and analyse – depends on subjective inference and tailoring to specific firm/events. - Still needs further theoretical development in the form of widely accepted numerical statistical tests and parameter selection. - Extreme events being targeted do not necessarily share the same cause/characteristics as others making up the 'distribution'.

TECHNIQUE	DESCRIPTION OF THEORY	ACTIVITY/ RISK-BASED	NOTABLE DISADVANTAGES
8. Modelling and measuring reputational risk	Aims to present an econometric model that measures the reputational risk of a financial institution using arbitrage price theory. Determines a capital allocation through the use of a market risk measurement-like technique.	Risk	<ul style="list-style-type: none"> - Unproven relationship between reputational value and operational risk. (Further removed than earnings volatility [see below]). - Difficult to measure for non-quoted banks. - Allocation to business units can prove difficult.
9. Earnings volatility and 10. Expense volatility	<p>This approach estimates a firm's OpRisk exposure by stripping out the known credit and market element of historical income volatility.</p> <p>This method provides an aggregate estimation of OpRisk based upon the historical variation in expenses after allowing for factors such as business growth or planned change. The net variation must represent expense incurred as a result of OpRisk failures.</p>	Activity	<ul style="list-style-type: none"> - Unclear relationship between expense or income and OpRisk. - It is difficult to obtain P&L time series of sufficient length (NB effect of mergers?). - No predictive ability – assumes that: <ol style="list-style-type: none"> 1. future behaviour will follow that of the past; 2. business mix or competitive environment does not alter. - Ignores potential hazards that have a small probability of occurrence but large impact. - Stripping out the effects of market and credit risk or general economic/sector trends could be difficult and time consuming. - Does not indicate <i>where</i> problems/failures are.
11. Brand	The potential adoption of a brand valuation method to determine OpRisk capital allocation is based on the assumption that if it were possible to find a brand value for a financial institution, it might then be possible to attach regulatory capital to it. However, "there is no consensus on how to value a brand. Brand development and valuation within the financial sector is currently at an early stage of development" (from 'Allocating Regulatory Capital for Operational Risk', a paper by an FSA Informal Working Party)	Non-risk	<ul style="list-style-type: none"> - Highly subjective - It may not be possible to establish a single brand name for a firm, since complex institutions tend to be an amalgam of brands. - Unproven relationship to OpRisk.
12. Risk assessment eg, self-assessment (bottom-up approach)	The business line managers assess the OpRisk they face with the assistance of the central OpRisk control unit and estimate the loss that could arise as a result. Using this information and a view on correlation, it is possible to determine the amount of capital required to sustain those risks.	Risk	<ul style="list-style-type: none"> - Not yet widely developed for allocating OpRisk capital. - The factors which make this method powerful for <i>qualitative</i> assessment make it less suitable for a formulaic charge. Relevant characteristics include: <ol style="list-style-type: none"> 1. Objective of continuous improvement implies a dynamic rather than static standard. 2. Time horizon and other parameters may justifiably vary by business line/activity. (Controls typically are embedded into business lines.) 3. Analysis necessary to ensure no material risks are omitted. 4. Analysis of behaviour.

APPENDIX IV. ISDA PRIMARY MEMBERS

<p>Abbey National Financial Products ABN AMRO Bank N.V. ABSA Bank Ltd. African Merchant Bank Limited AIG Financial Products Corp. Allied Irish Banks, plc Alpha Credit Bank AON Financial Products, Inc. Arab-Malaysian Merchant Bank Berhad Argentaria Artesia Bank N.V./S.A. Asahi Bank, Ltd. Australia and New Zealand Banking Group, Ltd. Bacob Bank s.c. Baden-Wuerttembergische Bank AG Banca Akros Spa Banca Commerciale Italiana Banca CRT- Cassa di Risparmio di Torino Banca del Gottardo Banca Del Salento - Credito Popolare Salentino S.p.A. Banca di Napoli Banca di Roma S.p.A. Banca Intesa Spa Banca Monte Dei Paschi Di Siena SpA Banca Nazionale del Lavoro Banco Bilbao Vizcaya, S.A. Banco Central Hispanoamericano, S.A. Banco Espanol de Credito, S.A. (BANESTO) Banco Espirito Santo e Comercial de Lisboa, S.A. Banco Inversion, S.A. Banco Portugues de Investimento S.A. Banco Portugues Do Atlantico Banco Santander Bank Austria AG Bank Brussels Lambert Bank Handlowy w Warszawie S.A. Bank Hapoalim B.M. Bank Julius Baer & Co. Ltd. Bank Labouchere N.V. Bank of America N.A. Bank of Boston Bank of Ireland Group Treasury Limited Bank of Montreal Bank of New York Bank of Nova Scotia Bank of Scotland Treasury Services plc Bank of Tokyo-Mitsubishi, Ltd. Bank Rozwoju Exportu Bankers Trust Company Bankgesellschaft Berlin AG Banque CPR Banque Nationale de Paris Barclays de Zoete Wedd Ltd. BAWAG, Bank Fur Arbeit und Wirtschaft Bayerische Hypo-und Vereinsbank AG Bayerische Landesbank Girozentrale Bear, Stearns & Co. Inc. BFG Bank, AG BHF Bank (Berliner Handels-und Frankfurter) BSN Commerical Bank (Malaysia) Berhad Caboto Holding SIM S.p.A. Caisse Centrale des Banque Populaires Caisse des Depots et Consignations Caixa Geral de Depositos, SA. Caja de Ahorros Y Monte de Piedad de Madrid Capital Reinsurance Company CEDEF Capital Services SA Ceskoslovenska Obchodni Banka, A.S. Chase Manhattan Bank Christiania Bank</p>	<p>CIBC World Markets Citibank, N.A. Cofiri SIM S.p.A. Commerce International Merchant Bankers Berhad Commerzbank AG Commonwealth Bank of Australia Compagnie Financiere de CIC et de L'Union Europeene Confederacion Espanola de Caja de Ahorros Coral Energy, L.P. Credit Agricole Indosuez Credit Commercial de France Credit Communal de Belgique Credit Lyonnais Credit Suisse Financial Products Credito Italiano S.p.A. Dai-Ichi Kangyo Bank, Ltd. Daiwa Bank, Ltd. Daiwa Europe Bank Plc DBS Bank (The Development Bank of Singapore Ltd) Den Danske Bank Den Norske Bank ASA (DnB) Depfa-Bank Europe plc Derivatives Net Inc. Deutsche Bank AG DG Bank Deutsche Genossenschaftsbank DKB Financial Products, Inc. Donaldson Lufkin & Jenrette Dresdner Bank AG Elf Trading S.A. Enron Corporation Erste Bank der Osterreichischen Sparkassen AG First National Bank of Chicago First Union National Bank Fleet Financial Group, Inc. Fortis Bank NV/SA Fuji Bank Ltd. Fuji Capital Markets Corp. General Re Financial Products Corp. Goldman Sachs & Co. Halifax plc Hamburgische Landesbank Girozentrale HSBC Midland HSBC Trinkaus & Burkhardt KGaA IBJ International Limited IKB Deutsche Industriebank AG INA SIM S.p.A. Industrial Bank of Japan, Limited ING Bank ING Baring Financial Products Intercapital Brokers Ltd. Investec Bank Limited Investicni a Postovni banka, a.s. Irish Life & Permanent plc J. Henry Schroder & Co. Limited J.P. Morgan Securities Ltd. Jyo Bank, Ltd. KBC Bank Keybank National Association Landesbank Baden-Wuerttemberg Landesbank Hessen - Thueringen Girozentrale Landesbank Rheinland-Pfalz Girozentrale Landesbank Sachsen Girozentrale Landesbank Schleswig-Holstein Girozentrale Lazard Brothers & Co., Limited Lehman Brothers Lloyds TSB Bank plc Long-Term Credit Bank of Japan Macquarie Bank Ltd Maple Partners Bankhaus GmbH MeesPierson, N.V.</p>	<p>Mellon Bank, N.A. MeritaNordbanken Plc Merrill Lynch & Co., Inc. Mitsubishi Trust and Banking Corp. Mitsui Bussan Commodities Limited Mitsui Trust & Banking Co. Ltd. Morgan Stanley & Co. Inc. National Australia Bank Limited National Bank of Canada National Bank of Greece Nationale Investeringsbank N.V. National Westminster Bank Plc New Japan Securities Co., Ltd. Nikko Securities Co., Ltd. Nippon Credit Bank Ltd. Nomura Capital Services Inc. Norddeutsche Landesbank Girozentrale Norinchukin Bank NTLA Financial Services B.V. Nykredit Bank A/S Osterreichische Postsparkasse Aktiengesellschaft Paribas Prebon Yamane USA Inc. Prudential Global Funding Inc. PSEG Energy Resources & Trade LLC Rabobank Nederland Raiffeisen Zentralbank Austria AG Rand Merchant Bank Limited Refco Capital Markets, Ltd. Reliant Energy Services, Inc. Republic National Bank of New York Robert Fleming & Co. Limited Rossiysky Kredit Bank Royal Bank of Canada Royal Bank of Scotland plc RWE Energie AG Sakura Bank Limited Sakura Global Capital Sal. Oppenheim jr. & Cie KGaA Salomon Smith Barney Holdings Inc. SANPAOLO-IMI SPA Sanwa Bank Limited Sanwa Financial Products Sanwa International PLC Saudi International Bank Shoko Chukin Bank Skandinaviska Enskilda Banken Societe Generale St. George Bank Ltd Standard Chartered Bank Standard Corporate and Merchant Bank State Street Bank & Trust Company Sudwestdeutsche Genossenschafts-Zentralbank AG Sumitomo Bank Capital Markets, Inc. Sumitomo Bank Ltd. Sumitomo Trust and Banking Co., Ltd. Suntrust Capital Markets, Inc. Svenska Handelsbanken (Handelsbanken Markets) SwedBank Swiss Re Financial Products Tokai Bank Ltd. Tokyo-Mitsubishi International Plc Toronto Dominion Bank Toyo Trust and Banking Company, Limited UBS AG Ulster Bank Limited Unibank A/S Westdeutsche Genossenschafts-Zentralbank eG Westdeutsche Landesbank Girozentrale Westpac Banking Corporation Yasuda Trust & Banking Co., Ltd. Zurcher Kantonalbank Zurich Capital Markets</p>
TOTAL PRIMARY MEMBERS: 213		