

MEASURING AND CONTROLLING LARGE CREDIT EXPOSURES (January 1991)

I. Introduction

1. Diversification of risk is a key precept in banking. A significant proportion of major bank failures have been due to credit risk concentration of one kind or another. Following preliminary discussion of this issue at the fifth International Conference of Banking Supervisors in October 1988, the Basle Committee on Banking Supervision developed a discussion paper for the sixth International Conference in Frankfurt in October 1990. The paper received broad approval and, after taking into account various comments made, is now being reissued as a guide to best practice for bank supervisors in the monitoring and control of large credit exposures.

II. Background

2. Bank supervisors have traditionally paid close attention to the avoidance of risk concentration by the banks under their jurisdiction. Risk concentration can take a variety of forms. Besides credit exposure, risk concentration can also, for example, involve overexposure to market risks or excessive funding risk when a bank is particularly reliant on a segment of the market as a source of funds. Some forms of risk concentration are not easily capable of objective measurement despite their considerable importance to the supervision of individual banks. Moreover, the fact that banks are often specialists in a particular field may mean that the business earns above average profits, even if there is an above average risk if external factors become less favourable. Experience suggest that credit concentrations, on the other hand, can result in substantial losses without necessarily any commensurate increase in prospective returns. The Basle Committee believes that it is important for supervisors to consider measures limiting banks' exposures to concentrated forms of credit risk in general and large borrowers in particular.

3. While the primary purpose of seeking some convergence in national approaches to the supervision of large exposures is the need to address what is probably the major single cause of bank failures, the present study follows naturally from the Capital Accord of July 1988 which set capital standards for large international banks. It would seem reasonable to build on this work by seeking to define what levels of credit concentration should be regarded as acceptable in relation to capital as defined in the July 1988 paper, while recognising that there needs to be scope for variation according to local conditions.

4. There are several difficult conceptual questions which need to be addressed in measuring and controlling large credit exposures. These include:

- the definition of a credit exposure;

- the definition of a single counterparty or group of related counterparties;
- the appropriate level for a lending limit and a reporting threshold;
- risks arising from an over-concentrated or "clustered" loan book;
- risks arising from excessive exposure to individual geographic areas or economic sectors.

5. The analysis which follows considers each of these problems separately. It may also be noted at this stage that some countries also have credit information exchanges. Albeit designed to gather information on borrower indebtedness rather than on the exposure of lenders, such data bases can give additional insights into the credit risk being run by banks.

III. Defining a credit exposure

6. The main problem in defining an exposure is to quantify the extent to which less direct forms of credit exposure should be included alongside straightforward bank loans. This has become increasingly complex with the introduction of new financing techniques and instruments. A similar question is whether to recognise the lesser credit risk arising in relation to claims enhanced by collateral or guarantees.

7. One possibility is to adopt en bloc the measure of credit risk laid down in the capital exercise for measuring credit risk concentrations. This would mean multiplying each type of risk asset by the weight attributed to it in the Capital Accord. For example, a claim secured by residential mortgage or otherwise collateralised or guaranteed would merit a concessional weighting, while off-balance-sheet exposures would be scaled down according to their conversion factors. Use of the risk-weight structure in the Accord would have the advantage of being already known and accepted and would represent a logical extension of the earlier work. Moreover, the use of the same data base would facilitate reporting.

8. The disadvantage of using the capital weights is that they were in general devised as an appropriate measure of banks' credit risks on a "basket" basis. Since a large exposure measure is concerned with concentrations of risk, the measure of exposure needs to reflect the maximum possible loss from the failure of a single counterparty. The Committee has therefore concluded that to use the capital weights for measuring credit concentrations could significantly underestimate potential losses. It would, for example, mean ignoring credit commitments with an original maturity of under one year, whereas it is highly likely that a client in difficulties would draw down its credit lines. It would also mean relying on the value attributed to collateral or guarantees which, in extreme cases, often turns out to be illusory.

9. It is therefore suggested that the measure of exposure should encompass the amount of credit risk arising from both actual claims (including participations, equities and bonds) and potential claims of all kinds (e.g. future claims which the bank is committed to provide), as well as contingent liabilities. Thus, the measure should include at par value credit substitutes such as guarantees, acceptances, letters of credit and bills; securitised assets and

other transactions with recourse; and all other forms of contingent liabilities, notably credit commitments.

10. There is, however, one part of the thinking behind the capital weighting framework which would be appropriate for this purpose, namely that which specifies the conversion factors applied for off-balance-sheet items such as swaps, options and futures, where the creditor is not at risk for the full principal amount but only for the *replacement cost*. The credit risk in respect of this kind of business can be captured by using the measure of exposure reported for the purpose of calculating the adequacy of capital.¹ However, some supervisors and banks would consider that that measure of risk, while suitable for measuring the credit risk in a portfolio of derivative products, is not necessarily appropriate for large exposure purposes where, as already indicated, a more rigorous measure may be justified.

11. Another question which is difficult to resolve fully is the extent to which securities underwriting commitments should be included in a regular measure of large exposures. The attitude taken to securities underwriting in the capital exercise was that the risk was closer in its nature to position risk vis-à-vis the price of the issue being underwritten rather than to a credit risk vis-à-vis the issuer.² It might therefore be felt appropriate, at least for a lead underwriting bank and so long as the securities are not actually taken up, to measure such exposures as some proportion of the principal amount underwritten, the actual proportion depending on the character of the market and security in question and the perceived expertise of the underwriting bank.

12. A question arises as to whether the supervision of large exposures should be conducted on a consolidated basis or not. It is sometimes argued that consolidation is impractical since there are a number of banking centres where secrecy constraints make it difficult for subsidiaries to report the data necessary to supervise large exposures on a consolidated basis. The Basle Committee has worked in recent years to strengthen the mechanism³ for reporting large exposures of foreign offices, but experience shows that exposures can still be overlooked if internal controls are weak, especially if fraud is involved. Moreover, the purpose of controlling large exposures is to guard against the worst case and it would be undesirable to convey the impression that supervisors do not hold banks responsible for the exposures in other parts of the group, particularly if some such exposures are booked in foreign offices beyond the apparent control of the parent. Consolidation of all exposures of

¹ Two alternative methods of calculating exposure are permitted in the capital accord. In the original exposure method, the nominal value of each contract is multiplied by a factor which varies according to the type and maturity of the contract. In the current exposure method, exposure is calculated as the mark-to-market value (where positive) plus an "add-on" for potential future exposure.

² In practice, the pains taken to ensure a successful underwriting mean that the underwriter normally runs significantly less risk than a holder of existing equity or debt securities.

³ Most recently in the Supplement to the Basle Concordat issued in April 1990.

the group, particularly including those of subsidiaries which are consolidated for capital adequacy purposes, would therefore seem essential in principle. At the same time, the host supervisor needs to pay attention to exposures which are excessively large in relation to the size of the subsidiary in its territory, since a failure of the customer might weaken that unit to the detriment of the whole group. While exposures of one member of a banking group vis-à-vis an affiliate would normally be monitored by the supervisor responsible for the group's consolidated supervision, host supervisors may still need to be concerned about exposures on parent banks, particularly if they have reason to doubt the effectiveness of the consolidated supervision.

IV. Defining a single counterparty or a group of related counterparties

13. In normal circumstances it is relatively simple to define a counterparty in terms of a single legal entity whether corporate, official or private. However, when banks get into difficulties, it is often discovered that several of their large exposures are in practice related⁴ so that in effect they constitute a single exposure. One of the main problems in restricting credit concentrations is the need to identify potential linkages between exposures to single debtors. It sometimes happens that separate borrowers, despite dealing on an independent basis with the lending institution, represent a single risk because they are legally or economically interrelated. Thus repayment difficulties would arise for all if any one of them experienced financial problems.

14. In defining related counterparties, it is insufficient simply to consider groups which produce consolidated accounts. Relationships can include, for example, connection through common ownership, control or management. Cross-guarantees may be another indication that counterparties are related. Supervisors may wish to consider as a suitable example the definition used in the European Commission's Recommendation of December 1986⁵, namely that a group of related clients means "two or more persons, whether natural or legal, holding exposures from the same credit institution and any of its subsidiaries, whether on a joint or separate basis, but who are mutually associated in that:

- (i) one of them holds directly or indirectly power of control over the other; or
- (ii) their cumulated exposures represent to the credit institution a single risk in so much as they are so interconnected with the likelihood that if one of them experiences financial problems the other or all of them are likely to encounter

⁴ In this paper the term "related" refers to relationships between borrowers. The term "connected", which is sometimes used with the same meaning, is used here to refer to counterparties connected in some way to the lending bank or its officers.

⁵ This recommendation was subsequently replaced by a Directive. The definition of a group of related clients was similar but not identical to the text reproduced here.

repayment difficulties. By way of example of such interconnections the credit institution should take into consideration the following:

- common ownership;
- common directors;
- cross guarantees;
- direct commercial interdependency which cannot be substituted in the short-term."

15. One of the difficulties in identifying related lending is that customers sometimes go to great lengths to disguise linkages between two or more parts of the same empire. Since most banks already apply counterparty exposure limits of their own, designed to prevent excessive concentration, they already have experience in detecting subterfuges designed to disguise relationships between borrowers. Supervisors need, nonetheless, to make sure that banks in practice exercise due diligence to uncover misrepresentations by customers and to identify related exposures.

16. In isolated cases, banks may deliberately conceal from their supervisors that they are taking on exposures known to be related. In such cases, the management of the bank often has a connection with the borrowers. This is tantamount to fraud and is difficult to prevent if all the management of the bank is party to the arrangement. The initial preventive measure therefore is to require high professional standards for bank managements. A similar problem arises when junior management conceals a known relationship from senior management and internal auditors. The remedy here is to ensure that banks' internal controls function adequately with a clear decision-making procedure to ensure that isolated units do not escape the overall supervision of central management. Internal audit has an important function here. Equally important, external auditors and supervisors, using, as appropriate, bank examination or inspection techniques, can often play a vital role in detecting exposures of this nature.

V. Appropriate levels of large exposure limits

17. The large exposure limits presently applied in most countries are generally expressed in terms of the lending bank's capital. A sensible standardisation of approach would mean relating limits to the total capital base as defined in the Basle framework. If so, this would automatically imply some adjustment to existing limits - for example, in some countries the present limit is expressed as a percentage of what is effectively tier 1 capital. An equivalent limit in terms of total capital would obviously be somewhat lower.

18. Limits for single exposures now generally fall within the range 10-40% of total capital but 25% would seem to be a desirable target for an upper limit to be achieved as soon as practicable by those countries currently using higher limits. Anything below 10% would not seem realistic in the light of many banks' present portfolios. Anything above 25% would imply a relaxation of present supervisory constraints in most countries.

19. A number of counterparties may deserve higher exposure limits than the norm. In many countries, exposure vis-à-vis the domestic government would be exempt altogether from limits and exposures to other governments may have a higher limit, depending on perceived creditworthiness. In many cases, special rules would also be appropriate for public-sector entities below the level of central government. Short-term exposures to bank counterparties (including multilateral development banks) would also normally be subject to less restrictive limits.

20. In all cases, whatever the limits applied, there is merit in having a reporting threshold somewhat below the maximum limit (e.g. at 10% of capital). The supervisor can then devote particular attention to those exposures above the threshold and approaching the limits and may, if judged desirable, require banks to take preventive action before the exposure becomes excessively risky. In countries that do not have credit information exchange systems, which make available comparable information to the supervisory authorities, it may also be useful to require banks to report their largest exposures, regardless of whether or not they exceed the thresholds or limits set. Quite apart from providing a useful measure of the quality of the loan portfolio, reporting the most significant exposures enables the supervisor to form a judgement about possible linked exposures. More generally, notification before the limit is reached can be helpful in conveying the message that the limit is just that, not to be exceeded except in exceptional circumstances and only with the supervisor's express approval.

21. Special attention needs to be paid to loans to "connected" counterparties (i.e. those connected to the lending bank). In small banks, in particular, loans to directors and other insiders can be a significant part of the loan-book. Other forms of "connected" exposure are loans to affiliates or sister companies and loans to shareholders or owners. These types of loan can lead to conflicts of interest and in certain circumstances to dangerous leveraging within a group of companies. In many countries such loans are either forbidden or deducted from the capital of the lending bank. Where such connected loans are permitted, supervisory authorities would generally impose limits considerably lower than those applying to other borrowers unless, in certain circumstances, such exposures are collateralised to the supervisor's satisfaction. Moreover, it would be wise to impose a relatively tight constraint on the aggregate of such exposures, the precise level depending on national and local circumstances.

VI. Risks arising from an over-concentrated loan book or from over-exposure to geographic areas or economic sectors

22. However rigorously banks and supervisors apply single debtor limits, there is always a risk that a bank will suffer from the simultaneous failure for similar reasons of a number of relatively large obligors. It may, in practice, be very difficult to prevent this in the case of small regional banks subject to depressed local conditions, but banks should nonetheless be made aware of the risks arising from the various forms of linkages and be

encouraged to take what preventive action they can. In order to draw banks' attention to these risks and to provide supervisors with ancillary information for judging the extent of credit concentration, the introduction of a threshold reporting level below the absolute limit as indicated in paragraph 20 above would be very useful.

23. Where a bank has a "clustered" loan book, i.e. one which contains a relatively high proportion of sizeable single exposures, even if none of them are especially large, it is more exposed to potential credit risk than a bank with a more widely diversified portfolio. Much depends on the size, quality and range of the counterparties concerned, so it is difficult to suggest common guidelines for "clustering", but there is clearly greater potential for dangerous overall concentration if the limit on individual loans is 40% of capital than if it is 25% or less. If all exposures above 10% of capital are reported, as suggested in paragraph 20, the supervisor is in a position to judge each case on its merits and if necessary to see that additional precautions are taken.⁶

24. In a similar vein, credit concentration can take the form of over-average exposure to particular economic or geographical sectors, making the lending bank vulnerable to a weakness in a particular industry or region. It is therefore important that banks systematically identify and measure their exposures to different sectors and regions so that the management is aware of the risks being run and can if necessary adjust the balance. It is not, however, sensible to suggest rigid rules since precise definitions are difficult and much depends on the expertise of the bank and the size and stability of the sector or region concerned. In addition, some banks are by their very location or by regulation obliged to concentrate their exposure to a certain degree. Nonetheless, prudence suggests that banks should diversify their exposure among different economic sectors as much as possible, avoiding excessive concentration in such areas as, for example, agriculture, energy, shipping, real estate, highly leveraged financing and industries vulnerable to movements in commodity prices. Experience shows that it is very difficult to predict what sectors might become vulnerable, so no sector should be regarded as exempt from the principle of diversification. One aspect of this problem is, of course, country risk, but even quite large banks have also learnt bitter lessons from over-exposure on a local or regional basis.

VII. Summary and conclusions

25. While there are clearly significant definitional problems in devising a satisfactory regime for the measurement and control of large exposures, useful lessons can be drawn from the experience of other supervisors. It is suggested that a sound supervisory system would consist of the following elements:

⁶ The EC Commission's Recommendation defines a large exposure for this purpose to be 15% of capital and suggests that their aggregate should not exceed eight times capital

- definition of a credit exposure which encompasses not only the standard forms of lending, but all on and off-balance-sheet positions which may involve any element of loss if the counterparty defaults, valued at par with the exception of the replacement cost items referred to in paragraph 10;
- a definition of a counterparty which is sufficiently broad to include entities related to the borrower in such a way that the failure of one is likely to involve failure of the others;
- a limit of not more than 25% of group capital on the consolidated private sector non-bank exposures of a banking group, together with a lower reporting threshold of not more than 10% of capital;
- emphasis on sound internal control and audit procedures;
- special attention being paid to "connected" lending, with a limit well below the standard limit;
- the need to monitor "clustered" loan books;
- banks' attention being drawn to the need to monitor carefully its sectoral and geographic exposures.