CREDIT SUISSE | GROUP

The New Basel Capital Accord

Consultative Paper 3

(Issued for comment 29 April, 2003)

Official comments of

Credit Suisse Group

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Contents

1. Executive Summary

Credit Suisse Group is a leading global financial services company headquartered in Zurich. It is comprised of two business units - Credit Suisse Financial Services (private banking, retail banking and financial advisory services, as well as pension and insurance solutions through our insurance company Winterthur) and Credit Suisse First Boston (investment banking and asset management). The company operates in over 50 countries with around 73,000 staff. We appreciate the opportunity to comment on the new Basel Accord's third consultative paper (CP3).

We believe that the Basel II process has arrived at a crucial juncture. Methodological discussions are nearly complete and systems development to support implementation is already underway. It is important to take this opportunity to pause and take stock of the proposal, now that the key elements of the proposal are assembled into an integrated whole for review. Before we move to finalize these rules, which are likely to govern bank capital for many years to come, it is important to remove any obstacles to successful implementation and to prevent, if possible, adverse unintended consequences.

We support the goals of the Basel II process, and agree fully with the importance of bringing the existing bank capital regime up to date. The committee has been conscientious in listening to industry comments and improving earlier versions of the proposal. However, there are many elements which still raise serious concern. On balance, we now believe that the advantages of the new rules now outweigh the drawbacks, but the balance remains frustratingly close. This is a disappointing outcome for an initiative with so much potential. We hope the committee will use this opportunity to consider substantial changes, changes which will make the Accord a clear, relevant and durable advance in financial market regulation.

Along with many banks, we would like to see the regulatory capital requirements under Basel II converge more closely with the economic capital models currently utilized for internal risk management purposes. We recognize that regulators are unwilling to take this full step today. However, in crafting CP3, we are concerned that the Committee has not struck the proper balance between external prescription by regulators and oversight of the internal risk process used by banks. We believe that Pillar I is excessively legalistic, with overwhelming data collection and validation requirements. In practice, these requirements could become a costly ceiling on risk management practices, fixing risk management into an overly rigid structure and stifling further innovation and experimentation. We would suggest that the Committee carefully examine the balance they are striking between a static Pillar I regulatory capital model and internal economic capital models, to assess whether the new Accord will be sufficiently flexible to keep up with evolving "best practice" over time.

Our major points of concern with regard to the New Accord Consultative Paper 3 ("CP3") proposals are as follows:

1. **Validation**. CP3 has a strong statistical focus, and essentially is an attempt to apply techniques appropriate for market risk to credit risk and operational risk. We are concerned that internal risk management processes will be evaluated with the expectation that credit risk and operational risk will be able to reach the same level of statistical precision. In our view that will not be possible for the foreseeable future. Indeed, this may never be possible for operational risk. Therefore, we recommend a different balance to the validation requirements under Pillar I, putting a greater emphasis on the judgments of risk managers subject to high level validation under Pillar II, and reducing the emphasis on regulatory parameters as well as

mechanical data collection for purposes of validation. We set out these proposals in more detail in Sec. 4.1 below.

2. **Risk management innovation**. CP3 proposes a complex regulatory model for credit risk capital calculations which - though based on bank parameters - does not provide incentives for progress in internal risk management. In contrast, both market risk and operational risk place a clear emphasis on internal bank models and the capital rules generally incentivise risk management innovation in those areas. We would suggest that the Committee review Pillar I with similar incentives in mind and with modifications to allow the assumptions and parameters of the credit risk capital calculations to adapt as "best practice" risk management improves over time.

3. **Macro economic impact.** We believe that Basel II will have serious effects on both national economies and key financial markets (e.g. corporate loans, repurchase agreements). CP3 does not in our view address the risk of negative consequences sufficiently. It is widely agreed that the Accord has pro-cyclical characteristics with volatility of capital requirements that will create significant challenges for firms. Therefore we recommend a more thorough evaluation of the overall volatility that the Accord will bring to the banking system and a clear determination of what modifications should be made to address or mitigate this volatility.

4. **Complexity**. It has been said that as the world of banking and finance has become more complex so the capital rules for banks need to be equally complex. While this conclusion seems reasonable on its face, it is refuted by the success of a relatively simple regulatory approach to market risk – an area with similar degree of complexity. Complexity and prescriptiveness are costly in many dimensions, and should form part of a regulatory framework only where there is proven necessity, not by default. A simpler, more evolutionary approach to reforming the current framework would give us important practical benefits, and achieve most of the benefit of Basel II at less cost and less risk.

   Much of the complexity in the current proposal results from an approach that is inconsistent with current internal risk management practice, particularly as it relates to credit documentation, data collection and validation procedures. A critical review of CP3 should be done to determine whether the Accord could rely more heavily on the market mechanisms that currently discipline risk managers at banks, and less on CP3's documentation-heavy compliance regime as an enforcement mechanism. We also believe that explicit statements regarding the primacy of the "spirit" of the rules - rather than the letter - would be helpful as a guide for the inevitable disputes to be expected during the implementation process.

5. **Home and Host Issues.** As noted above, the cost and complexity of the new accord is daunting when considered in the context of a single legal entity. However, these problems escalate dramatically when applied to the complex, multi-entity legal structures of the international banking groups that the Accord was built to govern. These entities operate in many jurisdictions and will be subject to different regulatory interpretations of rules and parameters in each. If banks are required to implement and validate parallel models with different parameters in each country, the cost of the new Accord will skyrocket and the benefits will plunge. Conflicting interpretations by regulators could drown the theoretical benefits of the Accord in a mire of bureaucratic differences, diverting huge amounts of bank resources from true risk management along the way. We believe this is one of the most dangerous potential pitfalls for the new Accord, and that it is important for the Committee to take active steps to forestall such an outcome before implementation begins.

We suggest that the Committee establish a separate body to review CP3, and the comments received to date. This group should focus on streamlining the document as far as possible, addressing the unintended consequences, and providing implementation guidance to ameliorate the potential problems with CP3. The review group could be constituted as follows:

- **Membership** - made up of senior staff members from relevant regulatory organizations but not those who have been intimately involved in shaping the New Accord to date. A "fresh set of eyes" would provide the most thoughtful editing.
- **Reporting** - the group should report publicly on their conclusions and recommendations ahead of the issuing of the final version of the New Accord.
- **Scope** - these issues should be assessed independently of the process for reviewing the more detailed and technical comments on CP3. To date the vast majority of the dialogue between regulators and banks, though incredibly constructive and positive, has been detailed and technical. A step back is in order before the Accord is finalized.

We understand the reluctance on the part of the Committee to revisit fundamental aspects of the New Accord, particularly given the extensive industry consultation and resource commitment expended to date. However, it is the much larger commitment of future resources for both banks and regulators that leads us to suggest a fresh look at the whole before the challenges of implementation are upon us.

Understandably too, there is a sense of urgency and strong desire to bring the Basel reforms to conclusion within the currently published timescale and to "get on with the job" of implementation. But the New Accord will likely be in force for many more years than it took to develop. We would suggest that the risk of a modest delay is a cheap price to pay if this time is needed to avoid the unintended consequences noted here, and make the final accord better and more durable. We also believe that regulators are sufficiently skilled in dealing with the shortcomings of the current system so that any short term risks of the status quo are manageable.

2. Introduction

Credit Suisse Group welcomes this opportunity to give direct feedback to the Basel Committee on the New Accord Consultative Paper 3 ("CP3"), published by the Committee on 29 April 2003.

We have taken a keen interest in the Basel II reforms throughout and have voiced our opinions directly to the Committee in the official comment periods, as well as through the various industry bodies, particularly the Financial Services Roundtable, IIF and ISDA, at which we are represented, as well as legislative hearings and contributions in public media.

In formulating our views throughout this process, we have been guided, not by special business interests or objectives, but by our central belief that the Accord should serve the stability and soundness of the financial system. Further, that the Accord should be based as far as possible on clear objectives and sound principles applied with common sense, and in a spirit of cooperation with the industry. We believe that such a formulation has the best chance of producing a workable, relevant and durable system, whatever subsequent innovations may be.

We recognize the difficulty facing the Committee in reviewing a large number of institutional responses within a short time frame. We have therefore attempted to be as specific and constructive as possible. The remainder of this document is accordingly organized in three sections, as follows.

Section 3 – key issues

In Section 3, we address our key areas of high-level concern. In some of these areas, the concern is general in nature and can only be articulated at an overview level. In others, we wish to explain our rationale in more depth and have also made detailed suggestions which are found in Section 4.

Our broad issues, for which we have not made specific comments in Section 4, are:

- Prescriptiveness;
- Cost issues;
- Home - host issues.

The areas where we seek to expand on the rationale for our comments in Section 4 are:

- Stress testing framework;
- Operational risk;
- Asset securitization;
- Pillar III.

Section 4 – detailed constructive comments and suggestions

Section 4 contains our detailed recommendations for changes to CP3. This section contains all our actual recommendations where we are able to articulate a specific set of changes (that is, everything except the broad issues of prescriptiveness, cost and home-host). Each recommendation on the right of the page is accompanied by a stated rationale on the left hand side.

Section 5 Annex – treatment of short dated maturities

This is a technical Annex. The Accord offers a treatment of repo style products with short maturities, where the draft Accord proposes not to apply the general one-year floor. We believe the correct application of the IRB approach to such products requires further thought, and offer our own technical proposal for the interest of the Committee, or to forward to the appropriate working group as the Committee sees fit. Please also see Section 4.5 for our comments on the relevant paragraphs of CP3.

3. Our key concerns

3.1. The New Accord and internal risk management

At a technical level, the New Accord is based on techniques and concepts developed in recent years by practitioners and regulators for internal risk management. An original goal of the reforms was to incorporate these concepts into a regulatory capital regime that would be more responsive to risk and hence, it was hoped, both more effective and more aligned with commercial best practice.

CP3 shows significant progress in moving towards this goal. It has retained a coherent overall approach despite the ambitious scope of the project. Along the way regulators, practitioners and academics have been stimulated to continue improving their methodologies and techniques– a side effect that is in some ways as valuable as the Accord itself.

However, there is a subtle but important issue that arises out of the detailed formulae in Pillar I. These formulae are thoughtful and carefully calibrated for the most part. However, we are concerned that the Accord now *prescribes* a specific style of best practice in risk management, which we believe is at odds with the proper role and functioning of the Accord. Our point is not particularly that these rules are incorrect, but that the Committee's goal should be to write a template for a new regulatory capital regime, rather than a detailed textbook on the science of risk management, which runs the risk of becoming outdated.

An example is the approach to securitization. Securitization technology has evolved quickly in recent years; if developments continue at the current pace, they could easily make the current rules look outdated or unworkable in a few years time. Another disturbing example of this kind of prescription is the wording describing default probability estimation. Here the New Accord's draft provisions are a product of current confusion in the discipline and are couched in terms that in a short time may seem overly abstract and vague.

The Accord displays perhaps a lack of confidence in its framework by adding expensive and onerous checks and balances, particularly in regard to internal risk modelling. An example is the provision allowing for VaR modelling for repo exposures – a well-grounded approach consistent with current industry best practice, but for which a very onerous back testing regime is imposed. These models will already be validated for the much larger area of direct market risk. The cost and resource commitment necessary for an additional backtesting regime makes use of such modelling problematic for a product area where profit margins are razor thin.

The drafters of the Accord have noted that bank management bears primary responsibility for capitalization and risk management, and that the regulatory minimum requirements specified in Pillar I were created to act as a lower bound for capital. However, there are many areas where this division of responsibility is not respected. Generally, the Accord seeks to build upon the techniques, processes and data of internal risk management. However, in many places it specifies that internal practice must be consistent with the regulatory view for model approval to be granted, and that the regulatory view must have certain features. This clearly imposes an exclusive regulatory standard of risk on banks at a deep level within the risk management process. We believe that this has important consequences, and could act to undermine the clarity of risk reporting and the responsibility of management in some areas.

3.2. Cost and complexity

The Committee is of course aware that the monetary cost of complying with the Basel II rules will be significant. We estimate that our initial consolidated costs will be $70mm to $100mm just to

implement the rules, plus substantial ongoing costs[1]. The total cost for the thousands of banks within the banking system worldwide, will amount to many billions of dollars of additional costs. Some of these costs will be passed on to consumers and corporations, and some of these costs may force banks to exit certain activities leaving these markets to unregulated entities.

Some level of cost is of course an acceptable price to pay for the benefits Basel II will bring. However, a major driver of the cost / benefit ratio of the new rules will depend on how they are applied, and in particular, how the parts of the Accord which tend to be complex or prescriptive, are interpreted in practice.

For example, there are over 50 specific requirements that must each be met to use the so-called IRB advanced credit system. If each is interpreted and tested to rigorous audit standards, there will be enormous costs in compliance, though the relevance to better risk management will be small. Similarly, the Pillar I rules for asset securitization, which we comment on in more detail below, are complex only partly because of the nature of the securitization business, but also because of their tendency to prescribe and limit activity in a way we believe is essentially unnecessary. These rules need a lighter, principles based interpretation and some willingness to balance the spirit of the rules against the letter, if they are to be implemented successfully. Given the multiple regulators who will be interpreting the new Accord, it is important to include wording supporting this approach within the document itself.

Even more important, perhaps, than the direct monetary costs are the indirect costs. These will depend on whether the new rules support the real risk management needs of the business, or whether they become an extra burden or even a diversion. Our internal assessment indicates that most of the additional resources required will not be in the risk control departments, but rather in the financial reporting and IT support systems areas, in order to generate the volume of data and reports that Basel II requires to a reliable, audit quality standard. While further systems development does provide some benefits, we remain concerned that the non-financial aspects of implementing the Accord's regulatory capital model may simply overwhelm a firm's support systems that are geared toward risk management practices disciplined by the market, rather than the documentation, validation and data collection regime of Basel II.

3.3. Home host

The relationship between the duties of home and host supervisory authorities (the so – called "home-host issue") is a critical issue for the internationally active banks at which the IRB approach is aimed. This difficult issue has not been sufficiently addressed in the Basel dialogue to date, but we urge the committee and the Accord Implementation Group to now turn their attention to mechanisms that allow approvals in one jurisdiction to be valid in others (or with only a minimum of further review). As an institution with affiliates in over 50 countries, this issue is of critical importance to CSG.

To avoid the ongoing cost to banks and supervisors of repeated diligence work, and the cost of tensions arising from slightly different and incompatible standards being applied to the same processes by different supervisors, we urge the committee to attempt to put in place mechanisms to ensure:

- National implementations are as close as possible, with minimum divergence in either capital requirements or qualification standards for the various approaches;
- Regulators in the host supervisor position for foreign subsidiaries defer in situations where the home regulator has granted IRB/AMA approval for the parent-banking group using consolidated data.

[1] These estimates are for Credit Suisse Group and its subsidiaries.

Explicit guidance on these topics should be included in the Accord. Otherwise confusion could arise if different supervisors draw different conclusions on the adequacy of a bank's IRB/AMA methodology.

Material Pillar I home – host issues will arise where there are different approaches to models, parameterization, and data validation in different jurisdictions. For example, PD, LGD, EAD and AMA parameters and operational loss collection threshold all need to be set and validated for the advanced calculations. Issues will also arise relating to specific adjustments, e.g. local regulatory multipliers relating to VaR exposure calculations for repos.

Distribution of roles among home - host regulators

We understand that the individual duties of supervisors make it difficult for any sharing of roles to take place in a home – host framework, but that on the other hand it cannot be conceivable in the Basel II spirit that an international banking group would have to operate different IRB and/or AMA approaches or use different data for such approaches for each individual jurisdiction in which it operates. This would result in the development, testing, implementation and maintenance of parallel systems and processes – a potentially huge misuse and diversion of resources. In some circumstances, this could actually create a potential new source of operational risk. On the other hand we cannot expect host supervisor approval and regulation to be an automatic consequence of home supervisor actions, because we recognise that this demand would be incompatible with the respective duties of each supervisor.

The innate difficulty of this situation demands an imaginative solution or compromise. One suggested approach, which we believe has merit, is that of a "college" of supervisors relevant to each bank.

The college of supervisors would be constituted of the "main" supervisors of an internationally active bank, for example those supervisors responsible for 10% or more of the bank's capital requirements. The college of supervisors would mediate the various home host relationships relevant to the bank. When requested by the bank, they would commit to reconcile the requirements of different supervisors into a single approach that satisfied both the home supervisor and the relevant host supervisor.

The Home supervisor is best positioned to understand a bank's global operations and would lead the college of supervisors. They would be responsible for approving the conceptual soundness of a bank's IRB/AMA (including any top-down allocation mechanism) and the operational risk data used to determine regulatory capital along the lines agreed upon by the college of supervisors.

Allocation of regulatory capital across borders

Under Basel II, situations could potentially emerge where the consolidated capital requirement is far less than the sum of local requirements. This is problematic and is especially true of operational risk (in our discussion of op risk below, we argue that there is a need for introduction of an agreed means of apportionment of capital between subsidiary entities, subject to home supervisory oversight). We believe this should be stated clearly in Pillar I to avoid confusion in implementation.

Treatment of minor assets and subsidiaries

Home and host supervisors will naturally have different materiality thresholds, and so minor subsidiaries from a home point of view will not necessarily remain minor from the perspective of a local supervisor. For subsidiary assets that are minor from a parent bank's point of view (which is most likely to resemble that of the home supervisor), the bank will typically want a pragmatic and simplified approach for consolidation; again this will likely be a source of tension.

This is a difficult issue that we have discussed with our home supervisor. We believe there are workable approaches, perhaps involving a compromise where a prudent approach from the host supervisor's point of view is achieved using local buffers or multipliers where necessary, but building on the bank's global systems to avoid inconsistency. Alternatively, using the standardized approach for the subsidiary (where the bank as a whole is using the IRB approach) might be a viable, practical option.

3.4. Ratings and stress tests

We profoundly regret the current design of stress testing and advice about rating systems at paragraphs 396 – 399 (Pillar I) and 724 (Pillar II). This structure was established in part to make the operation of the Accord less mechanically pro-cyclical. While we agree with the importance of addressing pro-cyclicality, the current design of stress testing does little to alleviate that issue, and instead acts primarily to create an additional amount of required capital. Paragraph 724 states essentially that a bank must operate at the required minimum *after* a stress test is imposed, essentially raising the required amount of capital to 8% plus a further, subjective requirement. This additional buffer requirement appears to be intended for all parts of a credit cycle, not just when the industry is operating at the "top" of a good cycle.

We give suggestions for revising these paragraphs in Section 4, but this area is of fundamental significance because we believe the provisions of these paragraphs to be highly problematic. The present drafting encourages confusion about the nature of ratings, which we believe is problematic given the prominence of ratings in the capital calculations and the importance of the Accord as a reference document more broadly.

The confusion evidenced by paragraphs 396 – 399 is illustrated by the following observations. They indicate both the lack of clarity in ratings definition and demonstrate that the stress test at paragraph 397 must always give rise to additional capital requirements, contradicting what is said in paragraph 399:

- As a general matter, a rating system is a procedure that assigns a counterparty to a rating class, based on currently available information at a given point in time. Different procedures may react to varying degrees to new economic or counterparty specific information, but a rating system that does not react at all to important new information is not acceptable. The ratings applied to counterparties will therefore be gradually updated over time, in a manner that should react consistently to news.
- In particular, when bad news arrives about a counterparty (such as for example, profit warnings, falls in share prices, or poor economic prospects, etc), the Committee would find that rating systems used in the industry typically react by downgrading that counterparty, if the news is sufficiently severe. We believe that this is appropriate and is what the Committee, or a supervisor or auditor would expect to find in general.
- The stress test at paragraphs 397 envisages a conservative scenario representing a recessionary environment accompanied by zero growth. In such an environment, more bad than good news must be supposed to arrive about some counterparties[2]. Accordingly, net downgrades must be supposed to occur, which in turn would lead to a projected increase in IRB capital requirements.

[2] This is historically the case, but what we mean precisely is that if net bad news is not supposed to arrive, then we believe the scenario would be - rightly - rejected by a supervisor who would apply common sense to detect that a scenario in which there is neutral or upward credit quality shift is insufficiently severe.

This contradicts paragraph 399, where there is supposed to exist a rating system that generates no increase in capital in the circumstances described. It should be clear from the above that the requirements for such a system are inconsistent with ordinary prudence and ability to react to new information. This means that there will never be a zero additional requirement for the stress test set out at paragraphs 397.

The Basel Accord should be characterized by urging standards of conceptual rigor dependent upon data, and not perpetuate the confusion currently present in the industry on ratings and default probabilities. The changes to paragraphs 396 – 399 and 724 which we have proposed in Section 4 are intended to address these concerns.

3.5. Operational Risk

Home host issues

Home/host issues are not referred to in the Accord but will have a critical bearing for an effective implementation of AMA. In addition to the home - host issues that cover the whole Accord (referred to above), there are particular difficulties for the validation of Operational Risk. Due to the scarcity of relevant operational risk data, a bank will realistically only be able to perform an AMA calculation at Group level. Therefore in order to determine legal entity capital requirements an apportionment methodology (e.g. using gross income as its basis) will need to be used and be acceptable to generate legal entity capital requirements.

Soundness standard

The soundness standards of the Accord currently require demonstration that a bank's operational risk measure corresponds to a one year holding period and 99.9% confidence interval. As mentioned above, there will never be enough relevant data to allow a bank to demonstrate the "1 in a 1000 year" soundness standard within CP3 (implied by the 99.9% confidence interval), and therefore it will not be possible to determine whether this standard has been met. We are concerned that the desire to create sufficient data to achieve a statistical result will lead to a search for ever smaller – and less relevant – granules of data. A soundness standard that is more qualitatively based, and which does not require an implied statistical validation, should be adopted to alleviate this.

Incentivisation and day-to-day integration of the AMA

The Accord requires banks to link their operational risk measurement system to incentives for improving business line operational risk management. We doubt whether it is possible for any AMA model to closely replicate the size and distribution of the actual operational risks in a bank, and thus the management incentives provided by AMA models may not actually reduce the true operational risk. Indeed, given the pressures of "efficient capital management" they will naturally divert resources and focus attention on managing the capital number instead. This is the risk of "false reliance" on the model. We believe that the requirement that any AMA provide incentives to improve management behaviour may actually detract from established and effective (but qualitative) risk management practices.

The Accord also requires integration of the AMA into the day-to-day risk management framework. For the same reasons as outlined in the previous paragraph, integration of capital numbers in the day-to-day management framework may divert resources from productive but qualitative risk management efforts and could thereby produce a weaker operational risk management structure. Also the AMA derived level of operational risk capital is not likely to change on a daily basis. Therefore a capital framework for operational risk that is strongly integrated in the day-to-day management processes of the bank could actually lead to increased risk as management may focus on managing the model, rather than the risk.

Recognition of correlations

There will never be enough data to estimate to a high degree of confidence, or stability, correlations across material operational risks. It is also clear that a simple sum of all potential risks-including fraud, mistakes, lawsuits, IT breakdown, terror attacks and other potential problems -would require an enormous amount of capital if the 1-1000 year standard is applied literally.

In the absence of substantial data there should not be an automatic presumption that risks are adversely correlated. A qualitative approach to the estimation and recognition of correlations must be allowed within the AMA, to allow the natural diversification of operational risks to be recognized.

Loss threshold

The Accord defines threshold for internal loss data collection in absolute terms (i.e. euro amount). Only low frequency, high-severity losses are relevant for capital purposes. High frequency, low-severity losses normally relate to fundamentally different processes (e.g. operations fails, rather than a major lawsuit), and are useful only for the purposes of process improvement or efficiency. The purpose of the AMA is to derive a capital number – it should not be primarily concerned with the efficiency of a bank's processes. Hence, there is no need to require banks to collect low severity losses, or losses above a small threshold; banks may validly do this for efficiency estimates if they wish, but the data has little relevance to capital. If a loss threshold is considered necessary within the document, we would recommend a level that is relevant for capital purpose, and would suggest that a range of 0.01% to 0.10% of capital would constitute a reasonable lower bound.

3.6. Asset securitization

The treatment of asset securitization in the Accord is widely regarded as particularly complex. Here we would distinguish technical complexity - which we believe is in the case of asset securitization largely a necessary reflection of the complexity of risk transfer inherent to this activity - from excessive prescriptiveness, and complexity arising from the style of rulemaking.

The result is that only a few experts in each institution are likely to understand these rules, not because of the mathematics alone, but on account of the combined complexity of the mathematical rules, and the structure which determines how the rules apply in any given case.

A key example is the implementation of a regulatory definition of "originator" and "investor", in order to compel the use of one or other of two possible approaches. We believe that it would be simpler and more effective to allow banks to determine for themselves which caption best describes their role in a given securitization structure. We believe this determination should be coupled with a general proviso that the choice should be justifiable and consistent over time and across the business unit, and not be made for the sole purpose of a beneficial regulatory capital treatment.

While the rules for securitization in particular are known to have been structured to deter arbitrage, the approach could potentially cause problems for legitimate transactions and could undermine a widely accepted risk management tool used by institutions.

The calculations are subject to difficult interpretational issues, some of which will certainly give rise – indeed have already given rise in the context in the QIS3 – to "cliff edge" uncertainties, where capital charges can change by a factor of ten or more depending on whether a particular instrument can be fit into a specific regulatory box[3]. For example, a credit line provided to a credit

[3] Our detailed suggestions in respect of these effects are at Section 4.11 below.

card or receivables warehousing facility might attract a risk weighting of 100% if the bank can satisfy a number of technical tests about the structure of the credit facility.

However, the same facility could be deducted from capital (comparable with a risk weight of 1250%), if a bank cannot meet one of these compliance requirements. This approach would deter arbitrage, but it may also deter good finance. It also will tend to restrict the evolution of new markets and new securities, since these future instruments may not fit easily into today's compartments. As with other areas of the Accord, we believe that moving to a more principles-based system that leaves more discretion to banks – subject to thorough supervisory oversight – will provide a more durable and flexible solution for the long term.

3.7. Pillar III

We support transparency and disclosure - particularly voluntary disclosure - as worthwhile goals and currently publish approximately 20 pages of risk information in our annual report. The Pillar III proposals however, add a substantial mass of additional disclosure that is highly technical in nature and which we strongly believe will not benefit most readers. We are concerned about two aspects of Pillar III in particular:

- It is focused on the detail of an institution's regulatory capital calculation rather than on its internal risk management framework, which we believe would be more useful and understandable to most users.
- It is unnecessarily detailed and prescriptive.

Banks' internal risk management processes are designed by risk managers along lines that, in many respects, are similar to those adopted by regulators.

We estimate that the provisions of Pillar III would add another 20 to 30 pages to our annual report, more than doubling the current weight of disclosure on risk. Indeed, few people are able to digest all of the information that is already presented on risks, but now this information will could be lost in a deeper, more technical pile of data. The additional requirements proposed under Pillar III are more likely to confuse than illuminate.

In designing the details of Pillar III, the Basel Committee has placed too much emphasis on quantity, rather than quality, of disclosure. Consistency is imposed across many topics to a high level of detail. We believe good disclosure tends to evolve naturally by consensus; for example, the demands of the market have produced broadly comparable and largely voluntary disclosures of market risk by banks. This is an example of how Pillar III should work. It would be more effective if Pillar III established a general set of principles, together with a few, high level requirements, and then allowed the discipline of the market to produce continuous improvement in risk disclosure. This would produce information that the market actually desires, rather than seeking to impose today's ideas on future market participants by fiat.

4. Detailed comments.

We offer the Committee our detailed suggestions for modifications to the New Accord.

These suggestions cover our points made in Section 3 above in respect of stress tests, operational risk, asset securitization and Pillar III, but our points made in Section 3 on cost, prescriptiveness and home host issues are addressed only incidentally.

We thought it would be helpful to indicate the grounds on which we have based the need for alternate suggestions for those parts of the New Accord targeted by this document.

- **Problems in conceptual application**

In isolated parts of the Accord, particularly those parts dealing with stress testing and the validation of PD estimates and other estimates, we believe there are conceptual problems in applying quantitative concepts to qualitative subjects, with the result that these provisions of the Accord have little value and may be a distraction for purposes of overall risk management.

- **Uncertainty, ambiguity or clarification**

In some cases we believe the Accord provides confusing guidance as to resulting capital treatment of a product or risk type, or leaves the judgment to supervisory opinion. Fundamental uncertainty in capital treatment has a negative effect on business similar to very high capital costs.

In addition, some paragraphs of the Accord with which we agree are drafted in a way which is ambiguous and where the Committee's intentions can be clarified by a simple change of wording.

- **Complexity**

We have suggested that the Accord is overly prescriptive, but this general issue cannot be fully addressed by specifying detailed changes. However we have identified a number of specific provisions where we believe operational smoothness can be achieved by minor modification of the wording or technical modification of formulae.

We have tried to make all of these suggestions self-explanatory . Our recommendations are of course good-faith suggestions offered to improve the Accord. The Committee may prefer other changes. We would be pleased to discuss any or all of these points with the Committee or any of its working groups or other designates.

4.1. Scope of Application

CP3 ref[4]	CP3 critical text and comment	RECOMMENDATION
IRB approach	IRB treatment of Other Assets **Comment** The Standardized Approach specifies a 100% risk weight for other assets, i.e. those not explicitly covered elsewhere (New Accord, paragraph 54). This treatment is consistent with the 1988 approach for premises, plant and equipment, real estate, other investments and other assets (1988 Accord, Annex 2, 100% risk weights list, (e), (f), (h)). The IRB approach does not specify an explicit treatment for any of these asset types, having the same scope as the standardized approach, but the IRB approach also does not include a provision equivalent to paragraph 54 treating assets not otherwise dealt with by that approach. We recommend that a paragraph equivalent to paragraph 54 be included within the IRB approach, to specify a treatment for those asset types whose treatments have not been specified elsewhere.	Insert the following paragraph, which is an adaptation of paragraph 54, into CP3, within the IRB approach sections: *Other assets* "The risk weight for other assets will be 100%". A suitable place for inclusion of this extra paragraph might be between current CP3 paragraphs 212 and 213.
19	"Goodwill relating to entities subject to a deduction approach . . . should be deducted from Tier 1 . . . " **Comment** This provision does not explain what is meant by "Goodwill". In particular, we do not know how goodwill could arise other than on consolidation.	**Paragraph 19** We are not able to make specific wording recommendations on this issue because we do not know the intended meaning. We recommend inclusion of a clarification as to what is meant by goodwill in this context. A definition is not required, but if the concept is dependent on the accounting framework needed, then this should be stated.

[4] Except where otherwise stated, number references are to paragraphs of the document "Consultative Document – The New Basel Capital Accord".

4.2. Implementation Issues

CP3 ref	CP3 critical text and comment	RECOMMENDATION
23	Application of floor based on Basel I capital requirements. "Beginning year-end 2006 and during the first year following implementation, IRB capital requirements . . . cannot fall below 90% of the current minimum required for credit and market risks, and, in the second year, the minimum will be 80% of this level. Should problems emerge during this period, the Committee will seek to take appropriate measures to address them, and, in particular, will be prepared to keep the floor in place beyond 2008 if necessary." **Comment** Material costs are involved in this proposal to run two very different calculations over two years or longer. We believe these costs will be onerous and that the proposed two-year time span is excessive.	**Paragraph 23** Delete paragraph 23 and replace with the following text: "Beginning year-end 2006 and during the first year following implementation, IRB capital requirements for credit risk together with operational risk and market risk capital charges cannot fall below 90% of the current minimum required for credit and market risks. At year-end 2007, the Committee will review the overall capitalization of the banking system and consult with the banking industry, as a result of which the Committee intends to recommend to national supervisors. Recommendations might include continuing with a floor at 80%, or discontinuing parallel calculations".

4.3. Definition of Default

CP3 ref	CP3 critical text and comment	RECOMMENDATION
725	”Banks must use the reference definition of default for their internal estimations of PD. . . “. **Comment** The definition of default (paragraph 414) serves two functions within the IRB approach, namely • Identification of defaulted assets which require to be risk weighted at the appropriate weight for defaulted assets for capital purposes; • Collection of retrospective default data for determination of PD by rating. The need for a definition of default arises principally from the first of these functions, since it is important that assets requiring the highest risk weight are recognized early and on a consistent basis between institutions. For collection of historic default data, however, a definition of default is far less important, since in retrospect it is usually possible to identify a default unequivocally (particularly in the case of corporates) by the ensuing loss, and moreover precision as to the timing of defaults is less critical when collating historic data since all that is usually relevant is that the event is collated into the correct calendar year. In view of this distinction, we believe that for the purpose of verifying historic data, while the definition of default is still generally applicable, it the underlying intention and the	**Paragraph 725** Replace “Banks must use the reference definition of default . . . ” with “Banks should consider the reference definition of default . . . ”.

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	essence of the collation to be verified is that: • All material credit related losses suffered by the bank (or in the case of pooled or rating agency data, suffered by participating data providers) are included in the reference event database; • Conversely the proportion of default events which lead to full recovery is reasonable in terms of the total events recorded. In the second point, "reasonable" means there is not a disproportionate number of default events leading to no loss (in practice, one would check that the lowest LGD bucket does not contain many more events than the other buckets). It is important to control this since inflated PD coupled to understated LGD can lead to understated capital	

4.4. PD, LGD and EAD estimates

CP3 ref	CP3 critical text and comment	RECOMMENDATION
464	"Banks must . . . demonstrate that realized default rates are within the expected range for that grade . . " **Comment** Interpretation of paragraph 464 depends on the meaning of "expected range", but one interpretation that needs to be guarded against is that expected range means the range of PD's associated with each respective rating in the mapping table used by the bank to associate ratings to PD's.	**Paragraph 464.** Delete and replace with the following: "Banks must regularly analyse actual default and loss experience in their portfolios. Conclusions should include an assessment as to whether actual loss and default event experience presents evidence to suggest that PDs estimated may be inaccurate. In the course of such assessments, banks will need to consider results in the light of realized economic conditions generally, and should examine evidence of default experience in the industries and geographic locations in which their risk

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	PD's. With this interpretation, banks would inevitably fail to demonstrate that realized default rates by rating grade are "within the expected range for that grade", except if a very long term average is taken (over, say 20 years). This is because default rates by rating by year show wide variation, perhaps by a factor of 3 from one year to the next. This fact is amply demonstrated by rating agency data and, as quantitative credit risk modelers will know, is a manifestation of systematic risk, whose capitalization is the basis of the IRB approach itself. Other interpretations could conceivably be placed on the requirements in this paragraph, but nevertheless the general tone conveys an unreasonable view of PDs as a *prediction* of default or loss ratios such that any difference between ex ante and ex post PDs in a given year is an error requiring specific explanation and corrective action. This notion would be incorrect and damaging, and is inconsistent with the mathematical basis for measuring default risk and both the informational content of statements about PD's and the means by which long term average estimates are transformed into capital within the framework underlying the IRB risk weights.	portfolios are located. Analysis should be performed which separates PD, LGD and EAD experience enabling separate conclusions on the values of these to the extent possible, including for banks using the Foundation IRB approach. Banks should strive to use robust quantitative techniques and should clearly document the methods and data used. Analysis should be updated at least annually, and the results should be presented to senior management."
422	"The definition of loss used in estimating LGD is economic loss . . . This must include material discount effects and material direct and indirect costs associated with collecting on exposure . . . The bank's own workout and collection expertise . . . must be reflected in their LGD	**Paragraph 422** Delete and replace with: "The definition of loss used in estimating LGD is economic loss. In general,

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	estimates . . . ” **Comment** We agree with the Committee that certain costs, which may not appear in accounting records, should be considered in LGD estimates. However we believe this should be on an exceptional basis, and only apply for costs that satisfy both the following conditions: • They are material, i.e. significant relative to the primary source of loss which will normally be loss of principal and will appear in accounts • They are marginal, i.e. the loss or cost would not have arisen apart from by default, and in the case of losses associated with small defaults, the loss is proportional to the amount of default. We believe that some of the types of economic loss envisaged by the committee, particularly where “indirect costs” are referred to, are not marginal, for example the cost of running a workout team. Such costs are also not material in most cases, and are normally smaller than typical estimation uncertainty of LGD. The expense and difficulty of collecting data on such relatively insignificant costs is unnecessary and adequately accounted for by ordinary prudent estimation.	accounting loss should be a sufficient indicator of economic loss. However on an exceptional basis there may be material direct or indirect marginal costs which are in addition to the accounting loss. Such costs should be included with the particular LGD estimate. In addition, the bank’s own workout and collection expertise and choice of method may influence recovery rates and if so, this must be qualitatively reflected in their LGD estimates”
433	“For the specific case of facilities already in default, the bank must use its best estimate of expected loss for each facility . . . ” **Comment**	**Paragraph 433** Replace the sentence

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	We agree with the Committee that estimates of loss due to defaulted counterparties will depend critically on the types of facility with the counterparty, but for some types of business, particularly retail and SME where multi- facility relationships are the norm, we anticipate significant practical difficulty in a purely "bottom up" recovery estimate, and believe more robust estimates of ultimate recovery and loss are best obtained through a mixed approach incorporating information about the various outstanding facilities but also judgment on the counterparty relationship as a whole. We have tried to amend the text to ensure there is a place for this approach. As a subsidiary point, we recommend that "expected" be replaced with "anticipated", to clarify that the loss in question is (a prudent estimate of) the loss judged to be most likely for the particular facility or counterparty, and is not supposed to be a statistical average.	"For the specific case of facilities already in default, the bank must use its best estimate of expected loss for each facility given current economic circumstances and facility status." with "For the specific case of facilities already in default, the bank must use its best estimate of anticipated loss. Loss estimates must be made in the light of current economic circumstances and in the case of multi – facility relationships, be relevant to the types and status of facilities with the counterparty."
434	"Estimates of LGD must be based on . . . a period of seven years . . . " **Comment** For PD estimates a minimum period of only five years is required (paragraph 425). We do not understand why the same period should not be regarded as adequate for LGD, and the Committee have not given any reason. Requiring a different data history length for LGD estimates makes compliance more complicated without, in our opinion, adding material value. The same comment applies to paragraph 440 for EAD estimates, which	**Paragraph 434** Replace " . . . a period of seven years. " with " . . . a period of five years".

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	requires 7 years.	
277, 305. 344	" . . . All exposures are measured as the amount legally owed to the bank, i.e. gross of specific provisions or partial write-offs . . ." **Comment** In some jurisdictions, including Switzerland, after a partial write off only the balance of the debt is legally owed, and the amount written off is no longer legally owed. This situation makes paragraphs 277, 305 and 344 contradictory in these jurisdictions. We believe the intention of the Committee is to ensure that the amount legally owed is used, with the wording about partial write offs and specific provisions being by way of example, and we have suggested revised text accordingly.	**Paragraph 277** Replace ". . . i.e. gross of specific provisions or partial write-offs." with ". . . e.g. gross of specific provisions, and of partial write-offs other than where the amount legally owed is altered. " **Paragraph 305** Replace ". . . gross of specific provisions or partial write-offs." with ". . . gross of specific provisions, and of partial write-offs other than where the amount legally owed is altered. " **Paragraph 344** Replace ". . . the sum of specific provisions and partial write offs . . ." with ". . . the sum of specific provisions and partial write-offs other than those which alter the amount legally owed."
436	"EAD for an on-balance sheet or off-balance sheet item . " **Comment** We agree with the Committee that it is desirable for EAD estimates based on robust estimation to be used for all facilities in the advanced approach, but we anticipate severe and lasting difficulties preparing such estimates for uncommitted off balance sheet facilities. As a practical matter, we recommend that the provision of paragraph 281, which allows a 0% EAD in some circumstances within the foundation approach, be extended to cover these facilities in the advanced	**Paragraph 440** Between the penultimate sentence ending " . . . triggered.", and ultimate sentence beginning "Where . . .", insert the following sentence taken from paragraph 281**:** **"**For facilities that are uncommitted, unconditionally cancelable, or that effectively provide for automatic cancellation, for example due to deterioration in a borrower's creditworthiness, at any time by the bank without prior notice, an EAD of 0% can be applied."

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	approach as well.	
440	"Estimates of EAD must . . . in any case be no shorter than a period of seven years…" **Comment** As explained more fully in our comments on paragraph 434, we do not understand why there should not be a uniform required data period of 5 years for PD, LGD and EAD estimates.	**Paragraph 440** Replace " . . . period of seven years. with " . . . period of five years." Replace "Similar to LGD estimates . . . " with "As for LGD estimates . . . ". The second recommendation is a matter of style and carries no change of meaning.

4.5. Pillar I - Maturity

CP3 ref	CP3 critical text and comment	RECOMMENDATION
288 291 292	Paragraph 288: "For banks using [the standard 2.5 year maturity], effective maturity for repo style transactions will be 6 months." Paragraph 291: "The one year floor will not apply for certain short term exposures, as defined by each supervisor on a national basis . . . " **Comment** Maturity is a difficult issue and there is a lack of industry consensus in particular about why, and to what extent short dated transactions require less capital than longer transactions up to one year. We believe that paragraphs 291 – 292 are trying to deal with *two distinct* economic situations: *One off transactions*	**Paragraph 288** We do not recommend any change to this paragraph as it provides a directionally correct mild capital rebate. There is, however a lack of consensus in the industry over the treatment of short dated repo – style products, and we attach at Section 5 a technical note on our own proposal for these products and the associated risks. Were this or another approach to be adopted for repo style products, then the 6-month maturity in paragraph 288 may need to be reconsidered. **Paragraph 291 - 292** Assuming that our interpretation (left) of the Committee's intentions is correct, i.e. that these paragraphs are intended to address transactions that are either one off in nature or alternatively, are repo style transactions where procedures exist to terminate trading with risky counterparties; then paragraphs 291 – 292 should be

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	This case, which is always exceptional and cannot represent an ongoing business, occurs where a material transaction is not going to be repeated with either the current or a new counterparty, and where exposure during the transaction is materially above average investment levels before and after the transaction but is sustained only temporarily. *Rolled transactions e.g. .repos.* This case is where a business executes short dated transactions which are typically rolled over maintaining a constant overall investment, but that procedures exist to take advantage of the option to cease trading with a counterparty whose credit quality has declined, typically on some trigger event, thereby to some extent mitigating the risk of default losses.	redrafted to reflect this split into two distinct cases. We are aware that our interpretation may not be correct, but are happy to provide redrafted paragraphs on request. **CSFB's suggestion for a capital treatment for short dated repo style transactions.** As mentioned above, a technical proposal for the treatment of repos is attached at Section 5 for your interest. We wish to emphasize that a capital rebate under this treatment would only be available where a bank can demonstrate an enforceable commitment to actually cease trading with counterparties who display certain pre – agreed early warning signs of default. The mere ability to cease trading is not of any value, and there should be no automatic rebate to capital beyond perhaps the mild general rebate offered by paragraph 288.

4.6. Pillar I - Repo back testing

CP3 ref	CP3 critical text and comment	RECOMMENDATION
151	"A bank using a VaR model will be required to back test its output . . . " **Comment** We recognize that validation is needed for any model used by a bank for assessing VaR or other counterparty risk measures as an ingredient in the assessment of counterparty risk capital, and furthermore agree in principle with the construction of the test specified. However, the burden of compliance with validation requirements should be proportionate to the materiality of associated capital in the context of an overall capital requirement for the institution. The back test proposed will involve high set up and maintenance costs even for banks with small repo portfolios, and will discourage such banks from applying a more risk sensitive technique for calculating repo capital requirements. This is a difficult area of compromise between certainty of procedure and excessive prescription. We believe that it is appropriate for banks to use their market risk models here without further validation, given the strong regulatory oversight already provided in that area, and the large difference in materiality. If this is not possible, we feel a reasonable balance could be achieved by allowing supervisors to review validation techniques proposed by each institution.	**Paragraph 151.** Delete entire paragraph and replace with the wording below (also deleting table of multipliers): **"**A bank using a VaR model will be required to design and obtain the pre-approval of its supervisor to an ongoing validation program. Validation should be sufficient to ensure, in the opinion of the supervisor, that VaR data used as inputs to a capital calculation are adequately prudent and accurate. In forming their opinion, supervisors will have regard to the materiality of the risks covered in the context of the institution's overall capitalization and risk profile. A validation program should contain elements designed to address methodological, operational, systems and data integrity, and in addition should incorporate an appropriate back test designed to provide additional assurance that the model is not understating counterparty exposure VaR data over time."

4.7. Pillar I – Credit Risk Mitigation

CP3 ref	CP3 critical text and comment	RECOMMENDATION
163, 164	163: "Only credit default swaps and total return swaps that provide credit protection equivalent to guarantees will eligible for recognition." 164: "Other types of credit derivatives will not be eligible for recognition at this time". **Comment** We believe the intention of the Committee is to require that credit protection afforded be equivalent to a guarantee. Some credit protection instruments not termed as credit default swaps or total return swaps may nevertheless have the same effect in substance, while on the other hand there is no universal definition of these terms. In cases of doubt, we recommend that national supervisors be able to decide on the substance of protection offered by a credit derivative contract.	**Paragraph 163** Replace "Only credit default swaps and total return swaps that provide credit protection equivalent to guarantees will eligible for recognition." with "Products that provide credit protection equivalent to guarantees, for example credit default swaps and total return swaps, will be eligible for recognition." **Paragraph 164** Replace "Other types of credit derivatives will not be eligible for recognition at this time". with "Specific products not conforming to the terminology or format of standard credit default swaps and total return swaps should be agreed with National Supervisors prior to their treatment under this approach."

4.8. Pillar I - IRB risk weights – correlation formula

CP3 ref	CP3 critical text and comment	RECOMMENDATION
241, 242, 252, 299, 301.	**Comment** In each of the formulae for correlation R, at paragraphs 241, 242 and 252 and 299, the term $1-e^{-50} \cong 0.99999999999999999999807125$ appears in denominators. This term can be replaced by 1 with no effective error (i.e. the error is zero within the number of significant figures carried within computer	**Paragraph 241.** Replace $$R = 0.12 \times \frac{1-e^{-50PD}}{1-e^{-50}} + 0.24 \times (1 - \frac{1-e^{-50PD}}{1-e^{-50}})$$ with $$R = 0.12 \times (1+e^{-50PD})$$ **Paragraph 242.** Replace

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	systems), and this results in the simplifications of each of the formulae for *R* noted opposite. We appreciate that this replacement to some extent obscures the origin of the formula as an interpolation between the extreme correlations of 12% and 24%. However the behavior of the correlation function is still clear and we believe the saving in complexity makes this change worthwhile. Similarly, in paragraph 301 the term $1-e^{-35} \cong 0.99999999999999936949$ though slightly further from 1 than the above, is still too close to make any material difference to calculations.	$R = 0.12\times\frac{1-e^{-50PD}}{1-e^{-50}} + 0.24\times(1-\frac{1-e^{-50PD}}{1-e^{-50}}) - 0.04\times(1-\frac{S-5}{45})$ with $R = 0.12\times(1+e^{-50PD}) - 0.04\times(1-\frac{S-5}{45})$ **Paragraph 252.** Replace $R = 0.12\times\frac{1-e^{-50PD}}{1-e^{-50}} + 0.30\times(1-\frac{1-e^{-50PD}}{1-e^{-50}})$ with $R = 0.12\times(1+1.5e^{-50PD})$ **Paragraph 299.** Replace $R = 0.02\times\frac{1-e^{-50PD}}{1-e^{-50}} + 0.11\times(1-\frac{1-e^{-50PD}}{1-e^{-50}})$ with $R = 0.02\times(1+4.5e^{-50PD})$ **Paragraph 301.** Replace $R = 0.02\times\frac{1-e^{-35PD}}{1-e^{-35}} + 0.17\times(1-\frac{1-e^{-35PD}}{1-e^{-35}})$ with $R = 0.02\times(1+7.5e^{-35PD})$

4.9. Pillar I - IRB risk weights: SMEs

CP3 ref	CP3 critical text and comment	RECOMMENDATION
242	" . . . SME borrowers (defined as corporate exposures where the reported sales for the consolidated group of which the firm is part is less than € 50 million) . . . "	**Paragraph 242** At the end of the sentence in parenthesis: "defined as . . . less than € 50 million"

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	Comment Not all firms produce or are required to present their consolidated financial statements to the bank, e.g. small businesses or because not material for the risk assessment. In some cases the bank will have to perform a judgmental assessment of the SME vs. large corporate status of a firm as the EUR 50m sales threshold information will not be available or material. Paragraph 242 should adopt a pragmatic approach with regard to the SME status of a firm in view of limitations in reported sales data.	add, still within the parenthesis: "or, if reported sales are unavailable, according to an internal documented process validated by the national supervisor"

4.10. Pillar I – Equities

CP3 ref	CP3 critical text and comment	RECOMMENDATION
312	" . . . Supervisors will decide which approach or approaches will be used by banks, and in what circumstances." **Comment** In practice, which approach to apply will depend on the supervisor and bank assessing, among other factors, the bank's ability to perform the required calculations given the particular nature of the bank's investments, the relative difficulty of doing the calculations, and the nature of the bank's economic capital approach to equity risk. We believe that in practice, these will be joint considerations between bank and supervisor.	**Paragraph 312** Replace "Supervisors will decide which approach or approaches will be used by banks, and in what circumstances." with "Banks will obtain pre – approval from supervisors for their choice of approach. Factors which influence this choice may include the bank's internal approach to equities, the nature of equity investments made, and the relative availability of data for the two approaches. A choice should not be made solely in order to secure a favourable capital treatment."

CP3 ref	CP3 critical text and comment	RECOMMENDATION
490(b) (j)	" . . . institutions may use quarterly data or convert shorter horizon period data . . . " **Comment** This phrasing appears to prohibit methodologies involving conversion of data from a *longer* e.g. annual period to a quarterly period, even if the method satisfies all the other criteria set out in paragraph 490 and elsewhere. For private equities in particular , we believe that apart from this provision, a methodology involving conversion from annual to quarterly return data could be fully acceptable in respect of all the criteria of paragraph 490, and may well represent the best means of satisfying those criteria.	**Paragraph 490(b)** Replace " . . . convert shorter horizon period data . . . " with " . . . convert different horizon period data . . . "
318	" . . . these minimum risk weights are to apply at the individual exposure level rather than at the portfolio level." **Comment** Banks' economic capital models for equity attempt to capture the fact that the risk inherent in an equity investment can take almost any level, from negligible to extremely high. This simply reflects the universal nature of equity - classification as equity implies almost nothing about the innate risk of an investment. As such there are many investments for which the floor risk weight is far higher than can be justified on an individual basis. An example might be an equity investment in a money market fund. To ensure that capital requirements are not overly conservative we therefore propose that the same	**Paragraph 318** Replace the last sentence: "Further, these minimum risk weights are to apply at the individual exposure level rather than at the portfolio level." with "These minimum risk weights are to apply at the portfolio level."

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	minimum risk weights as proposed be set, not at the individual investment but at the portfolio level.	
494	"Banks must regularly compare actual return performance . . . with modelled estimates . . . " **Comment** The output of a capital model is a distribution of possible profits or losses over the specified time horizon. We agree with the Committee that back testing is an important check , which in effect looks for evidence that such a model may not be working correctly. However we are concerned at the phrase "expected range" used here. The "range" which forms the output of a capital model is a distribution of losses from worst to best-case scenarios, typically allowing for an underlying range of economic outcomes rather than a single predicted outcome. On the other hand, typically much narrower ranges are associated with predictions of performance for particular stocks or portfolios. We believe the intention of the Committee is to require testing of the capital model output against strictly comparable data, noting that the return in any given period provides only limited evidence over the model, and have attempted to clarify the requirement accordingly.	**Paragraph 494** Replace " . . . and be able to demonstrate that such returns are within the expected range for the portfolio and individual holdings . . . " with " . . . and should assess and be able to demonstrate that such returns are consistent with the asserted possible range of returns from their model at the portfolio level, and in the case of individual holdings, that experience is consistent with the overall adequacy of any assumptions (for example, volatility assumptions) made about individual stocks."

4.11. Pillar I – Asset Securitization

CP3 ref	CP3 critical text and comment	RECOMMENDATION
575	"Where K_{IRB} cannot be calculated, the entire retained position must be deducted." **Comment** There is a material uncertainty inherent in this provision. Whether K_{IRB} can or "cannot be calculated" will be a matter of judgment depending not on mechanical ability to perform a calculation, but on supervisory satisfaction as to integrity of the data used. Other CP3 wording indicates that the standard of test will not be very different from the usual IRB standard (including, broadly, where the "top down approach" is used). There will therefore be a strong element of judgment as to whether a bank's calculation of K_{IRB} is acceptable or not. The amount of capital involved may be extremely material, being potentially the difference between deduction of the entire notional versus potentially low risk weights reflecting good quality pool assets. Such an effect creates uncertainty and tension between supervisor and bank. Paragraph 575 should expand on the nature of supervisory review of the acceptability of K_{IRB} calculations. In particular, the wording should indicate that (as for other areas of supervisory review including ratings systems and eligibility for the IRB approach generally), the level at which supervisory satisfaction with the calculations is likely to be communicated is the overall conduit or securitization business of the bank and its attendant processes, not the level of individual conduit or securitization assets.	**Paragraph 575** Replace "Where K_{IRB} cannot be calculated, the entire retained position must be deducted" with: "A bank which is not able to provide satisfactory calculations of K_{IRB}, may be required to deduct retained originated securitization positions from capital. (This does not apply when a specific exemption from calculating K_{IRB} is applicable, for example as set out in paragraphs 600 – 603). As a general rule, satisfactory calculations of K_{IRB} are those which meet the minimum standards for IRB calculations generally (paragraphs 349 – 399), although subject to compliance with these minimum standards, a supervisor may allow standards associated with calculation of K_{IRB} to be lower than those maintained by the bank on balance sheet holdings of similar assets. As for other IRB calculations, and other than in exceptional circumstances (for example, where a transaction is a "one off" and the bank has no experience of similar transactions), a supervisor's assessment of K_{IRB} calculations will be at a business line level or similar overview level, and in particular, at such a level of aggregation that the overall process can be reviewed and meaningful conclusions about compliance with IRB data and calculation standards can be drawn."

CP3 ref	CP3 critical text and comment	RECOMMENDATION
538(a), 538(e)	**Paragraph 538(a)** ". . . the facility must not be used . . . [to] acquire assets at above fair value . . " **Comment** We believe the intention of paragraph 538(a) is to prohibit the acquisition of impaired assets at a price that represents a substantial premium to a fair market price and is not a price characteristic of an arms length transaction. The clause should not prohibit acquisition of assets at "above fair value" when fair value is not substantiated as an actual market price (e.g. where generated by a model), or where there is uncertainty about the actual market value, or where the supposed premium to fair value is not material. **Paragraph 538(e)** " The facility must result in a reduction of the amount that can be drawn or early termination of the facility in the event of default, as defined in the IRB approach, if the underlying pool or the quality of the pool falls below investment grade." **Comment** This paragraph seems to contain drafting errors and is not easy to interpret clearly. Our suggested wording is an attempt to reflect rather than redefine the intentions of the Basel Committee but we emphasize the need for clarification of the existing wording.	**Paragraph 538 (a)** Replace " . . . acquire assets at above fair value" with ". . . acquire impaired or distressed assets at materially above their fair or market values". **Paragraph 538 (e)** Delete and replace entire paragraph with: "The terms of the facility must include safeguards which allow the facility provider to duly restrict lending on deterioration in the credit quality of (i) the seller or (ii) the receivables within the pool. Such safeguards may include definition of the borrowing base, advance rate contingencies, and early termination triggers. Safeguards must be effective in that information must be on hand to the facility provider to enable timely action by the liquidity provider to protect the facility from loss in accordance with the safeguards. "

4.12. Pillar I – Trading Book

CP3 ref	CP3 critical text and comment	RECOMMENDATION
653	Third bullet point: "Where available, generally accepted valuation methodologies for particular products should be used as far as possible." **Comment** We understand the desire of the Committee to use comparison with common practice as one aspect of model validation, and agree that this is useful. We believe that the Committee does not intend to restrict innovation or prohibit per se any particular pricing methodology, but only to ask banks and their supervisors to give special consideration to methodologies that differ from common practice.	**Paragraph 653, third bullet point** Delete and replace with: "Where generally accepted valuation methodologies for particular products are available, the bank should either demonstrate that its own pricing methodologies, if different, do not produce significantly different valuations or document its reason for its choice of a non – standard methodology. This is not intended to restrict innovation in product pricing or design, but to remind practitioners and supervisors of the value of comparison with generally accepted practice as a validation tool."
653	Fourth bullet point: " . . . This includes validating the mathematics, the assumptions and the software implementation." **Comment** It is our practice to rely for model review on recalculation using an independently implemented model. The results of the model being tested are obtained in the usual setting in which the model is used. We believe this methodology provides a high degree of assurance that the model is working correctly in respect of both the underlying methodology and the software implementation. This procedure is not necessarily inconsistent with the current wording of paragraph 653, but we feel that the paragraph could be clarified to ensure that misunderstanding does not arise as to the necessary	**Paragraph 653, fourth bullet point** Delete " . . . This includes validating the mathematics, the assumptions and the software implementation." and replace with "… Independent testing should include procedures which provide a high degree of assurance over the results and performance of the model, used in its normal environment and with its usual data sources. Banks are required to design and tailor procedures carefully with regard to their particular situation, but as examples procedures may include, independent recalculation of model results, validation of the underlying model and mathematics, validation of assumptions and validation of the software implementation."

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	ingredients of a high quality model review process.	

4.13. Pillar I – Operational Risk

CP3 ref	CP3 critical text and comment	RECOMMENDATION
626 - 628	**Home - host issues relating to operational risk** **Comment** There is no text in CP3 addressing how home and host regulators should interact in general, and for operational risk in particular (see Section 2.1 for a detailed discussion of home - host Issues). Op risk home – host issues include: 1. Large banking groups hold sufficient surplus capital at the corporate center to mitigate any large operational risk events that could occur in any of their subsidiaries. They do not generally hold sufficient capital in each of their subsidiaries to support all the possible, but very rare, operational risk events that could occur. CP3 does not recognize this issue. 2. Meeting multiple national supervisors' implementation requirements will be onerous, and if they are not aligned, then potentially not possible to meet all requirements. Home - host should be addressed within the Accord to ensure that this issue is minimized across national implementation.	**Paragraphs 626 - 628** The following text should be included in the Accord: *Review by home and host supervisors* "The home supervisor should have primary responsibility for reviewing and approving a bank's AMA application and validation processes, including the incorporation of the four elements into the AMA methodology and the use of operational risk data. Host supervisors may choose to verify the integrity of AMA implementation in their jurisdictions, but should rely on the home supervisor for verification of the general soundness of the AMA methodology." A suitable part of the Accord for this wording might be within paragraphs 626 – 628 dealing with operational risk model approvals.
General	**Requirement to perform subsidiary level AMA calculations to determine entity level capital.**	The following text should be included at a suitable place in the Accord:

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	Comment This will not be possible due to insufficient data. Due to lack of data at legal entity level, performing a full AMA will not be feasible at levels lower than the Group level. Therefore in order to determine legal entity capital requirements, an apportionment methodology is required. This apportionment approach needs to be recognized in the Basel Accord.	"A bank is only required to calculate operational risk capital requirement using its AMA methodology at Group level. In order to derive legal entity capital requirements, a bank may apportion its group level capital to its constituent legal entities. This apportionment methodology would be determined by the bank and would be approved as part of the overall AMA approval, and would be used to determine the capital requirement for all subsidiaries. An example of an allowable methodology would be using gross income as the basis for apportionment."
629 (d)	". . . the bank may be permitted to use internally determined correlations in operational risk losses . . . provided it can demonstrate . . ." **Comment** Despite some changes to the wording in CP3, this standard for recognizing correlations is still quantitatively oriented. In practice there will never be enough loss data to allow correlations across material risks to be estimated to a high degree of confidence quantitatively. Therefore a qualitative approach needs to be allowable and incorporated into the drafting, where a bank can assess the risk drivers.	**Paragraph 629(d)** Replace whole paragraph 629 (d) with: "A bank may be permitted to use internally determined correlations across operational risk estimates, provided it can demonstrate to the host supervisor, that the underlying assumptions and reasoning behind any correlation estimates are reasonable."
627	" . . . Whatever approach is used, a bank must demonstrate that its operational risk measure meets a soundness standard comparable . . . to a one year holding period and a 99.9 percent confidence interval." **Comment**	**Paragraph 627** Replace "Whatever approach is used . . . . interval"

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	There will never be enough data to allow a bank to demonstrate that their operational risk measure meets a "1 in a 1000 year" soundness standard in a quantitative manner, and therefore it will not be possible to determine whether a capital number meets this standard. A soundness standard that is less quantitative and based more on judgment should be used to alleviate this.	with "Whatever approach is used, a bank must show that its operational risk measure captures rare and plausible extreme events, and is credible and appropriate. Such an approach should target a 99.9% confidence 1- year confidence level as theoretical target, realizing that quantitative precision will be impossible.
622	". . . The bank's measurement system must also be able of supporting an allocation of economic capital for operational risk across business lines in a manner that creates incentives to improve business line operational risk management." **Comment** It is doubtful whether AMA models actually replicate the size of the actual operational risks in a bank. Therefore, any incentives provided by AMAs may not actually reduce the true operational risk. Unintended effects include: a lack of cause and effect between actions and true risk; false reliance on the model; management of the model rather than reality; and potentially misdirected focus and resources. Therefore the requirement that any AMA provide incentives to improve management behaviors may detract from established and effective (but qualitative) risk management behaviors focusing attention instead on managing the capital number.	**Paragraph 622** Replace the sentence "The bank's measurement system . . . management." with "The bank's measurement system must also be capable of supporting an apportionment of the economic capital for operational risk calculated at the overall banking group level across its constituent business lines."
626 (b)	"The bank's internal operational risk measurement system must be closely integrated into the day-to-day risk	**Paragraph 626(b)**

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	management processes of the bank . . . to improve the management of operational risk throughout the firm." **Comment** As noted in our comments on paragraph 622, we believe the use of the capital number to drive management behavior may detract from sound Op Risk management practices. Elements of the AMA (e.g. Key Risk indicators, other control factors and loss reporting) may be integrated in the ongoing Op Risk management framework.	Delete entire paragraph and replace with "The bank's internal operational risk measurement system, or components of the system (e.g. Key Risk Indicators), should be integrated, where appropriate, into the risk management processes of the bank. Its output must be a part of the process of monitoring and controlling the bank's operational risk profile. For instance, this information must be included in risk reporting, internal capital allocation, or risk analysis. The bank must have techniques for apportioning the operational risk capital calculated for the overall banking group to its constituent business lines."
633	Third bullet point. ". . . A bank must have an appropriate *de minimis* gross loss threshold for internal loss data collection, for example €10,000." **Comment** Only low frequency, high-severity losses are relevant for capital purposes. Identifying high frequency, low-severity losses are useful only for the purposes of process improvement or efficiency. As the AMA's purpose is to derive a capital number and is not concerned with the efficiency of a bank's processes, the requirement to capture low-level losses is irrelevant. Therefore the loss threshold should be appropriate to the level of the AMA methodology, the nature of a bank's losses and the size of its capital base. An example loss threshold is not required and not helpful, and it should be removed.	**Paragraph 633** Delete the words " . . . for example €10,000." Add the words: "There are a number of standards that an institution may use to establish the thresholds. They may be based on product types, business lines, geographic location, or other appropriate factors. Flexibility will be allowed in this area, provided the institution can demonstrate that the thresholds are reasonable, do not exclude important loss events, and capture a significant proportion of the institution's operational risk losses. As a guide, a reasonable threshold above which loss events should be considered relevant capitalisations might be 1 – 10 bp (0.01% - 0.1%) of the total capital base of the relevant firm."
636	First 2 bullet points of paragraph 636. **Comment**	**Paragraph 636, first bullet point** Replace existing text with the following variant:

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	These bullet points assume that it is possible to quantify the sensitivity of operational risk capital to a particular risk factor than is possible in the majority of cases. The relationship between many risk factors and their resulting risk is complex, and requires expert judgment and experience in order to interpret the risk consequences that changes in a particular factor implies. This does not lend itself to a mechanical quantitative methodology as drafted.	"If possible and meaningful, each risk factor should be translatable into a quantitative measure. As a minimum, each risk factor needs to show whether the risk is increasing or decreasing, based on experience and the expert judgment of the affected business areas." Second bullet point Replace existing text with the following variant: "The bank's risk measurement framework needs to capture changes in risk due to improvement in risk controls, the framework must also capture potential increases in risk due to greater complexity of activities or increased business volume."

4.14. Pillar II – Procyclicality

CP3 ref	CP3 critical text and comment	RECOMMENDATION
Pillar I 397 – 399; Pillar 2 724	Stress tests used in assessment of capital adequacy **Comment:** Please see Section 3 for explanation of our views on the stress test set out at paragraph 397 and the accompanying suggestion about levels of capital for different rating systems at paragraph 399. In summary we believe the stress test at paragraph 397 will create a positive buffer of capital at all times, including cyclical low points, with no beneficial effect to mitigate procyclicality. There is no rating system under which additional capital would not be required, contrary to paragraph 399. We believe that stress tests should be used by supervisors as an aid to structure a sound capital planning process, assessing whether a bank should reduce its risk, and/or hold additional capital,and to assist in planning discretionary capital transactions, such as restructuring or acquisitions. Stress tests are not effective tools for determining current actual capital requirements in any automatic way. We believe there is no inherent contradiction in using stress tests in this way, and accordingly recommend a clarifying paragraph below paragraph 397, and a replacement for paragraph 724, to give effect to our interpretation.	**Below paragraph 397** Insert the following words as a separate paragraph following 397: "The intention of the stress test is to help give assurance that the bank's capitalization in the medium term is not unduly at risk to economic change. In order to provide this assurance, the bank will be expected in general to show that its capitalization would remain above the minimum requirements in the stress scenario. However, in deciding what action, if any, is required as a result of the stress test, supervisors will (a) take account of the overall capital management plans of the bank, and (b) balance the desirability of adequate capitalization in the stress scenario, against the likely impact of short term actions to improve capital ratios. Specifically, a supervisor need not always require the bank to maintain levels of capital necessary to meet the pro forma requirements of the stress test." **Paragraph 399** Delete the following words: "The results of the stress test may indicate no difference in the capital calculated under the IRB rules described in this section of the New Accord if the bank already uses such an approach for its internal rating purposes." **Paragraph 724** Delete entire paragraph and replace with: "A bank should ensure that its capital held and capital plans are consistent with the results of the stress tests set out at paragraphs 396 – 399."

4.15. Pillar II – Asset Securitization

CP3 ref	CP3 critical text and comment	RECOMMENDATION
745 – 747	"When a bank has been found to provide implicit support.." **Comment:** Paragraphs 745 - 747 are troublesome. The language of paragraph 746 in particular is problematic, where provision of implicit support is described as a "transgression", suggests that banks providing implicit support are committing unlawful acts. In practice, banks provide non – contractual support to securitization vehicles for a number of valid reasons consistent with their legitimate business objectives and those of parties to the securitization and others. Motivations include capital markets, structural, and legal considerations. In these occasional examples, the provision of support does not indicate that there was any ongoing intention on the part of the bank to materially assume uncapitalised credit risk associated with the securitized assets, and so does not, in our opinion, warrant any special capital treatment. We therefore believe the committee should distinguish implicit support which is incidental to the execution of a legitimate business purpose, from the more unlikely case that material risks are assumed resulting in inadequate capitalization. Furthermore, guidance as to the signs of implicit support is only available by reference to the examples in paragraph 743. The examples given there are not precisely delineated, and are clearly not intended to be exhaustive, so that whether a transaction or action by a bank is a	**Paragraph 744** Delete the first sentence, and replace with the following: "Supervisors recognise that banks may, in pursuance of their legitimate business interests or those of other parties to a securitization or others, provide non contractual support to a securitization. Examples of valid reasons for implicit support include certain legal or capital markets driven objectives. However, where a non – contractual support relationship exists whose purpose or effect is that in practice, credit risk arising from the securitized assets is transferred back to the originating bank, then an implicit capital requirement is created which is no different than if the support were contractual in nature. Accordingly, such provisions of implicit credit support raise significant regulatory concerns." In the last sentence, replace "Accordingly . . . support." with "Accordingly, a bank whose dealings with a securitization vehicle amount to provision of implicit credit support, should hold capital against its actual credit risk exposure, by treating the support as if it were explicit. The bank should proactively inform its regulator in order that adequacy of capitalisation can be reviewed." **Paragraph 745** In the first sentence, replace "When a bank has been found to provide implicit support . . . "

CP3 ref	CP3 critical text and comment	RECOMMENDATION
	provision of implicit support will in practice be a matter of opinion. There may be circumstances under which a transaction entered into by a bank for reasons other than to intentionally support a securitization may nevertheless give the appearance of being a provision of implicit support. We are concerned that there are no restrictions upon the use of this very damaging label which would have severe consequences.	with "When a bank has been found to provide implicit support and has not held appropriate capital in accordance with paragraph 744, and has not informed its supervisor . . . "

4.16. Pillar III

CP3 ref	CP3 critical text and comment	RECOMMENDATION
767	Paragraph 767 - entire paragraph **Comment** We believe that annual reporting of qualitative disclosures should be sufficient except where there are significant changes that should be disclosed more immediately. Annual reporting would reduce the cost of compliance for reporting banks, and would not, we believe, materially detract from quality of information available to users of the disclosures. We also suggest that, where possible banks tie in the reporting of this disclosure with existing published reporting (such as the reporting of annual financial statements).	**Paragraph 767** Delete and replace with the following "The qualitative disclosures set out in Pillar 3 should be made on an annual basis, except where exceptional changes have occurred intra-year." The quantitative disclosures set out in Pillar 3 should be made on an annual basis subject to the following exception. In recognition of the increased risk sensitivity of the New Accord and the general trend towards more frequent reporting in capital markets, large internationally active banks and other significant banks (and their significant bank subsidiaries) must disclose their Tier 1 and total capital ratios, and their components, on a quarterly basis. Banks should publish material information on a timely basis."

CP3 ref	CP3 critical text and comment	RECOMMENDATION
Section 4 (iii)	Market Risk Table 11 – Item (d) " . . . analysis of important "outliers" in back test results." **Comment** We believe details of VaR outliers should not automatically be placed in the public domain, where under current IMA regulations these exceptions are discussed on a confidential basis with the relevant regulator. We also suggest using the same terminology as is used in the 1996 document "Supervisory framework for the use of back testing in conjunction with the internal models approach to market risk capital requirements."	**Market Risk Table 11 - Item (d)** Delete and replace with the following wording: "(d) For trading portfolios under the IMA: - the aggregate value-at-risk (VAR) - the high, mean and low VAR values over the reporting period and period end; and - a comparison of VAR estimates with actual outcomes, highlighting the number of "exceptions" in back test results"
774	Table 6 – Item (c) last bullet point "Description of deviations as permitted under paragraph 418 and footnote 84 . . . " **Comment** We believe that the reference to footnote 84 is a typo.	**Table 6 – Item (c) last bullet point** Remove or correct reference to footnote 84 as appropriate.

5. Annex. Proposal for short dated maturities.

5.1. Introduction

The New Accord proposes a modest rebate of capital for some short dated products, including short dated "repo style" products (paragraph 288 allows use of a 6 month maturity where a standard maturity is used, and paragraph 291 allows use of the actual maturity for such transactions, not floored at 1 year).

We have commented on our belief (Section 4, comments on paragraphs 288, 291-292) that CP3 requires modification at paragraphs 291-292, to reflect the fact that there are two essentially different economic cases of short maturity:

- One - off "exceptional" transactions which may cause capital requirements to rise sharply and then predictably decline again after a short period of time.
- The "repo style" business, where the transactions held at any time are predominantly short dated, but those transactions on expiry are broadly rolled over maintaining a constant overall level of risk.

There has been industry debate in particular about the treatment of the second of these two situations, the "repo style" business. We present our proposal for a treatment of this situation.

Our proposal is derived from, and consistent with the methodology underlying the IRB approach. It would lead to reduction in capital requirements for short dated repo businesses which in some cases exceeds that offered by paragraph 291, but we point out that unlike those in CP3, our rebates would depend on the existence of certain policies and procedures for controlling the business. In the absence of these or similar key procedures we do not support the existence of any automatic reduction in capital merely on account of the short underlying maturity of transactions normally traded in a business.

5.2. Our proposal – a "warning sign" approach

Our proposal is derived from the IRB approach by considering why trading short dated products, as in say a repo business, might expose a bank to any less risk than where products are, say, of one year maturity.

While there are many operational differences between, say a repo and a lending business, many of which no doubt affect exposure to risk, the difficulty is to establish clear cut differences which can be quantified in terms of differential capital requirements. We identify only one such difference: The ability, in the case of the short dated business, take action against risk by rapidly ceasing business with a counterparty who gives a "warning sign" that they are at increased risk of default.

In our calculations we will take this "warning sign" to be a one-notch downgrade of the counterparty (e.g., from BBB to BBB-[5]). Suppose that a repo style business operates with a policy that business must cease with a counterparty following any downgrade of their credit rating. Then provided that policy can be relied upon to be enforced, then the business really does have less risk of default loss, because only defaults not preceded by a downgrade can result in any loss. The effect of this reduced risk can be quantified in terms of IRB capital, as shown below. Note that

- We have selected downgrade events as our warning sign, but it is unlikely that repo businesses actually have a policy that results in trading being stopped permanently on occurrence of a

[5] For technical reasons we include migrations from the original rating, and (although this would be very unlikely) from a higher rating to which the counterparty has previously been upgraded.

downgrade. We should think of downgrades as a "proxy" for the type of bad news about a counterparty that may result in closing the party out, but we have not reviewed industry practice, so the calculations below may best be thought of as exemplary of the general method, rather than forming a definite quantitative proposal.

- The mere *ability* to cease trading and close out counterparties has in itself no mitigating effect, and therefore there need be no rebate for short dated repo style products unless there is credible evidence that traders would actually stop business with a counterparty, or introduce terms of business incorporating material protection when a warning sign arrives.

The rebates offered in CP3 at paragraphs 288 and 290 are automatic, and do not depend on any such evidence. On the other hand the amount of the rebate they offer is small, so it may be fair to consider the CP3 rebate as reflecting the generally lower risk and higher liquidity in repo markets without specifically attaching to any risk management actions that can be taken.[6]

5.3. Calculation of IRB capital

Under our assumptions, the risk of default is mitigated because loss only occurs for a default that is not preceded by any downgrade event.

In order to quantify the effect we recall the IRB approach to default risk, which in summary supposes a worst-case year (at 99.9% confidence) represented by the value of a single systematic factor to which all default rates are coupled. Conditional default rates in this year, multiplied by the appropriate LGD, give in effect the IRB risk weights for each asset.

We begin with two simplifications, both of which will be addressed once the method is explained.

- We consider a very short dated product (say 1 day, for definiteness) so any delay waiting to close with the counterparty can be ignored.
- We first consider a "flat rating" migration matrix and full letter migrations, for ease of presentation, and then show the results of using a "fine" migration matrix at the end of this section.

We proceed in the following technical steps:

Calculation of a "stressed migration matrix" M_{IRB}
We consider possible credit migrations in a 99.9% worst-case year. These are obtained from a published average migration matrix *M* by in essence replacing each cumulative migration probability (e.g. the probability of migration from A to BB or below) with a 99.9% conditional probability (the same as the corresponding IRB risk weight, but without the LGD and maturity factors).

The table shows our starting migration matrix, published by Standard and Poor's[7].

[6] CP3 applies the maturity adjustment factor originally designed for maturities greater than one year, but there is no reason to suppose this formula is also "valid", other than directionally, the short dated case.
[7] Standard and Poor's, "Ratings Performance 2000.

Rating	AAA	AA	A	BBB	BB	B	CCC	D
AAA	93.64%	5.83%	0.40%	0.08%	0.03%	0.00%	0.00%	0.02%
AA	0.66%	91.70%	6.94%	0.49%	0.06%	0.09%	0.02%	0.04%
A	0.07%	2.25%	91.74%	5.18%	0.49%	0.20%	0.01%	0.06%
BBB	0.03%	0.25%	4.83%	89.26%	4.44%	0.81%	0.16%	0.22%
BB	0.03%	0.07%	0.44%	6.67%	83.31%	7.47%	1.05%	0.98%
B	0.00%	0.10%	0.33%	0.46%	5.77%	84.19%	3.87%	5.30%
CCC	0.16%	0.00%	0.31%	0.93%	2.00%	10.74%	63.96%	21.94%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%

The worst-case matrix M_{IRB} is then given (using the corporate IRB function) by:

$M_{IRB} =$

Rating	AAA	AA	A	BBB	BB	B	CCC	D
AAA	67.81%	22.00%	5.98%	2.13%	1.08%	0.00%	0.00%	1.00%
AA	0.01%	64.46%	23.79%	5.93%	1.19%	2.26%	0.64%	1.72%
A	0.00%	0.05%	68.89%	18.82%	5.53%	4.07%	0.30%	2.35%
BBB	0.00%	0.00%	0.20%	69.62%	15.01%	6.86%	2.41%	5.90%
BB	0.00%	0.00%	0.01%	0.34%	59.57%	20.93%	5.26%	13.89%
B	0.00%	0.00%	0.00%	0.01%	0.29%	60.39%	10.02%	29.29%
CCC	0.00%	0.00%	0.00%	0.02%	0.08%	1.01%	36.50%	62.39%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%

Calculation of IRB capital

The entries in the "D" column of M_{IRB} are (apart from the LGD factor), identical with the IRB risk weights for the corresponding rating (using the PD's from *M*). We now wish to attribute to each rating a smaller IRB representing the chance of default – in the same worst-case year, but not preceded by any downgrade event.

We do this by regarding the matrix M_{IRB} as the annualized generator of a continuous time Markov migration process. For this, we need to compute the logarithm of M_{IRB} which is the infinitesimal driver of the continuous time migration process. We call this matrix *P,* so that $M_{IRB}(t) = e^{Pt}$. By logarithms and exponentials of these matrices we mean the corresponding power series as usual, which can easily be calculated in EXCEL. For the above matrix M_{IRB}, we find that the logarithm *P* is the following matrix

$P := \log M_{IRB} =$

Rating	AAA	AA	A	BBB	BB	B	CCC	D
AAA	-38.85%	33.28%	2.92%	1.53%	1.20%	-0.88%	-0.20%	1.01%
AA	0.01%	-43.93%	35.69%	3.96%	0.05%	2.41%	0.93%	0.89%
A	0.00%	0.08%	-37.32%	27.17%	5.36%	4.12%	-0.74%	1.34%
BBB	0.00%	0.00%	0.28%	-36.31%	23.27%	6.61%	2.79%	3.36%
BB	0.00%	0.00%	0.01%	0.53%	-51.95%	34.85%	7.17%	9.40%
B	0.00%	0.00%	0.00%	0.01%	0.47%	-50.70%	21.11%	29.11%
CCC	0.00%	0.00%	0.01%	0.04%	0.15%	2.10%	-101.03%	98.74%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Now let S_i be the probability of a default starting in state i, not preceded by a migration. We will then have

$$\text{Capital requirement} = S_i \times LGD \qquad (1)$$

Note that S_i, which we will calculate from M_{IRB}, is still conditional on a 99.9% worst-case year, so this capital requirement is directly comparable to the IRB risk weight.

Since default is an absorbing state, a migration to default can happen only once, so the total probability of occurrence is the integral of the probabilities at each time t. Therefore we have

$$S_i = \sum_{j \text{ better than } i} P_{jD} \int_{t=0}^{1} (e^{Pt})_{ij} dt \tag{2}$$

The integral cannot be performed immediately because P is always singular, having all its row sums equal to zero. However (2) is unaffected by removing the default row and column of P. If we label the resulting matrix $\hat{P}$, then $\hat{P}$ is non singular, and we may write:

$$S_i = \sum_{j \text{ better than } i} P_{jD} \hat{P}^{-1} (e^{\hat{P}} - 1)$$

which can be easily calculated. See e.g. Ross, "Stochastic Processes", Wiley. p189 for this procedure.

Finally, we present our results in terms of the haircut or discount amount for short dated products, obtained by comparing S_i with the ordinary conditional default probability (the right hand column of M_{IRB}) or equivalently by comparing (1) with the IRB capital requirement for 1 year maturity.

$$HC_i = 1 - S_i / PD_i \tag{3}$$

This is to be interpreted as a haircut to capital for short dated instruments. For the matrix M_{IRB} above, we find (using the migration matrices above), the following results, where S_i and the haircut HC_i are as defined above:

Haircuts for very short maturities

Rating	PD	IRB RW / 0.45	Si	Haircut to capital
AAA	0.02%	1.00%	0.83%	**16.5%**
AA	0.04%	1.72%	0.72%	**58.0%**
A	0.06%	2.35%	1.12%	**52.2%**
BBB	0.22%	5.90%	2.82%	**52.2%**
BB	0.98%	13.89%	7.35%	**47.1%**
B	5.30%	29.29%	22.86%	**22.0%**
CCC	21.94%	62.39%	62.39%	**0.0%**

5.4. Observations on the results

Haircuts in the table above are around 50% for mid ratings - quite substantial but capital is not zero despite the fact maturity is zero. Haircut is zero for CCC, but this is an artefact our use so far of a "flat" migration matrix, so there can be no warning before a CCC defaults. Haircut is small for AAA, reflecting the fact that default rates for AA and A are not much more than for AAA, so that the contribution to default probability made by defaults preceded by downgrades is less than for lower ratings where the curve is steeper.

5.5. Extension to intermediate maturities

All the above analysis assumed ability and willingness to exit business immediately on apprehension of a "warning". Therefore, the haircuts in the above table are appropriate for very short dated business. For intermediate maturities, the analysis should be modified to reflect risk assumed from the point of seeing a downgrade or warning event to the first available time when business can be stopped. The modification replaces the integral (2) with the following sum:

$$S_i(dt) = \sum_{j \text{ better than } i} \frac{(e^{Pdt})_{jD} - 1}{dt} \left(\sum_{\substack{t=0 \to 1 \\ \text{steps of } dt}} (e^{Pdt})_{ij} dt \right) \quad (4)$$

Where dt is the "action delay", which is the maturity of the transaction (unless there is in addition a mechanism for closing out open transactions in materially less time than their maturity). We have deliberately written (4) with canceling factors of dt to make clear that it reduces to (2) as $dt \to 0$ representing the limit of zero maturity.

This results in the following table of haircuts for intermediate maturities (the "1 day" column repeats the results for very short dated maturities above).

	Haircuts for intermediate maturities				
Rating	**1 day**	**1 month**	**3 months**	**6 months**	**1 year**
AAA	16.5%	16.3%	15.2%	12.0%	0.0%
AA	58.0%	53.6%	44.6%	30.6%	0.0%
A	52.3%	49.4%	42.7%	30.6%	0.0%
BBB	52.2%	48.1%	39.8%	26.9%	0.0%
BB	47.1%	43.1%	35.1%	23.2%	0.0%
B	21.9%	19.6%	15.4%	9.6%	0.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%

The haircuts for 1 year maturity are zero as expected, and the left hand column repeats the results above. The intermediate results are roughly linear with maturity, so in practice one could use the following formula for intermediate maturities t less than one year:

$$HC(t) = HC(0) \times (1 - t) \quad (5)$$

5.6. Expanded migration matrix – one notch migrations

In order to calculate haircuts taking into account +/- migrations we interpolate the migration matrix above (an empirical +/- matrix is too noisy), giving the matrix shown below. The same procedure as above then leads to haircuts which are approximately as shown:

	Haircuts for intermediate maturities - +/- migrations detected				
Rating	**1 day**	**1 month**	**3 months**	**6 months**	**1 year**
AAA	50.0%	46.5%	39.7%	28.8%	0.0%
AA	47.6%	46.1%	41.8%	31.9%	0.0%
A	78.0%	74.0%	64.7%	47.1%	0.0%
BBB	73.9%	70.2%	61.8%	46.1%	0.0%
BB	80.1%	76.7%	68.8%	53.2%	0.0%
B	81.4%	78.5%	71.4%	55.7%	0.0%
CCC	77.1%	74.0%	65.8%	48.9%	0.0%

These haircuts are more advantageous than those presented above, as expected because we now assume a bank would detect and act upon a "one notch" migration, instead of only on a full letter rating migration as above. Like the haircuts derived from the coarse migration matrix these are approximately linear in their dependence on the maturity.

Interpolated Fine migration matrix used for the above calculations:

Rating	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	D
AAA	74.77%	18.86%	3.57%	1.57%	0.69%	0.20%	0.13%	0.08%	0.04%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.02%
AA+	49.86%	25.00%	14.28%	6.17%	2.67%	0.95%	0.50%	0.27%	0.09%	0.06%	0.05%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%	0.01%	0.03%
AA	0.33%	0.33%	57.09%	24.28%	10.33%	4.20%	1.89%	0.85%	0.23%	0.15%	0.10%	0.02%	0.02%	0.02%	0.04%	0.03%	0.02%	0.02%	0.04%
AA-	0.23%	0.23%	43.39%	24.48%	13.81%	10.17%	4.38%	1.89%	0.55%	0.34%	0.21%	0.06%	0.05%	0.04%	0.06%	0.04%	0.03%	0.02%	0.05%
A+	0.13%	0.13%	25.11%	18.79%	14.06%	24.58%	10.12%	4.17%	1.30%	0.72%	0.40%	0.12%	0.09%	0.07%	0.07%	0.05%	0.03%	0.01%	0.05%
A	0.03%	0.03%	0.76%	0.75%	0.75%	59.26%	23.31%	9.17%	2.95%	1.49%	0.75%	0.22%	0.16%	0.11%	0.10%	0.06%	0.04%	0.01%	0.06%
A-	0.03%	0.03%	0.53%	0.53%	0.53%	45.85%	24.48%	13.07%	8.05%	3.72%	1.72%	0.49%	0.33%	0.22%	0.15%	0.10%	0.07%	0.03%	0.09%
BBB+	0.02%	0.02%	0.31%	0.31%	0.31%	27.27%	19.76%	14.32%	21.68%	9.21%	3.91%	1.07%	0.67%	0.42%	0.24%	0.16%	0.11%	0.07%	0.14%
BBB	0.02%	0.02%	0.08%	0.08%	0.08%	1.64%	1.61%	1.58%	57.89%	22.57%	8.80%	2.28%	1.35%	0.81%	0.37%	0.26%	0.18%	0.16%	0.22%
BBB-	0.01%	0.01%	0.06%	0.06%	0.06%	1.14%	1.13%	1.12%	45.34%	24.01%	12.72%	6.46%	3.54%	1.95%	0.82%	0.54%	0.35%	0.30%	0.36%
BB+	0.01%	0.01%	0.04%	0.04%	0.04%	0.65%	0.64%	0.64%	27.48%	19.77%	14.22%	17.98%	9.11%	4.62%	1.78%	1.11%	0.70%	0.56%	0.60%
BB	0.01%	0.01%	0.02%	0.02%	0.02%	0.15%	0.15%	0.15%	2.27%	2.22%	2.17%	49.40%	23.11%	10.81%	3.82%	2.28%	1.37%	1.05%	0.98%
BB-	0.01%	0.01%	0.02%	0.02%	0.02%	0.13%	0.13%	0.13%	1.57%	1.55%	1.52%	38.08%	22.79%	13.64%	9.19%	5.04%	2.76%	1.64%	1.72%
B+	0.00%	0.00%	0.03%	0.03%	0.03%	0.12%	0.12%	0.12%	0.87%	0.86%	0.85%	22.69%	17.38%	13.31%	21.66%	10.90%	5.48%	2.53%	3.02%
B	0.00%	0.00%	0.03%	0.03%	0.03%	0.11%	0.11%	0.11%	0.15%	0.15%	0.15%	1.96%	1.92%	1.88%	50.28%	23.20%	10.70%	3.87%	5.30%
B-	0.02%	0.02%	0.02%	0.02%	0.02%	0.11%	0.11%	0.11%	0.21%	0.21%	0.21%	1.53%	1.51%	1.48%	38.78%	22.86%	13.47%	10.82%	8.51%
CCC+	0.04%	0.04%	0.01%	0.01%	0.01%	0.11%	0.11%	0.11%	0.26%	0.26%	0.26%	1.10%	1.09%	1.08%	23.62%	17.78%	13.38%	27.08%	13.66%
CCC	0.07%	0.07%	0.00%	0.00%	0.00%	0.10%	0.10%	0.10%	0.31%	0.31%	0.31%	0.67%	0.67%	0.66%	3.72%	3.58%	3.44%	63.96%	21.94%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%