This module should be read in conjunction with the Introduction and with the Glossary, which contains an explanation of abbreviations and other terms used in this Manual. If reading on-line, click on blue underlined headings to activate hyperlinks to the relevant module.

Purpose

To specify the components of systems that AIs should have to administer, measure and monitor their credit portfolios

Classification

A statutory guideline issued by the MA under the Banking Ordinance, §7(3)

Previous guidelines superseded

This is a new guideline.

Application

To all AIs

Structure

1. Credit administration
   - 1.1 Main functions
2. Credit measurement
   - 2.1 Accounting policies
   - 2.2 Credit risk measurement
   - 2.3 Internal risk rating systems
3. Credit monitoring
   - 3.1 Monitoring systems and procedures
   - 3.2 Management information systems
   - 3.3 Stress-testing

1. Credit administration

1.1 Main functions

1.1.1 AIs should have a designated department dealing with the administration of their various credit risk bearing portfolios.

1.1.2 In addition to delivering customer services such as the disbursement of loans, settlement of transactions, advising customers of interest rate fixing and sending out renewal notices, the Credit Administration Department also performs the following important control and risk management functions:

- ensuring that new credit applications have been properly approved;
- entering facility limits promptly and accurately into the computer system;
- preparing loan documentation (loan agreements, guarantees, transfers of title to collateral to the AI, etc.);
- arranging for the safe custody of important legal documentation;
- verifying customers' authority to borrow;
- conducting valuation of collateral;
- effecting liens on deposits;
- checking whether drawdowns have been approved;
- arranging funding and coordinating with the Treasury function to fix interest rates for loan disbursements;
- keeping track of customers' compliance with credit terms;
- monitoring the receipt of repayments;
- identifying early signs of delinquency or irregularity;
- obtaining customers' current financial information;

- keeping credit files complete and up to date; and
- producing management information on the credit portfolio.

1.1.3 AIs should ensure that the Credit Administration Department carries out its functions effectively through regular independent audits.

1.1.4 The custody of key documents, the disbursement of funds and the entering of limits into the computer database should be kept independent of the credit initiation, approval and review functions.

2. Credit measurement

2.1 Accounting policies

2.1.1 Credit exposures should be accounted for in accordance with generally accepted accounting principles in Hong Kong (Hong Kong GAAP) and subject to the reporting and regulatory requirements, e.g. on provisioning, of the HKMA. Details of Hong Kong GAAP to be applied are beyond the scope of this Manual. AIs should consult their external auditors in case of doubt.

2.2 Credit risk measurement

2.2.1 An AI's senior management should develop, with the support of its risk management function, policies, methodologies and procedures, subject to approval by the Board of Directors, for the measurement of credit risk. The approach adopted should align with the nature, size and complexity of an AI's activities.

2.2.2 For monitoring to be effective the approach should cover all credit exposures. AIs should therefore develop a system or methodology, such as the calculation of credit equivalent amounts, for quantifying the credit risk of all on- and off-balance sheet products, including derivatives, on a consistent basis.

2.2.3 In most cases, credit risk equates to the nominal amount of a loan. The methodology should also, however, cover the case of facilities with uncertain drawdowns or where

the amount of risk varies over time in line with market conditions.

2.2.4 The approach should take into consideration maturities. In the case, for example, of two loans equal in all other respects (same borrower, amount, etc.) but with differing maturity dates, the longer-term loan should be considered riskier.

2.2.5 Where appropriate, exposures may be netted so that the amount of risk is not overstated, provided that this is supported by legally enforceable netting agreements. Similarly, account may be taken of any credit risk enhancement methods which have been utilised (see subsection 6.3 of CR-G-1 "General Principles of Credit Risk Management" on risk mitigation) to avoid overstating exposure.

2.2.6 The methodology should permit the AI to measure exposure by counterparty groups, by industry, by country and by other meaningful aggregations.

2.2.7 AIs should make use of internal credit ratings to measure counterparty risk. Subsection 2.3 discusses this in more detail. It is recommended that AIs develop expected default rates, aligned to their internal risk rating categories and derived from their historical experience, to quantify the likelihood of default. These can then be factored into their calculation of net return on facilities to produce the risk-adjusted return.

2.2.8 As regards off-balance sheet exposures, credit risk measurement should take account of current exposure, potential future exposure (discussed below), pre-settlement and settlement risk.

2.2.9 Potential future exposure means the estimated future cost of replacing transactions with positive value to the lender, i.e. what the loss might be if an obligor defaults at any stage of a transaction's life. Simulations or scenario analysis can be used for this, taking into account market volatility and portfolio effects. Alternatively, pre-determined credit conversion factors (as used for the purposes of completing the Return of Capital Adequacy Ratio) may be used to provide a rough approximation of future credit exposure.

2.2.10 Risk measurement of portfolios should take account of:

- types of facility;
- terms (repayment schedules, interest rates, etc.);
- the portfolio's maturity profile;
- the degree to which exposures are secured and the type of collateral;
- internal credit ratings;
- potential changes in internal credit rating over the life of individual loans in the portfolio; and
- outstandings against limits.

2.3 Internal risk rating systems

2.3.1 AIs are encouraged to develop and use an internal risk rating system for managing credit risk.

2.3.2 Credit risk rating assigned to customers should cover all on- and off-balance sheet credit exposures of the AI to the relevant customers. For facilities managed on a portfolio basis such as consumer loans, mortgages and credit cards, it is acceptable to employ an automatic rating system based on a pre-determined set of objective rating criteria, e.g. past account performance.

2.3.3 Credit risk rating should in general be based on the underlying credit-worthiness of the borrower, taking into account the financial strength of the guarantor(s), collateral pledged and the risks of specific transactions.

2.3.4 There are many variants of internal risk rating systems. The HKMA does not propose to prescribe any standards at this stage. AIs are, however, encouraged to adopt a system which can map with, but is more sophisticated than, the 5-grade loan classification system currently employed for regulatory reporting. In particular, AIs are recommended to adopt multiple grades for credits that are not yet irregular and to be able to track the migration of individual credits through the various grades. This will facilitate the early identification of deteriorating credits so that corrective actions can be taken to minimise credit losses.

2.3.5 Properly developed internal risk rating systems can also facilitate internal capital allocation, determination of risk-adjusted return on the portfolio, risk-adjusted pricing, migration analysis and stress-testing.

2.3.6 There should be arrangements for a periodic review of the appropriateness of the internal risk rating system and the validity of grading criteria by the middle office and the Credit Committee.

3. Credit monitoring

3.1 Monitoring systems and procedures

3.1.1 As compared with periodic credit reviews, credit monitoring refers to the day-to-day monitoring of the performance of individual credits and of the overall portfolio. This process is carried out at different levels. Individual account monitoring is performed by the marketing or account officers in the front office while the middle or back office units are involved with more high-level monitoring of the credit portfolio. See para. 2.1 of CR-G-1 "General Principles of Credit Risk Management" on this allocation of responsibilities.

3.1.2 AIs should have documented systems, procedures and processes for monitoring regularly the performance, quality and condition of individual credits and of the overall portfolio.

3.1.3 The objectives of monitoring are to ensure that:

- credits are being serviced in compliance with facility terms, including meeting contractual requirements such as observing covenants and maintaining collateral;
- early signs of delinquency are detected to facilitate prompt remedial action and thus to minimise losses;
- management reports are made of any form of default, breach of covenant or irregularity and of the effectiveness of remedial actions already taken;

- facilities granted to individual customers, groups of related customers and at the total portfolio level, including various types of concentration risks, are within the limits and parameters set by the credit risk strategy and policy;
- regulatory limits are complied with;
- provisions are realistically determined; and
- the Credit Committee or senior management is able to monitor the overall quality of the total credit portfolio, identify trends and reassess the appropriateness of the credit risk strategy and policy.

3.1.4 The system should define criteria for identifying and reporting credits whose internal credit rating might need to be downgraded or upgraded.

3.1.5 There should be standard monitoring procedures which provide guidance on:

- which officers are responsible for monitoring. Where front-line monitoring is carried out by the account officers their work should be checked periodically by independent parties, e.g. Internal Audit, to ensure there is adequate segregation of duties and sufficient checks and balances;
- the frequency of monitoring. The frequency will depend on the nature of the exposure. Some exposures (e.g. share margin financing) should be monitored daily, others less frequently;
- the periodic checking of collateral valuations (in particular, the current value of properties and shares);
- the frequency of site visits; and
- the identification of any changes in the borrower's capacity to repay.

3.1.6 AIs should establish monitoring systems appropriate to their organisation structure and the volume and complexity of their credit activities. The following is a list

of recommended monitoring procedures that they may wish to consider:

Procedures	Proposed Frequency	Performed by
At individual facility level:		
Keeping regular contact with customers (including site visits and meetings)	On-going	Front office
Following up documentation deficiencies	Daily	Back office
Reviewing exceptions and overdue accounts	Daily	Middle office
Monitoring compliance with credit facility terms	On-going	Middle office / Back office
Monitoring compliance with internal and regulatory limits	Daily	Middle office / Compliance unit
Identifying and following up outstanding credit reviews and expired facilities	Weekly	Back office
Performing collateral revaluation		
- stocks and shares	Daily	Back office
- real estate (classified accounts)	Quarterly	Back office
Reviewing adequacy of provision for individual accounts	Monthly	Middle office / Senior management / Credit Committee
Monitoring performance of large exposures	On-going	Middle office
Following up customers for late payments	Daily	Front office / Back office
Taking remedial action for loan recovery	On-going	Front office (less serious) / Middle office
At portfolio level:		
Performing portfolio analysis and risk assessment by:	Monthly	Middle office
- type, sector and internal credit rating		

Performing trend and ratio analyses	Monthly	Middle office
Conducting loan migration analysis or stress-test	Monthly	Middle office
Reviewing risk concentrations	Monthly – Quarterly	Middle office / Senior management / Credit Committee / Board of Directors
Reviewing asset quality and adequacy of provision for the portfolio	Monthly – Quarterly	Middle office / Senior management / Credit Committee / Board of Directors
Monitoring compliance with internal and regulatory limits	Daily	Middle office / Compliance unit
Monitoring connected lending	Monthly – Quarterly	Credit Committee / Board of Directors

The frequency of monitoring should be increased, if appropriate (e.g. weaknesses have been identified or facilities are approaching the limit). Exceptions should be promptly reported to senior management.

3.1.7 Where early signs of delinquency or other irregular symptoms are detected in any accounts, they may warrant a more detailed review of the credit-worthiness and the repayment ability of the customers concerned. In these cases, management should appoint someone independent of the officer who previously approved the facilities to carry out the review. Remedial actions should then be recommended and, if approved, instituted to protect the interests of the AI. The responsible officer should subsequently report to the Credit Committee or senior management on the results of the remedial actions.

3.2 Management information systems

3.2.1 AIs' management information systems should be capable of quantifying periodically and efficiently the credit risk of individual customers as well as that of the overall portfolio. To achieve this, the systems should be versatile and flexible enough to aggregate information in

various meaningful ways in order to facilitate different types of analysis and to highlight risk concentrations.

3.2.2 Senior management should be provided with up-to-date management information to enable them to direct an AI's credit activities and control the associated risks. The information would normally cover the following:

- aggregate exposure versus portfolio limit by industry, country, product and type of counterparty (e.g. banks, non-bank financial institutions, corporates, retail customers, etc.);
- total portfolio by internal credit rating and trend;
- total exposures to groups of related counterparties;
- large exposures;
- connected lending;
- asset-based lending with loan-to-value ratios exceeding pre-set limits (e.g. mortgages with loan-to-value ratios exceeding 70%);
- overdue accounts with ageing analysis (i.e. amounts overdue one, three, six months etc.);
- credit downgrades and loans rescheduled during the period;
- interest suspended;
- adequacy of provisions;
- facilities expiring soon;
- undrawn commitment ratio (i.e. undrawn facility amounts as a percentage of total facilities);
- loan-to-deposit ratio; and
- results of stress-tests (see subsection 3.3 below).

3.2.3 Data used for reporting should be complete, accurate and reliable.

3.2.4 Management information reports should be user-friendly, accurate and timely. Ideally, certain information such as concentration risk limits and facilities approved should

be provided on an on-line, real-time basis if the total credits granted are approaching pre-set limits.

3.2.5 The accuracy and appropriateness of reporting should be periodically verified by Internal Audit.

3.2.6 Based on periodic reports to the Board of Directors and senior management on the AI's credit portfolio, its credit strategy should be re-appraised and if necessary adjusted.

3.3 Stress-testing

3.3.1 Stress-testing should be employed to predict how a portfolio might respond to different eventualities, in particular unfavourable developments. Tests should be conducted on the basis of realistic scenarios, with full consideration of the correlation of various risks and the vulnerability of credits. Typical scenarios would include downturns in an industry or the overall economy, liquidity squeezes and adverse market developments or interest rate trends.

3.3.2 Reports of the outcomes should be reviewed at an appropriately senior level and any necessary action taken, e.g.:

- policy or limit amendments;
- hedging;
- exposure reduction (e.g. through asset sales, securitisation, etc.); and
- contingency planning for actions to be taken should a particular scenario happen.
