

# Derivatives – Bank Activities and Supervisory Responses<sup>1</sup>

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## Introduction

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In March of this year, Barings Bank Plc collapsed as a result of losses incurred by its subsidiary, Barings Futures (Singapore), on equity derivatives positions taken on the Singapore and Osaka futures exchanges. This episode follows several well publicised losses associated with derivatives which involved other financial institutions and some corporate and government bodies abroad. These losses have refocused attention on the risks involved in derivatives activities and on the responses of supervisory agencies.

This article offers some comments on derivatives from the perspective of the Reserve Bank, in its capacity as supervisor of the Australian banking system. First, it looks briefly at the functions of derivatives and the risks associated with them. Second, it summarises developments in the Bank's supervision of derivatives activities, referring to international initiatives where relevant. Finally, it mentions some issues relating to the financial system as a whole.

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## Derivatives – Roles and Risks

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In simple terms, derivatives are financial contracts the values of which depend on the value of some other instrument or asset. They fall into a number of broad categories – such as forward rate agreements, futures, swaps and options – but are all constructed from one of two basic building blocks:

- the forward contract, which is an agreement to buy or sell a commodity or financial instrument at a particular price at some time in the future; and
- the option contract, which gives the purchaser the right, but not the obligation, to buy or sell an asset at some time in the future.

Simple derivatives have been a feature of the financial landscape for many years (centuries in fact), but their growth and development have been rapid over the past decade. This has reflected two main factors:

- increased volatility of prices in cash and other markets which has created a demand by financial institutions, private companies

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1. For background on the growth of Australian derivatives markets and the banks' derivatives activities refer to 'Australian Banks' Activities in Derivatives Markets: Products and Risk-Management Practices', September 1994, and 'Supervision of Banks' Derivatives Activities', August 1993, both of which appeared in the *Bulletin* for the months indicated.

and public sector bodies for instruments which help in the management of their exposures to price movements; and

- on-going innovation in financial markets (supported by developments in computer technology) which has led to an increase in the range and complexity of financial instruments and in the capacity of markets to handle large trading volumes.

Derivatives, of themselves, do not add to the risks associated with fluctuating market prices. Rather, they permit those risks to be transformed and transferred in ways that were not readily available, or not available at all, previously. Transactions in derivative products can be characterised as ‘zero-sum games’ where those seeking to reduce their risk exposure (to, for instance, a rise in the exchange rate) pay another party to accept that risk. The second party may have a different perception of the risk or greater tolerance of it. The presence of both parties, ‘sellers’ and ‘acceptors’ of risk, is necessary for an effective and efficient hedging market. Derivatives clearly contribute to the efficiency of the financial system to the extent that they allow the shifting of risks to those more able and willing to bear them.

As the largest group of financial institutions, banks have always played a prominent role in the derivatives market. They use derivatives extensively to manage the risks in their trading activities, as well as in their more traditional borrowing and lending activities. The funding of medium-term fixed rate loans with short-term deposits, for example, exposes banks to movements in the differential between long-term and short-term interest rates. Similarly, differences in the currency composition of banks’ assets and liabilities expose them to the possibility of significant losses in the event of foreign exchange fluctuations. Banks can use derivatives to offset, or at least limit, such risks and protect their incomes from the effects of volatility in financial markets.

Banks also use derivative products to provide risk management services to their customers. Sometimes, where the bank chooses to be the risk ‘acceptor’, this will leave it with a risk exposure; in other cases, the bank

will match this risk by an offsetting derivatives position with another customer. On occasions banks might also choose to ‘accept risk’ in their own right when they feel that a market price is likely to move one way or another. Such activities are a natural extension of the traditional business of banks, which includes the provision of specialist financial services and the acceptance of risk at a price.

Such activities in derivatives markets need not be viewed as fundamentally different from banks’ other activities. Ultimately, the important issue for banks – and for their supervisors – is how well they identify and measure the risks arising in the totality of their activities, and how prudently those risks are priced and managed.

Derivatives do, however, warrant particular attention. The main reason is that many of them – especially the more exotic varieties – are complex and can be difficult to value and to hedge. It can be difficult also to measure the extent to which the risks in some products are correlated with the risks in others. Because of such complexities, the *operational* risks (ensuring control over payments flows, preventing fraud, maintaining the integrity of accounting systems) in a sophisticated trading operation can be substantial. This raises the possibility that banks could find themselves with unanticipated types and amounts of risk. Another problem is that, because of their newness, there are unresolved issues in the legal and accounting treatment of derivatives which might expose banks to risk.

It is, in part, because of these characteristics of derivatives that so much supervisory attention is being given to the adequacy of banks’ risk management systems (see next section).

Through its prudential supervision of banks, the Reserve Bank oversees a high proportion of activity in derivatives, although that activity does extend significantly beyond the banking system. Problems with derivatives could arise elsewhere in the financial system and could spread to other sectors, including banks. While this can be true of financial activities generally, some features of derivatives – such as the complex linkages they can create between

markets and the possibility of liquidity drying up if a major participant got into difficulty – are thought to pose particular risks to financial system stability.<sup>2</sup> This potential puts a premium on effective co-ordination among the various regulatory agencies and self-regulatory bodies with an interest in derivatives (including in other countries), and on mechanisms which would help reduce the spread of a problem in one area to others. These points are taken up in the final section.

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## Bank Supervision and Derivatives

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### Capital Requirements

A fundamental element of bank supervision is the requirement that banks have shareholders' funds and other capital commensurate with the risks in their business. Since 1988 Australian banks have had to hold a minimum amount of capital against the risks of *counterparty failure* in derivatives trading, as part of the international Capital Accord on credit risk. Over recent years, the Basle Committee on Banking Supervision has been working to expand these capital adequacy arrangements to cover also the risks arising from *price movements* as they apply to banks' trading activities in debt instruments, equities, commodities and their foreign exchange exposures. This would include all related derivatives exposures.

Draft proposals for a capital charge related to market risk were released by the Basle Committee for public comment in April 1993. They were subjected to extensive analysis and testing internationally, including in Australia. The Reserve Bank also sought comments from Australian banks. A detailed submission, setting out the Bank's views on the proposals was provided to the Basle Committee in January 1994;<sup>3</sup> we endorsed strongly the

general thrust of the proposals, but made a number of recommendations regarding their detail.

The Basle Committee further developed and refined its proposals, taking into account comments from supervisors and banks, and issued a revised set of guidelines in April 1995. Unlike the earlier version, the latest version includes an option which, subject to some quite stringent qualifications, will permit banks with sophisticated management systems for market risk to use those systems (rather than the standard model) to determine a capital charge for supervisory purposes. After a brief period for final comments, these proposals are expected to be finalised at the end of 1995, with a 'settling in' period of up to two years for banks to comply fully.

The Bank has distributed the new proposals to Australian banks and will be holding discussions with them on questions of detail, and on the approach to be followed in implementing these domestically.

### On-Site Visits

Recognising the importance of sound management systems, in 1994 the Bank commenced a program of on-site visits to banks which have focused on how they identify, measure and manage market risks, including derivatives.

The program involves a team from Bank Supervision Department visiting banks on a regular basis and holding detailed discussions with senior management in trading and treasury operations, and in other areas which have responsibility for the management of market risk in the balance sheet as a whole. The operation of the various trading desks (money market, fixed interest, foreign exchange) is typically one focus of attention, as are the various operational and back office areas of the banks' trading operations. Given the differences in size, structure and business activities of the banks operating in the

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2. The Bank for International Settlements has been looking at these systemic issues. See, for example, 'Recent Developments in International Interbank Relations', Report prepared by a Working Group established by the Central Banks of the Group of Ten Countries, Basle, October 1992.

3. This submission is available on request from the Bank.

Australian market, the scope of visits is tailored to the bank under review. The visit program has three main objectives:

- for supervisors to learn more about banks' risk management methodologies and their practices in relation to market risks;
- to help the Bank to determine the approach it will adopt on the proposed capital standards on market risks; and
- to ensure, as far as possible, that banks have in place systems and controls to address the market-related risks that they face in their derivatives and other activities. Where this is not the case, we will be seeking corrective action.

The program is still building up but, by the end of 1995, it is expected that around 20 banks – including all the major participants in derivatives – will have been covered, with the remainder scheduled for 1996.

Some additional reassurance in this area comes from the examination of banks' trading areas by internal and external auditors. Under established arrangements, external auditors of banks are required, for example, to give an opinion to the Reserve Bank on the adequacy of their internal management systems and controls; in particular, they advise on whether the banks' management systems to control and limit credit, liquidity and foreign exchange risks are effective and are being observed. Consideration is currently being given to commissioning more detailed reports from auditors on particular aspects of banks' systems.

### **Improvement of Operational Risk Controls**

Despite the technical complexity of derivatives, the failure of basic operational controls seems to have been the main cause of many losses in derivatives dealing, including by Barings. In the normal course of our supervisory work, the Bank receives descriptions of the risk management systems in place at each bank. These, and the results of the survey conducted in April last year (see below), form the starting point for our discussions on operational risk issues during

an on-site visit. These discussions also draw on the guidelines for 'best practice' procedures in managing derivatives risk issued in July 1994 by the Bank for International Settlements. While these guidelines are not applicable in their entirety to all banks – because of the different scope of their operations – they constitute a framework with which all banks should broadly conform.

The proposed capital standards for market risk will provide an additional incentive for banks to strengthen their operational risk controls. Only those banks able to demonstrate that their market risk measurement procedures are of an adequate standard will qualify to use their own models as a basis for calculating relevant capital requirements; such banks will avoid the costs of parallel systems to report their risk exposures.

### **Improved Information on Banks' Derivative Activities**

Because derivatives markets have developed so rapidly and are not well covered by traditional statistics, discussion internationally has emphasised the need for improved data, both qualitative and quantitative, on such matters as the products used and offered by banks, the maturity profile of derivative instruments, types of counterparties engaged by banks in these activities, the extent of product innovation taking place within the market, and the concentration of derivatives risks in the banking system.

The Bank has collected some data from banks on their off-balance sheet activities (of which derivatives now form the bulk) since 1986. The Bank also conducted a survey of banks' derivative activities as at the end of March 1994; the results were analysed and distributed to banks, and a summary of the main findings was published in the September 1994 issue of the *Bulletin*.

As well as adding to our knowledge about the size and structure of the derivatives market, that survey established that, broadly speaking, banks had reasonable controls in place to manage their derivative activities. There was, however, some unevenness in

practice and one of the objectives of the program of visits to banks is to follow up on such points.

The Bank co-operated with the Bank for International Settlements in the preparation of an international survey of derivative markets which was conducted in April 1995. This sought detailed information on products used, the counterparty breakdown and maturity structure of banks' derivatives trading; it also covered non-bank financial institutions as well as banks. The results of this survey are expected to be available later this year.

### **Improving Disclosure in Published Financial Accounts**

In addition to the need of regulatory authorities for improved data on derivatives activities, investors and others in the markets would be assisted by better information when assessing the soundness of banks and other institutions. Under current accounting conventions, derivatives do not appear on the balance sheet but their presence 'off-balance sheet' can alter significantly the overall risk profile of an institution. In the absence of improved accounting standards, the current and potential exposures faced by an institution can be difficult for investors to assess, especially for those relying solely on published financial statements. While levels of public disclosure by banks have generally improved in recent times, there is still some way to go.

In October 1994, the Bank for International Settlements (BIS) issued a paper<sup>4</sup> on disclosure with a series of proposals which was intended as a catalyst for further discussion. These proposals envisage information being provided by financial institutions on current exposures to derivatives, the potential for further exposure to risk should market prices fluctuate significantly, the extent to which revenues of an institution have been derived from derivatives activities, and the volatility of derivatives-based revenues.

The Bank is keen to promote discussion on

improved disclosure of derivatives in published financial accounts and, to that end, it has circulated the BIS discussion paper to banks. Several banks have provided feedback and others are likely to do so in the near future: these submissions will be analysed and discussed with the industry, which is itself moving in the same direction. In time, the Bank could use the BIS recommendations, together with the outcome of its discussions with banks and accountants, to encourage more openness by Australian banks in their public disclosures about derivatives.

### **Financial System Issues**

Efforts to ensure that the substantial potential benefits from derivatives are maintained, while the risks are contained, are not confined to the Reserve Bank's supervision of the banking system. The use of derivatives is widespread in the financial system and a number of regulatory agencies and self-regulatory bodies are involved. These include the Australian Securities Commission, which has responsibility for promoting efficient and fair markets in financial products including derivatives, and the Insurance and Superannuation Commission, which supervises the use of derivatives in its area of responsibility. Self-regulatory bodies include the futures and stock exchanges which monitor the activities of brokers and seek to promote efficient and fair trading.

Many financial institutions use derivatives and the potential always exists for a particular difficulty to be spread through exposures to other market participants. It is essential, therefore, that the responsible regulatory bodies co-ordinate their supervisory activities, both to try to head off problems, and to co-operate effectively in the event of a problem occurring. The Council of Financial Supervisors, which was established in 1992

4. 'Public Disclosure of Market and Credit Risks by Financial Intermediaries', a discussion paper prepared by a Working Group of the Euro-Currency Standing Committee of the Central Banks of the Group of Ten Countries, Basle, September 1994.

and plays a co-ordinating role generally in the financial system, is currently reviewing the adequacy of existing procedures and lines of communication for dealing with a Barings-type situation in Australia. In the Bank's view, the Council is well placed to perform this role: it brings together the main supervisors involved and its basic rationale is to achieve high-level co-ordination so that the whole financial system is supervised efficiently and fairly.

The Council is also expected to participate in the review of law on derivatives being conducted by the Companies and Securities Advisory Committee (CASAC) for the Attorney-General. This Committee is charged with the task of recommending appropriate protection for participants in Australian derivatives markets while at the same time encouraging the benefits of a free, innovative and competitive market. A particular issue is the appropriate degree of supervision and investor protection which should apply to derivatives trading where parties with different degrees of sophistication are involved. In the interests of efficiency, scope also appears to exist to rationalise the present array of distinctions made in the law between derivatives products and markets.

A sub-committee of CASAC has been established to investigate the legal support for certain forms of bilateral *netting* of credit exposures. An important element in reducing the risks of counterparty failure in derivatives transactions is the existence of appropriate documentation for derivatives contracts, as well as effective bilateral netting arrangements. Netting allows offsetting transactions between two counterparties to be set off, one against the other, so that the net obligation between the two can be expressed as a single figure. The significance is that in the event of a default or failure by one of the parties, that net amount, not the gross obligations, becomes

the amount due and payable. If netting arrangements can be made effective under bankruptcy, then it could lead to significant reductions in the risk arising from a given volume of derivative transactions. The Bank is participating in the CASAC sub-committee which is to examine the viability of netting in the Australian market and recommend specific legislative changes which are required to give it effect.<sup>5</sup>

The Bank is also promoting reforms to minimise the likelihood of financial disruptions, whether arising in derivatives markets or elsewhere, being communicated more broadly through the payments system. It is, in particular, exploring a proposal for interbank settlements to be conducted on a real time gross basis so that unsettled exposures do not accumulate as under the present system.

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## Conclusions

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Derivatives do not, of themselves, create any additional risks. Rather, properly handled they provide a means for managing risks which already exist and which have tended to increase as markets have become more volatile. Some recent experiences demonstrate, however, that they do need to be properly understood and carefully managed by all the parties involved.

Perhaps the main threat to systemic stability from derivatives is the threat to liquidity in the event of a serious problem occurring in one part of the system. This threat can be addressed by ensuring that all participants adopt sound risk management practices, and by modernising the infrastructure of financial markets (including the legal framework, and the payments and settlements arrangements).

5. As part of its on-going analysis of bilateral netting arrangements, there also has been extensive technical work carried out, aimed at determining how netted exposures, should they eventually be permitted and incorporated within the Australian capital adequacy framework, should best be measured. A submission was made on this subject to the Basle Committee on Banking Supervision in April 1994. More details of this work are presented in Gizycki, M. and B. Gray (1994), 'Default Risk and Derivatives: An Empirical Analysis of Bilateral Netting', Research Discussion Paper No. 9409.

The initiatives being undertaken by the Bank, and by bank supervisors in other countries, to address concerns about derivatives, has led to some significant changes in the structure of supervisory arrangements and practice. Internationally, the expansion of the capital adequacy framework will represent a major step forward. The Reserve Bank's program of visits to banks is a further significant development in supervisory practice.

Improved supervisory arrangements can play a role in reducing the probability of problems arising, and in limiting the severity of any problems that do emerge. Notwithstanding such improvements, however, no amount of supervisory or regulatory oversight can be expected to

provide total protection against the possibility of problems arising within banks or other financial institutions as a result of derivative or any other activities.

The central tenet of the Bank's supervisory philosophy is that the prime responsibility for effective management of banks, and for the introduction of systems which effectively control or limit risk, rests with the bank itself, its management and its board. In the light of Barings and other recent episodes involving derivatives, it is not surprising that the boards and managements of banks have been reviewing their current practices and, where necessary, taking steps to upgrade those practices. It is the Bank's role to see that this process is on-going.