VALUE AT RISK FOR 2000

liquidity management

The liquidity ratio is expressed as the percentage ratio of liquefiable assets to qualifying liabilities, in accordance with the Fourth Schedule of the Banking Ordinance. Liquefiable assets mainly comprise cash and short-term funds, marketable securities and advances maturing within one month. Qualifying liabilities are mainly customer deposits and other liabilities maturing within one month. Hang Seng's liquidity position remained strong, with an average liquidity ratio of 43.3 per cent in 2000 (42.4 per cent in 1999).

Liquidity risk management ensures there is adequate cash flow to meet all obligations in a timely and cost-effective manner. Procedures have been established to monitor and control liquidity on a daily basis adopting a cash flow management approach. Hang Seng always maintains a stock of high quality liquid assets to ensure the availability of sufficient cash flow to meet its financial commitments, including customer deposits on maturity and undrawn facilities, over a specified future period. As a major source of funding, Hang Seng maintains a diversified and stable customer deposit base, both by maturity and market segment. Hang Seng is active in the local money and capital markets to manage the maturity profile of assets and liabilities and to secure the availability of inter-bank and wholesale deposits at market rates. To secure longer-term funding and to enhance asset and liability management, Hang Seng increased its certificates of deposit in issue by HK$3,057 million to HK$14,730 million at the end of 2000.

RISK MANAGEMENT

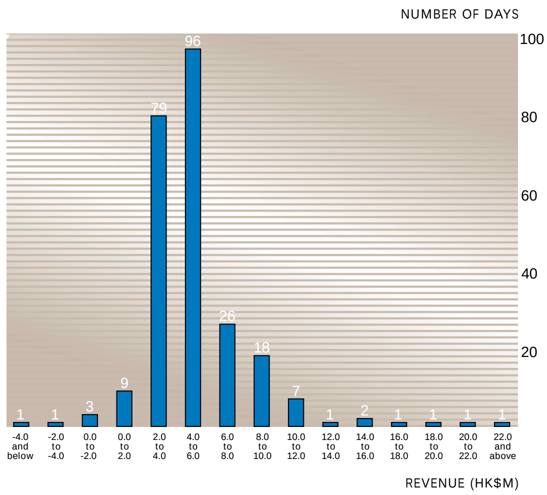
Risk management is an integral part and a core element of Hang Seng's business management. The Bank's internal control environment and high standard of corporate governance are described on page 74 in the Directors' Report. The following discussion covers the comprehensive risk management policies and procedures to identify, monitor and control the various types of risks to which Hang Seng's business is exposed.

credit risk

Credit risk is the risk that a customer or counterparty may fail to meet a commitment when it falls due. Credit risk arises from lending, trade finance, treasury and other activities. Hang Seng has established policies to ensure that credit risk is properly managed at both the transaction and portfolio levels. The Credit Committee, chaired by the Chief Executive, formulates credit policies and monitors the compliance of statutory and internal limits on credit exposures. The credit risk management function is independent of business units. It oversees the implementation of credit policies and ensures the quality of credit evaluation and approval.

The Board of Directors delegates credit approval authority to individual officers in accordance with the credit approval authority delegation framework as set out in the Credit Risk Manual. The manual, which was approved by the Board of Directors, also contains credit approval policies and review procedures for major types of facilities, details of the facility grading system and provisioning policy. To avoid concentration risk, credit exposures to individual customer groups are limited to a percentage of the capital base and advances to industry sectors are carefully managed to achieve a balanced loan portfolio.

DAILY DISTRIBUTION OF MARKET RISK REVENUES FOR 2000



market risk

Market risk is the risk that the movements in interest rates, foreign exchange rates or equity and commodity prices will result in profits or losses. Market risk arises on financial instruments which are valued at current market prices (mark-to-market basis) and those valued at cost plus any accrued interest (accrual basis). Hang Seng's market risk arises from customer-related business and from position taking.

Market risk is managed within risk limits approved by the Board of Directors. Risk limits are set by product and risk type with market liquidity being a principal factor in determining the level of limits set. Limits are set using a combination of risk measurement techniques, including position limits, sensitivity limits, as well as value at risk (VaR) limits at a portfolio level.

Hang Seng adopts the risk management policies and risk measurement techniques developed by the HSBC Group. The daily risk monitoring process measures actual risk exposures against approved limits and triggers specific action to ensure the overall market risk is managed within an acceptable level.

VaR is a technique which estimates the potential losses that could occur on risk positions taken due to movements in market rates and prices over a specified time horizon and to a given level of confidence. The model used by Hang Seng calculates VaR on a variance/covariance basis, using historical movements in market rates and prices, a 99 per cent confidence level and a 10-day holding period and generally takes account of correlations between different markets and rates. The movement in market prices is calculated by reference to market data for the last two years. Aggregation of VaR from different risk types is based upon the assumption of independence between risk types.

Hang Seng has obtained approval from the Hong Kong Monetary Authority (HKMA) for the use of its VaR model to calculate market risk for capital adequacy reporting. The HKMA is also satisfied with Hang Seng's market risk management process.

The VaR for all interest rate risk and foreign exchange risk positions at 31 December 2000 was HK$213 million, compared with HK$199 million at 31 December 1999. The average VaR for 2000 was HK$179 million, with a maximum of HK$243 million and minimum of HK$119 million in the year. On an individual portfolio basis, the values at risk at 31 December 2000 relating to the trading portfolio and accrual portfolio were HK$7 million (HK$18 million at 31 December 1999) and HK$212 million (HK$198 million at 31 December 1999) respectively.

The average daily revenue earned from market risk-related treasury activities in 2000, including accrual book net interest income and funding related to dealing positions, was HK$5 million (HK$7 million for 1999). The standard deviation of these daily revenues was HK$3 million (HK$4 million for 1999). An analysis of the frequency distribution of daily revenues shows that out of 247 trading days in 2000, losses were recorded on only five days and the maximum daily loss was HK$5 million. The most frequent result was a daily revenue of between HK$2 million and HK$6 million, with 175 occurrences. The highest daily revenue was HK$23 million.

foreign exchange exposure

Hang Seng's foreign exchange exposures mainly comprise foreign exchange dealing by Treasury and currency exposures originated by its banking business. The latter are transferred to Treasury where they are centrally managed within foreign exchange position limits approved by the Board of Directors.

The VaR relating to foreign exchange positions was HK$6 million at 31 December 2000 (HK$18 million at 31 December 1999) and the average amount for 2000 was HK$8 million, with a maximum of HK$20 million and a minimum of HK$0.1 million in the year. The average one-day foreign exchange profit for 2000 was HK$1 million (HK$2 million for 1999).

Structural foreign exchange positions represent Hang Seng's net investment in branches and subsidiaries outside Hong Kong. Hang Seng's structural foreign exchange positions are mainly in US dollar and are managed by the Asset and Liability Management Committee.

Foreign currency exposures arising from dealing, non-dealing and structural positions, where an individual currency constitutes 10 per cent or more of the total net position in all foreign currencies, are shown separately as follows:

	2000		
TOTAL FOREIGN CURRENCY POSITION (HK$M)	US$	OTHER FOREIGN CURRENCIES	TOTAL FOREIGN CURRENCIES
Spot assets	209,969	88,563	298,532
Spot liabilities	(187,255)	(74,755)	(262,010)
Forward purchases	79,272	21,146	100,418
Forward sales	(95,630)	(34,920)	(130,550)
Net options positions	2	(2)	–
Net long non-structural position	6,358	32	6,390
Net structural position	508	127	635

interest rate exposure

Interest rate risk arises in both the treasury dealing portfolio and accrual books, which are managed by Treasury under limits approved by the Board of Directors. The VaR relating to interest rate exposures was HK$213 million at 31 December 2000 (HK$198 million at 31 December 1999) and the average amount for 2000 was HK$178 million, with a maximum of HK$243 million and a minimum of HK$119 million in the year. The average daily revenue earned from treasury-related interest rate activities for 2000 was HK$4 million (HK$5 million for 1999).

Structural interest rate risk arises primarily from the employment of non-interest bearing liabilities, such as shareholders' funds and some current accounts, as well as fixed rate loans and liabilities other than those generated by the treasury business. Structural interest rate risk is monitored by Hang Seng's Asset and Liability Management Committee.

Interest rate sensitivity analysis is useful in managing the interest rate risk of the accrual portfolio. The table on page 65 discloses the mismatching of the dates on which interest receivable on assets and payable on liabilities are next reset to market rate on a contractual basis, or, if earlier, the dates on which the instruments mature. Actual reset dates may differ from contractual dates owing to prepayments and the exercise of options. In addition, contractual terms may not be representative of the behaviour of assets and liabilities. For these reasons, Hang Seng takes into account behavioural characteristics in the management of its interest rate risk, rather than on the contractual basis set out in the table below.

	2000					
INTEREST RATE SENSITIVITY ANALYSIS (HK$M)	UP TO 3 MONTHS	MORE THAN 3 MONTHS AND UP TO 6 MONTHS	MORE THAN 6 MONTHS AND UP TO 12 MONTHS	MORE THAN 12 MONTHS	NON-INTEREST EARNING/ BEARING	TOTAL
Assets						
Cash and short-term funds	119,238	2,350	3,811	–	3,913	129,312
Placings with banks maturing after one month	35,756	13,198	9,451	–	–	58,405
Certificates of deposit	14,013	1,483	200	1,536	–	17,232
Investment securities	22,872	4,966	4,251	7,196	4,484	43,769
Advances to customers	205,232	4,479	890	6,680	237	217,518
Other assets*	7,145	400	542	1,704	24,757	34,548
Total assets	404,256	26,876	19,145	17,116	33,391	500,784
Liabilities						
Current, savings and other deposit accounts	399,109	11,201	4,918	2,803	11,574	429,605
Deposits from banks	3,551	14	13	–	224	3,802
Other liabilities*	8,759	81	146	–	17,807	26,793
Shareholders' funds	–	–	–	–	40,584	40,584
Total liabilities	411,419	11,296	5,077	2,803	70,189	500,784
Off-balance sheet positions						
Assets	25,177	11,282	7,973	15,606	–	60,038
Liabilities	43,927	2,212	5,873	8,026	–	60,038
Net gap position	(25,913)	24,650	16,168	21,893	(36,798)	–
Cumulative gap position	(25,913)	(1,263)	14,905	36,798	–	–

**Amounts due from/to immediate holding company and fellow subsidiary companies are included under other assets and other liabilities.*

A positive interest rate sensitivity gap exists where more assets than liabilities re-price in a given period. Although a positive gap position tends to benefit net interest income in a rising interest rate environment, the actual effect will depend on a number of factors, including the extent to which repayments are made earlier or later than the contracted date and variations in interest rates within re-pricing periods and among currencies. Similarly, a negative interest rate sensitivity gap exists where more liabilities than assets re-price during a given period. In this case, a negative gap position tends to benefit net interest income in a declining interest rate environment, but again the actual effect will depend on the same factors as for positive interest rate gaps, as described above.

equities exposure

Hang Seng's equities exposure in 2000 is mainly in long-term equity investments which are set out in note 18 of the financial statements.

derivatives

POSITIONS OF DERIVATIVE CONTRACTS OUTSTANDING (HK$M)	2000			
	CONTRACT AMOUNT		MARK-TO-MARKET VALUES	
	DEALING	NON-DEALING	POSITIVE	NEGATIVE
Foreign exchange contracts				
Spot and forward	169,896	–	1,448	1,877
Currency swaps	1,900	301	11	3
Currency options	4,303	–	32	32
Interest rate contracts				
Interest rate swaps	27,990	18,961	722	285
Futures and forward rate agreements	750	–	–	1
Interest rate options written	–	5,479	–	58
Analysis of mark-to-market values				
Dealing contracts			1,640	2,099
Non-dealing contracts			573	157

Derivatives are financial contracts whose value and characteristics are derived from underlying assets, exchange and interest rates, and indices. They mainly include futures, forwards, swaps and options in foreign exchange, interest rate, equity and equity indices and commodities. Derivative positions arise from transactions with customers as well as Hang Seng's own dealing and asset and liability management activities. These positions are managed carefully to ensure that they are within acceptable risk levels.

Derivative instruments are subject to both market risk and credit risk. Market risk from derivative positions is controlled individually and in combination with on-balance sheet market risk positions within Hang Seng's market risk limits regime as described on page 63. The credit risk relating to a derivative contract is principally the replacement cost of the contract when it has a positive mark-to-market value and the estimated potential future change in value over the residual maturity of the contract. The nominal value of the contracts does not represent the amount of Hang Seng's exposure to credit risk. All activities relating to derivatives are subject to the same credit approval and monitoring procedures used for other credit transactions.

The table above provides an analysis of derivatives by product at 31 December 2000, showing those contracts undertaken for dealing and non-dealing purposes. Hang Seng's derivative positions are mainly in foreign exchange and interest rate contracts, and option positions are minimal. Mark-to-market values of derivatives designated for dealing purpose are included in "Other assets" for positive amounts and "Other liabilities" for negative amounts.

operational controls

The risk of losses caused by human error and fraud is mitigated under a well-established internal control environment as described on page 74 in the Directors' Report. Adequate insurance cover is taken to minimise losses in business operation and in holding of fixed assets. To reduce the impact of and interruptions to business activities caused by system failure or natural disaster, back-up systems and contingency business resumption plans are in place for all business and critical back-office functions. Back-up computer systems and business resumption back-up sites are maintained. Detailed contingency recovery procedures are clearly documented, with periodic drills conducted to ensure the procedures are current and correct.