SURVEYS ON RISK MANAGEMENT OF DERIVATIVES

This article reports the findings of a questionnaire survey which sought to establish the extent to which authorised institutions active in derivatives activities are already complying with the Monetary Authority's guideline on "Risk Management of Financial Derivatives Activities". The survey results suggest that the majority of institutions have reasonable controls in place, but the Monetary Authority will hold follow-up discussions with some of them. A further review of internal controls has been undertaken following the Barings incident.

Introduction

The Monetary Authority circulated to all authorised institutions in December 1994 a guideline on "Risk Management of Financial Derivatives Activities". A questionnaire was issued with the guideline to institutions conducting a material volume of derivatives business to establish the extent to which these institutions are already complying with the recommendations.

The collapse of Barings in February has demonstrated that, without adequate internal controls, well established banking institutions can be brought down by imprudent derivatives transactions and that basic internal controls such as segregation of duties between front office and back office cannot be taken for granted. As an initial response to the aftermath of the Barings case, the Monetary Authority asked authorised institutions in early March to conduct an immediate review of their internal control systems in respect of their trading in derivatives.

This article explains the scope of the review on internal controls following the Barings incident and reports the major findings of the questionnaire survey on risk management of derivatives.

Review of Internal Controls

The Barings case reinforces the need for institutions to ensure that they are complying with the recommendations set out in the Monetary Authority's guideline and in the guideline of the Basle Committee on Banking Supervision on which it is based. Such guidelines set out the basic principles of a prudent system of internal controls over derivatives activities which include:

(i) appropriate oversight by boards of directors and senior management;

(ii) adequate risk management process that integrates prudent risk limits, sound measurement procedures and information systems, continuous risk monitoring and frequent management reporting; and

(iii) comprehensive internal controls and audit procedures.

While other factors such as adequate capital are important, the fundamental requirement is that institutions should have in place a prudent system of internal controls to protect them adequately against the risk arising from their trading in derivatives.

For this purpose, the Monetary Authority issued a letter to authorised institutions in early March asking those which are themselves involved in the trading of derivatives and locally incorporated institutions which have subsidiaries engaging in the trading of derivatives to undertake an immediate review of their internal control systems in respect of their own trading or, where relevant, that of their subsidiaries. Such institutions were required to complete the review, which may be conducted by internal or external auditors, within four weeks and to report the findings in a report covering:

(i) the nature of the institution's (or subsidiary's) trading in derivatives;

(ii) the nature of the internal controls which are in place; and

(iii) an evaluation of the effectiveness of such controls and details of any weaknesses identified.

Authorised institutions' attention was drawn to eight sets of questions which the Monetary Authority expects that Chief Executives of institutions should be taking into account in studying the implications of the Barings collapse and in conducting the review of internal control systems.

Questions that Chief Executives of Authorised Institutions should be asking themselves:

(i) Is senior management of the authorised institution fully aware of the trading strategy of its dealers and is that strategy consistent with the policy guidelines laid down by management and the board of directors?

(ii) Is senior management able to exercise effective control over trading activities conducted in separate subsidiaries? Are reporting lines from such subsidiaries to the authorised institution clearly defined?

(iii) Is senior management fully aware on a daily basis of the risk exposure incurred by its dealers? Does it have the ability to monitor the growth in gross positions as well as in net exposure and to react promptly to sudden growth in the former?

(iv) Is senior management able to monitor separately trades for the institution's own account and those for customers? Is it aware of both trades on licensed exchanges and over-the-counter trades?

(v) Is there adequate segregation of duties between the trading function (front office) and the confirmation, settlement and accounting functions (back office)?

(vi) Is there a separate risk and credit controller who reports independently on trading activities to senior management?

(vii) Does senior management monitor the funding by the institution of trading activities, including margin payments, in subsidiaries or sister companies? Are limits set on such funding? Are there procedures for prompt investigation of breaches of limits and/or sudden growth in the volume of such funding?

(viii) Does senior management have effective means of ensuring that the effectiveness of internal controls is reviewed in a timely manner by internal auditors with the appropriate expertise? When was the last such review conducted? Have the recommendations of that review been implemented?

Authorised institutions which fund subsidiaries or sister companies which trade in derivatives were also asked to review and report their funding policy, limits and monitoring systems for such exposures. Other institutions which do not themselves trade in derivatives, either directly or through subsidiaries, and which do not fund such activities in other group companies were also required to confirm those facts in writing to the Monetary Authority. They were asked to consult the Monetary Authority before entering into trading or funding activities.

It has been emphasised that this is an interim response to the issues raised by the Barings case. The Monetary Authority intends to issue further guidelines on trading in derivatives which will take account, among other things, of the full report on the Barings case when that becomes available and of the results of the survey on authorised institutions' compliance with the guideline on "Risk Management of Financial Derivatives Activities" which was issued in December 1994.

Survey on Risk Management Practices

The results of this survey have now been analysed and the major findings are set out below.

The surveyed group comprised 53 authorised institutions (20 locally incorporated institutions and 33 foreign bank branches). These institutions accounted for 88% of the banking sector's total notional value of foreign exchange and interest rate related contracts outstanding as at the end of 1994.

The questionnaire mainly sought information on the risk management policies and practices being adopted by these institutions. Specifically, it covered the following aspects:

(a) Purpose and role of the institutions' derivatives activities

(b) Management oversight

(c) Measurement of risks

(d) Limiting of risks

(e) Reporting

(f) Internal audit.

The results of the survey are set out in the Appendix. The major points are highlighted below.

Purpose and role of authorised institutions' derivative activities

- Broadly speaking, institutions involved in derivatives activities fall into two main categories : dealers and end-users. The former market derivatives products to customers and will usually also trade for their own account. The latter trade only for their own account, either to take positions or for hedging purposes.

- The two categories may be further subdivided depending on the type and volume of activities conducted. Tier I dealers provide quotes to other market professionals (as well as to customers). On the basis of the survey, 25 institutions or 47% of the survey group fall into this category. These institutions may be regarded as forming the core of the banking sector's involvement in the derivatives market in Hong Kong.

- Tier II dealers provide quotes only to customers or are less active. They make up the next largest group (36%).

- End-users may also be divided into active position-takers (11%) and more limited end-users (6%). The latter primarily use derivatives as an investment alternative or for hedging purposes to manage interest rate or foreign exchange risk.

- Despite the different roles played by institutions, the majority (55%) regard "hedging" as their "most important" derivatives activity. While 77% engage in "position-taking" of one form or another, only 15% regard it as most important. Most institutions tend to use mature, relatively simple products with only a minority who develop new products (36%) or who use complex products (32%).

- As regards development trends, over 60% of the surveyed institutions regarded their derivatives activities as either "Very Important" or "Important" to their overall business in Hong Kong. Over 45% of the respondents expected their derivatives activities to grow "Very Significantly" or "Significantly" in the next twelve months.

Management oversight

- Nearly 90% of the institutions had written policies and procedures on risk management of derivatives although in only 26 cases had such policies been formally approved by the board of directors. Oversight of derivatives activities by the board of directors is one of the key recommendations of the Basle Committee. Lack of approval of policies by the board does not in itself indicate that the policies are deficient. But it does suggest a lack of involvement by the board which should be addressed. All institutions involved in the development of new products had a formal system to assess the risk and system requirements before entering into new derivatives products or markets.

- 98% of the institutions had an independent risk management function for monitoring the risks associated with derivatives.

- 49% of institutions link the remuneration package of the trading personnel to the achievement of profit targets for the derivatives business. This practice is a potential area of risk if profit targets are set too aggressively.

Risk Measurement

- The majority (91%) indicated that their risk management process for derivatives had been integrated into their overall risk management system. A smaller number (85%) measured risk exposures arising from derivatives and non-derivatives activities on a consolidated basis for each major type of risk. The vast majority (89%) marked the trading portfolio to market on a daily basis.
- About two thirds of the institutions used "value at risk" models to measure the market risks of derivatives transactions.
- Less than half of the institutions conducted stress analysis or had derivatives-related contingency plans as part of the risk management process. Again, this is an area where action appears to be required.

Limiting risks

- The majority (90%) of the institutions indicated that they had set limits for each major type of risk in derivative activities, had integrated such limits with the institution-wide limits on these risks, and had established procedures to detect, report, and approve limit excesses.
- However, a substantial number of institutions (32%) only used notional contract value instead of risk exposures based on the mark-to-market replacement cost and potential future exposures as the basis for setting pre-settlement credit exposure limits. Some 10% also used notional contract value as the sole basis for setting limits on market risks.
- A majority (55%) of institutions do not seem to have addressed the potential liquidity risks arising from early termination of derivatives contracts by counterparties.
- 80% of the institutions involved in providing quotes to customer had policies and procedures to ensure that their counterparties had the authority to enter into derivatives transactions and that the counterparties' obligations were enforceable. However, a smaller percentage (73%) appear to have policies and procedures to verify that their customers have the capacity to understand the risks involved and only 50% provide customers with sensitivity analyses and regular mark-to-market valuations.

Reporting

- 83% of the institutions surveyed indicated that their senior management received reports on risk exposures and performance of derivative transactions on a daily basis.
- All institutions which were dealers reported on the above to managers who supervised, but did not themselves conduct, dealing operations and 80% of these institutions made such reports on a daily basis.

Internal audit

- The survey found that some institutions' internal audit function in respect of derivatives activities had room for improvement : 30% of the institutions conducted internal audit on the risk management process for derivative activities at frequencies longer than 1 year or only on an ad hoc basis. 21% of the institutions indicated that their internal audit function was not staffed by personnel with specialist knowledge of derivatives products.

Follow-up action

Overall, the survey results suggest that the majority of the institutions surveyed have reasonable controls in place to manage the risks associated with their derivatives activities. The practices adopted were broadly in line with the key principles recommended by the Basle Committee and the Group of Thirty.

However, the survey has also identified some instances where risk management systems and practices appear to fall short of the standards recommended in the guidelines of the Monetary Authority and the Basle Committee. As institutions in the survey group generally expect their derivatives business to grow significantly in the near future, it is important that they should ensure that their risk management systems are commensurate with the nature and size of their derivatives activities. The Monetary Authority will hold follow-up discussions with those institutions where measures to improve their risk management processes and internal control systems appear to be called for.

Other Policy Initiatives on Derivatives

Apart from the above survey, the Monetary Authority has launched a number of other initiatives to strengthen the supervision of authorised institutions' derivative activities. A series of visits to the treasury departments of the more active participants in the derivatives market is underway to acquire more in-depth knowledge of the risk management practices adopted by such institutions. The results will provide useful input for the further guideline on derivatives which will focus on the operational aspects of risk management of derivatives.

The Monetary Authority is also keeping closely in touch with developments on market risks proposals in Basle and Europe, and will consider how and when such proposals should be implemented in the local capital adequacy framework. Meanwhile, the recognition of bilateral netting for capital adequacy purposes will be implemented once the necessary amendments to the legal framework have been effected. The disclosure requirements in respect of authorised institutions' derivatives transactions are being considered by the HKMA Working Party on Financial Disclosure and will form part of the package for the 1995 accounts. The staff resources in the Monetary Authority for the supervision of authorised institutions' derivative activities will be strengthened with the creation of additional posts to form a specialist team on derivatives which will comprise experts in financial model analysis and derivatives products.

– Prepared by the Banking Policy Department

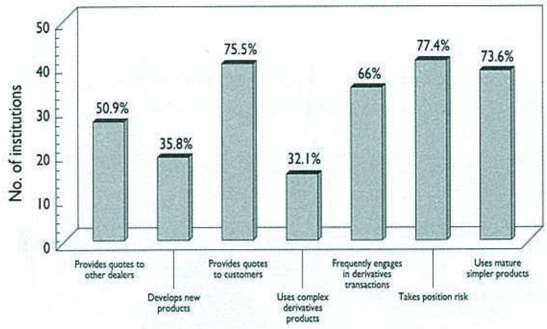
Appendix

HONG KONG MONETARY AUTHORITY

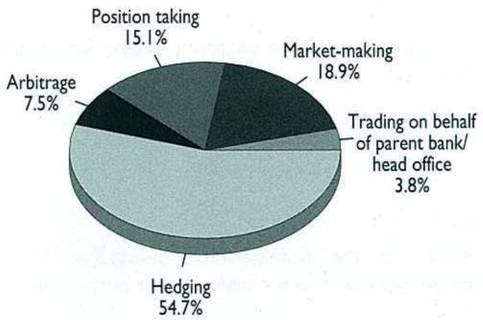
SURVEY ON DERIVATIVES RISK MANAGEMENT PRACTICES

(a) Purpose/Role of the Institution's Derivatives Activities

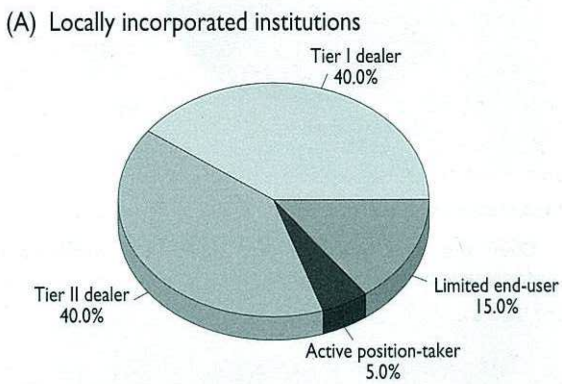
1. Which role(s) are played by your institution in derivatives activities?

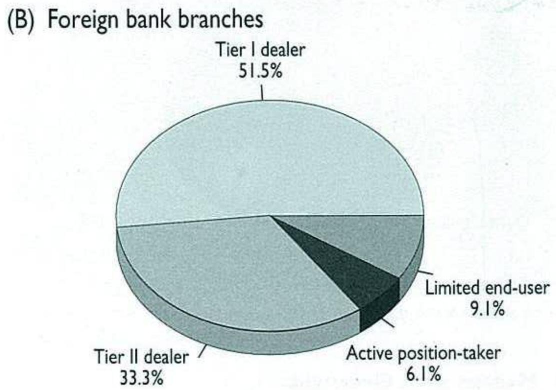


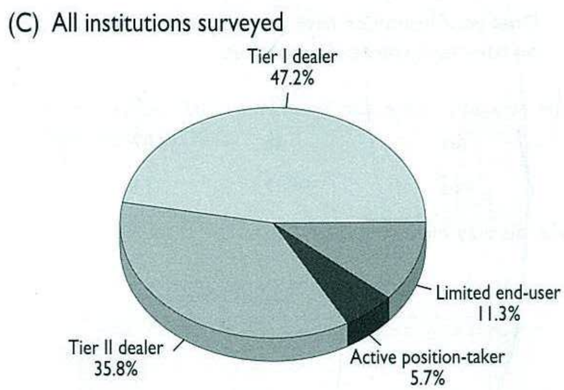
2. Which aspect of your institution's derivatives activities is regarded as most important?



Roles taken by institutions in derivatives activities







Definitions:

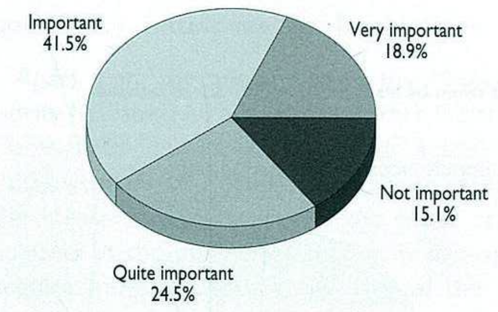
(a) Tier I dealers provide quotes to other dealers and frequently engage in derivatives transactions.

(b) Tier II dealers provide quotes only to customers. (Include also those dealers who quote to other dealers but do not frequently engage in derivatives transactions.)

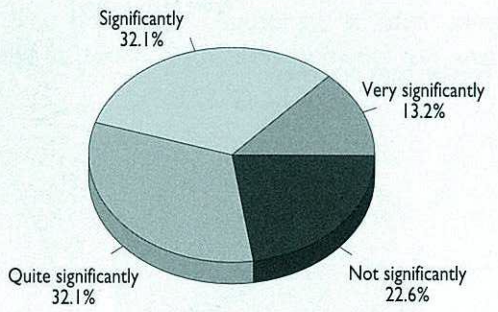
(c) Active position-takers frequently engage in derivatives transactions for their own account, including the taking of position risk.

(d) Limited end-users do not frequently engage in derivatives transactions.

3. Would you describe your institution's derivatives activities as...



4. Over the next year do you think your institution's derivatives activities will grow...

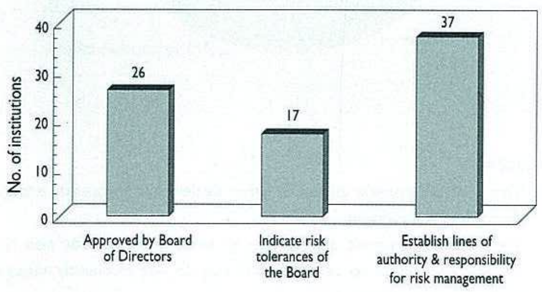


(b) Management Oversight

5. Does your institution have written policies and procedures on risk management of derivatives

	No.	%
Yes	46	87
No	7	13

If yes, do they satisfy the following?



6. Does your institution have a formal system to assess risk and system requirements before entering into new derivatives products or markets?

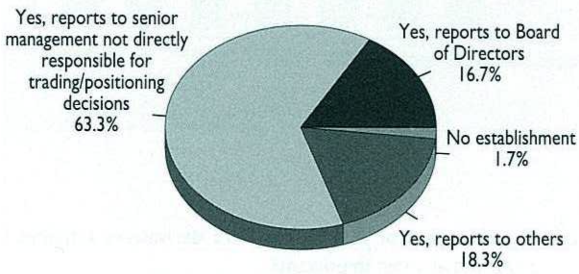
For institutions involved in developing new products

	No.	%
Yes	19	100
No	0	0

For institutions not involved in developing new products

	No.	%
Yes	26	76
No	8	24

7. Does your institution have an independent risk management function for monitoring risks associated with derivatives?



8. Does your institution set profit targets for its derivatives business?

	No.	%
Yes	32	60
No	21	40

If yes, is the remuneration package of the trading personnel linked to the achievement of the profit targets?

	No.	%
Yes	26	81
No	6	19

(c) Risk Measurement

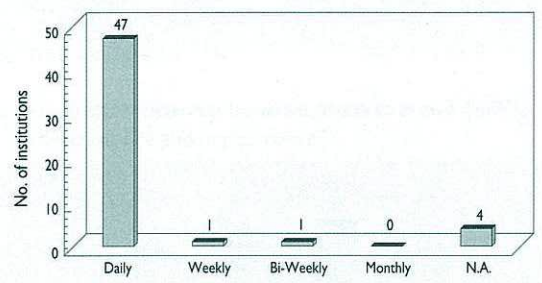
9. Is the risk management process for derivatives integrated into your institution's overall risk management system?

	No.	%
Yes	48	91
No	5	9

10. Are risk exposures arising from derivatives and non-derivatives activities measured on a consolidated basis for each major type of risks?

	No.	%
Yes	45	85
No	8	15

11. How often does your institution mark the trading portfolio to market?

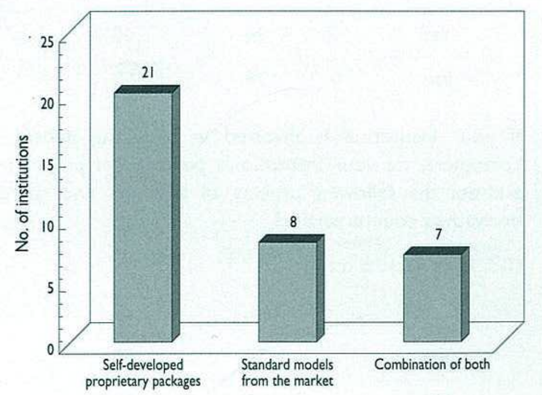


"N.A." represents institutions which do not take position risk

12. Does your institution use value at risk model(s) to measure the market risks of derivatives transactions?

	No.	%
Yes	36	68
No – building block approach	4	8
– others	13	24

– If yes, what is the source of the model(s) used?



13. Does your institution conduct stress analysis?

	No.	%
Yes	26	49
No	27	51

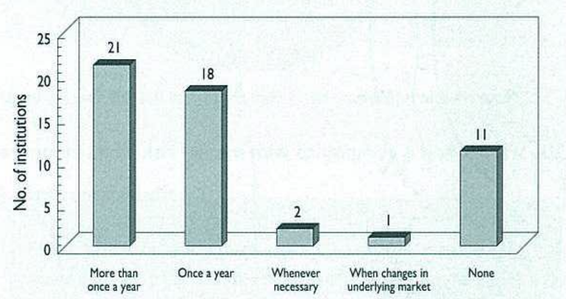
14. Does your institution have a contingency plan to deal with possible adverse events relating to derivatives business?

	No.	%
Yes	26	49
No	27	51

15. Does your institution have proper documentation of the methodologies, models and assumptions used to measure risk and to limit exposures of its derivatives activities?

	No.	%
Yes	42	79
No	11	21

16. How often does your institution review the methodologies, models and assumptions?



(d) Limiting Risks

17. Does your institution set limits for each major type of risk involved in derivatives activities?

	No.	%
Yes	50	94
No	3	6

If yes, are the limits integrated with your institution-wide limits on these risks?

	No.	%
Yes	45	90
No	5	10

18. Does your institution have established procedures for the following?

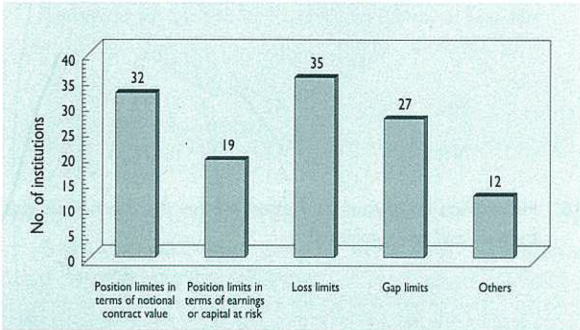
– detection and reporting to senior management of contravention of established limits?

	No.	%
Yes	52	98
No	1	2

– approval by authorised personnel of derivatives transactions that exceed the established limits?

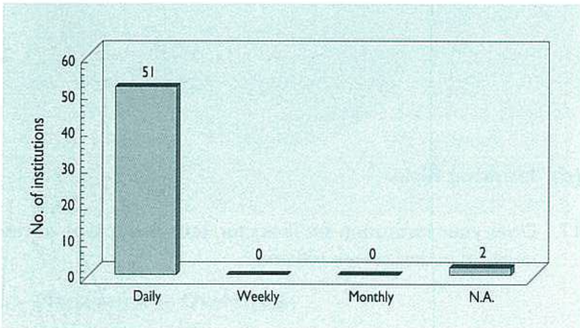
	No.	%
Yes	48	91
No	5	9

19. What is the basis of the limits set to contain market risk?



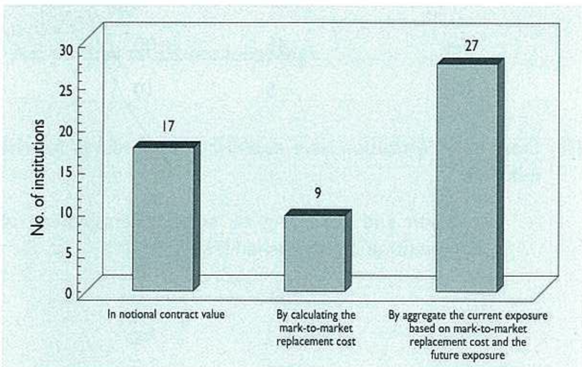
Note: Some institutions use a combination of the different methods

20. How often is compliance with market risk limits monitored?

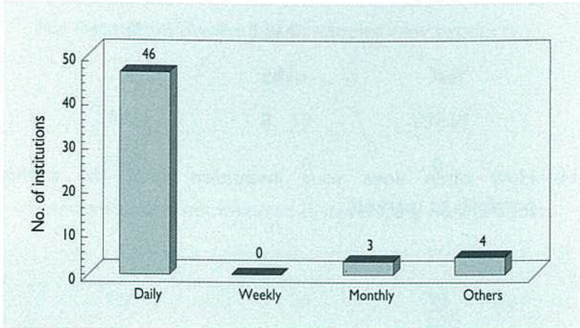


"N.A." represents institutions which do not take position risk

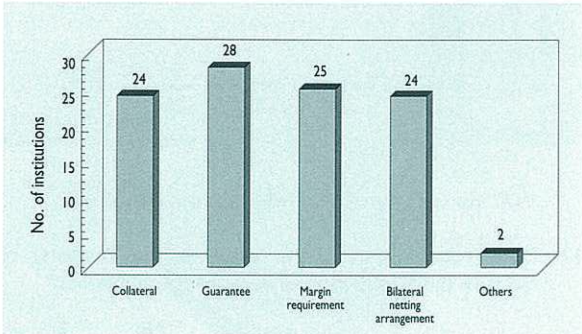
21. How are pre-settlement credit exposure limits measured and monitored?



22. How often are credit risks associated with derivatives monitored?



23. Which forms of credit enhancement are adopted?



Note: Some institutions use a combination of the different methods

24. Are the potential liquidity risks from early termination of derivatives contracts by counterparties addressed in your institution's overall liquidity planning and management?

	No.	%
Yes	24	45
No	29	55

25. If your institution is involved in providing quotes to customers, do your institution's policies and procedures address the following aspects of potential and current derivatives counterparties?

(i) Authority to trade

	No.	%
Yes	32	80
No	8	20

(ii) Capacity to understand the risk involved

	No.	%
Yes	29	73
No	11	27

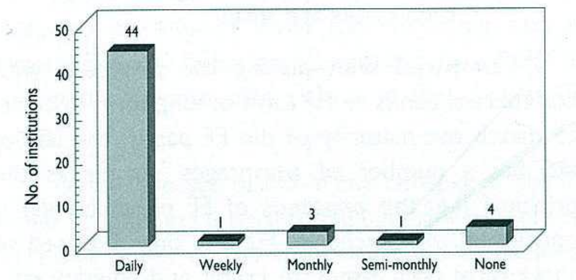
(iii) Provision of sensitivity analyses and regular mark-to-market valuations

	No.	%
Yes	20	50
No	20	50

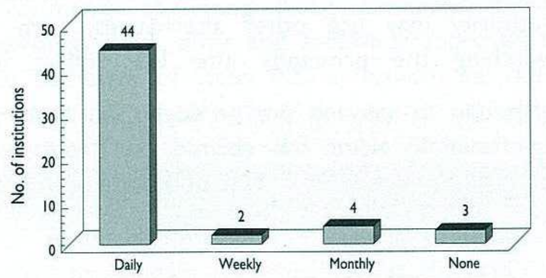
(e) Reporting

26. How often does senior management receive reports on risk exposure and performance?

Risk exposure



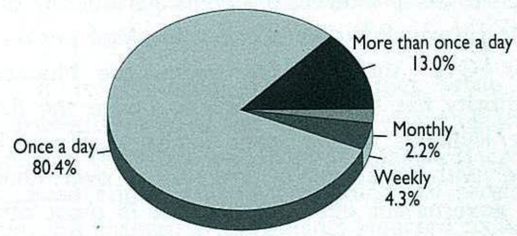
Performance



27. If your institution is a dealer in derivatives, are risk exposures and profit and loss statements reported to managers who supervise but do not themselves conduct dealing operations?

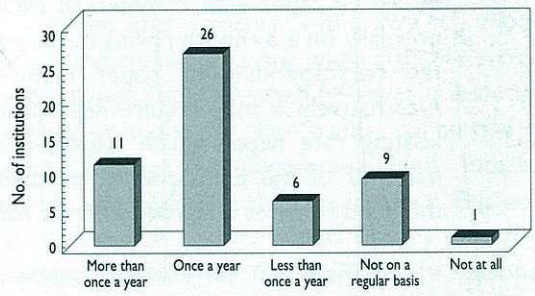
	No.	%
Yes	44	100
No	0	0

If yes, how frequently are such reports made?



(f) Internal Audit

28. How often is the effectiveness of your institution's risk management process in respect of derivatives reviewed by internal auditors?



29. Is the internal audit function involved in the derivatives products development process at an early stage?

	No.	%
Yes	31	58
No	22	42

30. Is the internal audit function staffed by personnel with specialist knowledge of derivatives products?

	No.	%
Yes	42	79
No	11	21