Chapter 1

Israel's Banking System– Activity, Risks and Performance in 2003 and a Long-Term View

The performance of Israel's banking system improved in 2003, following the two difficult years that preceded it. This improved performance was reflected in a sharp rise in the return on **equity** (ROE), while the risks facing the banking system—and in particular credit risks, which remained high—did not change significantly. Return on equity in the five major banking groups rose dramatically, from 2.8 percent in 2002 to 8.4 percent in 2003. The significant increase in profits for the five major banking groups was the result of two main factors, which characterized each group separately: a sharp rise in profits from financial activity before loan-loss provision, from NIS 16.8 billion to NIS 18.5 billion, coupled with a sharp drop in loan-loss provision, from NIS 7.2 billion to NIS 6.0 billion.

The major contribution to the increase in **profit from financial activities before loan-loss provision** came from the banks' profits from developments in the stock market, including profits from bond revaluations and sales. These profits derived from the decline in interest rates in 2003, both short-term (the Bank of Israel interest rate dropped during the year from 9.1 percent to 5.2 percent) and long-term (the real return on government bond yields dropped from 5.7 percent to 4.3 percent). This occurred after a year in which these interest rates had gradually increased which, in turn, had a negative impact on bank profits.

The contribution of the banks' profits from stock market developments to the increased profit from financial activity before loan-loss provision was about NIS 1.3 billion. Commercial banks' net interest margin rose from 2.19 percent in 2002 to 2.48 percent in 2003. In spite of the increased net interest

margin, it would appear that this development did not have a positive effect on the increased profits from financial activity, since the amount of credit dropped during that year (for reasons that will be outlined below).

Furthermore, the financial results of Israel's banking system were positively influenced by improvements in Israel's economic activity. Following two years of severe recession, the second half of 2003 was marked by a recovery in economic activity in Israel, which was reflected in a rise in GDP of around 1.3 percent and an increase in the State-of-the-Economy (Composite) Index by around 1.1 percent, following two consecutive years in which these indices had dropped. These positive developments were reflected, if only partially, in a sharp decline in loan-loss provision (a total of about NIS 1.2 billion) in the five major banking groups, although their levels remained relatively high. Non-interest income too was positively affected by the economic recovery, and also by the boom in the capital market, both of which contributed towards increasing the banks' revenue from fees charged for their customers' stock market activities, and higher profits from stock sales compared with losses from such sales in 2002.

Operating efficiency also improved this year, and is reflected in the rise in standard indices for operating efficiency used in banking, such as the *efficiency ratio* and the *coverage ratio*. The operating *coverage ratio* for the five major banking groups rose from 55 percent in 2002 to 60 percent in 2003. This improvement in the coverage ratio was the result of the sharp rise, as stated above, in non-interest income alongside the moderate growth in operating expenses. The *efficiency ratio* among the seven major banks rose this year from 1.47 to 1.61, following several years during which this ratio had remained stable.

In 2003 there was a rise in direct salary expenses for the five major banking groups, in spite of the dramatic drop in the number of employee posts. As a result of this, there was a 9 percent increase in wage-related expenses per employee post.

By analyzing the operating efficiency derived from changes in the banks' size (*economies of scale*) and changes in operating expenses for a given size of bank (X-*efficiency*), it seems that in 2003 most of the banks improved their operating efficiency compared with the long-term average (1992-2003). This improved efficiency is the result of the extent of this year's dramatic drop in expenses per unit (NIS) of output unit in the transition between small and medium banks. From the X-efficiency ratio it appears that the potential for saving on operating expenses is very high among the small banks, and low among the medium and large banks. In 2003 the large banks improved in this area, while the small banks deteriorated.

It should be noted that despite the positive growth rates in gross domestic product (GDP) and the State-of-the-Economy (Composite) Index for 2003, the improved state of the economy has yet to be reflected in a change in credit risk in the banking system. As stated above, this risk remains high in 2003 as well: the ratio of problem loans to total credit to the public rose this year to 10.5 percent at the end of the year, compared with 10.1 percent in 2002; the ratio of nonperforming credit to total credit to the public, which is positively related to the probability of a rise in future loan-loss provision, maintained its high values and was similar to that in 2002, approximately 2.6 percent. The ratio of loan-loss provision to total credit to the public did, in fact, drop from some 1.32 percent in 2002 to some 1.12 percent in 2003, but it is still considered high relative to ratios in the Israeli banking system at the end of the 1990s and compared with those in banking systems in advanced economies. Due to the fall in credit and the positive growth of the GDP, the credit/GDP ratio dipped slightly this year, amounting to about 1.08 in 2003 compared with the peak ratio of 1.11 in 2002. From a long-term perspective, this ratio is still considered to be excessive, indicating a high degree of exposure to credit risk. Slight decreases were also seen in the credit/GDP ratio in most of the principal industries, but the major ones to which the banking system is exposed still recorded high ratios. Thus, for example, in the construction and real estate industry, which is a major area of credit risk for the banking system, the credit/GDP ratio stood at about 4.54 in 2003, similar to the ratio in 2002. An increase in credit risk was seen in 2003 in the households sector, which is characterized by a low credit risk relative to the principal industries, since this sector demonstrates a high level of securities and a large number of borrowers with a low correlation between them. Nevertheless, the continued rise in unemployment to a peak of 10.9 percent at the end of 2003, together with a drop in real wages compared with 2002, led to the continued deterioration in repayment ability among households in 2003. This was reflected by the rise in the ratio of credit to disposable household income, and by the response of the banks, which raised the rate of loan-loss provision related to the credit extended to this sector.

As stated, the increase in the banks' profits and profitability, alongside a certain stability in bank risks (particularly credit risks) were reflected in the **risk-adjusted return on capital** (RAROC) for each one of the five major banking groups: compared with an average value of about –0.38 during 1996-2002 (i.e., including 2001 and 2002, which were known to be very difficult years for banking and the economy), the ratio rose to 0.49 during 1997-2003. Nonetheless, this value is still significantly lower than the relatively high value of 2.36 during the period 1994-2000.

The high level of credit risks in 2003 and the two years that preceded it and the lessons learned from past credit failures, alongside a declared policy by the banks' managements to improve their capital adequacy, led to a drop in available bank credit in 2003. Beside a reduction in the supply of credit, demand for bank credit also declined due to the recession, so that in equilibrium there was a 1.3-percent decrease in outstanding bank credit of the five major banking groups.

This management policy, along with the sharp improvement in profitability, contributed towards improving the banks' **capital adequacy** in 2003, and this sustained the improvement that had already begun in 2002. The risk-weighted capital ratio for the five major banks rose by about 0.4 percentage points, and reached 10.3 percent at the end of the year.

With regard to **competition in the banking system**, the downward trend that began at the end of the 1990s continued in 2003 as well, as appears from the continued increase in concentration indices for assets (particularly, credit to the public) and deposits of the public, and the rise in *market power* that the banks exercise over both households and businesses. It is important to emphasize that market power exercised by banks over households is usually greater than that over businesses, although the gap between them contracted somewhat during the past year.

In terms of **the competitive threat to the banking system** (*contestability*), which is yet another indicator of the development of competition in this sector, there was an increase this year, regarding both bank credit and deposits by the public. There was a shift in demand from bank credit to alternative sources of credit, in particular to the stock market. The main reason for this shift was the banks' declared policy of credit allocation, but it also derived from the ability of businesses (and in particular, strong companies) to take advantage of the stock market boom in 2003, and the drop in yields to maturity on government bonds, and to increase their share offerings. Furthermore, the stricter limitations on exposure to groups of large borrowers may have also had an effect on the shift from bank credit towards alternatives. With regard to deposits by the public, the rise in contestability was reflected in the reduced proportion of public assets (deposits) in the banks. This decline stemmed from lower interests rates on investments in banks, coupled with increased profitability from stocks and bonds, in the light of the recovery in the stock market.

The contestability facing the banking system is not focused on credit substitutes and deposits alone, but can also be found in spheres related to the banks' stock market activities: portfolio management, consulting, stock offerings (underwriting) and distribution, managing provident funds and mutual funds, etc. These activities have an impact on the banks' non-interest

income. In recent years there have been no financial entities that constituted a genuine competitive threat to the banks' activity in the stock market, and therefore they remained dominant in this field.

To summarize: in 2003 there was a certain improvement in the financial stability and robustness of the banks in the banking system, compared with the difficult years 2001 and 2002. All the same, it is important to note that during the past two years at least, the financial results of the banking system, and particularly profits from financial activity, were significantly influenced by cyclical factors outside the banking system, such as changes in interest rates in the economy and stock market activity. Additionally, despite the decline in loan-loss provision in 2003 from the peaks it reached in the last few years, credit risk still remained high in the banking system. This is also reflected in the composite "*Hosen*" **rating** aimed at examining the robustness of the banks, which was developed this year by the Banking Supervision Department. The rating is primarily based on financial ratios that are essentially objective, with regard to the following parameters: capital adequacy, quality of assets, quality of management, profits and profitability, exposure to liquidity risk and the bank's sensitivity to market risks. This is similar to other indices employed by supervisory authorities in many advanced economies. In 2003 the average rating for the banks improved, going down to 2.7 from 3.0 for the period 2001–02, which was, as stated above, characterized by a severe economic recession. The change in the components comprising this rating supports our analysis of the developments in the banking system cited above, with the improved rating evident mainly in the categories of capital adequacy, profit and profitability, while the category of quality of assets (which mainly reflects credit risk) still shows poor results for almost all of the banks.

The improved performance of the banks in 2003 is also apparent from expectations by their shareholders, that is, assessments derived from the stock market. These assessments were expressed as a continuous rise in the **banks' market value to book value ratio** (MV/BV) for each of the five major banks during 2003. This ratio stood at 0.87 in December 2003 (regarding traded banks) compared with 0.74 in December of 2002.

1. FINANCIAL RESULTS, RISKS AND CAPITAL ADEQUACY

a. Financial results

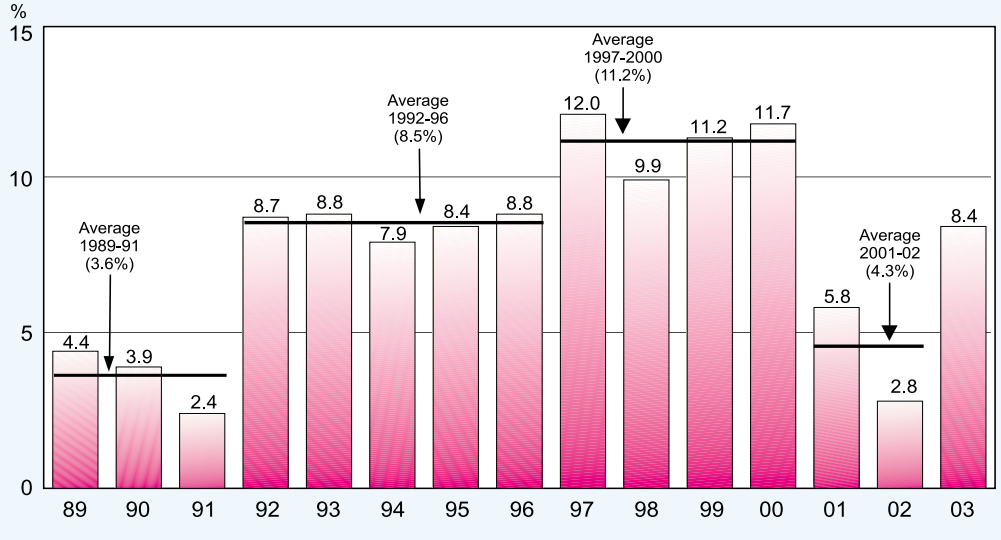
Following two difficult years in Israel's banking system (especially 2002), the performance of the five major banks improved in 2003. **Total profits** among the five major banks rose

dramatically by 200 percent compared with last year, and came to NIS 3.3 billion (Table 1.2). A sharp rise was also seen in the return on equity (ROE), from 2.8 percent in 2002 to 8.4 percent this year, and there was also an improvement in the return on assets (ROA), from 0.1 percent to 0.4 percent (Table 1.1 and Figure 1.1). Although ROE for the five major banks was high relative to the past two years, it was similar to the average for the past decade—which was around 8.7 percent, and the ROE rate in the mid-1990s, when GDP grew relatively quickly. Although each one of the five major banking groups showed significant improvements in their ROE this year, there was still a marked degree of variation between the groups: Leumi had an ROE of 8.6 percent; Hapoalim, 10.6 percent; Discount, 3.9 percent; Mizrahi, 9.9 percent; and First International, 5.4 percent.

This year's significant rise in profits for the five major banking groups was the result of two main factors which affected each of them: the sharp rise in profits from financial activity before loan-loss provision, and the steep drop in loan-loss provision.

The profit from financial activities before loan-loss provision rose this year by approximately NIS 1.7 billion, following a slight increase last year, and amounted to NIS 18.5 billion (Table 1.1). The main factor contributing to this year's increased profit from financial activities was the banks' profits derived from developments in bond prices in the stock market: the profits derived from the revaluation and sale of bonds listed for trading and from profits from the sale of bonds listed as available for sale and held to maturity. This profit totaled about NIS 1.0 billion in 2003. In 2002 developments in the

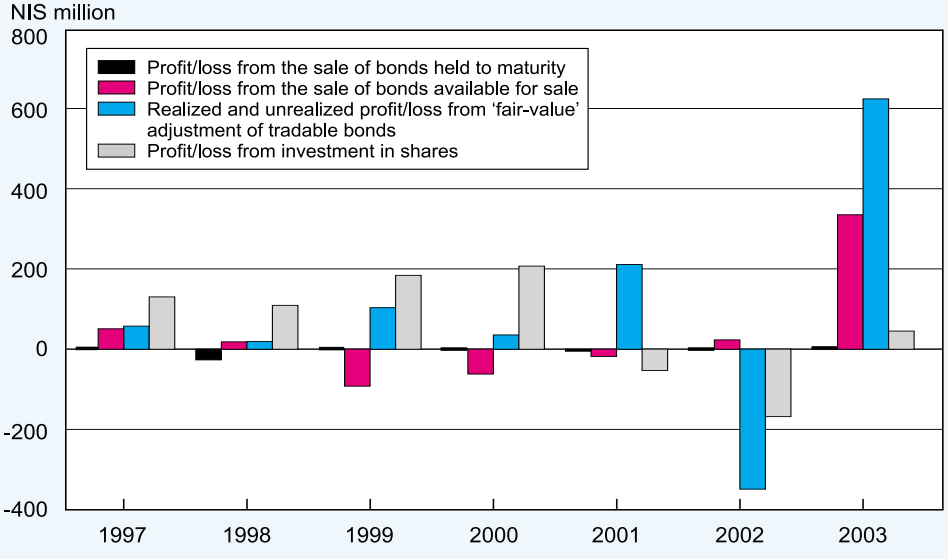
Figure 1.1
After-Tax Return on Equity, the Five Major Banking Groups, 1989–2003



[a] See notes to Tables 3.1 and 3.2.

SOURCE: Published financial statements.

Figure 1.2
Profit/Loss Deriving from Changes in Bond Prices on the Capital Market and from Investments in Shares, the Five Major Banking Groups, 1997–2003



SOURCE: Published financial statements.

stock market yielded losses totaling NIS 0.3 billion (Figure 1.2). Thus the contribution of the development in bond prices to the increase in profits from financial activities was NIS 1.3 billion. From the above analysis it seems that the main effect on profit from financial activities stems from changes in interest rates in the economy, a factor outside the banking system with cyclical characteristics. Whereas in 2002 interest rates rose and caused losses from the sale of bonds and the erosion of the value of bond portfolios held by the banks, in 2003 there was a dramatic drop in interest rates, both short-term (the Bank of Israel interest rate dropped by 3.9 percentage points, from 9.1 percent to 5.2 percent) and long-term (the real return on government bond yields dropped by some 1.4 percentage points, from 5.7 percent to 4.3 percent), which contributed to profits from bond sales and an increase in the value of bond portfolios held by the banks. in 2003 the profits derived from developments in the stock market constituted some 17.5 percent of the regular before-tax profit of the five major banking groups. An estimate of the before-tax ROE excluding profits derived from the capital market is approximately 2.6 percentage points lower than before-tax ROE including these profits (12 percent versus 14.6 percent respectively). The remaining increase in profit from financial activity (around NIS 0.4 billion) derived from the banks' increased revenue from classic financial intermediation

Table 1.1
Activity and Net Interest Margins in the Banking Groups: Commercial Banks, Mortgage Banks and Overseas Offices, 1995-2003

(change from previous year, percent)

	2003[a]	1995	1996	1997	1998	1999	2000	2001	2002	2003
	end-year-balance (*December 2003 prices, NIS million*)									
1. Commercial banks										
Total assets	688,742	0.9	7.3	5.3	10.0	11.3	6.0	7.3	–1.2	1.1
Total credit to the public	408,500	4.2	7.0	7.4	13.1	12.6	12.5	11.2	1.2	–3.1
Total deposits in the Bank of Israel	39,180	–48.5	79.4	166.4	6.2	20.8	2.5	–3.9	–25.6	–20.6
Total deposits of the public	570,671	9.5	10.8	78.5	0.0	12.3	7.2	6.4	–2.1	0.2
Total net interest margin (%)	1.43[a]	2.27	2.28	2.36	2.31	2.04	1.95	1.86	1.88	1.43[a]
Total interest-rate spread[b] (%)	2.48	–	–	–	–	–	2.37	2.26	2.19	2.48
2. Mortgage banks										
Total assets	117,239	25.5	18.2	15.8	9.0	9.6	8.3	5.2	3.1	1.4
Total credit to the public	115,267	26.2	20.6	17.2	10.0	9.4	8.5	4.6	3.7	1.3
Total deposits	106,094	30.7	21.0	17.6	10.0	10.5	8.1	5.8	4.5	1.6
Total net interest margins (%)	1.03	1.16	1.12	1.16	0.98	1.01	1.00	1.02	0.97	1.03
3. Overseas offices										
Total assets	135,604	56.3	–6.7	3.9	20.7	14.1	12.5	15.5	11.8	–0.8
Total credit to the public	51,996	49.4	–9.5	9.2	26.5	5.4	8.6	7.0	5.4	3.7
Total deposits	111,708	53.3	–7.0	3.7	20.2	13.9	11.4	12.2	8.5	–3.2
Total net interest margins (%)	1.02	2.25	2.16	2.11	2.06	1.73	1.73	1.67	1.48	1.02

Table 1.1 (continued)

(change from previous year, percent)

	2003[a]	1995	1996	1997	1998	1999	2000	2001	2002	2003
4. The five major banking groups										
Total assets	788,622	3.6	6.2	6.1	10.0	11.7	8.2	6.8	–0.3	1.5
Total assets (incl. credit equivalent of off-balance-sheet items)	907,922[c]	4.7	6.8	7.8	14.0	10.3	8.5	7.7	–0.4	1.13
Total credit to the public	534,642	12.2	8.1	9.9	14.5	12.1	12.5	9.8	1.7	–1.3
Total deposits of the public	648,796	9.9	8.9	7.4	11.1	13.2	9.2	6.7	–0.4	–0.3
Value added[d]	19,832	3.8	5.8	9.1	–1.2	13.0	5.8	–7.7	–11.2	22.2
Total net interest margin (%)	2.5[a]	2.60	2.50	2.63	2.39	2.38	2.33	2.28	2.24	2.50[a]

[a] Following the implementation of the directive of the Supervisor of Banks regarding derivatives instruments with effect from 1 January 2003, data for the year 2003 cannot be compared with those of previous years. In other words, income deriving from derivatives and income deriving from classic banking activity cannot be compared.

[b] Estimates of the total weighted interest-rate spread in calculated by weighting the spread in each segment by its share in total uses.

[c] Excluding embedded derivatives and ALM off-balance-sheet items.

[d] Value added in calculated as the sum of ordinary pre-tax net profit, salaries and related expenses, general expenses, maintenance and depreciation of buildings and equipment.

SOURCE: Published financial statements and Supervision of Banks Research Unit.

activity and their activity in derivative instruments.[1] These profits came to some NIS 0.9 billion, and were partially offset by a reduction (of about NIS 0.5 billion) in other financing income.

Given the lack of comparative data over time regarding financial margins for the activities of the banking system, and the need to evaluate the effect of price on income from financial activity, the behavior of the weighted net interest margin[2] and the interest margin in each of the indexation segments (indexed, unindexed and foreign currency) in 2003 is analyzed instead (in Chapter 3). The financial margin reflects the banks' income from classic financial intermediation activities (primarily, attracting deposits and offering credit), income derived from changes, from the sale and purchase of bonds, and from revaluating bond portfolios, as well as income from activity relating to derivative instruments (options, futures transactions, swap transactions, etc.). On the other hand, the weighted interest margin merely reflects the (simple) difference between the weighted interest on assets (mainly credit) and the weighted interest on sources (mainly deposits by the public), and therefore, it ignores the effect of changes in interests rates on the revaluation of bond portfolios, and the contribution of activity in derivative instruments on bank profits from financial activity. In 2003, the weighted net interest margin increased by about 0.3 percentage points, to a level of 2.48 percent, following two consecutive years of declines (Table 1.2).

The rise in this year's net interest margin may be attributed to three main factors, which closely interrelated: 1) The banks' cautious policy in allocating and pricing credit, particularly against the background of past credit failures. This policy is expressed as a tightening of the criteria for extending credit, and a policy of credit allocation aimed at reducing the level of credit given to the banks' more risky clients and/or setting higher and more realistic interest margins for them. 2) The banks' declared policy of improving their capital adequacy.[3] This policy complies with the credit rationing policy described above. 3) A sharp rise in business risk for companies in the principal industries, given the severe recession that has plagued the economy for the past three years.

The economic significance of these developments is a drop in the supply of bank credit, a rise in the risk premium charged to credit customers (particularly from the CPI-indexed segment, Figure 1.3), and a rise in the cost to the banks of raising capital.

The total balance-sheet assets of **the five major banking groups** increased this year at a moderate rate of 1.5 percent compared with 2002, and this led to continued stability in the balance-sheet/GDP ratio (Figure 1.4). Alongside liabilities, this year there was

[1] Following implementation of the directives of the Supervisor of Banks regarding derivative instruments as of January 1, 2003, we cannot compare income from derivative instruments and income from classic activity separately.

[2] The value of the net interest margin in the scope of financial intermediation activity is about 60 percent of the banks' income from financial activity.

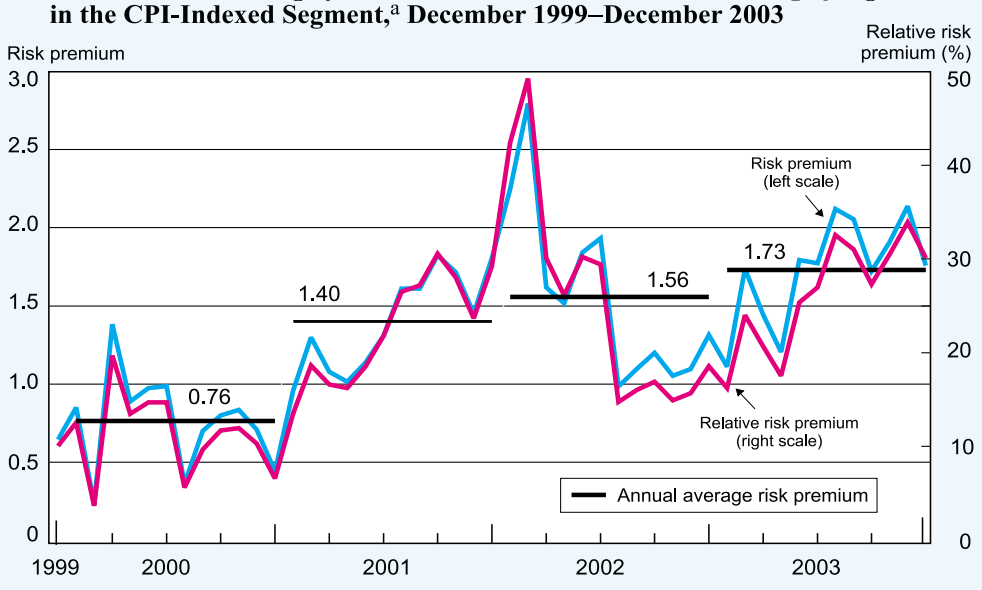
[3] For further details, see Chapter 4, Section 4.

Table 1.2
Financial Results of the Five Major Banking Groups, Selected Items and Ratios, 1994–2003

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
NIS million, at December 2003 prices										
Net interest income before loan-loss provision	10,494	12,810	13,199	13,823	13,503	15,197	16,256	17,089	17,113	18,850
Loan-loss provision	2,046	3,275	2,854	2,534	2,352	2,190	2,450	4,554	7,166	5,980
Total non-interest income	8,338	7,878	7,942	8,446	8,549	8,980	9,878	9,515	9,519	10,576
Total operating expenses	13,090	13,573	14,093	14,523	14,913	15,532	17,277	17,430	17,167	17,710
Total after-tax income	2,049	2,291	2,536	3,632	3,244	3,793	4,060	2,211	1,108	3,307
Equity for calculation of return on equity[a]	25,864	27,252	28,683	30,276	32,845	33,511	34,765	37,902	39,970	39,308
Financial ratios (percent)										
Return on equity (ROE)	7.9	8.4	8.8	12.0	9.9	11.3	11.7	5.8	2.8	8.4
Return on assets (ROA)	0.4	0.4	0.5	0.7	0.6	0.6	0.6	0.3	0.1	0.4
operating expenses/total balance sheet	2.78	2.78	2.72	2.64	2.46	2.30	2.36	2.23	2.20	2.25
operating coverage ratio[b]	63.7	58.0	56.4	58.2	57.3	57.8	57.2	54.6	55.4	59.7
Efficiency ratio[c]	1.44	1.52	1.50	1.53	1.48	1.56	1.51	1.53	1.55	1.66

[a] Equity at begining of year *plus* minority interests, *plus* issues at time of issue *minus* dividends paid at time paid.
[b] Ratio of non-interest income to operating expenses.
[c] Ratio of non-interest and interest income before loan-loss provision to total operating expenses.
SOURCE: Published financial statements and returns to the Supervision of Banks.

Figure 1.3
Risk Premium $\Theta = (R_L - R_F)$ and the Relative Risk Premium $\phi = (R_L - R_F)/R_L$ in the CPI-Indexed Segment,[a] December 1999–December 2003



[a] R_L is the 5-10-year CPI-indexed rate of interest on credit;
R_F is the yield to maturity on CPI-indexed 5-year government bonds (*Galil*).

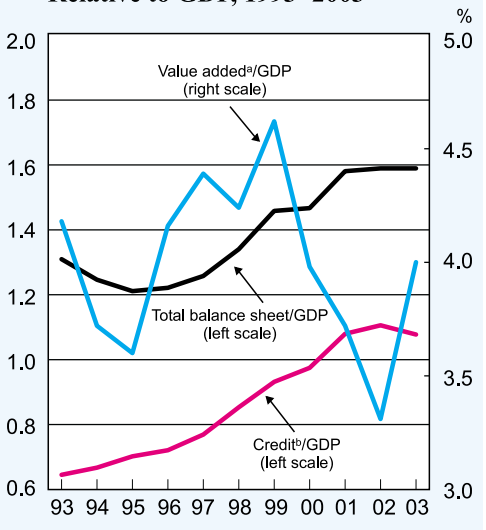
SOURCE: Returns to the Supervisor of Banks and the Bank of Israel Banking Supervision Research Department.

relative stability in deposits raised from the public (Table 1.2). On the assets side, there was a moderate drop of 1.3 percent in outstanding credit to the public (which constitutes about 68 percent of the total assets). As a result of this decline in the balance of bank credit, the banks had surplus funds. These were directed by the banks towards the purchase of bonds—particularly unindexed government bonds (*Shahar* and *Gilon*). The banks' investment in these bonds came to around NIS 27 billion, an increase of 52 percent compared with 2002 (Table 3.6). The change in the combination of the banks' uses, along with sharp drops in interest rates throughout the economy, acted to increase profits and thus to boost the value added of the banking system. In 2003 the value-added/GDP ratio rose to 4.0 percent, from 3.3 percent in 2002 (Figure 1.4). The value added, which is a generally accepted index for measuring the output of the banking industry, increased this year for the first time since 2000 (Table 1.2). As stated, 2001 and 2002 were characterized by minimal profits and low ROE, and therefore the value added was low during that period of time as well.

The trend towards significant increases in bank credit over the past decade (an average rise of 8 percent annually) halted in June 2002. Moreover, for the first time in a long time, the balance of outstanding credit of the five major banking groups declined by 1.3

percent in 2003 from its level in 2002, as stated above. Also for the first time in a long time, the credit/GDP ratio declined too in 2003 (although very slightly) and stood at 1.08 at the end of the year, down from 1.11 at the end of 2002. From a long-term perspective, this ratio is considered high, indicating a high degree of exposure to credit risk (Figure 1.4).

Figure 1.4
Indices of Banking Activity of the Five Major Banking Groups Relative to GDP, 1993–2003



[a] Value added is the sum of net ordinary before-tax income, salaries and related expenses, general expenses, maintenance and depreciation on buildings and equipment.
[b] Credit to the public, excluding guarantees.

SOURCE: Returns to Supervisor of Banks and the Central Bureau of Statistics.

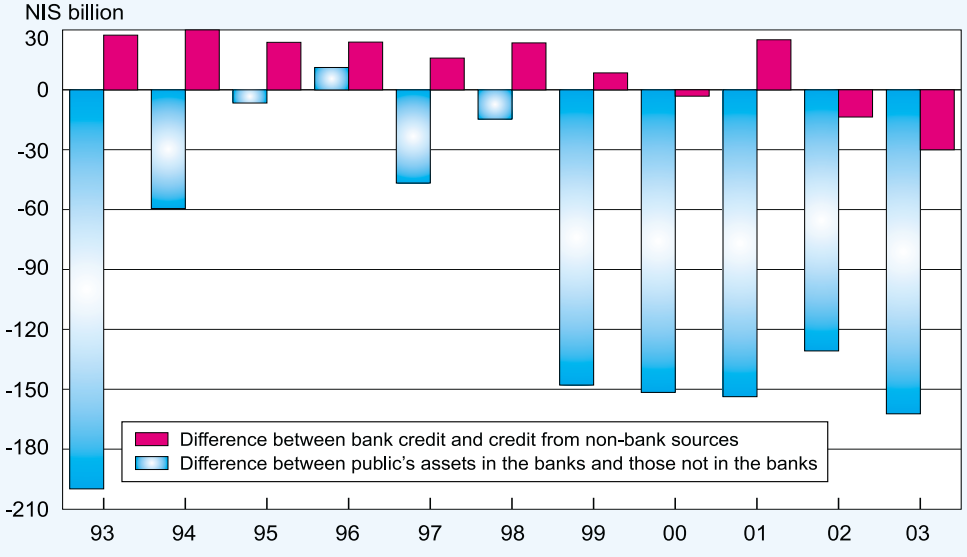
The decline in credit in equilibrium is the result of both the decline in the supply of bank credit (for the reasons stated above), and the concomitant drop in demand for such credit. The aggregate demand for credit was affected by the ongoing recession in the principal industries, which led to a sharp decline in investment, and consequently, a drop in demand for credit by businesses. Alongside these developments, large robust firms took advantage of the recovery in the stock market and issued negotiable and non-negotiable bonds totaling approximately NIS 15 billion in 2003. Bond offerings replaced bank credit, and thus constituted a major factor in the lower demand for bank credit from these companies, and the increased contestability facing the banking system.

During the past two years the share of bank credit in total credit declined significantly.[4] This development, known as *disintermediation*, was evident mainly in 2003, and indicates an increase in contestability (which is an important element in developing competition in the banking sector) with regard to raising credit between the banking system and alternative sources of supply[5] (Figure 1.5). Although this contestability is far from being of adequate weight and scope, we may assume that basic steps to be taken in the future to improve financial and capital markets, particularly those relating to introducing substitute deposits and credit—such as repurchase ["repo"] agreements, buying/selling short, issuing commercial paper, encouraging securitization in the various markets—and speeding up

[4] For a fuller discussion see Chapter 2.

[5] Alternatives to bank credit include raising capital from the private sector in Israel and abroad, direct credit from abroad, financing from venture capital funds and credit from institutional investors (provident funds, insurance companies and pension funds).

Figure 1.5
The Difference between the Public's Assets in the Banks and those not in the Banks, and the Difference between Bank Credit and Credit from Non-Bank Sources, 1993–2003



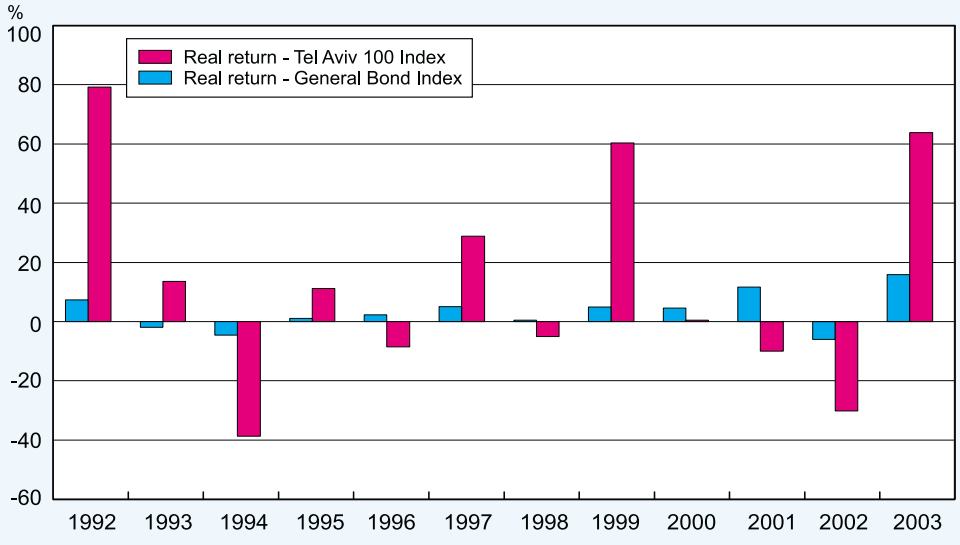
SOURCE: Return to the Supervisor of Banks, Annual Report of the Commisioner of the Capital Market, Insurance and Savings, The Tel Aviv Stock Exchange and the Bank of Israel.

the process of issuing corporate bonds, will contribute towards boosting competition in the banking industry, to the greater benefit of the public (for a more expanded discussion of this issue, see Chapter 2 of this review).

There was also a slight decline this year in the share of deposits by the public in banks within the total portfolio of public assets, resulting from the increase in public assets not held in banks the direct effect of the stock market boom. For example, the real annual yield of the TA-100 Index rose during the year by more than 60 percent (Figure 1.6), so that the increase in public assets derived primarily from the increased value of the stocks held by the public (both in Israel and abroad), and from the rise in the public's holdings of negotiable bonds and Treasury bills.

The contestability facing the banking system is not focused only on credit substitutes and deposits, that is, on net income from interest for classic bank intermediation, but also in spheres related to the banks' activity in the stock market. These activities include trading in stocks for their customers, issuing (underwriting) and distributing stocks in the primary market, and managing provident funds, education funds and mutual funds, etc. These activities mainly affect the banks' non-interest income. In recent years there

Figure 1.6
Real Annual Return on the Tel Aviv 100 Index and the General Bond Index, 1992–2003



SOURCE: Tel Aviv Stock Exchange and the Bank of Israel Banking Supervision Research Unit.

have been no financial entities that could contest the banks' activities in these spheres and therefore Israeli banks are dominant in stock market activity (see Chapter 2 of this review).

There was a drop of NIS 1.2 billion in loan-loss provision, following three consecutive years of unprecedented increases: in 2003, loan-loss provision came about NIS 6.0 billion, compared with about NIS 7.2 billion and NIS 4.5 billion in 2002 and 2001 respectively (Table 1.1). In 2003 there was a decline in the loan-loss provision recorded by banks for some industries in the business sector[6] for which they had made very high provision in the past two years. On the other hand, the banks posted a rise in loan-loss provision for the household sector, following the continued deterioration in this sector's repayment ability.

Also prominent is this year's NIS 1 billion increase in non-interest income, following stability in this area in 2002. This rise, offset by this year's increase in operating expenses (in the amount of around NIS 0.5 billion), contributed to the increase of NIS 0.5 billion in before-tax profit for the banking groups.

[6] The levels for loan-loss provision are still high, and they are mostly from the business sector—for details see Chapter 3, Section 2c, B: Analysis of performance by area of activity.

The improvement in **non-interest and other income** is the result of several factors: a) greater income from operating fees and commissions, especially fees for customers' stock market transactions, which were positively influenced by the stock market boom; b) increased income from credit cards; c) a drop in losses posted by the banking groups for the sale of stocks available for sale; d) profits posted by most of the banking groups in their severance-pay funds (compared with the losses recorded last year), due to the drop in interest rates that led to a higher yield on the bonds held by the funds to cover their liabilities.

It should be emphasized that non-interest income was also affected to a large extent by cyclical factors outside the banking system, such as changes in interest rates throughout the economy, and stock market activity.

Despite this year's rise in **operating expenses**, employee-related expenses remained stable, and comprised approximately 61 percent of all operating expenses. This stability derives from two developments that counterbalanced each another: the rise in employee-related expenses contributed primarily to a NIS 400 million increase (about 6 percent) in direct salary expenses, and the increase of NIS 255 million in payments for National Insurance, employers' tax and wage tax. The rise in direct salary expenses was felt in each of the banking groups (except for the Discount group), and despite the loss of 1,135 jobs in 2003 compared with 2002. The increase in direct salary expenses was mainly influenced by the rise in real wages as a result of the impact of negative inflation on the cost of labor agreements written in nominal terms,[7] the rise in bonuses paid to employees for improved profitability, and the payment of a COL increment to compensate for the erosion in last year's wages.

Factors tending to reduce employee-related expenses included the NIS 570 million decrease in expenses for voluntary early retirement compared with 2002 when they were exceptionally high—a one-time sum of NIS 950 million (most of which was at the two largest banks). These excessive costs recorded in 2002 were the result of efficiency measures the banks had begun to implement three years earlier, and which included, *inter alia*, salary cuts, encouragement of early retirement and employee lay-offs.

The sharp rise in non-interest income, alongside the more moderate rise in operating expenses, also led to a rise in the **operating coverage ratio,** which is defined as the ratio of non-interest income to total operating expenses, from 55 percent in 2002 to 60 percent in 2003. This is the highest operating coverage ratio for the five largest banking groups since 1995 (Table 1.1).

In order to examine the operating efficiency of the commercial banks Chapter 3 looks at two components of operating efficiency: efficiency derived from changes in the banks' size (economies of scale), which is reflected by examining the existence of economies or diseconomies of scale or constant returns to scale in production; and efficiency derived from a possible reduction in the bank's operating expenses without any change in its size (output), known as X-efficiency. The latter is expressed as the ability of the bank's

[7] Compared to the erosion in wages in 2002 due to relatively high inflation.

management to reduce production expenses (wages, employees, branch costs, etc.) without compromising the bank's output (that is, it reflects the quality of the bank's management), based on a comparison between banks of the same size.

A long-term analysis of the returns to scale shows that there are economies of scale in Israel's banking system[8] (Figure 3.15, Table 3.17). These economies are expressed as a decline in average expenditure as we go from small to medium to large banks. Thus in 2003, as in the past, a sharp drop in average expense is evident in the move from small to medium banks, and a more moderate drop in the move from medium to large banks. In order to take into account production costs for the bank's entire range of activities—equal to balance-sheet assets and the credit equivalent of its off-balance-sheet assets—total assets were used as a measure of banking output.

From an analysis of the X-efficiency index (Table 3.17) it appears that the potential for improving operating efficiency is very high among the small banks, low in the medium banks and very low for the group of large banks. This potential for improvement indicates that regarding banks in the group of small banks, the bank with the highest average operating expense in 2003 would have had to save up to 74 percent on its expenses in order to be like the most efficient bank in its peer group; in the group of medium banks, the potential saving came to 28 percent, and in the group of large banks, the saving was 8 percent.

A look at the performance of the two largest banking groups[9] by areas of activity, as analyzed in Chapter 3, shows that despite the high expenses related to managing households' banking transactions, this sector still made the largest contribution to bank profits (about 57 percent of the total before-tax profit). This high contribution from the household sector is a direct result of its relatively high proportion in financing and non-interest income (55 percent), alongside relatively low figures for loan-loss provision—only 19 percent of total loan-loss provision. On the other hand, higher loan-loss provision for the business sector, which constituted 81 percent of the total provision, is a major factor in its low (and sometimes, negative) contribution to the banks' profits (Figure 3.12). From the above analysis it would seem that the relative high risk involved in the banks' activities with commercial firms tips the scales in favor of the relatively high contribution by households to the banks' before-tax profits.

b. Risks

The financial results, particularly the return on equity (ROE), of the banking system as described above should be analyzed together with changes in the banks' exposure to the range of risks—credit risks, market risks, liquidity risks, operational risks, and so on. In

[8] We divided the banks into three size groupings: Large banks include banks whose output exceeds NIS 150 billion; medium banks, with an output between NIS 40 and NIS 150 billion; and small banks, with an output of up to NIS 40 billion.

[9] Hapoalim and Leumi.

order to consider a possible link between ROE and risk, we will first look at the main developments in credit risks, market risks and liquidity risks, focusing on several indices used to asses these risks; we will then turn our attention to analyzing the risk-adjusted return on capital (RAROC).

1) Credit risk

Credit risk is usually assessed by means of three components—the amount of credit, the quality of credit, and its concentration. However, in order to examine the total effect of these components on the bank's risk we must examine credit risk in terms of its equity, that is, its capital adequacy, and thus we can take into account the bank's attitude towards the full range of risks.

The **amount of credit** given to the public by the five major banking groups dropped in 2003 by around 1.3 percent, and stood at the end of the year at some NIS 535 billion. This follows a slight 1.6 percent rise in 2002, and an average, long-term increase of around 11.2 percent from 1994 to 2001. This development led to the first decline, albeit it a very small one, in a decade in the share of credit in total assets of the banking groups, from about 69.6 percent in 2002 to about 68.7 percent in 2003 (Figure 4.11).

The **quality of credit** is usually measured by three indices: the credit to GDP ratio, the ratio of loan-loss provision to credit to the public, and the share of nonperforming credit in total credit and the share of problem loans in the total credit to the public.[10] Analyzing these indices indicates that the credit risk in the five major banking groups remains high in 2003.

The ratio of problem loans to the total credit at the group's responsibility rose slightly in 2003, and came to about 10.5 percent at the end of the year, compared with 10.1 percent, 9 percent and 7 percent in 2002, 2001 and 2000 respectively (Table 1.3). The ratio of nonperforming credit to total credit at the group's responsibility maintained the high levels evident in 2002, and amounted to about 2.6 percent—one percentage point higher than the average ratio for the period of 1998-2000 (Table 1.3). Although the remaining quality-of-credit indicators improved slightly in 2003, they are still significantly higher than at the end of the 1990s: the ratio of loan-loss provision to credit to the public dropped from about 1.32 in 2002 to about 1.12 in 2003, but it is still higher than the ratios at the end of the 1990s (Table 1.3 and Figure 1.7). The ratio of credit[11] to GDP edged downward this year for the first time in a decade (during which time it had climbed steadily), and came to 1.08 in 2003, compared with the peak of 1.11 in 2002 (Figure 1.4). It should be noted that in spite of the positive growth in GDP in 2003 (an increase of 1.3 percent in the GDP for 2003 compared with declines of about 0.9 percent and 0.8 percent in 2001 and 2002 respectively—Figure 1.7), the economic improvement has yet to be reflected as changes in credit risk in the banking system as described above.

[10] Developments in these indices and explanation of their significance can be found in Chapter 4—*Risks*.

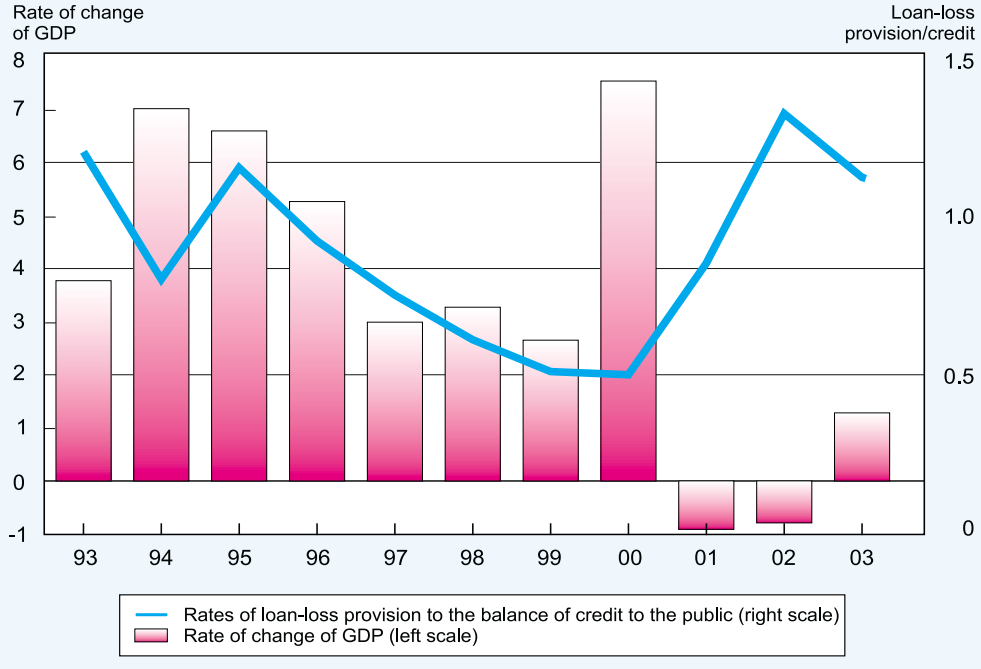
[11] Balance-sheet credit only.

Table 1.3
Concentration of Credit, Quality of Credit and Capital Adequacy, the Five Major Banking Groups, 1993–2003

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Concentration of credit											
H-Index of concentration by industry[a]	–	–	–	–	0.091	0.085	0.082	0.080	0.083	0.083	0.081
H-Index of concentration of the business portfolio[b]	–	–	–	–	0.165	0.152	0.146	0.143	0.146	0.147	0.149
(*percent*)											
Concentration by borrower[c]	–	–	–	–	–	44.7	46.4	47.1	47.5	47.5	46.3
Gini index of distribution of credit by size of borrower	–	–	–	0.923	0.934	0.941	0.924	0.907	0.913	0.916	0.909
Quality of credit											
Annual loan-loss provision/credit to the public at groups' responsibility	1.20	0.80	1.15	0.92	0.75	0.61	0.49	0.50	0.85	1.32	1.12
Problem loans/total credit at groups' responsibility	13.5	14.3	12.9	11.3	9.6	9.4	8.7	7.0	9.0	10.1	10.5
Ratio of non-performing loans to total credit	1.4	1.2	1.1	0.9	1.1	1.6	1.5	1.5	1.7	2.5	2.6
Ratio of risk weighted assets to total assets	49.1	53.3	56.3	56.3	57.8	62.9	62.9	65.3	67.3	67.7	66.9
Credit/GDP ratio	0.68	0.67	0.70	0.72	0.77	0.85	0.93	0.97	1.08	1.11	1.08
Credit/business-sector-product ratio[d]	–	–	–	–	0.98	1.13	1.45	1.45	1.60	1.62	1.51
Capital adequacy											
Capital/risk-weighted-assets ratio	10.50	9.80	9.60	9.66	9.97	9.21	9.43	9.24	9.38	9.90	10.32
Tier 2 capital/risk-weighted-assets ratio	–	–	–	0.91	1.07	1.77	2.35	2.58	3.16	3.48	3.52
Tier 1 capital/risk-weighted-assets ratio	10.74	10.06	9.59	9.45	9.19	7.71	7.32	6.88	6.41	6.55	6.91
Share of subordinated notes in Tier 1 capital	–	–	–	–	–	18.3	27.7	33.4	44.5	46.6	44.8

[a] The sum of the squares of the share of credit in an industry (excluding households) to total credit to the public (including households).
[b] The sum of the squares of the share of credit in an industry (excluding households) to total credit to the public (excluding households).
[c] Share in total of those borrowing more than NIS 35 million.
[d] Including off-balance-sheet credit; calculated for all the commercial banks.
SOURCE: Published financial statements and returns to Supervisor of Banks.

Figure 1.7
Annual Changes of GDP and the Ratio of Loan-loss Provision to the Balance of Credit to the Public in the Five Major Banking Groups, 1993–2003 (percent)

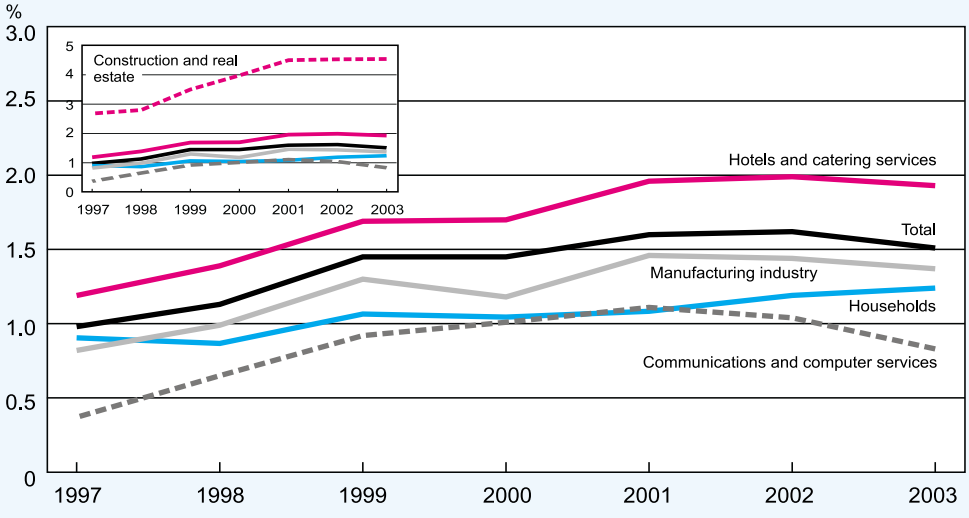


SOURCE: Central Bureau of Statistics, published financial statements, and Bank of Israel Banking Supervision Research Unit.

An analysis of the **quality of credit by industry** shows the following developments: in the construction and real estate industry, the ratio of credit to industry output maintained the high values seen in 2002 and ended the year at around 4.54 (Figure 1.8 and Table 4.4).[12] The ratio of problem loans to total credit in the construction and real estate industry rose from around 11.9 percent in 2002 to around 13.0 percent in 2003 (Table 4.3). The

[12] The ratio of credit to output in the construction and real estate industry is higher than the ratios in other principal industries because in this industry there is no compatibility between those giving credit and those providing the output. Thus, for example, activity involving extending credit to a customer for the purchase of an industrial or commercial property (which has already been built) for the purpose of his leasing it to a third party will be significantly reflected in the credit data for the construction and real estate industry over the purchase period at the full value of the credit taken, but will not be reflected as a significant change in the industry's output data. In the light of this, caution must be exercised when considering changes over time in the ratio of credit to output for the construction and real estate industry.

Figure 1.8
Ratio of Credit to Industry Output in Selected Industries and the Ratio of Credit to Disposable Income in the Household Segment, the Five Major Banking Goups, 1997–2003



SOURCE: Published financial statements and Central Bureau of Statistics data.

ratio of loan-loss provision to total credit for the industry maintained the values prevailing in 2002, and came to 0.95 percent, despite the sharp drop in loan-loss provision of about NIS 1.2 billion by the banks throughout the banking system in 2003. These developments show that the construction and real estate industry remains a key credit risk to the banking system.

In the other industries there were also minor dips in some of the quality-of-credit indices, but from a long-term perspective these values remain high. Thus, for example, in the **hotel and catering industry** the ratio of credit to industry output for 2003, and for the two previous years, was nearly 2.0, and the ratio of problem loans to total credit rose from about 37.5 percent in 2002 to about 39.5 percent in 2003. These values indicate that from a long-term perspective and compared with other industries, the repayment ability for this industry was relatively low. The high credit risk in this industry in the last two years was also expressed by high loan-loss provision, despite the industry's relatively low share of total credit in the banking system (Tables 4.3 and 4.4). In 2003, the ratio of loan-loss provision to total credit came to about 3 percent. In the **manufacturing industry** there was a slight decline in the ratio of credit to industry output, from 1.44 to 1.37, the result of a drop in credit to this industry (-4.7 percent) and stability in industry activity in 2003 (a decline of some 0.3 percent in industry output). The ratio of problem loans to total credit in this sector rose about one percentage point, and stood at 10.5 percent for 2003. In the **communication and computer services industry** there was a more

significant drop in the credit/industry-output ratio, from approximately 1.04 in 2002 to approximately 0.83 in 2003, the result of a sharp drop in 2003 in credit to the industry (–16.2 percent), coupled with a rise in industry output (4.6 percent). There was also a decline in the ratio of problem loans to total credit for the industry, which came to about 18.7 percent in 2003 (most of the drop in problem loans can be attributed to the change in designation of the credit given to Bezeq in the amount of NIS 2.5 billion, from credit to the public to securities). The ratio of loan-loss provision to total credit in the industry, came to some 1.83 percent in 2003. These values are still high relative to other industries, and indicate that the credit risk for this sector remains relatively high. In the **households sector**, the ratio of credit to disposable income rose (Figure 1.8) as a result of lower salary levels in 2003 compared with 2002 and a concomitant rise in credit for this sector. The annual ratio of loan-loss provision to total credit in this sector rose for the first time since the recession that started at the end of 2000, from about 0.29 percent in 2002 to about 0.4 percent in 2003 (Table 4.3). Despite the rise in this ratio, which indicates increased credit risk for the household sector, this sector is still characterized by a low credit risk relative to the credit risk in the principal industries. This is because the level of collateral against credit extended to households is relatively high, and this sector has a greater number of borrowers with a low correlation between them, so the risk is more evenly distributed.

A look at **concentration of credit to the public by industry**, which is measured using the *H* index,[13] indicates stability in recent years (Table 1.3). Since the number of industries in the economy has not changed, we may attribute the stability of this index to the stability in the distribution of credit among market segments by industry, by the entire system, and by bank.

Concentration of credit by size of borrower improved slightly in 2003, as is reflected in the drop in the Gini index (Table 1.3). There was a slight improvement in concentration of credit among large borrowers. The share of credit extended to borrowers whose indebtedness exceeds NIS 35 million declined among the five banking groups and came to around 46.3 percent in 2003, compared with 47.5 percent in 2002 (Table 1.3). The share of credit extended to borrowers whose indebtedness exceeds more than 5 percent of the group's equity[14] dropped in each of the five banking groups in 2003 (Table 4.9). The improvement, albeit slight, in the concentration of credit by size of borrower, and particularly the concentration among large borrowers, indicates the caution that banks exercised this year in extending credit. This would also seem to indicate that the banks' managements are taking steps to implement the changes in proper banking procedures as regards restricting the indebtedness of a single borrower and a group of borrowers, as published by the Supervisor of Banks at the end of 2003 (Directive No. 313). Nevertheless, Israel's bank credit portfolio is still characterized by a high concentration of borrowers:

[13] For a definition of this index and its components see Chapter 4.

[14] In addition to minority shareholders.

a limited number of large borrowers account for most of the activities in the economy and the receive credit from a relatively small number of banks. Thus, in 2003, 1 percent of the borrowers received about 70 percent of the credit from the banking system, and the largest sixteen borrowers received approximately NIS 24.8 billion, an average of NIS 1.6 billion per borrower. The share of indebtedness of the largest six groups of borrowers in total credit[15] and the capital base of the banking system stood in 2003 at about 10.1 percent and 122.8 percent respectively.[16]

To sum up, the changes in the indices of quality of credit and concentration in the credit portfolio, as reviewed above, indicate that the credit risk to the banking system was still relatively high in 2003, in spite of signs of improved economic activity that were already visible in the second half of the year. We may surmise that if the economy continues along a path of continued growth in the future, then the credit risk to the system will continue to drop. At this point in time, it would seem that the relatively high rates of problem loans and nonperforming credit posted in 2003 will be reflected in relatively high loan-loss provision in the near future as well.

2) Market risks

Total market risks for the banking groups, and interest risk in particular, increased in the last few years although their level is quite low and their share in total risk is relatively small: in 2003 this was only about 1.7 percent. In terms of minimum capital ratio, the contribution of market risks to the credit risk is also minor and stands at around 0.15 of a percentage point only (out of a total of 10.3 percent in 2003).

Exposure to *interest-rate risk* is examined in this review using the Value at Risk (VaR) index, which reflects a bank's maximum expected loss for a given planning horizon and with a given level of probability (usually 99 percent). See Chapter 4 for further details on this topic. The total value at interest-rate risk for the three indexation segments rose in 2003 for most of the major banking groups, amounting to about NIS 3.8 billion, compared with NIS 2.7 billion in 2002. All of the banking groups were exposed to higher interest rates in the three indexation segments. This derives from the fact that the duration of their assets is higher than the duration of the liabilities in each indexation segment.

The value at interest-rate risk ranged between 7.3 percent of the net worth (some 6.6 percent of equity) for the Hapoalim group, about NIS 1 billion, to 88.7 percent of the net worth (some 15.4 percent of equity) for the First International group, about NIS 560 million (Table 4.11).

With regard to *indexation-base risks* (*inflation and exchange rate risks*)—the total VaR (in absolute value and as a percentage of net worth) rose in 2003 in the Discount and the Hapoalim groups. There was also a slight rise in VaR in the First International group. The other groups showed a decline in VaR.

[15] Including off-balance-sheet items.

[16] Based on data reported to the Supervisor of Banks.

3) Liquidity risk

Liquidity risk is examined in this review in two stages: in the first stage, we looked at the degree to which the banks are exposed to withdrawals (net) from their liquid liabilities (withdrawals from current-account deposits or SROs), and from unexpected usage of credit lines by businesses and households. In the second stage, we estimated the banks' ability to cope with these withdrawals (net) through active asset management, that is, by selling off assets with a high liquidity. These examinations were conducted for the five largest banking groups for the unindexed and foreign currency segments which, due to the structure of their assets and liabilities, are particularly exposed to liquidity risk in these segments.

We estimated this exposure using the VaR index, and as opposed to market risks we defined this as Liquidity at Risk (LaR).

We found that in 2003 the sum of liquid assets in the unindexed segment and the foreign currency segment for each of the five major banking groups was higher than the LaR (Table 4.14). This finding indicates that the banks were able to cope with liquidity risk in these segments through active asset management.

c. Capital adequacy

As is generally known, capital adequacy is an expression of how the banks' management react to the broad range of risks to which they are exposed. This is because a bank's capital serves as a cushion to absorb losses should these risks be realized. Capital adequacy is presently calculated in accordance with the recommendations of the Basel Committee, and includes the allocation of assets against credit risks (published in July 1988), and allocation of assets against market risks (published in January 1996)—hereafter referred to as Basel I. In June 2004, the Basel Committee issued the final copy of its new recommendations, referred to hereafter as Basel II, which includes significant improvements in calculating allocation of capital against credit risk (mainly, through closer matching of risk and the capital allocated against it), and for the first time, it also includes recommendations for allocating capital against operational risks. With regard to credit risks, Basel II recommends using one of two approaches for allocating capital: a) the standard approach, which includes expansion of the credit risk coefficients (from 0 percent through 100 percent as currently exists under Basel I, to 0 percent through 150 percent under the new provisions of Basel II), while relying upon company credit ratings made by external rating firms. b) The internal-rating-based approach (IRB), according to which banks use internal systems to assess credit risks, based on internal credit ratings and advanced models. The new provisions are expected to improve the attitude of the banks' managements towards risks (in other words, better and more professional risk management than in the past), thereby enhancing the robustness of the banks and the stability of the entire banking system.

In 2003 the capital/risk-weighted-assets ratio rose for the five largest banking groups by about 0.4 percentage points, from around 9.9 percent to around 10.3 percent. It seems

that this improvement is derived from two factors that acted simultaneously: the lack of any change in risk-weighted-assets due to reduced credit to the public (-1.3 percent), and the rise in the capital base (4.5 percent), in particularly, for the first time in several years, a rise in Tier 1 capital. The increase in Tier 1 capital and its ratio to risk-weighted-assets (6.91 percent) arises mainly from the banking groups' increased profits, since they made no new stock issues in 2003, and the dividend distributed this year by the Leumi and Hapoalim groups totaling NIS 792 million had a relatively low impact on the capital/risk-weighted-assets ratio (some 0.13 percentage points). In 2003, the growth of Tier 2 capital, reflecting the less stable part of capital, was halted for the first time and stood at about 3.52 percent, similar to the ratio in 2002. This development was due to the halt in 2003, for the first time, in the rise in subordinated notes, and the reduction in their share of Tier 1 capital from 46.6 percent in 2002 to 44.8 percent in 2003. In some banking groups, however, this ratio is approaching the permitted maximum (i.e., 50 percent of Tier 1 capital).

To summarize, the improved capital/risk-weighted-assets ratio in 2003, which took place against the background of early signs of economic recovery, raised the safety margin of the capital ratios beyond the required 9 percent minimum, and this will allow the banks to once again increase the amount of credit extended to the public in the future, thereby contributing towards helping the economy out of the recession. Nonetheless, it is important to remember that the capital/risk-weighted-assets ratio in Israel's banking system is still low relative to that of other western banking systems—10.3 percent compared with over 11 percent respectively.

d. Risk-adjusted return on capital (RAROC), 1997-2003

As stated above, the return on equity (ROE) for the five largest banking groups increased to 8.4 percent in 2003 from 2.8 percent in 2002, following two consecutive years during which the ROE had declined. As may be recalled, 2001-2002 were very difficult years for the banking system, following several years of two-digit ROE figures.

Given the sharp increase in profits in the banking system, which was accompanied by a certain decline in bank risks, the system's profits must be adjusted, once again, to the risks. This is done by analyzing the changes in Risk-Adjusted Return on Capital (RAROC) for the past several years.

In its broad definition, RAROC relates expected surplus income (income above risk-free return)—i.e., the risk premium—to risk.

By comparing the change in RAROC over time and between the different banking groups, it can be seen that 2001 and 2002 were, in fact, poor years in terms of performance for each of the five largest banking groups. Following improved profits and ROE in all the banking groups in 2003, the RAROC indices also improved for all of the banks for the period 1997-2003 compared with the period 1996-2002. Particularly prominent improvements were posted by the two largest banking groups, Hapoalim and Leumi: from (-0.25) to 0.84, and from (-0.25) to 0.43 respectively (Table 1.4 and Figure 1.9).

Table 1.4
RAROC According to Variance-Covariance Method,[a] by Banks and Activity Segment,[b] 1997–2003

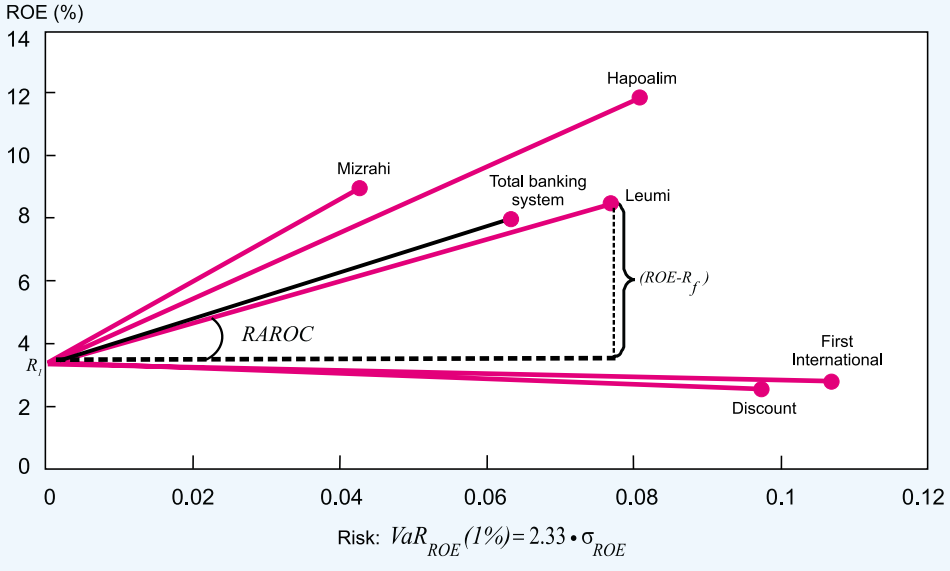
	Hapoalim	Leumi	Discount	Mizrahi	First International	Total banking system
a. Commercial banking	0.73	0.39	–0.01	0.59	–0.28	0.39
	(34.6%)	(39.4%)	(44.9%)	(32.3%)	(72.6%)	(40.7%)
Mortgage banks	0.28	0.29	–0.19	1.32	0.74	0.53
	(7.8%)	(9.2%)	(8.1%)	(48.2%)	(12.8%)	(12.0%)
Overseas offices	–0.07	0.00	–0.38	0.03	0.25	–0.12
	(8.5%)	(21.2%)	(35.8%)	(5.9%)	(13.5%)	(17.1%)
Finance companies[c]	0.33	0.02	–0.77	–0.17	–0.06	0.25
	(24.7%)	(12.6%)	(3.9%)	(10.5%)	(3.1%)	(14.4%)
Credit card companies	2.22	–0.02	0.27	–0.37	0.01	0.40
	(1.6%)	(2.0%)	(2.0%)	(0.4%)	(0.2%)	(1.6%)
Nonfinancial and insurance companies	–	0.72	0.70	–	–	0.83
	(12.9%)	(5.8%)	(1.9%)	(0.1%)	(0.0%)	(6.6%)
Other (non-major) companies	–0.04	0.22	0.91	1.02	1.08	0.07
	(9.9%)	(9.8%)	(3.4%)	(2.7%)	(4.6%)	(7.8%)
b. Total activity of the banking groups						
1994–2000 $R_{f\,(2000)} = 5.48$	2.15	1.53	–1.01	1.31	1.67	2.36
1996–2002 $R_{f\,(2002)} = 5.17$	–0.25	–0.25	–0.55	0.60	–0.69	–0.38
1997–2003 $R_{f\,(2003)} = 4.85$	0.84	0.43	–0.22	0.89	–0.19	0.49

[a] Variance-covariance method: $RAROC_S = \frac{ROE - R_f}{2.33 * \sigma_{ROE}}$,
where
R_f - Risk - free interest; yield to maturity of CPI-indexed 10-year government bonds (*Galil*).
ROE - Return on equity in the last determining year.
σ_{ROE} - Standard deviation of the ROE over the relevant period.
[b] Figures in parentheses beneath RAROC indices are the share of investment in the activity as percentage of equity over the relevant period.
[c] Including holding and investment companies, leasing companies, and financial holding companies.
SOURCE: Published financial reports.

The performances of the Mizrahi group and Hapoalim group were the best in the banking system in the period 1997-2003, while Discount and First International posted the worst performance.

Figure 1.9
Risk Adjusted Return on Equity (*ROE*), The Five Major Banking Groups vis-à-vis the Total Banking System, 1997–2003

$$RAROC = \frac{ROE - R_f}{2.33 \bullet \sigma_{ROE}}$$



R_f - Risk-free interest; yield to maturity of CPI-indexed 10-year government bonds (*Galil*).
ROE - Yield to maturity in the last determining year.
σ_{ROE} - Standard deviation of the ROE over the relevant period.

SOURCE: Published financial statements and Bank of Israel Banking Supervision Research Unit.

To sum up, an analysis of the performance of the five largest banking groups, both as a cross-section and over time, shows differences—at times, significant differences—between their performances. These may be the result of the choice of investment (the rate of investment in a particular activity), and the quality of management over time. The deterioration in the performances of the banking groups during 2001-2002 compared with most of the 1990s is notable, as is their improved performance in 2003 deriving from their increased profits and the halt in the rise in risks.

2. MARKET-TO-BOOK RATIO OF BANK SHARES

In order to examine how changes in the banks' performance are reflected in the expectations of their shareholders, and how market discipline is imposed, it is customary to examine changes in the ratio between the banks' market value (MV) and their book

value (BV), i.e., MV/BV.[17] In the light of the privatization and liberalization processes, there has been increased use of the information available in the financial markets. This information, which has recently become even more relevant, allows analysts to assess the stability of companies, including commercial banks. This trend towards the increased use of market data complies with the recommendations made by the Basel Committee, in its provisions dated April 2003 (Basel III), for more transparency and due disclosure. This was aimed towards improving the ability to assess the stability and strength of the banks, and thus to boost market discipline as a supervisory mechanism, along with institutional oversight.

The market-to-book ratio indicates the degree of adjustment of the market value of the bank's equity, as assessed by investors, to the book value of its equity. When this ratio is greater than one, this means that investors assess the bank's value to be higher than its balance-sheet value, and this reflects the opinion regarding the bank's higher potential (high return and/or low risk). When the ratio is less than one, this means that investors consider the book value to be an overestimation of the net worth of the bank's equity (low return and/or low risk).

Figure 1.9a depicts the change in the market-to-book ratio in the five major Israeli banking groups for the period from December 1993 to March 2004. At the same time, this can be compared with parallel changes in the ratio of the total shares excluding bank shares traded on the Tel Aviv Stock Exchange (Figure 1.9b).

The following main findings can be seen from the changes in these ratios during the period under discussion:

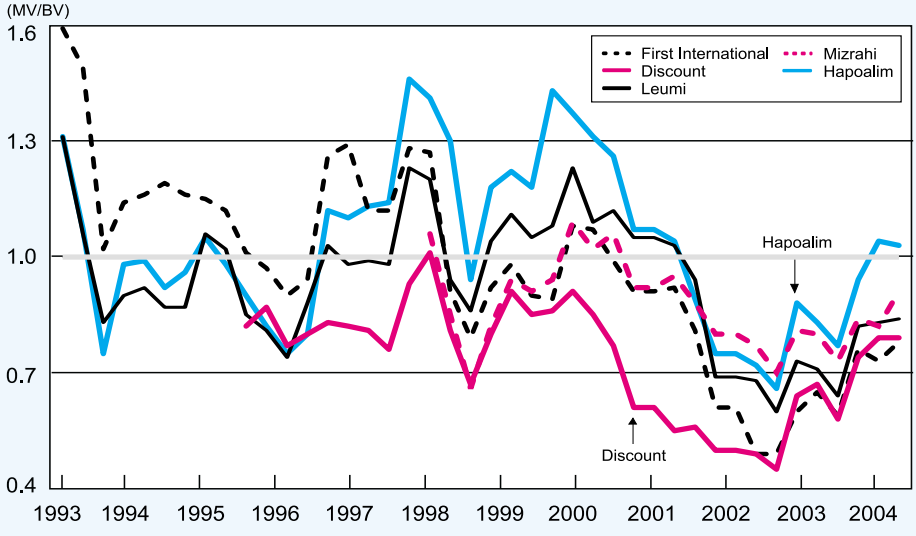
1. From January 2000 to December 2002 the MV/BV ratios of the five largest banks (Hapoalim, Leumi, Discount, First International and Mizrahi) were declining. At the end of 2000, the mean ratio of these banks had crossed the value of 1, and this was after many years during which the ratio had stabilized around the value of 1. In December 2002, the mean ratio for the banks had reached 0.74. Based on the sharp decline during those years, the market had assessed that the performance of the banking groups had deteriorated, and on the basis of the low values prevailing during this period the market did not expect their performance to improve.

In contrast, beginning in 2003 investors felt that a significant improvement could be expected in the banks' performance in the near future. These expectations were realized concomitantly with publication of the banks' highly positive results for Q2 and Q3, and for the end of 2003. These expectations for improved performance were expressed as a

[17] This is known as the market-to-book ratio, and is calculated as $\left(\frac{MV}{BV}\right)_i$, where MV_i is the market value of the shares and options of bank *i*. The market value of any company is defined as the value of its shares and options registered for trading (excluding convertible bonds). Market value includes shares not registered for trading, which are valued according to the market price of traded shares.

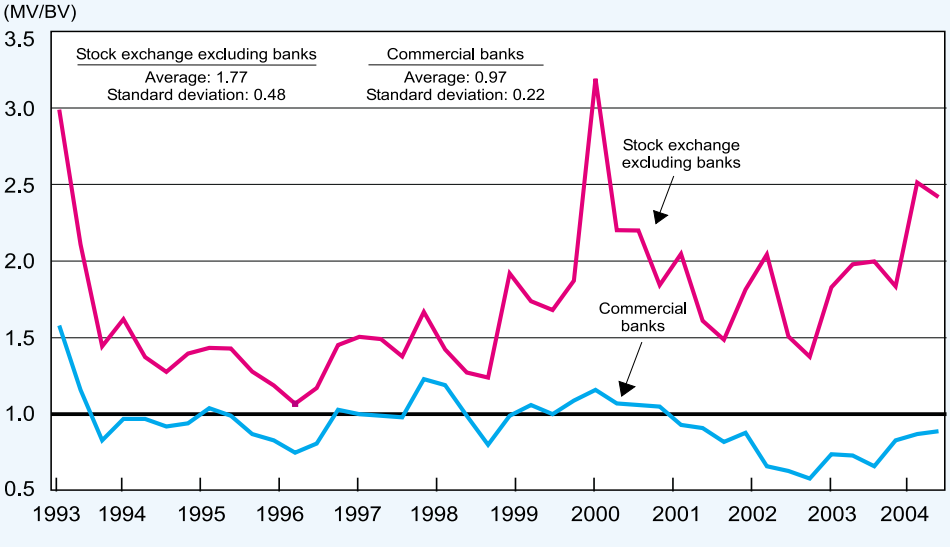
BV_i is the balance-sheet value of equity, including paid-up share capital, reserves and surplus of bank *i*. For further discussion see: David Ruthenberg and Shaul Perl: *Market-to-Book Ratio of Bank Shares in Israel*. Research Unit of the Supervisor of Banks, Bank of Israel, Working Papers, Second Edition, June 2004 (Hebrew).

Figure 1.9a
Ratio of Market Value to Book Value (MV/BV) of the Five Major Banks, December 2003–March 2004



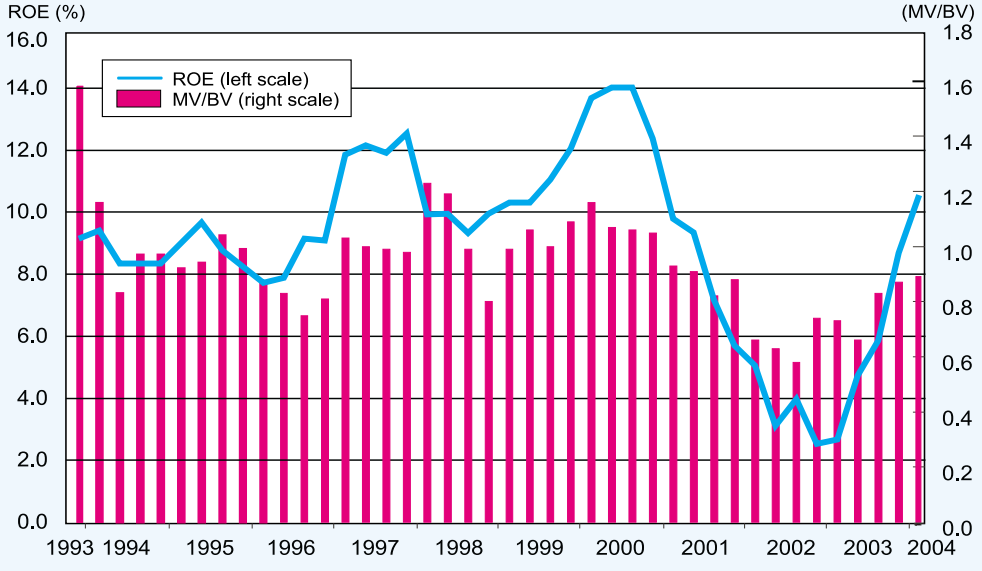
SOURCE: Tel Aviv Stock Exchange and Banking Supervision Research Unit.

Figure 1.9b
Ratio of Market Value to Book Value (MV/BV) of all Commercial Banks and of the Stock Exchange excluding the Banks, December 1993–March 2004



SOURCE: Tel Aviv Stock Exchange and Bank of Israel Banking Supervision Research Unit.

Figure 1.9c
Return on Equity (ROE) and the MV/BV Ratio of the Commercial Banks, December 1993–March 2004 (percent)



SOURCE: Tel Aviv Stock Exchange and Banking Supervision Research Unit.

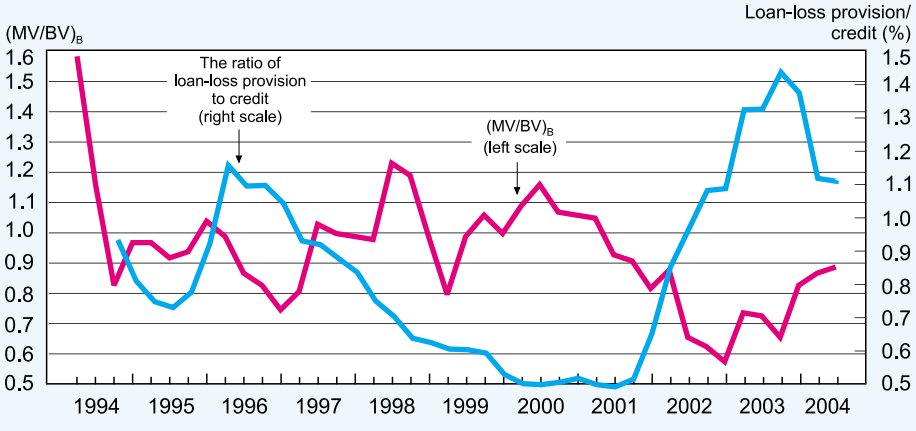
continuous rise in the MV/BV ratio for all of the banks during 2003, and in December 2003 the ratio stood at 0.87 (for the entire banking system), and even continued to rise to a level of 0.89 in March 2004.

2. A comparison of the MV/BV ratios for all of the commercial banks and for the total stock exchange excluding the banks reveals that throughout the entire period (December 1993 to March 2004) the MV/BV ratios for the commercial banks were characterized by lower expectation and standard deviation than those of other shares on the stock exchange (0.97 and 0.22 respectively for the banks, compared with 1.77 and 0.48 respectively for other shares) (Figure 1.9b). This finding may indicate that in general, investing in bank shares was considered to be more conservative than investing in other shares. Furthermore, the fact that the MV/BV ratios for the banking groups had hovered near 1 for so long could be an indication of the impact of the banking arrangement (imposed by the Supervisor of Banks), which is quite strict and requires due disclosure (full transparency).

To illustrate this, we examined the connection between the MV/BV ratio of the five commercial banks, and their cumulative return on equity (ROE) during the past decade (Figure 1.9c), and the relationship between the MV/BV ratio and credit risk (measured by the ratio of credit to GDP ratio and the ratio of loan-loss provision to credit) (Figures 1.10a and 1.10b). As expected, for more than an entire decade the MV/BV ratio and ROE were positively correlated. In addition, in can be seen that the MV/BV ratio in recent years was, in fact, negatively affected by the banks' exposure to credit risk, as

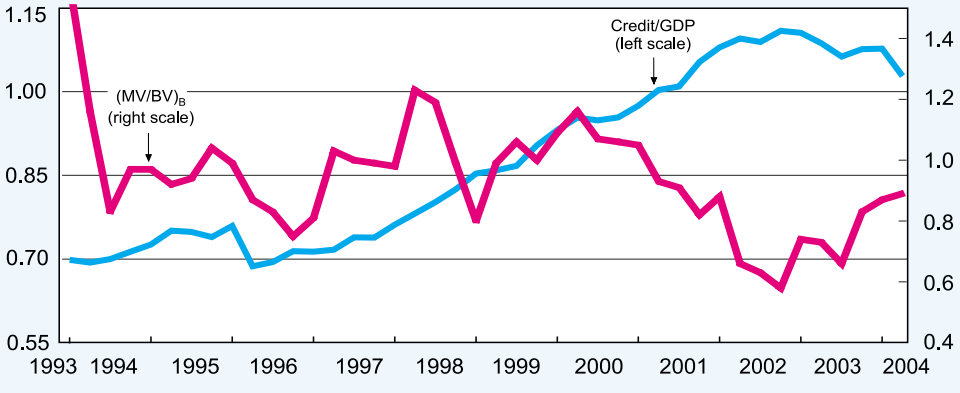
would have been expected. Thus, as the credit/loan-loss provision ratio and the credit/GDP ratio rose, the MV/BV ratio declined dramatically. This means that investors correctly assessed the impact of the severe recession on the banks' exposure to credit risk, and thus—on their net worth. This correlation is based on the expected negative correlation between MV/BV and the rate of return the investor requires for his shares—a rate that is affected, as stated above, by the firm's risk.

Figure 1.10a
Ratio of Loan-Loss Provision to Credit in the Banking System and the $(MV/BV)_B$ Ratio in all the Commercial Banks, December 2003–March 2004



SOURCE: Tel Aviv Stock Exchange and Banking Supervision Research Unit.

Figure 1.10b
Credit/GDP Ratio in the Five Major Banking Groups vis-à-vis the $(MV/BV)_B$ Ratio in all the Commercial Banks, December 1993–March 2004



SOURCE: Tel Aviv Stock Exchange and the Bank of Israel Banking Supervision Research Unit.

Box 1.1
'*Hosen*'—A Composite Measure for Rating the Strength and Robustness of Banks in Israel

The Research Unit of the Supervisor of Banks has developed, for the first time in Israel, a composite rating for banks that assesses their strength and financial robustness—hereinafter, the "*Hosen*" rating.[1] This rating enables us to assess and compare the banks' performance at a particular point in time, as well as over time, based on a broad range of components, using a composite score ranging from 1 to 5, where 1 is the highest score ("a bank sound in every respect") and 5 is the lowest score ("a bank that exhibits extremely unsafe or unsound practices or conditions"). This rating is based on six main categories: capital adequacy (C); quality of assets (A); quality of management (M); profits and profitability (E); exposure to liquidity risk (L); and sensitivity to market risk (S). Thus, it is essentially similar to indices that have been developed and are in use by numerous supervisory authorities in western countries (USA, Italy, France, the Netherlands, etc.). For each main category in the "*Hosen*" rating, sub-categories that consist of various financial ratios were examined. In total, researchers used 25 such financial ratios. These ratios are primarily based on objective assessments, in other words, the rating was mainly based on data from the financial statements published by the banks; and with regard to the quality of management, only partially based on subjective assessments made by experts in the Banking Supervision Department. It is important to note that the final score is based on specific weights assigned to each main category and sub-category, and these weights are determined subjectively by the researchers.

The index was calculated for all banking institutions that existed within the system in each year between 2000–2003. The "*Hosen*" rating will serve the Supervisor of Banks as a tool to monitor the strength and robustness of the banks over time, and to identify banks that exhibit signs of weakness. This will help define priorities in the Supervisor's treatment of the banking institutions. Once the index has met accepted statistical tests and has proven itself to be a useful supervisory tool for assessing the banks' strength, it could serve as a means for estimating deposit-insurance premiums adjusted for risk, that is if a deposit-insurance scheme is implemented in Israel in the future.

A comparison of the banks' scores over time shows that in 2001 and 2002, years that were characterized by deep economic recession (an average drop

[1] Yaron Fishman and David Ruthenberg, *" 'Hosen'—A Composite Measure for Rating the Strength and Robustness of Banks in Israel,"* Bank of Israel Banking Supervision Department, Research Unit Working Paper 01.05 (January 2005).

in GDP of about 0.8 percent for this period), most of the banks received scores that were much worse than in 2000, which was characterized by relatively high growth rates in GDP (7.6 percent). In 2003, a period in which there was a certain improvement in the economy (a growth rate of 1.3 percent in the GDP), there has been a concomitant improvement in the average scores for the banking institutions, to a level similar to that in 2000 (see the table at the end of this box).

It should be noted that the improved scores in 2003 centered on the category of capital adequacy (C), and the category of profits and profitability (E), as reflected in the sharp rise in ROE, ROA, RAROC for all banks in the banking systems. In contrast with this, the category of quality of assets (A) still shows low scores for almost all of the banks—a result indicating that credit risk (the main component of this category) in the banking system remains high in 2003.

It is important to emphasize that the results obtained with the "*Hosen*" index and the changes in scores over time correspond with the banking system performance analysis for 2003, and the long-term perspective as presented in this review.

"*Hosen*" Ratings of Banking Institutions in Israel, 2000–2003 (weighted averages for the entire banking system)

	2000	2001	2002	2003
Average rating	2.77	2.99	2.96	2.70