

# Risk Management

## RISK MANAGEMENT

Sumitomo Bank sees tremendous business opportunities developing in concert with the current liberalization and internationalization of financial markets, advancement of financial technologies (including derivative products) and impact of the financial Big Bang in Japan. However, the Bank recognizes that there are new forms of risks, as well as an overall increase in total risk, associated with these new business opportunities.

Therefore, recognizing that risk management is a cornerstone of the Bank's operations, our management strikes a balance between "sound practices" and "profitability." Such equilibrium is achieved by first applying strict controls and limits, then maximizing returns.

The Bank faces credit, market, operational, computer system and legal risks. Separate risk control departments have been set up for each of these. Credit risk is managed by a system based on credit portfolio management and individual credit management. Market risk is managed by a comprehensive risk management system that utilizes a value at risk (VaR) model. Operational and computer system risks are controlled by two computer system centers located in Tokyo and Osaka, which serve as backups for each other in case of emergencies. Legal risk is controlled by our Legal Department which has developed and distributed a new compliance manual and assigned a compliance officer to each and every

department and branch. These risks are controlled by a section that is independent from the business promotion units. Appropriate credit and operational audit departments are set up to check the risk management activities. Similarly, dedicated personnel are assigned and trained to handle risk control responsibilities. Rules and regulations for risk control are clearly established. In June 1999, the Risk Management Committee was established within the Board of Directors in order to review and manage the Bank's overall risk management and policy system, including compliance policy.

The Bank is determined to further improve and strengthen its risk management systems and to improve the risk-versus-return profile of the Bank's portfolio within the framework of the Bank's methodology for proper capital allocation.

## CREDIT RISK MANAGEMENT

The Bank has two basic approaches for managing credit risk: Portfolio Management and Individual Credit Management. Portfolio Management is established for the purpose of avoiding concentrations of credit risk and enhancing the risk-versus-return profile. Individual Credit Management is based on stringent individual credit analysis and the credit application screening process. Sumitomo Bank believes that a strong credit risk management approach will maintain not only the soundness of the Bank's assets but also a sound balance among the Bank's risks, earnings and capital.

## ■ Risk Charts

Risk Category	Description
Credit Risk	Risk that a deterioration in the financial condition of a borrower will cause the asset value to decrease or be nullified. Country risk and settlement risk are included in this category. Country risk: risk of losses arising from foreign exchange rate, economic or political changes that affect the country in which the loan is booked. Settlement risk: risk of losses through the failure of the counterparty to be able to pay on the settlement date owing to bankruptcy or other causes.
Market Risk	Risk of losses arising from unfavorable changes in the level or volatility of interest rates, foreign exchange rates or stock prices.
Liquidity Risk	Liquidity risk is divided into two subcategories: Market (product) liquidity risk: risk of losses arising from the difficulty experienced in accessing a product or market at the required time, price and volume. Funding liquidity risk: risk of losses arising from a timing mismatch between investing and fund-raising activities resulting in the settlement date obligations being missed or satisfied at higher-than-normal rates.
Operating Risk	Risk of losses arising from staff mistakes, negligence or fraud.
Transaction System Risk	Risk of losses arising from transaction system problems, damage or misuse.
Compliance Risk	Risk of losses arising from inadvertent or purposeful noncompliance with laws, regulations and guidelines.

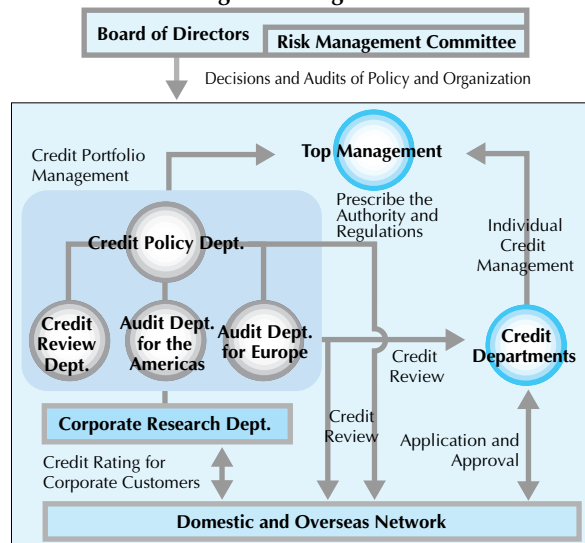
## 1. Credit Risk Management Organization

In terms of organizational structure, the Credit Policy Department (CPD) is responsible for the Bank's Portfolio Management. CPD monitors portfolio exposure by industry, obligor and facility grading, company size, product type and other characteristics in order to detect and avoid excessive concentration of risks. CPD also establishes such basic credit management criteria as credit policy, credit approval authority and credit-related rules and regulations.

The Bank believes that objective measurement of the obligor's credit risk is one of the keys to effective risk management. The Bank's Corporate Research Department (CRD), which is independent of the business and credit departments, has developed a quantitatively based obligor-scoring model to determine risk grades.

For new and existing facilities, the Bank's business units and credit departments perform thorough credit analyses by considering such factors as financial condition, future business prospects, cash flow projections, available collateral and the availability of credit enhancements. The organization of the Bank's credit departments reflects our client base. There are credit departments for Corporate Banking and one credit department for Consumer Banking. The Bank has separate credit departments for large corporate accounts in the Japanese domestic market, and in the international markets, such as Asia (excluding Japan), the Americas and Europe. The Bank conducts international business utilizing country risk limits, which are established by the International Credit Department based on its research and periodic field trips overseas.

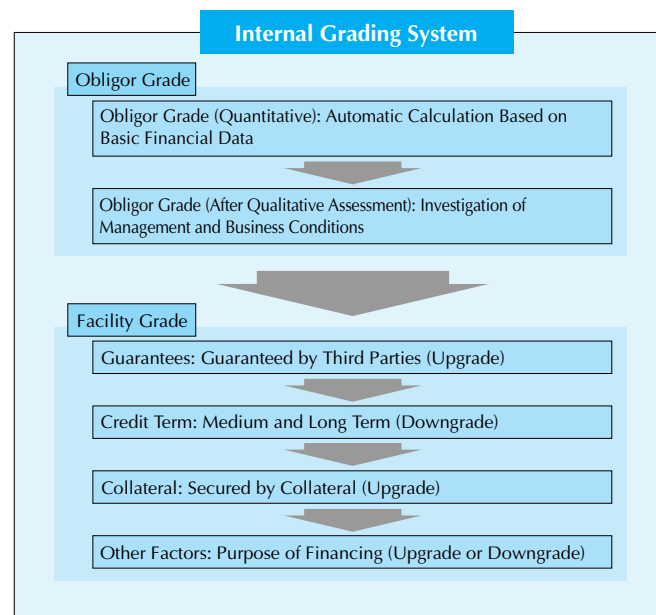
### ■ Credit Risk Management Organization



The Credit Review Department, Audit Department for the Americas and the recently created Audit Department for Europe review the credit risk management process of the business units. On-site business unit audits are performed by these departments, which give necessary guidance to ensure that best practices are being followed.

## 2. Internal Grading System (Obligor Grade/Facility Grade)

The Bank's grading system is a powerful tool for credit portfolio management and measurement of individual credit risks. The Bank has developed two types of grading systems: "obligor grade" and "facility grade." The Bank began using the former system for Japanese obligors in fiscal year 1997 and for non-Japanese obligors in fiscal year 1998. The final obligor grade reflects the initial quantitative score based on certain obligor measures and subsequent adjustments based on qualitative factors, such as management and industry. The Bank has introduced a facility grade that is calculated on a sequential basis with each successive step based on various risk factors, such as term, collateral and guarantees. The Bank uses the facility grading system in the Americas and Europe and will extend it to Asia (including Japan) in fiscal year 1999. Consequently, the Bank will have established across all divisions a consistent risk grading system that will cover over 90% of credit exposures.



## 3. Loan Review

Credits that might have a negative impact on the Bank's profitability have to be strictly monitored and management must be aware of their most current status. The Bank's Loan Review System ensures that management is fully aware of

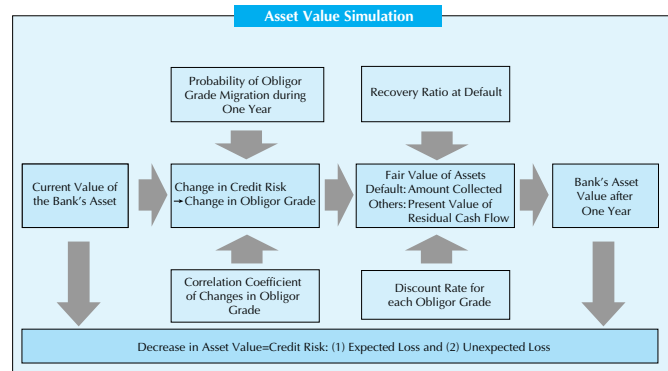
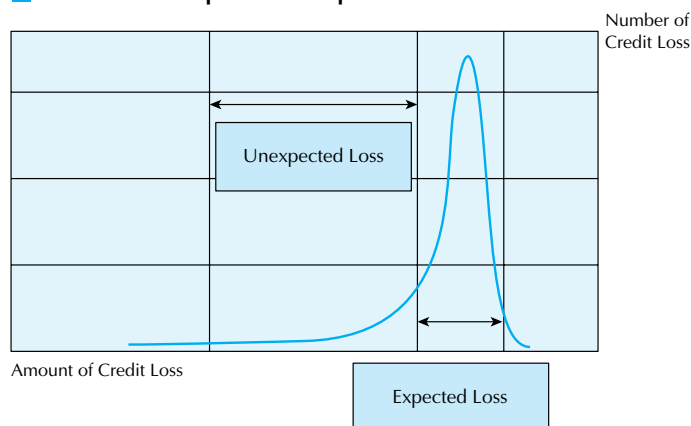
the current status of those credits that are carefully chosen based on certain criteria and can therefore make timely decisions on the Bank's strategies toward these credits. The reviews are periodically reported to management by the credit departments and the Credit Review Department checks to ensure that all necessary credits are being reported.

#### 4. Quantitative Measurement of Credit Risks

The Bank has been conducting quantitative measurement of credit risk in the domestic lending portfolio since 1998. Such measurement is aimed at capturing the changes in quantitative value of the Bank's assets as the credit risk of our borrowers changes. The figure below demonstrates "asset value simulation." The model, based on highly developed financial mathematics, provides 10,000 simulations of the Bank's asset value, including scenarios for loans, guarantees, bonds and other types of exposure, using high-speed computer processing.

The graph below shows the distribution of asset values based on these 10,000 simulations. Two types of risk indicators can be obtained from the result of this simulation. The first is Expected Loss. This shows the amount of risk generated on average. Such risk should be absorbed by earnings, also

##### ■ Credit Risk: Unexpected and Expected Loss



known as the "credit risk premium." However, there is a possibility that actual losses could be higher than experienced in the past, such as excessive losses incurred by loans made during the bubble economy. This is the second indicator, Unexpected Loss, that the Bank seeks to estimate. The Bank must hold sufficient capital to cover such Unexpected Losses and the amount of capital required for this is called the "credit risk capital." Although the model is being used on a trial basis, we believe this will be a very powerful tool for managing portfolio quality and enhancing the Bank's overall performance.

#### 5. Proper Risk-versus-Return Profile

Financial institutions have to maintain adequate loan loss reserves for assets that contain inherent credit risk. RAROA was introduced in the latter half of fiscal year 1997 and is now being used in the Bank's credit risk management process as an indication of the cost of reserves. RAROA is different from traditional return on assets (ROA) calculations in that it considers not only the operational expenses related to the transaction but also the probable losses that can be expected for each credit risk category. The expected loss for each transaction is a function of two major factors: estimated default rate and recovery rate, which are derived from analysis of data obtained from the Bank's historical records and external credit agencies.

##### Definition of RAROA

$$\text{RAROA} = \frac{\text{Gross Profit} - \text{Expected Loss} - \text{Expenses}}{\text{Exposure}}$$

$$\text{Expected Loss} = \text{Exposure} \times \text{Default Rate by Obligor Rating} \times (1 - \text{Recovery Ratio})$$

#### 6. Credit Application Control System

In order to integrate credit information, shorten the decision making process and streamline activities associated with credit application processing, the "New Credit Pipeline System" has been introduced. This system consists of three important systems as explained below. The information stored in this data base is being utilized for the portfolio management and planning.

##### (1) Corporate Card System

Obligors' financial data, asset descriptions, management information, business profiles and obligor grade are stored electronically in the system files, which are directly accessible by the business units and relevant head office departments. This has dramatically replaced conventional paper-based credit information files.

## (2) Collateral Information System

This computerized database records collateral information, including type, ownership, appraised value of the real estate and market value of securities. This information, combined with facility information in the existing computer systems, enables the Bank to calculate automatically the collateral coverage of each facility.

## (3) Credit Application and Approval System

This system changed the process for preparation, submission and approval of credit applications from a paper-oriented system to an electronic-processing system. The newly introduced facility grade is also calculated semi-automatically in this process.

## 7. Off-Balance-Sheet Transactions

For off-balance-sheet transactions, the Bank calculates a “credit risk equivalent amount,” which represents the current replacement cost, or the cost to the Bank to restructure future net cash flows in the event of default. While the Bank calculates the potential risk, or the future change of the replacement cost of off-balance-sheet transactions according to market fluctuations, the Bank is making every endeavor to implement advanced credit risk management of off-balance-sheet transactions. The Bank’s basic approach to managing this type of exposure is to set counter-party credit lines denominated by the credit risk equivalent amount. By doing so, the Bank can measure and monitor credit risk for both on-balance-sheet and off-balance-sheet assets on a unified basis. Sumitomo Bank periodically values the outstanding credit risk exposure to each counterparty. Should the Bank’s exposure for any one counterparty exceed a certain percentage of the approved limit, the account is automatically flagged and control measures are implemented before the limit is surpassed.

### DERIVATIVES AND FORWARD FOREIGN EXCHANGE

As of March 31	Billions of Yen			
	Notional Amount		Credit Risk Equivalent Amount	
	1999	1998	1999	1998
Interest rate swaps	¥ 92,026.0	¥ 76,178.5	¥ 1,866.4	¥1,660.0
Currency swaps	8,706.1	8,886.9	646.1	993.8
Forward foreign exchange	56,145.6	88,377.0	2,118.5	4,277.3
Interest rate options (bought)	2,362.3	2,878.7	30.9	36.2
Currency options (bought)	809.1	1,420.8	29.0	56.0
Other derivatives	4,597.7	4,529.6	9.7	13.0
Netting	—	—	(2,192.2)	(3,192.3)
<b>TOTAL</b>	<b>¥164,647.1</b>	<b>¥182,271.7</b>	<b>¥2,508.6</b>	<b>¥3,844.1</b>

Notes: 1. The above figures are based on the BIS guidelines.

Most of the credit risk equivalent amounts are calculated using the current exposure method.

2. Netting is applied in calculating the credit risk equivalent amounts.

3. Transactions listed on exchange, foreign exchange transactions with an original maturity of 14 days or less and other transactions not covered under the aforementioned guidelines are listed in the table at the right:

As of March 31

	Billions of Yen	
	Notional Amount	
	1999	1998
Interest rate swaps	¥ —	¥ —
Currency swaps	—	—
Forward foreign exchange	4,534.7	10,338.7
Interest rate options (sold)	3,142.1	3,898.5
Interest rate options (bought)	296.0	368.1
Currency options (sold)	1,488.3	1,660.2
Currency options (bought)	20.7	35.9
Other derivatives	100.1	54,260.1
<b>Total</b>	<b>¥109,599.4</b>	<b>¥70,561.7</b>

### CREDIT-RELATED FINANCIAL INSTRUMENTS

As of March 31	Billions of Yen	
	Contract Amount	
	1999	1998
Commitments	¥18,233.9	¥17,259.1
Guarantees	1,947.8	2,771.5
Other	4.0	3.5
<b>TOTAL</b>	<b>¥20,185.8</b>	<b>¥20,034.1</b>

## MARKET RISK MANAGEMENT

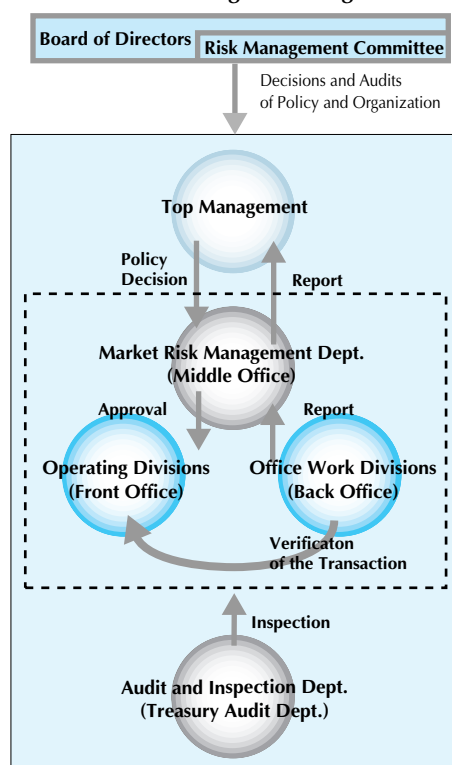
### 1. Market Risk Management Organization

The Market Risk Management Department manages market risk at the Bank and operates independently of the treasury departments. To ensure effective management of market risk, commitment from the executives involved in the process is essential. At the Bank, risk management policy is set forth by the Risk Management Committee (forming a part of the Board of Directors) and the Management Committee. In addition, executives receive daily reports via e-mail from the Market Risk Management Department.

To prevent operating errors and the potential manipulation of transaction data, it is vital for a system of checks and balances to be in place at the front office. The Bank's system is organized so that checks are conducted by both the back office and middle office. Furthermore, the independent Audit and Inspection Department conducts comprehensive audits on a frequent basis.

To provide advanced services and exercise adequate control over risk, staff must be properly equipped with the latest financial theories and technologies. Moreover, the Bank invests in training and development programs to ensure that its staff are versed in derivatives, diversified portfolio management and other sophisticated financial management techniques.

#### ■ Market Risk Management Organization



### 2. Market Risk Management Methods

Market risk arises from unanticipated changes in market prices or volatility. To consolidate and manage this risk, Sumitomo Bank uses the VaR method. VaR calculates the largest estimated loss based on the present values that could occur at a specific rate of probability, calculated on the basis of a one-day holding period and a 99.0% confidence interval.

The individual components of market risk can be summarized as exchange rate risk, interest rate risk, stock price risk, basis risk and spread risk (risk generated from changes in price spreads of financial products) and option risk. In combination with the VaR method, the Bank manages each risk category with basis point value (BPV) and other indicators that the Bank employs in its daily operations to facilitate detailed analysis and management of risks.

Market fluctuations can occasionally exceed predicted levels. To ensure its ability to manage and respond to these fluctuations, the Bank regularly conducts simulations of radical market movements, such as those that occurred on Black Monday in 1987. Such simulations or stress tests ensure that the Bank is prepared to respond appropriately should similar situations occur.

Sumitomo Bank's policy is to set the total VaR to a conservative level based on its capital ratios (the amount of risk capital allocated to each department), current profitability and stress test results. Furthermore, the Bank convenes its ALM committee to revise risk targets whenever there is potential of the total VaR exceeding established guidelines as a result of sudden market movements affecting the VaR values.

#### (1) Banking Account

The following chart states the banking account's exposure to market risk over the fiscal year ended March 31, 1999, assuming a one-day holding period and single confidence interval of 99.0%.

(Billions of Yen)

	Maximum	Minimum	Daily Average	Date of Fiscal Year-end
Banking Account	30.82	10.83	16.82	21.32

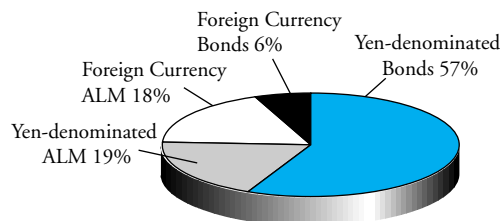


## ① Market Risk by Financial Product

The following chart illustrates the composition of VaR at March 31, 1999.

■ **VaR Composition by Product**

(As of March 31, 1999)



## ② Calculation of Earnings at Risk

In addition to managing consolidated market risk with the VaR method, Sumitomo Bank analyzes the earnings at risk (EaR) of its yen-denominated banking accounts.

By measuring the potential earnings impact of a specified movement in interest rates over a given period and statistical probability on yen-denominated banking activities, the Bank formulates policies and budgets based on earnings for the period and therefore uses the EaR method to supplement the VaR analysis. By these means, the Bank gains a better understanding of the impact that new deposits and loans will have on its earnings. The method utilizes about 1,000 interest rate scenarios generated by Monte Carlo simulations to measure the EaR for the period.

In fiscal year 1999, the EaR of the yen-denominated banking accounts has been estimated, with a confidence interval of 99.0%, to be at the 7% level with regard to estimated earnings for the period based on market interest rates.

### (2) Trading Account

The following chart states the exposure to market risk of the trading accounts of Sumitomo Bank and consolidated trading subsidiaries over the fiscal year ended March 31, 1999, assuming a one-day holding period and a single confidence interval of 99.0%.

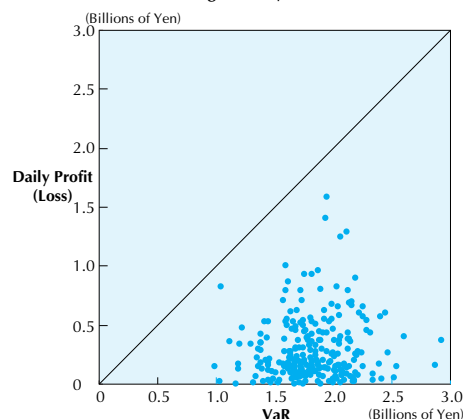
(Billions of Yen)

	Maximum	Minimum	Daily Average	Date of Fiscal Year-end
Trading Account	2.93	0.99	1.83	1.38

## Back Testing

The attached chart shows the back testing results of the fiscal year 1998 VaR for Sumitomo Bank and consolidated trading subsidiaries based upon capital, currency and securities transactions. The data points above the trend line indicate the days on which actual earnings (absolute value)

■ **Back Testing** (From April 1998 to March 1999)



exceeded the Bank's predicted VaR. The earnings (absolute value) were all within the range predicted by the VaR method, demonstrating the reliability of the Bank's VaR modeling, based on a single confidence interval of 99.0%.

## 3. Liquidity Risk Management Methods

Liquidity risk is the likelihood that Sumitomo Bank would be unable to settle obligations on the settlement date, or else be forced to borrow at a premium significantly higher than normal, due to a mismatch between the use and procurement of funds or resulting from unexpected outflows that make it difficult to raise funds.

The foreign currency and yen-denominated exposure to liquidity risk is managed by the Management Committee, which determines the Bank's funding policy based on market circumstances and trends in deposits and loans, among other factors. The committee manages this risk by setting limits and guidelines with respect to its funding requirements (i.e., money gap).

The Bank also has comprehensive contingency action plans in place that reduce the money gap limits and guidelines in response to market crises. Moreover, for holdings of highly liquid assets, such as U.S. treasury bonds, the Bank has facility in place for sourcing daily funding needs even in times of market confusion.