THE RISK MANAGEMENT ASSOCIATION
Serving the Financial Services Industry

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Basel Committee on Banking Supervision
Bank for International Settlements
CH-4002 Basel
Switzerland

and

Basel 2003 Capital Proposal
Board of Governors of the Federal Reserve System
Mail Stop 155
20th Street and Constitution Avenue, N.W.
Washington, D.C. 20551

and

Robert E. Feldman
Executive Secretary
Attention: Comments
Federal Deposit Insurance Corporation
550 17th Street, N.W.
Washington, D.C. 20429

and

Basel 2003 Capital Proposal
Office of the Comptroller of the Currency
Mail Stop 3-6
250 E Street S.W.
Washington, D.C. 20219

July 31, 2003

RE: Comments on the Third Consultative Package of The New Basel Capital Accord

In response to the recent release of the Third Consultative Package of The New Basel Capital Accord ("CP3"), The Risk Management Association's Committee on Securities Lending ("RMA") has formulated the following comments that focus on the credit risk components of the CP3 relating to repo-style transactions.

In reviewing the CP3, the RMA was pleased to note that our concerns with the Second Consultative Package have largely been addressed in CP3. The reduction of the holding period for calculating "own-estimate" haircuts for repo-style transactions from 10 days to 5 days will result in haircuts that are significantly more reflective of the risk associated with securities lending transactions. In addition, the recognition of the risk mitigating effects of correlation among loan and collateral positions through the use of value-at-risk ("VaR") models will further ensure that capital requirements will be more reflective of underlying risk. Accordingly, with respect to the methodologies set forth in the CP3, our comments are primarily focused on a single point. The RMA would recommend that the Basel Committee give further consideration to the topic of VaR model multipliers. Additional comments reflect the desire for clarification of certain language in various paragraphs of the CP3.

The RMA welcomes the recognition the Basel Committee has given to the VaR model backtesting methodology put forth in the November 8, 2002 joint letter from the RMA, the Bond Market Association ("BMA"), the International Swaps and Derivatives Association ("ISDA"), and the London Investment Banking Association ("LIBA"). To the extent that firms are allowed the flexibility to work with their local supervisor to ensure that backtesting remains reflective of a firm's specific business situation and industry practices, as they develop over time, a firm will be incented to move toward a VaR approach while providing appropriate evidence of the ability of their VaR model to estimate exposure meaningfully.

However, with respect to the size of the multiplier to be applied to values produced by a VaR model whose backtesting results break through the prescribed exception threshold, the RMA continues to support the multiplier scale put forth in our letter of May 17, 2002, and in the letter submitted in conjunction with the BMA, ISDA, and LIBA on November 8, 2002 (copies attached in appendix).

The intent of our recommendation is to ensure that VaR models comply with the 99% confidence level set out in the CP3 by scaling outlying results. In applying multipliers ranging between 2 and 3, the Committee is effectively applying an overly conservative penalty rather than using the multiplier concept to realign VaR results with the stated desire of satisfying a 99% confidence level.

Regarding the requirement that repo-style transactions be re-margined daily to qualify for a 5-day haircut, it is industry practice to mark to market each day and, to the extent that a collateral excess or deficit exists, re-margin the subject transactions. However, it should be noted that, depending on the market practice of the settlement location (e.g., cut-off times), the settlement of the margin call may not happen on the same day and could be delayed until the next day. Therefore, the RMA requests that language related to daily re-margining in paragraphs 106 and 138 be clarified to reference transactions "subject to " daily re-margining, consistent with language used in paragraph 141.

The BMA and ISDA have advised the RMA of informal conversations they have had with members of the Basel CRM Group during which the Basel CRM Group members indicated that footnote 34 to Paragraph 116(a) is intended to apply to only a limited set of non-repo-style transactions. Accordingly, the RMA supports the inclusion in footnote 34 of the clarifying language put forth by the BMA and ISDA in their CP3 comment letter: "When cash on deposit, certificates of deposit or comparable instruments issued by the lending bank are held as collateral at a third-party bank in a non-custodial capacity in connection with non-repo-style loan transactions…".

The RMA appreciates the Basel Committee's continued willingness to consider industry feedback and looks forward to working together to further the objectives of The New Basel Capital Accord. Please feel free to contact Tracy Coleman (1-617-664-2546 or tacoleman@statestreet.com) if you have any questions or require any additional information.

Sincerely,

Peter Adamczyk
Chairman, RMA Committee on Securities Lending

Tracy A. Coleman
Chairperson, RMA Basel II Sub-Committee on Securities Lending

APPENDIX

THE RISK MANAGEMENT ASSOCIATION
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May 17, 2002

Ms. Norah Barger
Coordinator
Credit Risk Mitigation Sub-Group
Basel Committee on Banking Supervision
Bank for International Settlements
Centralbahnplatz 2
CH-4002 Basel
Switzerland

Dear Ms. Barger:

The RMA Basel Subcommittee on Securities Lending ("RMA") appreciates the Credit Risk Mitigation Sub-Group's efforts to craft capital adequacy requirements that more closely reflect the nature of the securities lending business and believes that the developments outlined in your letter of April 17, 2002 make significant strides towards that end. The Sub-Group's ongoing interest in industry feedback is most welcome and the RMA values the opportunity to respond as follows to the issues raised in that letter.

Simplification of the Formula for Collateralized Transactions
While we are supportive of the new, more intuitive, approach to calculating risk-weighted assets on a transaction-by-transaction basis (for firms unable to calculate risk-weighted assets at the portfolio level), we continue to believe that it does not entirely reflect the risk mitigating potential of collateral because the correlation between the loan and the collateral positions at the individual transaction level is still not captured. As restated, the formula for collateralized transactions still assumes a perfect negative correlation between the loan and the collateral. We believe that the development of a "blended" haircut based on a matrix of loan and collateral asset types for which there is significant price history could be reasonable means of introducing the correlation between the loan and collateral and more accurately identifying the risk associated with an individual transaction.

Repo-Style Transactions and Holding Periods
The reduction of the holding period used to calculate haircuts for repo-style transactions, from ten to five days, resulted in a holding period that is significantly more reflective of standard securities lending practices related to the liquidation of collateral in a default situation and will lead to a measurement of risk that is more consistent with an agent lender's own internal assessment of risk. While the development in regard to this topic is appreciated we would encourage that national regulators be given the discretion to allow the holding period to remain aligned with ever evolving market standards.

Master Netting Agreements for Repo-Style Transactions
The CRM Subgroup's formulation of an equation to capture the effects of master netting agreements is a welcome step, however, the netting contemplated by the formula provided is such that only institutions carrying offsetting positions in a specific security can benefit from the treatment. Within its securities lending program, an agent lender is unlikely to have outstanding loan and collateral positions in the same security with a particular borrower. Under the assumption that this formulation will only give an institution relief for offsetting long and short positions in the same security, it falls short of recognizing the cross-collateralization rights enjoyed by many industry participants that permit the "pooling" of collateral for the purchase of replacement securities in the event of a default.

Own Internal Estimates of Haircuts
The RMA is pleased by the CRM Subgroup's recognition that a securities lending agent that does not engage in business warranting the development of a market risk model may nonetheless possess a level of sophistication that would allow them to calculate an "own estimate" haircut in a sound manner. The CRM Subgroup's willingness to expand the eligibility for calculating an "own estimate" haircut will serve to level the playing field among comparably sophisticated institutions. This point underscores the fact that institutions may have varying levels of sophistication in each of their business lines and that a firm should have the option of utilizing whichever approach for measuring risk laid out in the Accord best matches their sophistication in an individual business line. An institution should not be required to apply the same approach throughout their entire organization.

VaR-Based Measure for Repo-style Transactions and Backtesting VaR Measures
The CRM Subgroup's recognition of internal models such as VaR as a means of estimating loss given default, or potential future exposure, at the borrower portfolio level will allow for a more effective demonstration of the dynamics of the relationship between loan and collateral positions in repo-style transactions. In addition, this should provide an incentive for industry participants, not already employing such measures, to adopt more sophisticated internal measurement systems.

It is important to note, however, that there is not one but a number of potential approaches to measuring counterparty exposure on a portfolio basis within the securities lending industry. In regards to VaR models, there are methodology, data access, and data update differences. The key determinant in assessing model appropriateness in each case is how effectively it estimates exposure.

With respect to the use of a VaR approach to measure the potential future exposure associated with a portfolio of repo-style transactions, the Subgroup's expressed reservations are focused on model error and the instability of correlations over time. We believe that these are legitimate concerns, but take the view that a well-conceived, well-documented and readily auditable backtesting program should alleviate these concerns.

As the true test of a VaR based measurement is its predictive accuracy, a robust backtesting regime offers a means of determining model effectiveness. Although such a process could be costly to establish and potentially onerous to maintain, from an operations and data management perspective we are suggesting a possible backtesting approach below. We agree that the backtesting methodology used with models encompassing repo-style transactions must diverge from that of market risk models in terms of the holding period and the number of VaR measures that must be examined. We also feel that the appropriateness of a multiplier must be re-examined in the context of VaR models for repo-style transactions.

Backtesting Methodology and Exceptions
Securities lending portfolios consist of the loaned securities, non-cash collateral securities, U.S. dollar cash collateral and cash collateral denominated in other currencies. The net current value of the exposure is reflected by the level of margin on hand. Changes in the value of the margin due only to market moves over

a defined time horizon will reflect the realization of the inherent price risk. As such, borrower portfolio level risk estimates suggested by a VaR model should be compared to the actual change in margin level to determine if the actual move in the level of the margin was within the bounds of the risk estimate. We believe that an appropriate backtesting methodology should utilize the following calculation of excess collateral.

> *Excess Collateral (the current value of the exposure ($\sum E$)) = (Value of non-cash collateral in base currency + cash collateral in base currency) - Value of loans in base currency*

To the extent that the CRM Subgroup requires a 5-day holding period for haircut calculations, backtesting regimes for VaR models should reflect the same requirement.

An example is as follows (please note in this example it was assumed that the bulk of the collateral consisted of base currency cash, therefore, there is very little movement in the collateral value over the five day period):

Position Date	Data Date	Broker Name	Loan Value	Collateral Value	Excess Collateral	Coll%
12-Apr-02	12-Apr-02	Borrower A	$4,525,051,413	$4,673,936,492	$ 148,885,079	103.29%
12-Apr-02	12-Apr-02	Borrower B	$7,331,792,117	$7,663,494,664	$ 331,702,547	104.52%
12-Apr-02	12-Apr-02	Borrower C	$4,528,281,053	$4,674,802,633	$ 146,521,580	103.24%

Position Date	Pricing Date	Broker Name	5D Loan Value	5D Collateral Value	5D Excess Collateral	5D Coll%	Excess Coll Chng	Risk Estimate (Potential Future Exposure per VaR model)
12-Apr-02	19-Apr-02	Borrower A	$4,609,676,710	$4,673,933,952	$ 64,257,242	101.39%	$ (84,627,837)	$ 150,000,000
12-Apr-02	19-Apr-02	Borrower B	$7,573,468,117	$7,663,481,846	$ 90,013,728	101.19%	$ (241,688,818)	$ 200,000,000
12-Apr-02	19-Apr-02	Borrower C	$4,568,391,759	$4,674,806,268	$ 106,414,509	102.33%	$ (40,107,070)	$ 100,000,000

In this case, the change in Borrower B's excess collateral level exceeds the risk estimate and signifies an exception to the model. Such exceptions would be tracked to determine if they occur more than the 99% confidence level would indicate.

One other factor to consider in the adoption of a system in which the current value of the exposure ($\sum E$) is utilized as an input into the risk-weighted asset calculation is the day-to-day volatility of such a measure. Although this is not directly related to backtesting, it nonetheless illustrates how much internal capital may be needed to cover the leverage effect of price changes and what an internal model should capture. As an example, a one-day move of plus or minus 2% in the value of the loans would impact current exposure (Excess Collateral) as follows:

Price Move	Loan Value	Collateral Value	Excess Collateral
12-Apr-02	$ 4,525,051,413	$ 4,673,936,492	$ 148,885,079
+2%	$ 4,615,552,441	$ 4,673,936,492	$ 58,384,051
-2%	$ 4,434,550,384	$ 4,673,936,492	$ 239,386,107

Note how a 2% market swing results in a 61% swing in the value of the current exposure.

While a VaR based measurement system requires that risk exposure be determined for each borrower, it would be operationally onerous to backtest each and every borrower on an on-going and continuous basis. Storing and retrieving daily data for each counterparty would require a level of resource dedication that could counter the advantages of moving to a VaR-based approach and would therefore not be feasible. A sampling based system would be more appropriate to the extent that it captured a high percentage of total volume (the largest borrowers) and that it had a secondary focus on those borrowers whose loan portfolio was not well diversified (typically the smaller borrowers) and thus would be more apt to experience greater price volatility. Accordingly, the RMA suggests that backtesting be performed on a sample of borrowers that includes some number of the largest borrowers on an aggregate level as well as some number of the smallest borrowers. The actual sample should be constructed according to regulatorily determined criteria that aim to capture an appropriate percentage of an agent lender's total securities lending balance at the top and bottom ends of the scale. The top x-number of counterparties comprising 50% of total balances and the bottom y-number of counterparties comprising 5% of total balances could serve as appropriate sample size criteria.

Multiplier

To the extent that a VaR system produces the required level of predictive accuracy no multiplier should be applied. A multiplier would be appropriate only to the extent that exceptions exceed the prescribed error level of 1%. Additionally, rather than relying on a standard, static multiplier, those models producing outliers in excess of those predicted by a 99% confidence level should be subject to a multiplier designed to increase that particular model's "experienced" confidence level to the required 99% level. As such, each institution's multiplier would be specific to its own risk measurement model and would be designed to ensure that each model's maximum predictive error was not greater than 1%. In this way, the accepted level of predictability is obtained, while no institution is disproportionately penalized for model inaccuracies. The determination of each institution's appropriate multiplier could be calculated at pre-determined intervals according to the formula below.

$$\text{Multiplier} = \text{SNV for } \alpha=.01 \,/\, \text{SNV for } \alpha= (1- X/N)$$

Where:

SNV = standard normal variable (i.e., z-score)
X = number of outlying observations
N = number of observations

Given this formula, backtesting results comprised of 250 observations and 5 outliers would yield the following multiplier:

$$\begin{aligned} \text{Multiplier} &= 2.33 \,/\, \text{SNV for } \alpha= (1- 5/250) \\ &= 2.33 \,/\, 2.055 \\ &= 1.13 \end{aligned}$$

As multipliers would be calculated only for a sample of counterparties, a weighted average multiplier, based on the sample, could be computed and then applied to all counterparties uniformly. Firms should be given the option of selecting a sample that is larger than required to enhance their testing and refine their computed multiplier.

Alternatively, if a firm can demonstrate that changing the parameters of their model (e.g., more conservative confidence level, volatility estimates, etc.) produces risk estimates that can be proven through backtesting to meet the required level of predictive accuracy, then they should be allowed to evolve their

model to improve its accuracy rather than relying solely on the recommended parameters and multiplier algorithm.

Residual Risks
The elimination of the "w" floor as a measure of residual risks is much appreciated. As noted in previous responses, we too share the opinion that residual risks are more than adequately mitigated through the use of financial collateral, guarantees, and legal documentation. We are also in agreement that residual risks can be effectively monitored under Pillar 2, the supervisory review process.

Conclusion
As noted, we value the Credit Risk Mitigation Subgroup's efforts in creating a sound risk-based framework for the calculation of regulatory capital requirements and appreciate its willingness to entertain industry comments and suggestions. We would be pleased to offer any additional information or commentary as you may require.

Sincerely,

Richard B. Bentsen, Chairma, RMA Committee on Securities Lending

Tracy A. Coleman, Chairperson, RMA Basel Sub-Committee on Securities Lending

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Ms. Norah Barger
Chair, Credit Risk Mitigation Sub-group
Basel Committee on Banking Supervision
Bank for International Settlements
CH-4002 Basel
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8 November 2002

Dear Norah,

Thank you very much for your letter of 9 July 2002 to ISDA, LIBA and TBMA ("The Associations"), following up on our meetings in London and New York this past summer. As an initial matter, The Associations and the Risk Management Association (RMA) again applaud the Credit Risk Mitigation (CRM) Sub-group's continued willingness to engage in a dialogue with the financial community regarding the impact of the Basel Accord on collateralized transactions. The purpose of the following letter is to continue our dialogue on counterparty risk issues, in the light of the Sub-group's 9 July 2002 letter. The Associations and RMA hope that the information contained below will assist the Basel Committee in finalising its approach to portfolio VaR backtesting.

Two issues were raised in your letter, which we address in turn below.

1. Resolution of differences between The Associations and RMA

The first issue relates to differences of views between The Associations and RMA in each of their responses to the CRM Sub-group's 17 April letter regarding the technical modalities of backtesting. Reviewing the submissions prepared by both groups, we find more similarities than differences between the two sets of comments.

Before addressing the few differences in detail below, and while we agree with the need for appropriate model validation to apply to VaR-based measures of counterparty exposure, both The Associations and RMA wish to reiterate that we do not support the principle of including in the Accord a backtesting regime, whether conducted on a group of sample counterparties or (as described in Section 2 below) whether

conducted on a hypothetical portfolio. The creation of a backtesting regime will cause financial institutions to incur significant costs, and (as noted by the CRM Sub-group in its 17 April letter) is not necessarily appropriate in the context of measuring counterparty risk in collateralized transactions.

The Associations furthermore agree that, should backtesting apply, the approach adopted by the Committee should be subject to flexibility based on individual institutions' business situations and subject to ongoing dialogue with their respective supervisors.

Where the submissions differ is on the following items, which RMA and The Associations have reviewed and where we would like to put forward a constructive proposal to the CRM Sub-group :

- The proposed horizon for performing the backtest was one day in the Associations' letter versus 5 days in RMA's. The Associations and RMA have agreed that applying a one day test is preferable, considering the difficulties involved in producing "clean" 5 days P/L data, i.e. P/L excluding any further change in the exposure profile occurring within the 5 day test period. We would emphasize that supervisors currently rely on one day backtests for the purpose of implementing the Market Risk Amendment.

- The only other difference between the two submissions was in the selection of the sample of counterparties to which backtesting would apply. Following further consultation, The Associations and RMA would like to suggest the following sampling process :
    - 20 counterparties are identified on an annual basis, of which 10 are the largest counterparties in the portfolio, and the remaining 10 are randomly selected. Financial institutions should be allowed to use their own measure of counterparty size in order to determine the identity of the 10 largest counterparties. Such measures might encompass Potential Exposure, VaR, or simply the average absolute value of the current mark to market of each portfolio over a given time period.
    - For each day, and for each of the 20 counterparties, the financial institution compares the daily change in the counterparty's exposure (cleaned P/L) with the VaR calculated as of the previous close of business. The backtesting results would be reported on a quarterly basis. The Associations had noted in their letter that testing several counterparties on the same day, or indeed the same counterparty over several consecutive days, could invalidate the binomial significance test underpinning the multiplier. The binomial test assumes independence between the events tested (exception or no exception), and would hence be too harsh if correlation existed in the sample, resulting in unjustifiably high multipliers. Having reviewed this issue further in co-operation with RMA, The Associations have come to the view that for the purpose of attaining consistency of approach in the industry, our earlier objection could be dropped, although this would create a harsher test for financial institutions.
    - An exception occurs where the P/L exceeds VaR.
    - Because of the increased number of tests, the multiplier table proposed in The Associations' letter would have to be amended as follows:

Number of Exceptions	**Significance**	**Multiplier**
0	91.80	No action necessary
20	71.30	No action necessary
40	45.60	No action necessary
60	24.60	No action necessary

Number of Exceptions	Significance	Multiplier
80	10.90	No action necessary
100	4.20	1.13
120	1.40	1.17
140	0.40	1.22
160	0.10	1.25
180	0.03	1.28
200	0.01	1.33

Setting multipliers above the levels indicated in this table is hard to justify technically if the assumptions underpinning Market Risk backtesting also apply for repo backtesting, as implied in the recently issued QIS 3 Technical Guidance. We would hence question how the multipliers mentioned in paragraph 144 of the Guidance were derived and would welcome further dialogue with the CRM Sub-group on this specific point. In particular, multiplying the counterparty risk charge by a factor of two where the green light threshold has been crossed as suggested in the Guidance creates an artificial cliff effect, which may well discourage firms from building the portfolio VaR models that they might otherwise have used. Such disincentive would run counter to the objective of the Accord to encourage and allow firms to align their risk based capital requirements more closely with the actual level of risk present in their portfolios. A more gradual scale of multipliers should therefore be contemplated (as per the table above).

2. Hypothetical portfolio testing

The second issue mentioned in your 9 July letter focused on the potential for use of hypothetical portfolio testing in the framework being prepared by the Basel Committee. Hypothetical portfolio testing represents a possible alternative to backtesting based on firms' actual portfolios. We would not favour including in the revised Accord provisions that would require both actual and hypothetical backtesting, though we recognize that some national regulators may wish to review the results of hypothetical backtests in the context of assessing model performance. The choice between real time backtesting and hypothetical portfolio testing should be the responsibility of regulated firms, and reflect the structure of their repo portfolio and existing risk management framework.

We provide as an appendix to this letter a description of how such backtesting could be carried out. Generally, we believe that the backtesting of hypothetical portfolios set out in the attached appendix could be performed by financial institutions once or twice a year for such institutions to periodically revalidate their model. In practice, each firm would work with their local supervisors, taking due account of the structure of such firm's repo portfolio and the main risk parameters relevant to it, to determine a suitable methodology to follow.

The Associations and RMA hope that the CRM Sub-group will find the above helpful and stand ready to continue to assist the CRM Sub-group in any way possible. In this regard, we would request a follow up meeting or call between the CRM Sub-group, The Associations and RMA to discuss in more detail the views conveyed in this letter. We will contact you in the near future to determine whether you are available for such meeting; in the meanwhile, please feel free to contact Emmanuelle Sebton (+44-20-7330-3571 or esebton@isda-eur.org), Katharine Seal (+44-20-7796-3606 or Katharine.seal@liba.org.uk), Omer Oztan (+1-212-440-9474 or ooztan@bondmarkets.com), or Tracy Coleman (+1-617-664-2546 or TAColeman@StateStreet.com).

Kind regards,

Emmanuelle Sebton ISDA Head of Risk Management	Katharine Seal LIBA Director	Omer Oztan TBMA Vice-President Assistant General Counsel	Tracy Coleman RMA Chair, Basel II Sub-Committee

ANNEX

DEFINITION OF TEST PORTFOLIOS

- A **base case test portfolio** is defined and created:
  - The base case test portfolio should have features that are representative of the typical desk portofilio with regard to the distribution of counterparty features and the features of the transactions of each counterparty.
  - Counterparty features include the risk rating and industry of each counterparty.
  - Each counterparty will have a portfolio of transactions with different characteristics:
    a) One way or two way trading
       - Some counterparties have multiple two-way transactions, such as large interbank market makers.
       - Some counterparties have large one-way positions, such as a hedge funds.
    b) Each counterparty's portfolio of transactions will have a distribution with respect to the industry, credit risk rating and time to maturity of the securities put up as collateral (repos/reverse repos) or borrowed/lent.

- Empirical evidence should be provided that the base case portfolio corresponds to a typical portfolio.

- **Other test portfolios** should be defined with respect to the base case test portfolio. The other test portfolios should have different types and degrees of risk concentration. The risk concentrations should include:
  - Concentration of counterparty risk, by risk rating or industry.
  - Concentration of risk features of underlying transactions, such as risk rating, industry or tenor of underlying securities.
  - Correlation concentration risk between features of counterparties and features of underlying collateral, such as a risk concentration in both the industry of the counterparty and the industry of collateral.

- Empirical evidence should be provided that risk concentrations in the "other test portfolios" represent extreme concentrations of risk, equal or greater than the concentration of risk the desk might occasionally have.

DATA REQUIREMENTS

The following data are needed:

- Times series of daily market prices for all the securities used as collateral in repo transactions or securities borrowed/lent in security borrowing/lending transactions.
- Time series of daily repo rates for each security.

TEST

- For each test portfolio compare the ex-ante VAR-like measurement to the ex-post hypothetical P/L. The hypothetical P/L is the daily change in the market value of the test portfolio due only to changes in market rates.
- Keep track of the number of exceptions over the year and, depending on the number of test portfolios created, ensure that the number of exceptions is consistent with a VAR-like measurement at the specified confidence level.