

THE MANAGEMENT OF BANKS' OFF-BALANCE-SHEET EXPOSURES (March 1986)

I. Introduction

1. The reasons for the rapid growth in banks' off-balance-sheet exposures over recent years have been much debated and will not be rehearsed in any depth in this paper. Deregulation and technological progress have provided new opportunities for banks but have also increased competitive pressures, from banks and non-banks alike. The margins available for many types of conventional on-balance-sheet business have been diminishing, whilst at the same time supervisors have acted to restore and strengthen banks' capital adequacy. Banks have responded to these and other developments imaginatively and vigorously in an effort both to retain their traditional customer base and to boost fee income from sources which in many countries are (so far at least) largely or wholly free from capital requirements.

2. The increasing use of financial instruments which do not involve the acquisition by banks of conventional on-balance-sheet assets raises some difficult questions for individual bank managements, for supervisory authorities and for accountants. It also raises important macro-prudential issues concerning the financial system as a whole which are beyond the scope of this paper. While the pace of developments appears quicker in some countries than others, banks generally are becoming more deeply involved in an array of novel instruments and techniques. Some of these are technically very complicated and are probably only fully understood by a small number of traders and market experts; many pose complex problems in relation to risk measurement and management control systems; and the implications for the overall level of risk carried by banks is not easily assessed.

3. A prime motivation for some innovations has undoubtedly been the avoidance of prudential capital requirements, and these are, naturally enough, of particular concern to supervisors. There is also a more general concern that a number of the instruments examined in this paper may have the effect of concentrating risks within the banking system as a whole which were previously more widely dispersed. This applies particularly to foreign exchange and interest rate risk. At the same time, it is recognised that, while some banks will have increased their risk profiles, other banks, as well as bank customers, now have considerably greater opportunities to limit and control their overall risk exposures and to reduce their cost of borrowing. Some banks - the consumers as opposed to the market-makers in these instruments - may thus have managed to reduce their total risk exposure.

4. The main conclusion of this paper is that the individual types of risk associated with most off-balance-sheet business are in principle no different from those associated with on-balance-sheet business. It therefore suggests that off-balance-sheet risks cannot and should not be analysed separately from the risks arising from on-balance-sheet business, but should

be regarded as an integral part of banks' overall risk profiles. Approaching off-balance-sheet activities in this way has the additional merit of recognising their value when they serve to hedge risks present within the balance sheet. Supervisors consider it particularly important that banks adopt a coordinated approach to risk management and pay special attention to the possible correlation of different types of risk, both within the individual bank and the banking group as a whole.

5. Accounting for off-balance-sheet activities differs significantly from country to country. Items may be recorded on the balance sheet, below the line, as notes to the accounts, in supervisory reports, within banks' internal reporting systems or in some cases not at all. The accounting issues are not addressed directly in this paper, which focuses on the underlying risks (in particular the credit risks) regardless of how the exposure is recorded in national accounting systems. However, many supervisors consider that the information about off-balance-sheet exposures presently supplied in banks' published accounts is generally insufficient to give shareholders and depositors a reasonable picture of banks' activities. The supervisory authorities in Committee member countries would welcome discussions with the accounting profession in their own countries on all the issues raised in this paper, which have implications for management accounts and information systems as well as published financial accounts.

6. This paper examines off-balance-sheet risks from three angles market/position risk, credit risk and operational/control risk. Part II looks at liquidity and market/position risk under the general headings of liquidity and funding risk, interest rate risk and foreign exchange risk. It also contains a short analysis of the particular risks involved in writing and buying options. Part III examines credit risk (including control of large exposures, settlement risk and country risk), with particular emphasis given to the assessment of the relative risks of the different types of off-balance-sheet activity. Part IV considers some of the factors which banks need to take into account in setting up adequate management and control systems for their off-balance-sheet activities. The last part of the paper (Part V) sets out the Committee's views on the role of supervisors in monitoring banks' off-balance-sheet exposures.

7. Attached to this paper is a glossary of terms which is an integral part of the paper and should be read in conjunction with it. The glossary has two purposes. First, it is intended to provide a set of common definitions of individual off-balance-sheet instruments and techniques as a basis for discussion of the issues, although it is recognised that there are minor and, in some cases, major variants of these instruments in different countries. Secondly, it is hoped that it may serve as a basic framework for supervisory reporting systems (see paragraph 52). To this end, the glossary has been designed to facilitate both general and more detailed reporting and it is hoped that the structure will prove sufficiently flexible and robust to accommodate any new instruments which may be developed.

II. Liquidity and market/position risks arising from off-balance-sheet activities

Liquidity and funding risk

8. Funding risk may be defined as the risk that a bank will be unable to purchase or otherwise obtain the necessary funds to meet its obligations as they fall due. (These obligations might, for example, take the form of maturing deposits or drawings under committed facilities.) Funding difficulties may arise when, in order to meet sudden or unusually large withdrawals of funds, a bank is forced to rely on less stable, purchased deposits for a greater than normal proportion of its funding requirements. This may strain the willingness of the market to supply funds at competitive rates and may (perhaps wrongly) convey a signal that the bank is facing serious problems.

9. The worldwide total of commitments now outstanding for NIFs, standby letters of credit, loan commitments and, where they exist, undrawn overdraft facilities, is very large indeed. The Committee has concluded that the rapid growth of commitments represents a significant additional risk to banks' funding strategies. Many commitments are callable entirely at the borrower's option and many are most likely to be called when other markets (in particular the capital markets) are reluctant to meet the borrower's needs. It is therefore possible that a bank might be faced with large and perhaps unexpected calls under commitments at a time when markets are unreceptive to its needs for additional funds. To the extent that the growth in commitments represents a structural shift in borrowing patterns, such that banks move away from direct lending and increasingly towards a "back-stop" function, it may prove difficult to raise large sums at short notice to meet these commitments.

10. With the more traditional commitments, for example overdrafts, there is considerable historical experience indicating in aggregate a relatively stable rate of draw-down, which varies between different countries and different banks and will also vary with economic conditions. It is too soon to be able to draw any conclusions about the draw-down experience with some of the newer types of commitment. Moreover, it may be that they will not produce such a stable pattern because of their very nature.

11. For all these reasons, not least the difficulty of estimating draw-down rates), banks will need to be particularly cautious in their funding management. Banks may wish to assess (and set limits on) their total volume of commitments in terms of their perceived funding capacity, perhaps assessing this on a "worst case" basis and revising it in line with market conditions, actual draw-down and developments in borrowers' creditworthiness. It may be that, wherever possible, banks will seek committed lines for their own use to reduce their funding mismatch.

12. Aside from funding difficulties and the liquidity of the cash markets there is also a degree of concern about the liquidity of some of the newer markets (for example options,

futures, forward rate agreements and swaps). Not all these markets are yet tried and tested and banks will need to monitor their positions in them very carefully.

Interest rate risk

13. Banks conduct a wide variety of activities off the balance sheet which have an impact on their interest rate exposure. Many such activities, for example swaps, options and forward rate agreements, may be entered into as a hedge against on-balance-sheet interest rate exposures, or as banks see arbitrage opportunities open up between cash and futures markets or between one futures market and another. Swaps in particular will often be provided as a product in their own right. Some transactions may be undertaken with the deliberate aim of increasing net interest rate exposures. Where a bank acts as a market-maker in these instruments, this may lead to an increase in interest rate as well as in credit exposure.

14. In principle, it should be possible for banks to incorporate position risks arising specifically from off-balance-sheet activities into any system designed to measure overall interest rate exposure. Banks employ a variety of techniques ranging from simple gap limits through "milli-month" systems to "risk point" systems of various degrees of complexity.¹ All these approaches make implicit and explicit assumptions which must be constantly reviewed and tested. The degree of complexity and sophistication that is necessary or appropriate for an interest rate risk measurement and control system will vary between banks. Systems, however, need to be capable of capturing all the interest rate exposures of a bank (whether arising from transactions on or off the balance sheet). Banks also need to be able to perform sensitivity analyses, so that management can estimate the effect of a given change in interest rates. Those banks which engage in large volumes of interest rate swap transactions and other significant off-balance-sheet interest arbitrage will also have to consider how to measure and control basis risk (where, for example, the underlying obligations have the same maturity or interest rate roll-over periods, but the reference rates differ).

Foreign exchange risk

15. Off-balance-sheet activities have a significant impact on banks foreign exchange exposures in just the same way as they do on interest rate exposures. Forward transactions, swaps, options or futures can either reduce or increase exposure to exchange rate changes.

16. There is already a wide measure of agreement on appropriate methods for assessing and controlling foreign exchange exposure and all major banks operate tried and tested systems for monitoring their foreign exchange exposures. Foreign exchange positions

1 In simple terms a risk point represents the amount of gain or loss that would result from a given movement in interest rates. In some cases this is a fixed movement, e.g. 1%, in others a changing estimate of likely movements is used which is regularly adjusted in the light of recent empirical data. The bank will have an overall risk point limit which will often be sub-allocated to different profit centres.

should be monitored on a spot-plus-forward basis and any system should pick up all foreign exchange positions, whether arising from business recorded on or off the balance sheet, including in particular futures, swaps and options.

Options

17. Options give rise to particular concerns because of their unique risk distribution characteristics and the technical difficulties involved in risk hedging. The distribution of both market and credit risks as between writers and buyers of options is asymmetrical. The buyer of an option has in theory the possibility of an unlimited profit, but his potential loss is limited to the amount of premium paid. Conversely, the writer of an option is in principle exposed to the possibility of unlimited loss if he does not hedge the exposure, while his maximum potential profit is limited to the premium income received. This asymmetry is reversed in the case of credit risk. The writer of an option has no credit risk once the premium payment has been received since the buyer has no obligations to carry out; the buyer, however, is exposed to the writer's ability to perform throughout the life of the option.

18. Managing, hedging and pricing options requires considerable statistical and mathematical expertise (unless options written are hedged through the purchase of identical options, i.e. with the same exercise price, face value and expiry date). Rigorous limit and control systems are necessary, covering, inter alia, controls on concentrations of strike price and settlement dates as well as the full range of controls employed in conventional trading. As with any dealing activity bank managements need a formal written policy for authorising the activities of their traders. American options (where the buyer can choose when to exercise the option) pose particular problems for the control of settlement risk and special agreements with counterparties will often be necessary to limit this risk. However, even with a well-developed set of limits and controls, a bank's risk assessment system will only be as good as the mathematical model and the raw data it is using - the estimate of volatility in particular is crucial. The more experienced banks are well aware of the risks involved in trading options and those banks which write options, even on a modest scale, should ensure that they have staff who are competent in the techniques necessary to manage the risks and who are able to make the difficult judgements required. In view of the potentially sizeable losses, banks which are not confident that they have a sound grasp of the risks involved in options trading and that their monitoring systems are adequate are advised not to write options.

III. The assessment of credit risk in respect of off-balance-sheet activities

19. Credit risk has traditionally been considered to be the most important risk for a commercial bank and poor asset quality has probably been the cause of more bank failures than any of the exposures discussed above. As well as the degree of risk involved in particular types of transaction, the assessment of credit risk involves considering the total size of exposure to any given counterparty or group of connected counterparties, settlement risk and

potential country risk and cross-border problems (these latter three aspects are addressed briefly at the end of this section).

20. This section of the paper reviews the credit risks involved in different types of off-balance-sheet activity (i.e. the risk that one or more counterparties will fail to perform). The Committee felt that it would be helpful to set out what its members generally agree to be the relative degrees of credit risk arising from the different types of business. Given the newness of some instruments and the institutional and accounting differences, it is inevitable that at the margin there may be legitimate differences of view about the relative risk of each item. The translation of these relative degrees of risk into management tools and supervisory risk assessment measures poses considerable theoretical, practical and, in some cases, legal problems. Although these issues cannot be avoided in the long run, it is not the intention of the present paper to prescribe risk weightings for different instruments. It would therefore be premature for the Committee to attempt to translate the relative risk assessments given below into particular numbers in the context of any national supervisory system. However, it is nonetheless hoped that supervisors will be able to achieve a broadly consistent approach.

21. The analysis which follows seeks to classify the relative degrees of credit risk arising from different off-balance-sheet activities according to three categories of risk. It should be stressed that these judgements are made in the light of present knowledge and may well need to be revised as a result of experience.

"Full risk"	where the instrument is a direct credit substitute and the credit risk is equivalent to that of an on-balance-sheet exposure to the same counterparty;
"Medium risk"	where there is a significant credit risk but mitigating circumstances which suggest less than full credit risk;
"Low risk"	where there is a small credit risk but not one which can be ignored.

22. In addressing credit risk, the Committee found it helpful to draw up a broad framework of analysis which distinguishes between four different categories of off-balance-sheet activity, namely guarantees and similar contingent liabilities, commitments, market-related transactions and advisory, management and underwriting functions. The glossary sets out the distinctions between each category. In particular, it attempts to explain the different nature of a contingent liability, where a bank has underwritten the current obligations of a third party, and of a commitment, where a bank has no immediate credit exposure but may well become exposed at a future date. In drawing up this structure, the Committee recognises that some of the newer instruments - notably NIFs - have challenged the distinction traditionally drawn between contingents and commitments. It is also appreciated that it may sometimes be difficult in practice to make the distinctions discussed in this paper. Nevertheless, the categorisation was found to be a useful structure for analysis and it is hoped that it will prove sufficiently flexible and robust to deal with further innovations.

(i) Guarantees and similar contingent liabilities

23. *Guarantees and acceptances* (which in some countries are reported on the balance sheet) are obligations to stand behind a third party. As such, they are regarded as direct credit substitutes, and the credit risk is equivalent to that of a loan to the ultimate borrower or to the drawer of the instrument in the case of an acceptance (full risk).

24. *Transactions with recourse*, in respect of which a bank retains the credit risk on assets sold to a third party, have recently become more significant as banks have come under pressure to achieve stronger capital ratios and, as one consequence, have sought to remove assets from the balance sheet. Where the vendor retains the credit risk, this is considered to fall within the full risk category - indeed in some countries assets sold with recourse have to be reported in the selling bank's balance sheet.

25. Banks in North America, particularly, have very large off-balance-sheet exposures in the form of *standby letters of credit*. Such instruments can perform a number of different functions, the most common of which are listed in the glossary. These functions take either the form of guarantees, where for example a less than first-class borrower uses a bank's name to issue commercial paper on first-class terms, or the form of warranties, indemnities and performance bonds (see paragraph 27 below). There is a case, therefore, for distinguishing between such instruments, in terms of their function, and regarding those with the character of guarantees as bearing full credit risk and those with the character of warranties, indemnities and performance bonds as bearing medium credit risk.

26. The main difficulty with *documentary letters of credit* (commercial letters of credit in the United States) lies in deciding what allowance, if any, to make for the generally short maturity of these exposures and for the collateral which usually supports them (this takes the form of title to the goods being shipped, but will rarely enable the bank to recover more than a proportion of its losses, given that a sale of the underlying goods may be distress in nature). While the credit risk is in principle equivalent to that of a commercial loan, the short maturity, the partial protection afforded by collateral and the relatively favourable historic loss record suggest that such transactions bear a medium risk in practice. However, some members of the Committee are of the view that these exposures represent a full risk. Where a bank has confirmed a documentary credit issued by another bank, the credit risk represents an exposure to another bank.

27. *Warranties, indemnities and performance bonds* are in principle much the same as guarantees in that the credit risk hinges on the ability of a third party (the bank's customer) to meet its obligations, but they are generally not direct credit substitutes.² They do not support an existing financial obligation, but rather the ability of a customer to meet his routine business obligations, and they are sometimes related to specific contracts. Such activities,

2 However, some warranties and indemnities have the character of guarantees and should be treated as credit substitutes (full risk).

taken in aggregate, do not appear to have involved banks in significant losses, and might therefore be regarded as bearing a medium risk. In one or two countries, however, banks have suffered losses from performance bonds and their supervisors may consider that the risk is a full one.

28. The term "*endorsement*" has a different meaning in different markets, so it is necessary for banks to distinguish the essence of the transactions. A clean "per aval" endorsement, for example, is very similar to an acceptance and as such carries full credit risk. Where, on the other hand, a bill has already been accepted by another bank - and there may also be other banks' names on it - the credit risk may be regarded as low, although not negligible, and is essentially a bank risk.

(ii) Commitments

29. Here it is helpful to attempt a distinction between those commitments which are *in practice* binding on a bank in all circumstances ("*irrevocable commitments*") and those from which a bank could withdraw without penalty - notably in the event of a deterioration in the credit quality of the potential borrower ("*revocable commitments*"), although it is recognised that this distinction may be difficult to operate in practice in some circumstances. In drawing the boundary between revocable and irrevocable commitments, it is probably imprudent to place too much reliance on material adverse change clauses and other similar protective devices - they have mostly not been put to the test and may well prove to offer little protection from a deteriorating credit risk in practice.

(a) Irrevocable commitments

30. In principle these can be divided into two distinct categories:

- irrevocable commitments with certain exercise or draw-down (but not necessarily a certain date of draw-down), where it is known in advance that the commitment will definitely be taken up in full; here the bank is effectively exposed to full credit risk;
- irrevocable commitments with uncertain draw-down, where draw-down is entirely at the discretion of the other party and it is unclear both whether and to what extent the credit exposure will actually materialise; in such cases, the probability and likely timing of any draw-down as well as the likely quality of the asset at the time of draw-down need to be taken into account.

Some types of irrevocable commitments are available with certain or uncertain draw-down.

31. *Asset sale and repurchase agreements* ("*repos*") are very frequent arrangements in some countries, mainly for treasury management purposes, and are becoming more common in others, as lending becomes increasingly "*securitised*". Where the asset in question is certain to come back to the selling bank at some predetermined date, the credit risk on the asset sold remains essentially with the selling bank (i.e. a full risk). An additional credit risk arises from

the possibility of the failure of the counterparty to the repo, often a specialised security dealer. The potential size of this latter exposure will depend inter alia on the type of security "repoed", the arrangements for margin and interest payments, the maturity of the repo and movements in market prices. The exposure here is the net cost of replacing the particular asset "repoed" should the counterparty default. The principles of replacement cost risk are outlined in paragraph 37 below. *Outright forward purchases* are much less common than repos, but the credit risk is in principle the same (i.e. a full risk). It is not considered prudent to offset forward sales against forward purchases in assessing credit risk unless the transactions are with the same party, and even here there may be legal issues to be considered.

32. *Forward forward deposits* at predetermined interest rates are becoming less common as banks are using forward rate agreements instead. The bank which has contracted to place the deposit is fully exposed to credit risk vis-à-vis the counterparty. For the bank which has contracted to receive the deposit, failure to deliver by the counterparty will result in an unanticipated change in a bank's interest rate exposure (as well as a funding problem) and may involve a replacement cost. Its exposure should therefore be accorded the same treatment as interest rate related transactions (see section (iii) below).

33. *Partly-paid shares and securities* payable in predetermined instalments are not commonly encountered in most countries, but in the United Kingdom Government securities are sometimes issued in partly-paid form with fixed payment instalments laid down at the time of issue and this technique is used from time to time in the Euro-bond market. Since draw-down is certain, commitments of this nature bear full credit risk. In the recent past, floating rate notes have been issued in partly-paid form with further calls at the discretion of the issuer and it is possible that use of such instruments may increase. Since in this latter case it is not known whether and when such calls may be made, commitments of this nature bear an indeterminate credit risk of similar nature to NIFs and RUFs (see paragraph 35 below).

34. Unconditional *standby facilities* and other similar commitments to lend involve a credit risk but the size of the ultimate exposure may vary while the quality of the exposure will depend on the circumstances in which the facility is likely to be drawn. The credit risk for the bank may be regarded as medium if there is a reasonable probability that only a part of the commitment will ever be drawn.

35. A similar kind of risk arises in the underwriting of *NIFs* and *RUFs*. Here, credit exposure for the underwriter materialises when the market will no longer purchase or accept an issuer's paper within an agreed price range. However, the risk is significantly higher than with conventional underwriting since the commitment customarily supports continuous short-term issues over an extended period of years. Moreover, if drawn upon, the bank is likely to be required to take on a credit risk which has already been turned down by others. In some countries, such commitments are regarded as the equivalent of guarantees. There is a balance to be struck between the possibility that only a relatively small proportion of the aggregate commitments may be drawn, and the likelihood that any assets acquired under such

commitments may well be sub-standard, having already been turned down by others. In present circumstances, the credit risk would appear to be at least of a medium nature, but since experience with these instruments is still limited this assessment will need to be reviewed in the light of market developments. As an additional control on these exposures, banks might wish to set an overall limit on the total of such commitments which they are prepared to accept.

(b) Revocable commitments

36. Items such as *credit lines* and undrawn *overdrafts* are not binding obligations on the banks and, since the bank retains absolute discretion to withdraw the commitment in the event of a credit deterioration, there is no immediate credit risk. However, if banks are to be able to take full advantage of this discretion, they will need to have efficient systems to monitor the evolving creditworthiness of their counterparties.

(iii) Foreign exchange, interest rate and stock index related transactions

37. In these transactions the bank is not exposed on the whole of the underlying principal of the transaction except when settlement becomes due for those transactions involving an exchange of principal. In the case of counterparty failure the bank is left with an unexpected or unintended foreign exchange or interest rate position which it can in theory close out at a cost (or a profit) with another counterparty. The credit exposure can be measured as the cost of replacing ("replacement cost") the stream of cash flows at current market rates. The problem is that this cost will fluctuate depending, inter alia, on the maturity of the contract outstanding and the actual level of interest rates and exchange rates at any time. This presents a new type of risk measurement problem. Whereas with conventional on-balance-sheet exposures the maximum size of a potential loss is relatively simple to calculate (principal plus overdue interest), for these instruments it is not possible to forecast the potential loss with any degree of accuracy.

38. Nonetheless, bankers need to estimate the potential credit exposure arising from these transactions in order to comply with credit limit constraints and to be able to price the deal correctly. Current best practice is to estimate the maximum likely replacement cost on a cautious basis using data on past (and projected future) interest rate and foreign exchange rate volatility. The most active banks are already doing this. Banks are advised to build a cautious bias into their estimates and to revalue their portfolio of such instruments regularly to ensure that they are not underestimating counterparty credit exposure.

39. Where these instruments are used as a hedging mechanism (either to hedge other swaps, for example, or a range of market position risk exposures deriving from either on- or off-balance-sheet items), a bank will only be exposed if one counterparty to the hedge defaults. In the unlikely event of both counterparties defaulting simultaneously the bank would notionally have a flat position (although much depends on how a swap claim by or against a liquidator or receiver would be handled and there is at present insufficient

experience of this). In considering the gross volume of a bank's swap book on a portfolio basis, this will need to be taken into account, along with any legally-enforceable netting arrangements banks may have with particular counterparties. Where banks follow the cautious approach outlined here, the resulting total of replacement cost exposures may be regarded as subject to medium credit risk.

40. Where banks trade in options, futures or other similar contracts through exchanges, the credit risk may be felt to be lower both because of the margining requirements of the exchanges and (for clearing members) the fact that contracts are held directly with the exchange. However, the credit risk should not be regarded as negligible.

(iv) Advisory, management and underwriting functions

41. Banks engage in a range of fiduciary and agency functions which involve them in possible claims for negligence or breach of fiduciary obligations. Such activities cannot be regarded as involving a credit risk as such, but rather form part of the operational and control risks (see Section IV below) where a bank's reputation and standing may be at stake.

42. Securities underwriting poses a particular problem because, although the exposure is often very short-term, it can be very large in relation to the underwriter's capital base. The risk is essentially one of misjudgement of market price, where the underwriter suffers a loss in placing the paper, rather than that of the outright failure of a company whose prospectus has just been prepared. Nonetheless, given the size of issues underwritten, losses from mispricing can be substantial. While it may be reasonable at present to regard underwriting as one of the activities which come under the general heading of operational and market price risk rather than as a readily quantifiable credit risk, if securitisation of conventional balance-sheet lending continues to grow, credit risk may become a more significant factor in such underwriting. In addition, under the laws of some countries, an underwriter may be liable for failure adequately to ascertain and disclose to investors material information pertaining to the issuing company or the securities being issued. If there is any default by the issuing company or decline in the market price of the securities as a result of adverse financial results within a short time after the underwriting, investors are likely to seek to hold the bank underwriter liable.

Control of large exposures

43. In most countries banks are subject to guidelines or limits on "large exposures" and, even where there are no specific limits, banks are still expected to diversify their risk in a prudent manner. The present scale of off-balance-sheet activities is such that banks can very easily become excessively exposed to a single counterparty (or associated group of counterparties), perhaps without realising it. Off-balance-sheet exposures should be included in a systematic manner in banks' internal counterparty limits. A cautious approach to counterparty exposure measurement is appropriate since the objective is to limit the impact

that the failure of a single customer might have on a bank's solvency. Thus it is considered that both contingent liabilities and commitments, whether revocable or not, should be included on a gross basis within counterparty limits, since in all cases they represent levels up to which the bank is currently prepared to commit itself. For foreign exchange, interest rate and stock index related transactions, an estimate for the "replacement cost" of an exposure (see paragraph 38) should also be included. It is difficult to take account in a systematic manner of counterparty exposures in respect of securities underwriting, but it is suggested that banks should decide on a maximum figure beyond which they will not commit themselves.

Settlement risk

44. In many cases a bank will pay away funds, foreign exchange or securities before it can be certain that it will receive the proceeds due to it under the deal being settled (particularly - but not only - when an operation is being conducted in two different time zones). Limits designed to capture and control settlement exposure should encompass the settlement risk arising from off-balance-sheet business.

Country risk

45. Country risk is another aspect of banking risk within which off-balance-sheet exposures need to be considered. A paper by the Committee on this issue, which was given wide circulation in 1982, referred explicitly to the need for banks to identify their true exposure with regard to off-balance-sheet activities. A comprehensive country risk monitoring system should clearly encompass contingent liabilities, irrevocable commitments and certain market activities such as swaps and foreign exchange positions.

IV. Banks' management and control of their off-balance-sheet exposures

46. Whatever operations they undertake, banks run the risk of losses arising from any failure to apply adequate control systems. This is taken to include the principles of dual control, separation of function and sanctioning of exposure limits as well as the more general aspects of audit, risk control and management information systems. Without effective central risk control systems, senior managements of banks will have no sound basis for monitoring, controlling or planning the different types of exposure reviewed in this paper; and without accounting systems which enable independent checking and reconciliation procedures to be carried out on a routine basis, the detection of potential losses will be very difficult and the risk of fraud will increase.

47. These considerations apply to the whole of a bank's business, but off-balance-sheet activities raise particular difficulties in view of the complexity of many of the instruments. Moreover, the absence of the discipline (in accounting terms) imposed by a balance-sheet asset gives rise to the risk that bank managements may not retain sufficient

control over the exposures and that auditors will not pay enough attention to the activities involved. The highly competitive environment and the speed with which many innovations are introduced also pose problems for control systems and banks should ensure that their traders do not engage in innovative transactions before limits and proper control systems are in place. Indeed, bank boards need formal written policies to govern all trading activities. While the ability to make quick decisions is undoubtedly a key factor in the current environment, banks may need to re-examine the structure of their risk assessment and accounting systems, as well as current management procedures, in order to ensure that decisions are taken with an informed appreciation of the risks.

48. The risk from inadequate control is bound to grow as the markets become increasingly complex. Systems should ensure that all facilities, whatever their nature, are properly sanctioned within limits agreed at a senior level, that all actual or potential exposures are capable of being independently verified, that exposures to individual counterparties are considered in aggregate and regularly reviewed, and that other aspects of risk exposure (e.g. to sectors, countries, particular markets, and to foreign exchange and interest rate movements) are centrally monitored. In those cases where credit exposures vary in line with foreign exchange and interest rate movements (see section (iii) above), it will also be necessary to revalue the exposure regularly to establish whether actual exposures remain within the limits used for credit sanctioning purposes. Since some of the innovations, particularly options, are crucially dependent on computer systems, banks need to have access to adequate backup facilities in the event of computer breakdown. Both internal and external audits should encompass the monitoring of system adequacy including the technical competence of the personnel involved, as well as considering the actual risk exposure figures at particular points of time.

49. It is not sufficient, however, to concentrate on the specific risks of individual instruments. Central coordination and control of the totality of the risk involved in trading in a variety of different instruments is also important because of the linkages between them. This is no easy task. Since it is obviously more difficult for banking groups with extensive decentralised branch networks and extended corporate structures to coordinate their operations than for single compact units, attention also has to be paid to the need for high standards of group control and for a worldwide consolidated approach to the supervision of risks, both on and off the balance sheet.

V. The role of the supervisor in monitoring off-balance-sheet exposures

50. The particular perspective of supervisory authorities in relation to off-balance-sheet risk is to seek to ensure that banks are adopting appropriate procedures to measure and control the risks. The Committee sees three main elements in the development of supervisory approaches to off-balance-sheet risk.

51. The first element is for supervisors to keep abreast of new developments by engaging in dialogue with banks and other interested parties. An earlier version of the glossary attached to this report has already been used by some supervisory authorities, both within the Group of Ten and outside, in bilateral discussions with banks.

52. The second element is to review prudential reporting systems to ensure that all major off-balance-sheet activities are adequately captured in supervisory returns. Existing reporting systems in most countries do not at present capture with sufficient precision the range of different off-balance-sheet engagements. One purpose of the glossary of terms attached, which is divided into different categories of risk, is to facilitate drawing up reporting definitions and to provide a common framework within which different countries may introduce the degree of detailed reporting they require. The glossary has deliberately been structured to cater both for a relatively simple approach - in which different instruments and techniques would be captured under broad headings encompassing essentially the same risk - and also a more complex approach - which would permit more detailed reporting within the broadly defined categories of risk. The intention is that new techniques should be capable of being captured within supervisory reporting systems with the minimum difficulty and delay. Whatever degree of detail is deemed necessary in different countries, supervisory authorities in the Group of Ten intend to review their existing systems of reporting as a matter of urgency to ensure that they adequately capture the full range of different off-balance-sheet activities in which banks are involved.

53. The third element is to review supervisory policies to ensure that they take full account of developments in off-balance-sheet business. The analysis set out in this paper gives an indication of supervisory thinking at this stage. At national level, supervisors are giving particular consideration to the modifications which may be needed to their measurement of capital adequacy in respect of some of the most significant off-balance-sheet activities, perhaps weighted according to the degree of perceived risk. They will endeavour to ensure that any measures they introduce are sufficiently flexible and robust to be able to incorporate new instruments which may subsequently be devised. It is recognised, however, that it will not be possible to construct a supervisory approach which is wholly comprehensive and that supervisors will have to continue to make qualitative judgements about some of the activities in which banks engage.

Glossary of terms

I. Guarantees and similar contingent liabilities

These are the more traditional off-balance-sheet exposures, where a bank has underwritten the obligations of a third party and *currently* stands behind the risk. Default by a counterparty on whose behalf a guarantee has been written may trigger an immediate loss, or, more usually, will result in the bank acquiring a sub-standard claim. Many of these items are direct credit substitutes. Examples (and definitions) of the more typical types of exposure falling under this heading are given below.

1. *Guarantee* An undertaking by a bank (the guarantor) to stand behind the *current* obligations of a third party and to carry out these obligations should the third party fail to do so, e.g. a *loan guarantee* under which A makes a loan to B against a guarantee of repayment provided by bank C.
2. *Acceptances* An obligation by a bank to pay on maturity the face value of a bill of exchange, normally covering the sale of goods.
3. *Transactions with recourse* An arrangement whereby a bank sells a loan or other asset to a third party, but retains an obligation to assume the credit risk if the borrower defaults or the value of the asset otherwise deteriorates. Typically, these involve the sale of assets previously owned by the bank ("*asset sales with recourse*"). They may also take the form of "*put options*", where the holder of the asset is entitled to "put" the asset back to the bank if, for example, the credit quality deteriorates.
4. *Standby letters of credit* An obligation on the part of the bank to a designated beneficiary to perform or provide compensation under the terms of the underlying contracts to which they refer, should the bank's customers fail to do so. The underlying contracts may involve either financial or non-financial undertakings, e.g. the customer's payment of commercial paper, delivery of merchandise or completion of a construction contract. The range of obligations encompassed under this heading can be very wide, from a conventional guarantee to a commitment to take up commercial paper. If the customer fails, the bank may have a preferential claim on its assets.
5. *Documentary letters of credit* A letter of credit guaranteeing payment by the issuing or opening bank in favour of an exporter against presentation of shipping and other documents. When issued by an importer's bank it may be "confirmed" by an exporter's bank. Confirmation provides an additional guarantee of payment. These instruments are more familiarly known as *commercial letters of credit* in the United States.

6. *Warranties and indemnities* A counter-guarantee provided by a bank that a customer will pay compensation if goods or services (including financial contracts) provided to a third party do not meet the terms specified in a contract, e.g. *performance bonds*. Also, any general guarantee that a customer will make payment to a third party in specific circumstances, e.g. *customs and tax bonds*.
7. *Endorsements* A guarantee (or warranty) to pay, on maturity, the face value of a bill of exchange (e.g. by endorsing it "per aval"). Certain types of endorsement used in some countries are effectively acceptances. It has, however, become routine in many countries, when a bill is discounted in the market, for a seller to add his endorsement. In the event of a default by the other parties (drawer, acceptor and previous endorsers, if any), the endorser as a previous holder may be called upon to make payment on the bill.

II. Commitments

Here a bank has committed itself to a future transaction that will normally result in the bank acquiring a credit exposure (either an asset or possibly a guarantee) at some future date. In some cases the commitment is binding on both parties and there may be a predetermined date on which it must be exercised. In other cases the commitment is binding on the bank alone and the other counterparty may choose whether or when to ask the bank to fulfil its commitment. Under some such commitments the bank will only be called upon to advance funds or provide a guarantee in circumstances where other parties have refused to do so (e.g. Revolving Underwriting Facilities). Finally, there are the looser commitments where a bank has agreed a line of credit or an overdraft facility, but has the right to withdraw the facility in certain circumstances (in particular where there has been a deterioration in the credit quality of the potential borrower).

(The borderline between the various types of commitment, particularly those which are *in practice* irrevocable, i.e. unconditional and binding in all circumstances, and those which may be revoked by a bank, may be unclear. Nonetheless, it is a distinction which the Committee found helpful in its deliberations.)

Irrevocable commitments

1. *Asset sale and repurchase agreements* An arrangement whereby a bank sells a loan, security or fixed asset to a third party with a commitment to repurchase the asset after a certain time, or in the event of a certain contingency.
2. *Outright forward purchases* A commitment to purchase a loan, security or other asset at a specified future date, usually on prearranged terms.
3. *Forward forward deposits* An agreement between two parties whereby one will pay and the other receive an agreed rate of interest on a deposit to be placed by one party with

the other at some predetermined date in the future. Such deposits are distinct from forward rate agreements (see III.5. below) in that with forward forwards the deposit is actually placed.

4. *Partly-paid shares and securities* Where only a part of the issue price or nominal face value of a security purchased has been subscribed and the issuer may call for the outstanding balance (or a further instalment), either on a date predetermined at the time of issue, or at an unspecified future date.
5. *Standby facilities* An unconditional commitment to lend when the borrower makes a request under the facility. This includes *bank standby facilities* and (in the US) *irrevocable revolving lines of credit*.
6. *Note Issuance Facilities (NIFs) and Revolving Underwriting Facilities (RUFs)*. An arrangement whereby a borrower may draw down funds up to a prescribed limit over an extended period by repeated issues to the market of, for example, three or six-month promissory notes. If at any time the notes cannot be placed in the market at a minimum price, a group of underwriters undertakes to buy them at a prescribed price. The contingent risk to banks arises from their role as underwriters of such issues. There are many variants of RUFs including *Transferable RUFs (TRUFs)* and *Multiple Component Facilities* under which the borrower may draw funds in a variety of ways (including Euro-notes, short-term advances and bankers' acceptances). A *Roly-Poly CD facility* involves the issue of CDs on a similar basis to NIFs.

Revocable commitments

1. *Credit lines* An uncommitted facility line opened up by one bank in favour of another bank or customer. In some centres such lines are usually unadvised.
2. *Undrawn Overdraft Facilities* Reviewable borrowing facilities under which funds borrowed are technically repayable on demand.

III. Foreign exchange, interest rate and stock index related transactions

These items are essentially interest rate, foreign exchange rate or stock-index agreements, in most cases binding on both parties but in some cases exercisable at one party's discretion (e.g. options). With the exception of currency swaps, no exchange of principal is generally involved. Where the transaction is unhedged, the bank is exposed to movements in interest rates, exchange rates or stock indices. Whether the transaction is unhedged (i.e. designed deliberately to open up an exposure) or hedged (to neutralise a position exposure), the bank is vulnerable to the creditworthiness of the counterparty (the ability to carry out its side of the contract) and will be exposed to an unexpected or unintended exposure should the

counterparty default. This exposure can in theory be measured in terms of the cost of replacing the stream of cash flows lost as a result of counterparty default.

1. *Forward foreign exchange transactions* A contract to pay and receive specified amounts of one currency for another at a future date at a predetermined exchange rate. Default by one party prior to maturity exposes the other to an exchange risk.
2. *Currency and interest rate swaps* In a currency swap two parties contract to exchange the cash flows - of equal net present value - of specific assets or liabilities which are expressed in different currencies. In the classic (widely known as "plain vanilla") interest rate swap two parties contract to exchange interest service payments (and sometimes principal service payments) on the same amount of indebtedness of the same maturity and with the same payment dates one providing fixed interest rate payments in return for variable rate payments from the other and vice versa. "Basis swaps" (floating rate swaps based on different indices, e.g. prime against LIBOR) and combined interest rate and currency swaps ("circus swaps") are also common and there are numerous variations resulting in highly complex swap transactions involving many counterparties. Banks frequently act as intermediaries between participants in these transactions and either guarantee each principal against the default of the other or themselves act as principals between the two parties, entering into matched transactions with each. In some cases banks may wish to transform the currency or interest rate structure of their own book by entering into a swap transaction without a second offsetting transaction with another party. The risks to banks arise from taking on positions by entering into such swaps and from the possibility that default by a counterparty will open up unexpected or unanticipated foreign exchange or interest rate exposures during the life of the swap.
3. *Currency futures* These are exchange-traded contracts for the delivery of a standardised amount of foreign currency at some future date. The price for the foreign currency is agreed on the day the contract is bought or sold. As with forward contracts, gains or losses are incurred as a result of subsequent currency fluctuations. Unlike forward markets, however, futures contracts are tradable reflecting the standardisation of contract size, specification and delivery date. Exchanges require daily marking-to-market for gains and losses.
4. *Currency options* An option contract allows the holder to exchange (or equally to choose not to exchange) a specific amount of one currency for another at a predetermined rate during some period in the future. For the institution writing the option the risk lies in its exposure to movements in the exchange rate between the two currencies (a market risk). For a bank buying an option the risk lies in the ability of the counterparty to perform (a credit risk). Options may be contracted "over-the-counter"

(i.e. directly between counterparties) or via recognised exchanges. The latter have standardised terms and delivery dates and are tradable.

5. *Forward rate agreements* An agreement between two parties which is similar to a forward deposit except that on maturity no deposit is placed by the one party with the other, but instead a cash settlement is made for the difference between the contracted rate of interest and the current market rate.
6. *Interest rate futures* Similar to currency futures, except that the contracts are for delivery of a standardised amount of a specified security, normally Treasury bills, government bonds or bank CDs. Gains or losses are incurred as a result of subsequent changes in interest rates.
7. *Interest rate options* Similar to currency options. The buyer of the option has the right (but not the obligation) to lock into a predetermined interest rate during some period in the future (typically LIBOR or the price of a US Treasury security). As with currency options the instrument may either be traded "over-the-counter" or exchange traded (in the latter case they are expressed either as an option on a security or on a futures contract). The buyer of an interest rate option is exposed to the ability of the counterparty to perform. The writer is exposed to interest rate movements. Some interest rate options are sold as a package with capital market instruments, e.g. capped FRNs (where there is an absolute upper limit on the interest rate payable on the FRN). *Interest rate guarantees* (IRGs) (also known as *interest rate capping agreements*) are also a form of interest rate option. In these arrangements an institution, for a fee, guarantees the interest rates on a loan which can be made by another institution. A "collar" is similar to a "cap", except that the interest rate is subject to a floor as well as a ceiling. IRGs can also be sold quite independently of any underlying loan and can be written either as a lender's or as a borrower's guarantee.
8. *Stock index futures* Similar to currency and interest rate futures, except that the basis for the contract is a stock index (e.g. Standard & Poor's or Financial Times). Gains or losses are incurred as a result of movements in the index.
9. *Stock index options* Similar to currency and interest rate options, except that stock index options are generally exchange-traded instruments, although in principle there may be no reason why they should not be contracted "over-the-counter". The option gives the buyer the right to take a cash profit on movements in a specified stock index or to purchase or sell a stock index future (futures option).

IV. Advisory, management and underwriting functions

1. *Fiduciary services, e.g. trust funds, portfolio management* Assets legally the property of customers and other parties but managed by a bank, sometimes on the basis of

discretion in the choice of investments. If losses occur due to the bank's negligence or malpractice, the bank may be legally obliged to reimburse customers or may feel obliged to do so in order to protect its reputation.

2. *Agency functions* A bank, for a fee, acts as agent for one of its customers. For example, a borrower under a syndicated credit or capital market instrument will typically appoint an agent to administer the loan. The bank will be legally liable if losses occur due to its negligence.
3. *Counter trade (or bartertrade)* Two or more parties agree to exchange goods or merchandise, with a bank acting as an intermediary. The bank will be liable in the case of incompetence. It may also have a more direct exposure if it has provided guarantees (often secured on the underlying goods) to any counterparty.
4. *Safe-keeping of securities* A bank, for a fee, undertakes to hold and to service stocks, bonds or money-market instruments. The bank will be liable for negligence, for example, if it fails to collect due dividend or interest payments and to present the instrument at maturity.
5. *Securities underwriting* The underwriter undertakes to take up the whole or a pre-agreed part of a capital market issue at a predetermined price. The major risk is that the underwriter will be unable to place the paper at the issue price or better because of an unfavourable movement in prices resulting from changes in interest rates, an unforeseen political or economic event, a misjudgement of the market price or (less likely) a sudden deterioration in the perceived credit quality of the issuer or the issuer's country of origin. The exposure is often very large relative to the size of the underwriting bank but (provided none of the events outlined above occurs) generally very short term.