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**CURRENT RISK ASSESSMENT AND MANAGEMENT SYSTEMS AND
POLICIES IN SINGAPORE**

by

Mr Eng Hai Aw, Grant Thornton, Singapore

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Current Risk Assessment and Management Systems and Policies in Singapore

1. Introduction

The volatility of financial markets globally has increased over the last few years. At the same time, global financial markets have also become more closely integrated. This has increased the correlation and the transmission of volatility from one financial market to the next. A good example of this is the rapidity with which the Asian crisis spread across East Asia in 1997 and 1998. The frequency of shocks to the financial markets has also increased. This has resulted in a paradigm shift over the last decade in regulation and supervision. Regulators have moved away from the traditional rule-based approach towards risk-based supervision.

As the regulator in Singapore, the Monetary Authority of Singapore (“MAS”) has also found the traditional rule-based approach to be unnecessarily restrictive and ineffective and have moved towards risk-based supervision. However, risk-based supervision relies heavily on the quality of an institution’s own risk management approach. To help financial institutions adopt sound risk management practices, MAS issued guidelines that are regularly updated taking into consideration industry feedback and ongoing developments in risk management. MAS also benchmarks risk management and control systems adopted by financial institutions against evolving industry standards and best practices around the world.

2. Risk Management Practices and Policies

The guidelines issued by MAS¹ on risk management practices are based on best practices and are not meant to be prescriptive. For effective risk management, the guidelines emphasise four key pillars, namely:

- adequate Board oversight;
- senior management accountability;
- sound risk management policies and operating procedures; and
- strong risk measurement, monitoring and control capabilities commensurate with the risk taken.

The guidelines are organized by risk type, namely credit risk, market risk and liquidity risk. However, it is common for causal relationships to exist between risk types, as well as different risk types manifesting themselves concurrently in a given situation. Financial institutions are therefore encouraged to adopt a holistic approach towards risk assessment and management.

Credit Risk

Credit risk is defined as the risk of loss that arises when an obligor fails to perform its obligations under a contract or when its ability to perform such obligations is impaired. Credit risk could stem from activities both on and off the balance sheet and, for banks, in both the banking and trading books. Financial institutions are encouraged to establish a risk management framework to adequately identify, measure, monitor and control credit risk.

In relation to the management of credit risk, financial institutions are encouraged to adopt, amongst many others, the following guidelines:

- set the level of credit risk that the institution is prepared to bear;
- empower a committee to oversee credit risk-taking activities and the overall credit risk management framework;
- establish credit policies laying down parameters and guidelines to the granting, maintenance/monitoring and management of credit, at both the individual transaction and portfolio level;

¹ MAS Guidelines on Sound Risk Management Practices dated 30 October 2002

- delegate lending authority, based on experience, ability and personal character, to senior management and credit committee;
- grant credit based on understanding of the obligor, the source of repayment, as well as the purpose and structure of the credit, to ensure that the obligor meets the criteria rather than relying on the collateral or guarantee;
- specify and monitor key indicators of credit condition to identify and report potential problem credits;
- perform credit review on an annual basis with updated information on the obligor's financial and business conditions, as well as conduct of account;
- make adequate provision for classification and provision of loans in line with regulatory guidelines and internal policies; and
- perform adequate stress testing to determine potential credit risk due to adverse market conditions.

Market Risk

Market risk is defined as the potential loss in on- and off-balance sheet positions, in an institution's books, resulting from movements in market risk factors such as interest rates, equity prices, foreign exchange rates and commodity prices. Sound management of market risk is essential to ensure the market risk faced by institutions does not reach levels detrimental to their financial condition.

The following guidelines, amongst many others, were suggested for financial institutions to consider adopting:

- set the level of market risk that the institution is prepared to bear;
- formulate market risk policies that, where practicable, delineate the line of authorities and the responsibilities for managing market risk;
- identify pertinent market risk management issues;
- establish a sound and comprehensive risk management system for their business activities;
- adopt a risk management system that is able to quantify risk exposures and facilitate stress testing;
- establish market risk measurement systems and models that are able to measure interest rate risk, equities risk, foreign exchange risk and commodities risk; and
- establish risk limit for business units and conduct periodical review of the risk limit.

Liquidity Risk

Liquidity risk is the risk of financial loss to an institution arising from its inability to fund increases in assets and/or meet obligations as they fall due without incurring unacceptable cost or losses. A liquidity crisis can have a negative impact on earnings and capital, and in a worst-case scenario, cause the collapse of an otherwise solvent institution.

Among the guidelines recommended for adoption by financial institutions are the following:

- define a liquidity strategy that enunciate specific policies on particular aspects of liquidity risk management such as composition of assets and liabilities, diversification and stability of liabilities, access to interbank and other wholesale market, management of liquidity in different currencies, and management of intra-group liquidity;
- establish liquidity policies that include liquidity strategy, management responsibilities, liquidity risk management structure, liquidity risk management tools, liquidity risk management in individual currencies, and contingency plan to handle liquidity crises;
- establish a risk measurement system to ensure that liquidity measurement are identified and managed on an ongoing basis and a monitoring system that enable management to monitor compliance with approved risk tolerances and to pinpoint variances;
- maintain diversified and stable funding sources; and
- construct plausible event-driven scenarios and examine the resultant cashflow needs.

4. Non-Performing Loans ("NPLs")

Classifications of NPLs

In line with international practice, banks in Singapore will automatically classify loans as NPLs once the principal or interest payments are 3 months or more in arrears under MAS guidelines. In addition, banks are continuing to treat all loans to borrowers with weak financials as NPLs, regardless of whether they are in arrears.

NPLs are further classified as Substandard, Doubtful and Loss. The definitions are as follows:

- a. Substandard: loans are classified substandard when their normal repayments are overdue or may be in jeopardy. Also included in this category are performing loans, which are graded substandard solely because of the borrowers' weak financials. For substandard loans, provision has to be made for 10% of the unsecured portion of the substandard loan.
- b. Doubtful: loans are classified doubtful when full liquidation of outstanding debts appear questionable and the accounts suggest that there will be a loss, the exact amount of which cannot be determined as yet. For doubtful loans, a 50% provision is required.
- c. Loss: loans are classified as loss when outstanding debts are regarded as uncollectible. A full (100%) provision has to be made for loss loans.

NPLs of Singapore Incorporated Banks²

Year ending	NPL Ratios	
	Regional Countries NPLs ³	Global NPLs
	As percentage of	
	Gross Regional Countries Exposure	Global Assets
Dec 1998	22.7	6.9
Dec 1999	21.7	7.2
Dec 2000	14.1	5.1
Dec 2001	11.8	4.5
Dec 2002	11.3	4.2
Dec 2003	8.2	3.6

During the above period, despite the criteria for classification of NPLs becoming more stringent, there has been a decline in the NPLs ratios of the Singapore incorporated banks. The decline in the NPL ratio for the regional countries is reflective of the improving economies in the region as well as the successful resolution of NPLs in the regional countries. Another contributing factor to the decline in NPL ratios is the ability of the banks to better manage their risks.

Sources of major credit problems

There will always be a certain level of NPLs as a result of an inevitable number of wrong economic decisions by individuals and plain bad luck. Less predictable incidents, such as when oil price, key raw materials prices, foreign exchanges rates, or interest rates change abruptly, may cause NPLs to rise considerably. A similar effect may be caused by the sudden failure of a major company in an overly optimistic financial market. Within an industry, failure of major players may also lead to an increase in NPLs within that particular industry as the financial problem is passed down the supply chain.

² Source : MAS

³ Regional countries are Malaysia, Indonesia, Thailand, Korea and Philippines

Shocks to the financial markets, such as those experienced during the Asian crisis, may result in loss of confidence in consumers and companies. If the loss of confidence begins to snowball towards a crisis, it may lead to job losses, a fall in the prices of loan collaterals (often real estate and possibly equities) and liquidity crunch faced by financial institutions resulting in a reduced ability of the banks to provide loans. In the last couple of years, unemployment rate had increased in Singapore as the economy underwent restructuring resulting in job losses not only for the blue-collar workers but also executives. Partly as a result of the increased unemployment rate, credit card debt grew and the number of defaults and bankruptcies also went up.

4. Credit Information System

There are various publicly available sources where one can gather basic financial and litigation information to determine the credit-worthiness of a consumer or corporate customer. These include the Court writ of summons and bankruptcy data, databases on companies and businesses maintained by Accounting and Corporate Regulatory Authority (“ACRA”) and property databases maintained by the Land Dealing Office. In addition to these publicly available sources, there are two private credit bureaus where members of the credit bureaus are able to share information on the credit-worthiness of their customers.

Litigation Searches

Litigation searches on a potential customer can be conducted through the databases maintained by the Courts in Singapore. These searches will reveal the legal suits that the potential customer is involved in either as a plaintiff or defendant and the stages that the legal proceedings are at. The databases are updated regularly and searches can be done online and the results can be generated instantaneously. The results will contain information about the sums involved in each legal suit and brief details of the nature of the claim.

Bankruptcy Searches

Searches can be conducted on an individual to identify whether he/she is facing bankruptcy proceedings. Results will contain details of the amount owing to the petitioning creditor(s). Bankruptcy searches on a company will reveal whether the company has any winding-up petition being filed against it.

ACRA Databases

Extracts of the annual returns filed by companies and businesses can be obtained from ACRA. The amount of financial information that a company has to disclose in its annual return is dependent on the type of company it is classified as. A private exempt company is only required to file a summary of its financial highlights. The financial highlights usually do not provide sufficient information for one to assess the credit-worthiness of a company. Private companies are required to file their audited accounts with ACRA as part of their annual returns. These contain much more financial details about the company. One weakness of these databases is that they only contain historical information that may not be an accurate prediction of the future performance and credit-worthiness of the company.

In assessing the credit-worthiness of an individual or company, it is rare to rely on the results of a single search with any of the above databases. More commonly, companies or financial institutions will rely on the cumulative information from the searches done on the different databases

Consumer credit bureau

Traditionally, due to provisions in the Banking Act, banks were unable to share information about their customers. In 2002, in line with the MAS’s direction towards enhancing risk management capability, the Association of Banks in Singapore set up the first consumer credit bureau in Singapore. Only banks, finance companies and credit card companies recognized by the MAS are authorized to be members of the bureau. Access to the bureau’s information is governed by a code of conduct, which lays down strict privacy

principles that members must abide by. The code of conduct is aligned with the Banking Act restrictions on the release of consumer information.

The credit report issued by the bureau is based on inputs from members and information obtained from publicly available sources. The credit report will include the following information:

- basic personal profile data (excluding contact addresses and telephone numbers);
- records of all credit checks made on the consumer;
- credit repayment trend of the past 12 months;
- default records;
- bankruptcy records; and
- litigation records.

Individuals are able to obtain a copy of his/her credit report and notify the credit bureau of any discrepancies. Where there are discrepancies, investigations are carried out by the bureau and changes made to the credit report, if required. In the event of disagreement between the bureau and the consumer on the outcome of the investigation, the consumer can raise his/her dispute with the Consumer Mediation Unit, which is an independent unit established under the Association of Banks in Singapore to resolve disputes between consumers and banks.

DP Credit Bureau

DP Credit Bureau was set up by DP Information Network Pte Ltd (“DP Info”) in May 2002 as a formal information-sharing platform to improve the credit transparency in Singapore. It currently has about 200 corporate members. These members input data on their debtors (both consumer and corporate) into a common database. The data are analysed and payment patterns of the debtors are generated. Based on the payment patterns, a potential lender is able to assess whether a company or individual has been or would be a good or bad paymaster.

Members are able to access the database through Internet and will have access to all the credit bureau records in the system. They are able to have a complete analysis of the debtors and minimise the credit risk and reduce the bad debt rate.

Credit Rating Agencies

International rating agencies such as Standard and Poor’s and Moody’s issues credit ratings on publicly listed companies in Singapore. Such credit ratings provide indication on the creditworthiness of the companies. For small and medium enterprises (“SMEs”), credit extenders can obtain credit ratings on them from DP Info. DP Info’s credit rating provides an indication of the likelihood of a credit default.

5. Credit Risk Transfer

Global and regional financial derivatives markets have seen phenomenal growth in recent years. Prospects for derivatives in the Asian region have brightened as a result of governmental efforts to promote and develop the region's capital markets. There is also increased awareness by corporations and financial institutions of the need for better risk management. However, the rapid growth of the industry is also likely to pose major challenges to policy makers and regulators as they grapple with its implications for the maintenance of macroeconomic and financial stability.

In 2000, MAS issued guidelines on the regulatory treatment of banks’ credit derivatives⁴ and securitization activities⁵. The guidelines are in recognition of the need to ensure that Singapore’s regulatory

⁴ MAS Notice 627 (last updated on 22 March 2004)

⁵ MAS Notice 628 (last updated on 20 Aug 2002)

framework provides clarity and allows growth and innovation, as the market makes use of more sophisticated treasury and capital market products.

The guidelines for credit derivatives address the capital treatment for three main credit derivatives products that are actively being used as instruments for credit risk mitigation - the credit default swap, the total rate of return swap and the credit-linked note. The guidelines retain the principle of maintaining capital against credit risk exposure, requiring a credit charge for credit exposures that banks assume via the use of credit derivatives.

Existing credit risk instruments

In a credit default swap ("CDS") transaction, the protection seller agrees to pay the protection buyer if a reference entity (a company or sovereign) experiences a predefined "credit event", such as a default on a debt obligation. The protection seller receives a premium (typically paid quarterly) from the protection buyer over the lifetime of the transaction. In substance, a CDS functions like a guarantee. The protection seller assumes credit risk on the reference entity without funding the position. The protection buyer obtains credit protection on the reference entity, but acquires credit exposure to the protection seller since it depends on the protection seller to make the credit event payment.

A total rate of return swap ("TROR") transfers the "total return" or the total economic performance of the reference entity from the protection buyer to the protection seller. The protection buyer pays all cash flows arising from the reference entity plus any increase in market value of the reference entity to the protection seller. In return, the protection seller pays the protection buyer a contracted rate of LIBOR plus a premium and any decrease in the market value of the reference entity. Upon the occurrence of the credit event, the contract will usually terminate and the credit event payment will be calculated as though the next normal payment date had been brought forward. In substance, a TROR is like an unfunded purchase of the reference entity, i.e. the protection seller acquires the full economic performance on the reference entity without funding the position. The payment of LIBOR + premium represents the fee paid to the protection buyer to fund the position. The protection seller acquires from the protection buyer the credit risk and market risk on the reference entity. The protection buyer and seller are also exposed to each other for the payments due under the swap.

A Credit-Linked Note ("CLN") is a debt instrument with an embedded CDS. In a standard contract, the protection buyer, or a special purpose vehicle ("SPV") set up by the protection buyer, issues a note referenced to the reference entity. The protection seller pays cash up front for the note in exchange for a stream of fixed or floating interest payments on the note. If a credit event occurs, the note is redeemed for the credit event payment as agreed by the parties. If no credit event occurs, the note is redeemed at maturity. Unlike a CDS or TROR, a CLN is a funded credit derivative instrument since the protection buyer receives protection (the principal on the CLN) on the reference entity up front from the protection seller. The protection buyer transfers the credit risk on the reference entity to the protection seller but does not acquire an exposure to the latter. On the other hand, the protection seller acquires credit risk on the reference entity, and is also exposed to the protection buyer (or note issuer) for the amount of funding provided.

Asset securitization in its basic form is the process by which assets or interests in assets are sold, or otherwise transferred to a special purpose vehicle, which is funded by the issue of securities secured primarily by these assets. Banks may undertake one or several roles in a securitisation transaction. The extent of a bank's participation may be limited to the provision of a particular service, or it may participate as seller in securitisation transactions managed by independent parties. Alternatively, a bank may establish and manage its own securitisation transactions.

The guidelines for asset securitization by banks set out the capital treatment of securitized assets, as well as the disclosure, separation and other requirements applicable to banks assuming various roles in a securitization transaction. The guidelines seek to ensure that banks involved in the securitization transactions fully understand their roles responsibilities and risks, and that they hold appropriate capital against the risks they accept.

Credit Risk Transfer Driver

After the MAS published guidelines on the securitisation of real estate assets in January 1999, allowing banks to off-balance their properties through securitisation, DBS launched a landmark Commercial Mortgaged Backed Securities (“CMBS”). Subsequently, other CMBSs have followed suit. More CMBSs are expected to be launched in the near future as under the latest MAS regulations, banks not allowed to hold major stakes in non-financial businesses and all such stakes have to be divested by 17 July 2006.

Data on the growth of other types of credit risks instruments are not readily available. However, in their annual report in June 2003, the Bank of International Settlements (“BIS”) drew attention to the huge growth of credit risk transfers globally, shifting risk from banks to the buyers of securities and loans. From a few billion dollars worth of loans passed on through credit risk transfers in the early 1990s, the figure has grown to an estimated US\$2 trillion by 2002. While credit risk transfer in Asia is still in its infancy, it is likely that financial institutions in Singapore have been hedging their credit exposures by selling the risk to others.

Due to the huge growth experienced by credit risk transfers, from March 2004, financial institutions are required to provide information on the gross and marked to market values of all derivatives used by banks, including credit derivatives to MAS on a monthly basis.

MAS has also completed the second phase of the study to establish the Deposit Insurance (“DI”) scheme in Singapore and released a second consultation paper on the scheme in April 2004. The paper made recommendations on the implementation details for the administration of DI, including the mandate and governance of DI, including the mandate and governance of DI, coverage of specific deposits and depositors, the depositor payout process and management of the DI fund.

The government recently announced plans to launch a pilot S\$300 million Loan Securitisation Scheme for small and medium-sized enterprises to tap the capital markets in January next year. The loan securitisation scheme provides alternative financing for SMEs which do not qualifying for existing loan scheme. The SME loans will be packaged into tradeable bonds that offer competitive yields and sold to institutional investors. SMEs that will benefit are those with little or no track record or collateral as well as those seeking small loan amounts or requiring loans to venture abroad. A well-diversified portfolio of SMEs will collectively reduce the risk level of the portfolio and make it more appealing to investors.

The bulk of derivatives trading and contracts issuance occurs in North America and Europe while Asia has lagged behind in market share. Although exchange traded derivatives in the region have grown rapidly in recent years, there remains a lot more room for growth in Asian derivatives markets, which represents a major opportunity for Singapore's financial services industry.

6. Accounting Policies

The main accounting standards that deal with the accounting of financial instruments are Financial Reporting Standards (“FRS”) 32 and FRS 39. FRS 32 sets out the requirements for the presentation of financial instruments and identifies the information that should be disclosed about them. FRS 39 deals with the recognition and measurement of financial assets, financial liabilities and some contracts to buy or sell non-financial items.

Under FRS 32, there is a requirement to disclose information about factors that affect the amount, timing and certainty of future cash flows relating to financial instruments⁶ and the accounting policies applied to those instruments. The standard also requires the disclosure of information about the nature and extent that financial instruments are used, the business purpose they serve, the risks associated with them and the management's policies for controlling those assets.

⁶ A financial instrument is defined under FRS 32 as any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

The purpose of the disclosures required by FRS 32 is to provide information to enhance understanding of the significance of financial instruments to the financial position, performance and cash flows, and assist in assessing the amounts, timing and certainty of future cash flows associated with those instruments.

An entity is required under FRS 39 to recognise all its contractual rights and obligations in a financial instrument as assets and liabilities when it becomes a party to the contract. It derecognises the financial asset or liability when its contractual rights have expired or when it has substantially transferred the risks and rewards of ownership. Subsequent to the initial recognition, the entity has to measure the financial assets at their fair values. For financial liabilities, they have to be measured at amortised cost using an effective interest method. Gain or loss arising from the change in the fair value of a financial asset or liability is to be recognised as profit or loss or equity depending on how the financial asset or liability is classified.

7. Concluding remarks

MAS has taken an active approach to promoting industry best practices in risk management and actively engages the risk management community in their efforts to develop and encourage adoption of good risk management standards. Guidelines issued by MAS are regularly updated as the science of risk management evolves.

Steps are continuing to be taken by MAS to build specialist expertise in key areas, including credit, market, liquidity and technology risks, and in risk management areas such as corporate governance. It is also enhancing its risk-based supervision methodologies and capabilities by modifying and updating specific supervisory practices. To maximize the effectiveness of supervision, work is ongoing to further enhance frameworks for risk-focused and integrated supervision of financial institutions.

As the level of competition in the banking sector increases with liberalization of commercial banking in Singapore, there is a greater need for financial institutions to manage their risks effectively. Financial institutions that manage their risk effectively will find opportunities to improve their profitability notwithstanding the increased competition.

An important aspect of credit risk management is the availability of better information for making decision on granting of credit. While a lot more information is now available to a lender compared to a few years ago, there is scope for greater sharing of information among lenders.

One development announced recently is the proposed establishment of Singapore's first Small and Medium Enterprise-based Credit Bureau ("SME Credit Bureau") by the first half of 2005. Membership to the SME Credit Bureau will be open to all businesses with fixed assets of less than \$15 million or not more than 300 employees for the service industry. The SME Credit Bureau will rank SMEs within six risk categories, based on factors such as company set-up, finances and payment records. The database will remain updated and provide banks, financial institutions and MNCs with relevant and objective credit information.

DP Info is leading another initiative using credit score technology to help lenders sharpen their evaluation of consumer risk, streamline decision processes and increase profitability. The technology provides a way for lenders to quickly implement highly predictive risk assessment solutions and realize the results of consistent, accurate credit decisions. Consumers will also benefit as the credit score provides an objective assessment of the credit risk of applicants and existing account holders.

The effectiveness of these new initiatives will depend on the participation rate. A high participation rate will mean that more information will be shared, better analysis can be conducted and sound credit decisions made.