# FINANCIAL PERFORMANCE

## Profit and Loss Account

| SUMMARY OF FINANCIAL PERFORMANCE (HK$M) | 2001 | 2000 |
|---|---|---|
| Operating profit before provisions | **11,503** | 11,540 |
| Profit on ordinary activities before tax | **11,514** | 11,675 |
| Profit attributable to shareholders | **10,114** | 10,014 |
| Earnings per share (HK$) | **5.29** | 5.24 |

Hang Seng Bank Limited (the Bank) and its subsidiary and associated companies (Hang Seng) reported a profit attributable to shareholders of HK$10,114 million for 2001, an increase of 1.0 per cent compared with 2000. Earnings per share of HK$5.29 were 1.0 per cent higher than in 2000.

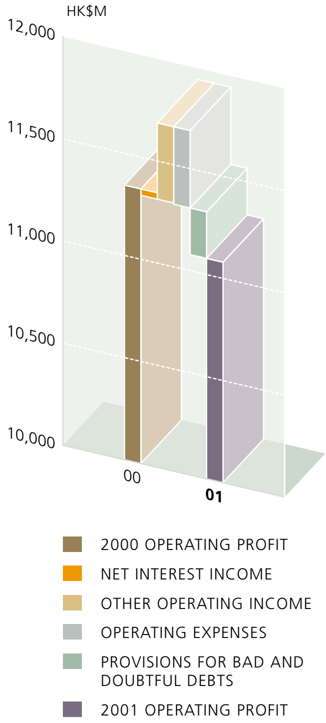
Operating profit before provisions of HK$11,503 million, was in line with the previous year. Net interest income remained flat, with the growth in other operating income, mainly from wealth management initiatives, offsetting an increase in operating expense which was mainly due to a special contribution to the retirement benefit scheme. Operating profit was HK$11,079 million, down by 2.3 per cent, reflecting an increase in provisions for bad and doubtful debts. Profit before tax amounted to HK$11,514 million, a reduction of 1.4 per cent, after taking into account profits on disposal of long-term investments and a deficit on property revaluation.

### ECONOMIC PROFIT

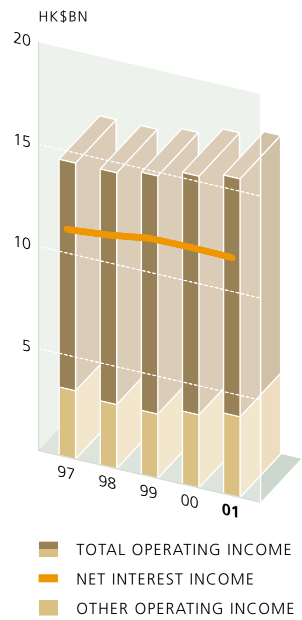
In implementing its Managing for Value strategy, Hang Seng has adopted economic profit as a value-based performance measurement since 1999. This is to align the objectives of Hang Seng's management to that of its shareholders. Management uses economic profit to decide on the allocation of resources among businesses to achieve the best return for shareholders. Economic profit is based on profit after tax, adjusted for non-cash items, and takes into account the cost of capital invested by Hang Seng's shareholders.

In 2001, Hang Seng's economic profit amounted to HK$5,555 million and was maintained at about the same level as the previous year, reflecting the improvement in operating results and a slight increase in invested capital. For consistency, Hang Seng has continued to apply the benchmark cost of capital of 15.0 per cent, which is believed to be higher than its true cost of capital given the current low interest rate environment and Hang Seng's business risk profile. If the true cost of capital were to be adopted, the economic profit would be higher.

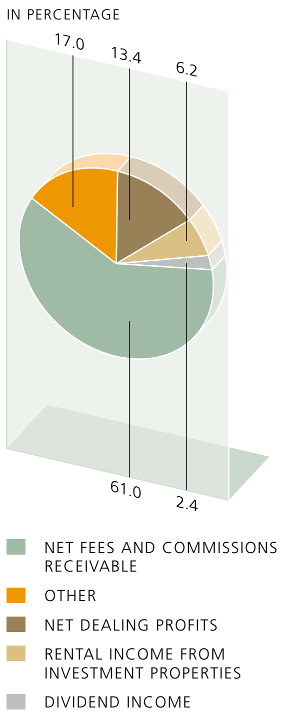
**OPERATING PROFIT ANALYSIS**




**TOTAL OPERATING INCOME**



**OTHER OPERATING INCOME FOR 2001**




| ECONOMIC PROFIT (HK$M) | 2001 | % | 2000 | % |
|---|---|---|---|---|
| Average invested capital | 31,061 | | 30,259 | |
| Return on invested capital* | 10,222 | 32.9 | 10,068 | 33.3 |
| Cost of capital | (4,667) | (15.0) | (4,536) | (15.0) |
| Economic profit | 5,555 | 17.9 | 5,532 | 18.3 |

**Return on invested capital represents profit after tax adjusted for non-cash items.*

## NET INTEREST INCOME

| NET INTEREST INCOME (HK$M) | 2001 | 2000 |
|---|---|---|
| Interest income | 24,509 | 31,913 |
| Interest expense | (12,849) | (20,222) |
| Net interest income | 11,660 | 11,691 |
| Average interest-earning assets | 454,937 | 435,759 |
| Net interest spread (% p.a.) | 2.28 | 2.19 |
| Net interest margin (% p.a.) | 2.56 | 2.68 |

Net interest income was sustained at the level of the previous year, with a slight decrease of HK$31 million, or 0.3 per cent. Average interest-earning assets grew by HK$19.2 billion, or 4.4 per cent, to HK$454.9 billion. Net interest spread improved by 9 basis points to 2.28 per cent, but this was more than offset by a reduction of 21 basis points in the contribution from net free funds to 0.28 per cent, leading to a 12 basis point compression in net interest margin to 2.56 per cent.

The improvement in net interest spread was helped by the growth in low cost savings deposits and a wider gap between BLR and HIBOR. In addition, the positioning of the treasury portfolios and holding of fixed rate securities in a downward trending interest rate environment also contributed to the improvement in net interest spread. These were partly offset by a further decline in the average yield of the mortgage portfolio. The spreads earned on time deposits also narrowed.

The contribution from net free funds declined significantly due to the fall in market interest rates.

As a result of the continuing reduction in the pricing of new mortgages and the re-pricing of existing loans, the average yield on the residential mortgage portfolio, excluding Government Home Ownership Scheme mortgages and staff loans, fell from 26 basis points below BLR in 2000 to 84 basis points below BLR in 2001. This was before accounting for the effect of cash incentive payments.

## OTHER OPERATING INCOME

Other operating income grew by HK$373 million, or 10.4 per cent, to HK$3,947 million, and comprised 25.3 per cent of total operating income against 23.4 per cent for 2000. Net fees and commissions increased by HK$336 million, or 16.2 per cent, with a growth of 27.1 per cent in wealth management income. This includes initiatives such as the successful launch of the Hang Seng Capital Guaranteed Fund series, life insurance products and the Mandatory Provident Fund service. Securities broking and related income fell due to the depressed stock market, but card services and credit facilities contributed to the growth in fee income. Dealing profits were flat while other income rose by HK$43 million, or 6.8 per cent, mainly due to higher loan redemption fees.

## OPERATING EXPENSES

Operating expenses increased by HK$379 million, or 10.2 per cent, to HK$4,104 million. The increase of HK$220 million, or 10.7 per cent, in staff costs was mainly due to a special contribution of HK$213 million to maintain the fully funded position of the staff retirement benefit scheme. Premises and equipment expenses rose by HK$101 million, or 13.2 per cent, reflecting the growth in IT expenditure to support the development of e-banking initiatives. Other operating expenses increased by HK$60 million, or 11.5 per cent, due to increased marketing and advertising expenditure and additional financial data service fees to support Hang Seng's on-line investment service.

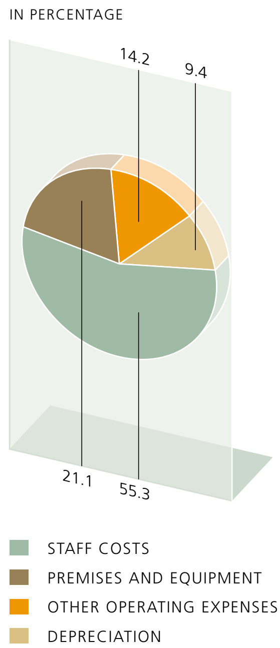
The cost:income ratio increased to 26.3 per cent, compared with 24.4 per cent in 2000. Excluding the special contribution mentioned above, the cost:income ratio would have been 24.9 per cent.

## PROVISIONS FOR BAD AND DOUBTFUL DEBTS

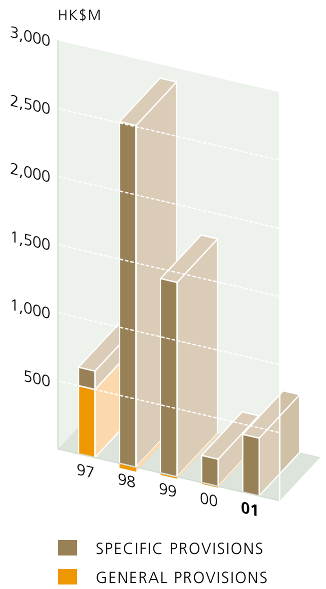
| NET CHARGE TO PROFIT AND LOSS ACCOUNT (HK$M) | 2001 | 2000 |
|---|---|---|
| Net charge/(release) for bad and doubtful debts | | |
| Specific | **424** | 199 |
| General | **–** | (3) |
| Total | **424** | 196 |
| Average gross advances to customers | **224,088** | 214,662 |
| Net charge for bad and doubtful debts as a percentage of average gross advances to customers | | |
| Specific | **0.2%** | 0.1% |
| General | **–** | – |
| Total | **0.2%** | 0.1% |

The net charge for bad and doubtful debts amounted to HK$424 million, an increase of HK$228 million, or 116.3 per cent, compared with the previous year. New specific provisions for doubtful accounts rose by 14.9 per cent to HK$1,135 million, mainly in residential mortgages and card advances. Recoveries and releases decreased by 9.9 per cent to HK$711 million, mainly in corporate accounts. As the balance of HK$125 million of the additional general provision made in 1997 was transferred to augment general provisions at the end of 2000, no charge for general provisions was made against loan growth during 2001.

### OPERATING EXPENSES FOR 2001

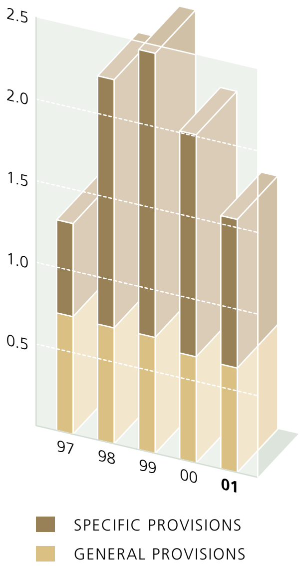



### NET CHARGE FOR BAD AND DOUBTFUL DEBTS



**PROVISIONS AS A PERCENTAGE OF GROSS ADVANCES TO CUSTOMERS**

IN PERCENTAGE




| ADVANCES TO CUSTOMERS AND PROVISIONS (HK$M) | 2001 | 2000 |
|---|---|---|
| Gross advances to customers* | **225,926** | 221,973 |
| Specific provisions | **(2,052)** | (3,017) |
| General provisions | **(1,438)** | (1,438) |
| Advances to customers** | **222,436** | 217,518 |
| Gross non-performing advances* | **6,174** | 7,434 |
| Non-performing advances* as a percentage of gross advances to customers* | **2.7%** | 3.3% |
| Provisions as a percentage of gross advances to customers* | | |
| Specific provisions | **0.91%** | 1.36% |
| General provisions | **0.64%** | 0.65% |
| Total provisions | **1.55%** | 2.01% |
| Specific provisions as a percentage of gross non-performing advances* | **33.2%** | 40.6% |

**After deduction of interest in suspense.*

***After deduction of interest in suspense and provisions.*

Gross non-performing advances (after deduction of interest in suspense) fell by HK$1,260 million, or 16.9 per cent, to HK$6,174 million, compared with the end of 2000. There was an improvement in the ratio of gross non-performing advances to gross advances to customers to 2.7 per cent from 3.3 per cent at the end of the previous year. This was the result of repayments, the write-offs of the balance of corporate accounts on final settlement and the estimated irrecoverable portion of residential mortgages with repossessed properties and the upgrading of rescheduled advances and doubtful accounts to performing status.

## PROFIT ON TANGIBLE FIXED ASSETS AND LONG-TERM INVESTMENTS

Profit on disposal of tangible fixed assets and long-term investments rose by HK$145 million, or 58.5 per cent, to HK$393 million, reflecting increased profits on the disposal of debt securities from the accrual portfolio and of locally-listed equities.

## PROPERTY REVALUATION

Hang Seng's premises and investment properties were revalued by Chesterton Petty Limited, an independent professional valuer, at 30 September 2001 who confirmed that there had been no material change in valuations at 31 December 2001. The valuations were carried out by qualified valuers who are members of the Hong Kong Institute of Surveyors. The basis of the valuation of premises was open market value for existing use. The basis of the valuation for investment properties was open market value. The property revaluation has resulted in a fall in Hang Seng's revaluation reserves of HK$481 million as at 31 December 2001 and a charge to the profit and loss account of HK$14 million in respect of properties where the valuation has fallen below the depreciated historical cost.

# Balance Sheet

## TOTAL ASSETS

Total assets fell by HK$26.0 billion, or 5.2 per cent, to HK$474.8 billion at 31 December 2001. The reduction in the balance sheet size was largely the result of a 3.6 per cent fall in customer deposits (including certificates of deposit in issue). Advances to customers grew by 2.3 per cent, mainly in mortgages under the Government Home Ownership Scheme and credit card and personal advances, although residential mortgages and corporate lending fell slightly. Investment in debt securities also rose, with funds redeployed from lower yielding interbank placings.

## SHAREHOLDERS' FUNDS

| AT 31 DECEMBER (HK$M) | 2001 | 2000 |
|---|---|---|
| Share capital | 9,559 | 9,559 |
| Retained profits | 19,618 | 18,732 |
| Premises and investment properties revaluation reserves | 8,119 | 8,742 |
| Long-term equity investment revaluation reserve | 2,323 | 3,452 |
| Capital redemption reserve | 99 | 99 |
| | 39,718 | 40,584 |
| Proposed dividends | 5,353 | 5,353 |
| Shareholders' funds | 45,071 | 45,937 |
| Return on average shareholders' funds (% p.a.) | 23.0 | 22.7 |

Shareholders' funds (excluding proposed dividend) decreased by HK$866 million, or 2.1 per cent, to HK$39,718 million. Despite an increase in retained profits, the decrease in shareholders' funds reflected the reductions in the long-term equity investment revaluation reserve due to disposals and decrease in fair value of the equity investments and the premises and investment properties revaluation reserves as a result of the decline in the property market. Following the adoption of the revised HK SSAP 9, dividends proposed after the balance sheet date are recorded as a separate component of shareholders' funds. Shareholders' funds and the return on average shareholders' funds at 31 December 2000 have been restated to reflect this change in accounting policy.

The return on average shareholders' funds improved slightly to 23.0 per cent, compared with 22.7 per cent for 2000.

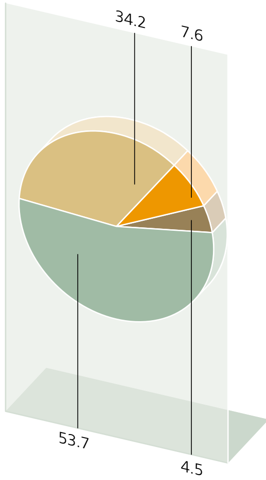
There was no purchase, sale or redemption of the Bank's listed securities by the Bank or any of its subsidiaries during the year.

## CUSTOMER DEPOSITS

Current, savings, time and other deposit accounts fell by HK$19.1 billion, or 4.6 per cent, to HK$395.8 billion at 31 December 2001,

**CUSTOMER DEPOSITS FOR 2001**

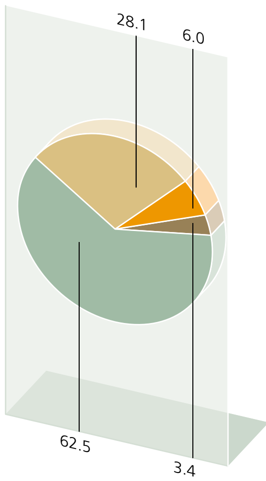
IN PERCENTAGE




TIME AND OTHER DEPOSITS
SAVINGS ACCOUNTS
CURRENT ACCOUNTS
CERTIFICATES OF DEPOSIT IN ISSUE

**CUSTOMER DEPOSITS FOR 2000**

IN PERCENTAGE




TIME AND OTHER DEPOSITS
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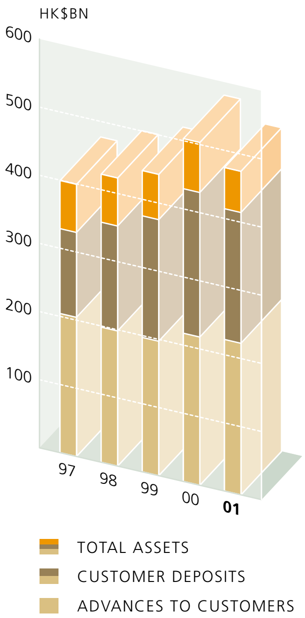
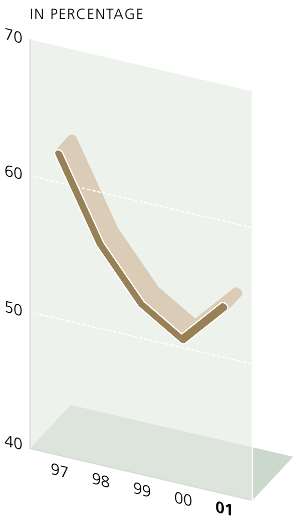
**TOTAL ASSETS, CUSTOMER DEPOSITS AND ADVANCES TO CUSTOMERS**




**ADVANCES TO DEPOSITS RATIO**




compared with HK$414.9 billion at the previous year-end. Time and other deposits showed a decline of 17.0 per cent, mainly in Hong Kong dollars and US dollars, which was partly the result of the withdrawal of large deposits by certain corporate customers. Current and savings accounts, mainly in Hong Kong dollars, grew by 22.5 per cent and 17.2 per cent respectively, reflecting customers' preference for liquidity in the low interest rate environment. The final stage of interest rate deregulation which was brought into effect on 3 July 2001 had no material impact on savings account balances.

In terms of currency, Hong Kong dollar deposits remained stable, US dollar deposits (mainly time deposits) fell, while deposits in other foreign currencies rose.

Certificates of deposit in issue increased by HK$3.8 billion, or 26.0 per cent, to HK$18.6 billion.

## ADVANCES TO CUSTOMERS

Advances to customers (after deduction of interest in suspense and provisions) grew by HK$4,918 million, or 2.3 per cent, to HK$222.4 billion at 31 December 2001. Growth in the portfolio was affected by continued intense competition in the mortgage and retail lending markets and by sluggish corporate loan demand in 2001.

## ADVANCES TO DEPOSITS RATIO

The advances to deposits ratio was 53.7 per cent at 31 December 2001, compared with 50.6 per cent at 31 December 2000, resulting from the combined effect of the growth in advances to customers and the fall in customer deposits.

# CAPITAL AND LIQUIDITY MANAGEMENT

## Capital Resources Management

| ANALYSIS OF CAPITAL BASE AND RISK-WEIGHTED ASSETS (HK$M) | 2001 | 2000 |
|---|---|---|
| **Capital base** | | |
| Tier 1 capital | | |
| Share capital | **9,559** | 9,559 |
| Retained profits | **19,342** | 18,455 |
| Capital redemption reserve | **99** | 99 |
| Total | **29,000** | 28,113 |
| Tier 2 capital | | |
| Premises and investment properties revaluation reserves | **5,708** | 5,860 |
| Long-term equity investment revaluation reserve | **1,418** | 2,043 |
| General loan provisions | **1,437** | 1,437 |
| Total | **8,563** | 9,340 |
| Unconsolidated investments and other deductions | **(1,331)** | (1,346) |
| Total capital base after deductions | **36,232** | 36,107 |
| **Risk-weighted assets** | | |
| On-balance sheet | **221,565** | 220,037 |
| Off-balance sheet | **14,726** | 13,982 |
| Total risk-weighted assets | **236,291** | 234,019 |
| Total risk-weighted assets adjusted for market risk | **236,588** | 235,453 |
| **Capital adequacy ratios** | | |
| After adjusting for market risk | | |
| Tier 1* | **12.3%** | 11.9% |
| Total* | **15.3%** | 15.3% |
| Before adjusting for market risk | | |
| Tier 1 | **12.3%** | 12.0% |
| Total | **15.3%** | 15.4% |

**The capital ratios take into account market risks in accordance with the relevant Hong Kong Monetary Authority guideline under the Supervisory Policy Manual.*

The total capital ratio at 31 December 2001 was maintained at 15.3 per cent, the same level as the previous year. The capital base recorded a small growth of 0.3 per cent while risk-weighted assets adjusted for market risk rose by 0.5 per cent.

The tier 1 capital ratio rose to 12.3 per cent from the growth in retained profits while the overall capital ratio fell because of the decline in the revaluation reserves.

## 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 Hong Kong 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 continued to maintain a strong liquidity position, with an average liquidity ratio of 45.6 per cent in 2001 (43.3 per cent in 2000).

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 interbank 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$3.8 billion to HK$18.6 billion at the end of 2001.

## 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 in the Directors' Report on page 78. 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 will be unable or unwilling to meet a commitment that it has entered into with Hang Seng. It arises principally from lending, trade finance, treasury and leasing activities. Hang Seng has standards, policies and procedures in place to control and monitor all such risks.

Credit Risk Management is mandated to provide centralised management of credit risk. Credit Risk Management is headed by the Chief Credit Officer who reports to the Chief Executive and functionally reports to the HSBC Group Credit and Risk. Hang Seng conforms with the HSBC Group standards in establishing its credit policies. The responsibilities of Credit Risk Management are as follows:

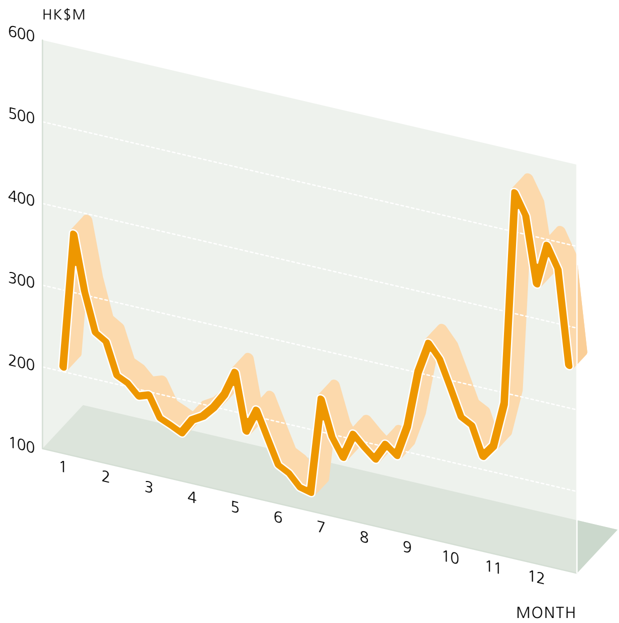
- formulation of credit policies which are embodied in the Credit Risk Manual as approved by the Board of Directors;
- establishment and maintenance of the Large Credit Exposure Policy setting controls on exposures to customers and customer groups and on other risk concentrations;
- issue of Lending Guidelines to provide business units with clear guidance on Hang Seng's attitude towards and appetite for lending to different market sectors, industries, and products etc. They are regularly updated and provided to all credit and marketing executives;
- independent review and objective assessment of risk. Credit Risk Management undertakes an independent assessment of all commercial non-bank credit facilities over designated limits originated by business units, prior to the facilities being offered to the customer. Renewals and reviews of commercial non-bank facilities over designated levels are also subject to such independent review and assessment;

- control of exposures to banks and financial institutions. As full authority has been devolved to HSBC Group Credit and Risk to approve Hang Seng's credit and settlement risk limits to counterparties in the financial and government sectors, Hang Seng Credit Risk Management co-ordinates with the dedicated unit within Group Credit and Risk which controls and manages these exposures on a global basis using centralised systems and automated processes;
- control of cross-border exposures. Similar to the control of exposures to banks and financial institutions, Credit Risk Management co-ordinates with the dedicated unit within Group Credit and Risk to control country and cross-border risk using centralized systems, through the imposition of country limits with sub-limits by maturity and type of business. Country limits are determined taking into account economic and political factors together with local business knowledge. Transactions with countries deemed to be higher risk are considered on a case-by-case basis;
- control of exposure to certain industries including shipping and aviation industries, and close monitoring of exposures to other industries or products such as telecoms, commercial and residential real estate. Controls and restrictions on new business or the capping of exposure may be introduced where necessary;
- maintenance of facility grading process. Hang Seng adopts HSBC's grading structure which contains seven grades, the first three of which are applied to differing levels of satisfactory risk. Of the four unsatisfactory grades, grades 6 and 7 are non-performing loans. In the case of banks, the grading structure involves 10 tiers, six of which cover satisfactory risk. It is the responsibility of the final approver to approve the facility grade. Facility grades are subject to frequent review and amendments, where necessary, are required to be undertaken promptly;
- reporting to senior executives on aspects of the loan portfolio. Reports are produced for senior management including the Credit Committee, Executive Committee, Audit Committee, the Board of Directors and Group Credit and Risk covering:
  - □ risk concentrations and exposures to industry sectors
  - □ large customer group exposure
  - □ large non-performing accounts and provisions
  - □ specific segments of the portfolio such as residential mortgages, commercial real - estate, telecoms, credit cards, as well as ad hoc reviews as necessary
  - □ country limits and cross-border exposures;
- management and direction of credit-related systems initiatives in the development of standard credit-related systems to ensure cost efficiency;
- provision of advice and guidance to business units on various credit-related issues.

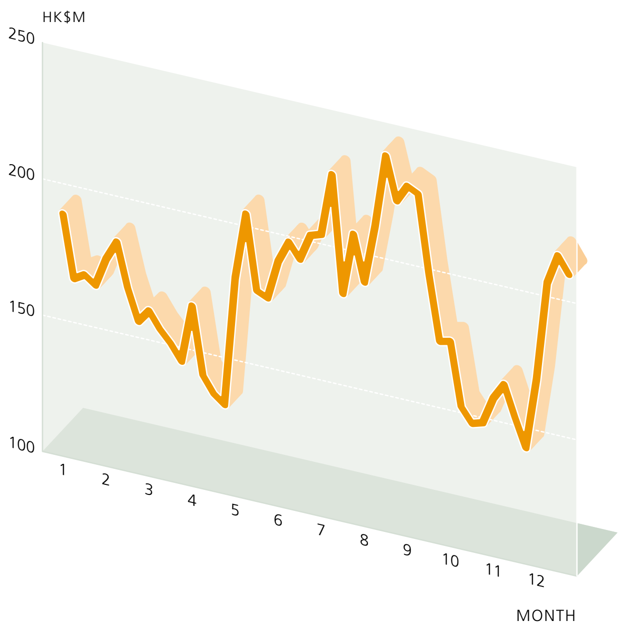
## Market Risk

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 to Hang Seng. 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.

**VALUE AT RISK FOR 2001**




**VALUE AT RISK FOR 2000**




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.

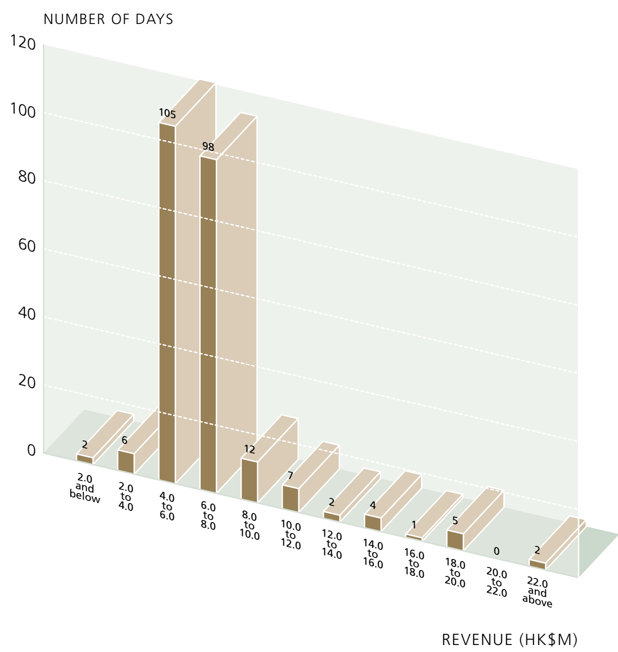
VAR is a technique which estimates the potential losses that could occur on risk positions taken due to movements in market rates and prices over a specified time horizon and to a given level of confidence. The model used by Hang Seng calculates VAR on a variance/covariance basis, using historical movements 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.

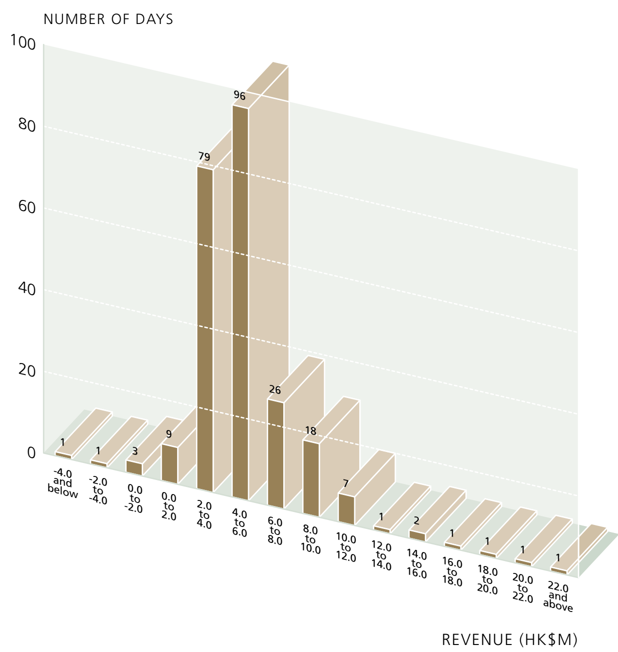
The VAR for all interest rate risk and foreign exchange risk positions at 31 December 2001 was HK$352 million compared with HK$213 million at 31 December 2000. The average VAR for 2001 was HK$248 million, with a maximum of HK$562 million and a minimum of HK$119 million for the year. On an individual portfolio basis, the values at risk at 31 December 2001 relating to the trading portfolio and accrual portfolio were HK$5 million (HK$7 million at 31 December 2000) and HK$353 million (HK$212 million at 31 December 2000) respectively.

The average daily revenue earned from market risk-related treasury activities in 2001, including accrual book net interest income and funding related to dealing positions, was HK$7 million (HK$5 million for 2000). The standard deviation of these daily revenues was HK$3 million (HK$3 million for 2000). No loss was recorded out of 244 trading days in 2001. The most frequent result was a daily revenue of between HK$4 million and HK$8 million, with 203 occurrences. The highest daily revenue was HK$22 million.

**DAILY DISTRIBUTION OF MARKET RISK REVENUES FOR 2001**




**DAILY DISTRIBUTION OF MARKET RISK REVENUES FOR 2000**




## 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$4 million at 31 December 2001 (HK$6 million at 31 December 2000) and the average amount for 2001 was HK$5 million, with a maximum of HK$8 million and a minimum of HK$3 million in the year. The average one-day foreign exchange profit for 2001 was HK$1 million (HK$1 million for 2000).

Foreign currency exposures at 31 December 2001, including those arising from dealing, non-dealing and structural positions, and with an individual currency constituting 10 per cent or more of the total net position in all foreign currencies being shown separately, are as follows:

| TOTAL FOREIGN CURRENCY POSITIONS (HK$M) | 2001 USD | Other foreign currencies | Total foreign currencies |
|---|---|---|---|
| Spot assets | 237,778 | 91,998 | 329,776 |
| Spot liabilities | (206,264) | (93,763) | (300,027) |
| Forward purchases | 39,001 | 9,638 | 48,639 |
| Forward sales | (61,725) | (7,742) | (69,467) |
| Net options positions | 4 | (4) | – |
| Net long non-structural position | 8,794 | 127 | 8,921 |
| Net structural position | 508 | 51 | 559 |

## INTEREST RATE EXPOSURE

Interest rate risk arises in both the treasury dealing portfolio and accruals books, which are managed by Treasury under limits approved by the Board of Directors. The VAR relating to interest rate exposures was HK$352 million at 31 December 2001 (HK$213 million at 31 December 2000) and the average amount for 2001 was HK$248 million, with a maximum of HK$562 million and a minimum of HK$119 million for the year. The average daily revenue earned from treasury-related interest rate activities for 2001 was HK$5 million (HK$4 million for 2000).

Structural interest rate risk arises primarily from the deployment 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 69 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 on page 69.

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.

| INTEREST RATE SENSITIVITY ANALYSIS (HK$M) | 2001 | | | | | |
|---|---|---|---|---|---|---|
| | 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 | 105,277 | 2,282 | 410 | – | 3,130 | 111,099 |
| Placings with banks maturing after one month | 29,834 | 8,845 | 4,987 | – | – | 43,666 |
| Certificates of deposit | 16,698 | 956 | 593 | 4,956 | – | 23,203 |
| Investment securities | 24,533 | 4,547 | 3,216 | 9,447 | 3,686 | 45,429 |
| Advances to customers | 202,045 | 8,672 | 5,537 | 5,753 | 429 | 222,436 |
| Other assets * | 5,192 | 846 | 969 | 977 | 20,970 | 28,954 |
| Total assets | 383,579 | 26,148 | 15,712 | 21,133 | 28,215 | 474,787 |
| **Liabilities** | | | | | | |
| Current, savings and other deposit accounts | 381,273 | 8,334 | 8,074 | 3,411 | 13,236 | 414,328 |
| Deposits from banks | 2,437 | 18 | – | – | 167 | 2,622 |
| Other liabilities * | 2,988 | 120 | 1,991 | 453 | 7,214 | 12,766 |
| Shareholders' funds | – | – | – | – | 45,071 | 45,071 |
| Total liabilities | 386,698 | 8,472 | 10,065 | 3,864 | 65,688 | 474,787 |
| **Off-balance sheet items** | (2,776) | 787 | (485) | 2,474 | – | – |
| Net gap position | (5,895) | 18,463 | 5,162 | 19,743 | (37,473) | – |
| Cumulative gap position | (5,895) | 12,568 | 17,730 | 37,473 | – | – |

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

## EQUITIES EXPOSURE

Hang Seng's equities exposure in 2001 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) | 2001 | | | |
|---|---|---|---|---|
| | Contract amount | | Mark-to-market values | |
| | Dealing | Non-dealing | Positive | Negative |
| Foreign exchange contracts | | | | |
| Spot and forward | 98,143 | – | 294 | 149 |
| Currency swaps | 1,900 | 337 | 5 | 4 |
| Currency options | 5,680 | – | 11 | 10 |
| Interest rate contracts | | | | |
| Interest rate swaps | 30,505 | 13,941 | 859 | 612 |
| Futures and forward rate agreements | – | – | – | – |
| Interest rate options written | – | 6,842 | – | 13 |
| Analysis of mark-to-market values | | | | |
| Dealing contracts | | | 690 | 577 |
| Non-dealing contracts | | | 479 | 211 |

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 65. 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 on page 69 provides an analysis of derivatives by product at 31 December 2001, 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 relatively small. 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 Risk Management

Operational risk is the risk of economic loss arising through fraud, unauthorised activities, error, omission, inefficiency, systems failure or from external events. The risk of losses caused by human error and fraud is mitigated under a well-established internal control environment in which processes are documented, authorisation is independent and where transactions are reconciled and monitored. Details are described in the Report of Directors on page 78. Adequate insurance cover is taken to minimise losses in business operation and on 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.