Proposal to issue a Supplement to the Basle Capital Accord to cover market risks

1. In April 1993, the Basle Committee on Banking Supervision[1] ("the Committee") issued for comment by banks and financial market participants a package of supervisory proposals dealing with netting, market risk, and interest rate risk. One of these proposals, "*The supervisory treatment of market risks*", set out a framework for applying capital charges to the market risks incurred by banks, defined as the risk of losses in on- and off-balance-sheet positions arising from movements in market prices.[2] The Committee has carefully considered the comments received and has made a number of revisions to its earlier proposal. The Committee's revised proposal consists of this cover note, a planned Supplement to the Basle Capital Accord of July 1988 and a discussion paper analysing the issues which arise in relation to the use of banks' internal risk measurement systems as a basis for applying capital charges. Comments on the package of proposals are invited by end-July 1995.

I. Summary of conclusions

2. In the *comment process*, the Committee has taken note of the views expressed by many banks that the market risks run by major market participants are now too complex to be captured by a measurement system that makes simplifying assumptions about the interaction of various market risk parameters and that does not give enough consideration to non-linear price risk. The latter is relevant most notably for the major traders or issuers of products such as options.

3. The main change introduced is to envisage the possible use of proprietary *in-house models* for measuring market risks as an alternative to a somewhat amended version of the standardised measurement framework originally proposed. In evaluating the use of proprietary market risk models for determining capital charges, the Committee has given careful consideration to how it should balance the need to preserve the integrity and flexibility of banks' internal models against the need to ensure the transparency and consistency of capital requirements across banks. To balance these needs, the Committee proposes to

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1 The Basle Committee on Banking Supervision is a Committee of banking supervisory authorities which was established by the central-bank Governors of the Group of Ten countries in 1975. It consists of senior representatives of bank supervisory authorities and central banks from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, Netherlands, Sweden, Switzerland, United Kingdom and the United States. It usually meets at the Bank for International Settlements in Basle, where its permanent Secretariat is located.

2 The risks covered by the proposed framework were: (a) the risks in the trading book of debt and equity instruments and related off-balance-sheet contracts and (b) foreign exchange risk.

establish both quantitative and qualitative criteria for those banks which wish to use proprietary models.

4. Other areas where changes of substance to the April 1993 market risk proposal have been introduced are in the treatment of *options* and in the addition of a separate framework for measuring *commodities risk*.

II. Main comments received in the consultative process

5. The Committee received many valuable and constructive comments on its April 1993 proposal, and it thanks those who responded. Nearly all the commenters accepted the logic of extending the 1988 Capital Accord to cover market risks and agreed with the concept of applying capital charges to open positions. There were, however, a number of important *common underlying themes* which the Committee felt to be worthy of a considered response. These were, in brief, that:

- the proposal did not provide sufficient incentive to improve risk management systems because it did not recognise the most accurate risk measurement techniques;
- the proposed methodology did not take sufficient account of correlations and portfolio effects across instruments and markets, and generally did not sufficiently reward risk diversification;
- the proposal was not sufficiently compatible with banks' own measurement systems;
- there is a need to widen the scope of the institutions subject to the rules to include, notably, major securities firms.

6. A strong common theme among the responses was the argument that proprietary risk management *models* developed by some of the more sophisticated banks produce far more accurate measures of market risk and that there would be costly overlaps if those banks were required to calculate their market risks in two different ways. A supporting argument was the risk that the proposed measurement framework and resulting capital charges might impede development of sound risk management practices within the banks.

III. The use of internal models for supervisory purposes

7. It has always been a desirable principle of supervision that it should not deter sound market practices and the Committee is well aware that it should take care to guard against perverse *incentives* in all areas of supervision. The Committee therefore decided to investigate the possible use of banks' internal models in the calculation of capital charges, thus generalising the use of simulation techniques envisaged in the foreign exchange section of the April 1993 proposal.

8. To assist in this investigation and to identify potential supervisory concerns, a Committee *task force* studied the market risk models and management practices of a number

of banks in the major financial centres. In particular, it carried out some preliminary testing in the second half of 1994, in order to help determine which model parameters should be specified or constrained. One objective of the test was to check whether the banks' internal measurement systems would produce, in the Committee's view, reasonable value-at-risk estimates relative to the size of the portfolio. Another was to establish how great would be the dispersion between different models' measures of value-at-risk when relatively few parameters were specified. The results of these tests have guided the choice of quantitative parameters now being proposed by the Committee, although these are not definitive and may be subject to changes in the light of further work. Through this testing, the task force has recognised the scale of the human and technological resources that many banks are devoting to the development of their market risk models, and the Committee has gained a heightened appreciation for the rapid pace of change within the industry which is prompting banks to make these major investments in resources.

9. As a result of the investigation conducted on internal risk measurement models, the Committee has decided to envisage, subject to a number of carefully defined criteria as set out in Part B of the proposed Supplement, the use of internal models to measure market risks for supervisory purposes. The issues raised by this decision are examined in a separate paper "*An internal model-based approach to market risk capital requirements*".

10. The framework for the use of internal models will contain both qualitative and quantitative standards. The general elements can be summarised as follows. For the *qualitative standards*, it is required that there should be an independent risk control unit with active involvement of senior management in the process, the model must be closely integrated into day-to-day risk management and a routine and rigorous programme of stress testing should be in place. Banks must have a routine for ensuring compliance and an independent review of both risk management and risk measurement should be carried out at regular intervals. In addition, procedures are prescribed for internal and external validation of the risk measurement process.

11. For the *quantitative standards*, the "value-at-risk" should be computed daily, using a 99th percentile, one-tailed confidence interval and a minimum holding period of ten trading days. The historical observation period will be subject to a minimum length of one year, but the Committee is also investigating the possibility of a dual observation period. Banks will have discretion to recognise empirical correlations *within* broad risk categories, but value-at-risk *across* these risk categories is to be aggregated on a simple sum basis. Models must also accurately capture the unique risks associated with options. The capital charge will be the higher of:

- the previous day's "value-at-risk";
- an average of the daily "value-at-risk" on each of the preceding sixty business days, multiplied by a multiplication factor assessed by each national supervisor in accordance with the criteria set out in paragraph 12 below.

12. The *multiplication factor* will be set by individual supervisors on the basis of their assessment of the quality of each bank's risk management system, subject to an absolute minimum of 3. However, in considering the use of models for supervisory purposes, the Committee has been very conscious of the need to provide banks with both the flexibility and the incentives to upgrade their internal models as financial markets and technology evolve. The Committee has therefore agreed that banks should be required to add to this multiplication factor a "plus" directly related to the ex-post performance of the model, thereby introducing a built-in positive incentive to keep high the predictive quality of the model (e.g. it could be derived from the outcome of so-called "back-testing" and be zero when such results are satisfactory). More work will be done during, and on the basis of, the consultation process to check further the feasibility of the "plus" and to arrive at a more precise definition of it.

13. Since the use of proprietary in-house models to measure market risk for supervisory purposes represents a significant innovation in supervisory methods, implementation of the approach will of necessity be to some extent evolutionary. The Committee accordingly reserves the right to modify the specifications required for banks using models as more experience is gained. During the consultation period, it intends to conduct a *second test exercise* using the parameters now proposed and will examine those results in reviewing comments from the industry. The Committee will seek to ensure that the dispersion of results across institutions for a given set of positions falls within a reasonable range, and it will work with the industry to achieve this goal. Moreover, in order to gain additional information and comfort with the results produced by internal models, supervisors reserve the right to require banks wishing to use internal models to perform testing exercises and to provide any other information necessary to check the validity of banks' models. All banks that wish to use models should therefore have the capability to evaluate a test portfolio.

IV. The standardised methodology

14. Alongside the work on models, the Committee has reviewed its April 1993 proposal as a basis for setting capital requirements for the market risks of those banks not using comprehensive internal models (the "*standardised measurement method*"). The way in which it plans to introduce the requirements is set out in detail in Part A of the attached Supplement.

15. The *April 1993 proposal* was intended to introduce specific capital charges to be applied: (i) to the current market value of open positions (including derivative positions) in debt securities and equities in banks' trading books, and (ii) to banks' total currency positions in respect of foreign exchange risk. The proposals for debt securities and equities were based upon the so-called "building-block" approach which differentiates requirements for specific risk (i.e. the risk of loss caused by an adverse price movement of a security due principally to

factors related to the issuer of the security) from those for general market risk (i.e. the risk of loss arising from adverse changes in market prices).

16. Two changes of substance have been made to the April 1993 proposal. One arises from the fact that banks' trading in *commodities* and particularly in commodity derivatives have been growing rapidly in recent years. The Committee now sees the omission of any capital charges for commodities risk for banks as a potentially serious gap in the April 1993 framework. A proposal for measuring and applying capital requirements to commodities risk is therefore contained in Section A.4 of the attached Supplement. Since this is the first time the market has seen a proposal to measure commodities risk and it is not an easy risk to measure, comments are specially invited in this area.

17. The second significant change concerns the treatment of *options*. A number of alternative suggestions for measuring the price risk in options were flagged in the April 1993 paper, together with an invitation for specific comments on this matter. The Committee is conscious that measurement of options risk is a complex matter in which banks have at present very different capabilities, but it believes that banks which are trading even modestly in options should have the capability to measure the risks accurately. After careful review of the views expressed by the industry, the Committee has concluded that a number of different alternatives should be permitted within the standardised methodology at supervisors' discretion. Three of these alternatives are described in A.5 of the Supplement to the Accord. However, banks which are significant traders in options will be expected over time to move to a comprehensive options risk management model under the terms of Part B of the Supplement for their options positions and the associated underlyings. The Committee is willing to work with the industry to develop improved measurement of options risk.

18. In addition, a number of *minor changes* have been made to the proposal for the standardised method. One of these is purely cosmetic in that the provisions for the use of comprehensive risk factor models for foreign exchange have been moved to the models section, so that all banks using comprehensive models will be subject to the same qualitative and quantitative standards. Another relatively minor point is that, in order to take account of the criticism that greater accuracy is not being recognised, those using the so-called "duration method" in measuring general market risk for traded debt securities will now have vertical disallowances of half the size of the "maturity" method. Details of the other minor changes to the building-block framework set out in the April 1993 proposals can be found in Part A of the Supplement.

V. The definition of capital

19. The April 1993 proposal invited comment on the possibility of allowing banks to issue short-term subordinated debt subject to a lock-in clause (so-called "*tier 3 capital*") to meet a part of their market risks. The Committee has decided to adopt an approach whereby eligible capital will consist of shareholders' equity and retained earnings (tier 1 capital),

supplementary capital (tier 2 capital) as defined in the 1988 Accord, and short-term subordinated debt (tier 3 capital). Tier 3 capital will be subject to the following conditions:

- it should have an original maturity of at least two years and will be limited to 250% of the bank's tier 1 capital that is allocated to support market risk;
- it is only eligible to cover market risk, including foreign exchange risk and commodities risk;
- insofar as the overall limits in the 1988 Accord are not breached, tier 2 elements may be substituted for tier 3 up to the same limit of 250%;
- it is subject to a "lock-in" provision which stipulates that neither interest nor principal may be paid if such payment would mean that the bank's overall capital would then amount to less than its minimum capital requirement.

In addition, a significant number of member countries are of the opinion that the principle in the present Accord that tier 1 capital calculated on a consolidated basis should represent at least half of total eligible capital should be retained, i.e. the sum total of tier 2 plus tier 3 may not exceed total tier 1. However, the Committee has decided that any decision whether or not to apply such a cap on the use of tier 3 capital should be a matter for national discretion. All countries will continue to maintain the principle that total eligible tier 2 is limited to a maximum of 100% of the total tier 1 elements.

VI. Other issues relating to the operation of capital requirements for market risks

20. Banks using their internal models will be required to have an integrated risk measurement system that captures all their market risks. This means in principle that, for a given risk factor category, the risk must be measured using a single approach (i.e. using either internal models or the standardised approach) for that risk category. Those progressing towards comprehensive models will be permitted on a transitional basis to use a *mixture of models and the standardised measurement method* for each separate risk factor category (exchange rates, interest rates, equity prices and commodity prices, including related options[3] volatilities in each risk factor category). However, the use of such partial models will be subject to supervisory approval and the Committee plans to review this treatment in due course. Having adopted an internal model for one or more risk factor categories, a bank will not be permitted, save in exceptional circumstances, to revert to the standardised approach. All elements of market risk that are not captured by an internal model will remain subject to the standardised measurement framework.

21. While favouring capital requirements in preference to *position limits* as the appropriate instrument for international convergence in the treatment of market risk, the Committee continues to believe that limits can have an appropriate place in national

[3] Banks using the standardised measurement system would, however, be permitted to use scenario analysis covering all their options positions and the related underlyings.

supervisory arrangements. Individual national supervisors will therefore maintain limits where they judge it appropriate to do so, both as a means of imposing absolute ceilings on banks' exposures and of reinforcing internal controls. For example, supervisors who use limits to restrain position-taking in foreign exchange markets would be free to continue to use limits in conjunction with the proposed capital requirements on open positions, whether that is done through models or the standardised measurement system.

22. Whether banks use models or not, it is important to note that capital requirements for *counterparty credit risk* with respect to derivative products will continue to apply under the terms of the 1988 Capital Accord, as modified by subsequent amendments.

23. The April 1993 package also contained a paper addressing the measurement of *interest rate risk for the whole bank.* At this juncture, the Committee sees its priority as setting in place a capital regime for market risk and it plans to revert to the question of interest rate risk at a later date. In the meantime, its members will continue to use national methods to measure the interest rate risk in the whole bank and, in so doing, to learn from the experience of their colleagues in this respect. It is hoped that the experience gathered from the implementation of the market risk package will provide useful guidance in progressing the debate on appropriate ways of measuring interest rate risk.

VII. Co-operation with other supervisors

24. The Committee is mindful of the fact that a level playing field is not achievable in the absence of consistent regulatory treatment of market risk for all types of players in all financial centres. This was the objective pursued before 1993 in the co-operative efforts of the Basle Committee and the Technical Committee of IOSCO. And this is the approach followed by the Capital Adequacy Directive which, at the European Union level, applies both to banks and securities firms. The Basle Committee hopes that its proposals will be read with interest by securities regulators and by the European Union and stands ready to co-operate in order to pursue the objective of consistent minimum international requirements.

VIII. Timing of consultation and implementation

25. The consultation period for these proposals will close at the end of July 1995. The Committee plans to issue a definitive Supplement to the Basle Accord around the end of 1995, setting end-December 1997 as a deadline for its implementation by all member countries. This recognises that whereas some member countries may be able to implement the Supplement quite rapidly, others will find it takes their banks a considerable amount of time to prepare their systems accordingly.

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