Chapter 3
Risks and Capital Adequacy

The Israeli banking system demonstrated relative resilience in the face of shocks to the financial market during the recent crisis, which led to the collapse of a number of financial institutions worldwide. This can be attributed to the conservatism of Israeli banks, comprehensive regulation, close monitoring and the low level of leverage in the household sectors.

During 2009, the risks to the banking system—including credit risk which is the main risk component—declined relative to the peak of the crisis and capital adequacy improved to a significant degree. Nonetheless, the problem of heavy public debt in various countries, the fears of a slowdown in growth and the risk to financial stability in a number of European countries still threaten the return to normal global growth and are likely to have a negative effect on Israel's economy and banking system.

During the course of the year, there was a gradual decline in all three components of credit risk in the banking industry, i.e. the quality, total amount and concentration of credit. The quality of the credit portfolio improved due to the renewed expansion of real economic activity in Israel, alongside the recovery in the labor and capital markets, which halted the deterioration in the repayment ability of borrowers and improved their financial situation. This development was also manifested in industries that had been seriously affected by the crisis, such as real estate, diamonds and leveraged credit. Nevertheless, the implicit level of risk in these industries remains high.

In 2009, one of the largest corporations in Israel was unable to redeem its debts on time. The event fortunately had only a limited effect and did not endanger the stability of the banking system. This was due to, among other things, the regulatory constraints that apply to the debt of a single borrower and a group of borrowers.

This year, the credit portfolio of the five largest banking groups decreased in size for the first time in five years due to the reduction in credit to the business sector. This was a result of the decline in bank credit, the cautious credit policy of the banks as a result of the crisis and the renewal of activity in the non-bank credit market. The decline in commercial credit was partly offset by the expansion of credit to households, particularly housing credit. This had a positive effect on the diversification of credit among borrowers and led to a reduction in the concentration of the credit portfolio. In parallel to the contraction of credit, there was growth in less-risky assets, i.e. cash, bank deposits and government bonds, which changed the composition of the banks' asset portfolio and reduced its share of risky assets.

In parallel to the recovery in the financial markets, their volatility was also reduced, which was manifested in smaller fluctuations in rates of interest, share prices and the exchange rate. This worked to reduce the exposure of the banks to market risks.

The level of liquidity in the banking system rose this year as a result of a series of measures taken by the Bank of Israel, including the purchase of government bonds and foreign currency. This expansionary policy added liquidity to the market that was absorbed by monetary deposits and which led to a significant expansion of the banks' liquid assets.

One of the main lessons learned from the crisis is the importance of effective corporate governance, particularly among the banks. The Supervisor of Banks took steps to reinforce the frameworks of corporate government among the banks, as part of the adoption of the Second Pillar of Basel II and the assimilation of other internationally accepted standards.

During 2009, the banking system in Israel began the process of assimilating the international recommendation of the Basel Committee for the Capital Measurement and Capital Standards (Basel II), which are the result of a new and focused approach to the management of risk and the allocation of capital. Since December 2009, the banks have been required to allocate capital according to the provisional directive "Working Framework for the Measurement and Adequacy of Capital". As part of its implementation this year, the banks have allocated capital, for the first time, against operating risk.

In 2009, the banks continued to raise their capital adequacy ratio in accordance with the directive of the Supervisor of Banks regarding a 12 percent target for the capital adequacy ratio. This was the result of the initial insights gained in Israel and worldwide from the crisis and in spite of the economy's difficult situation. In this context, the Supervisor of Banks took a series of steps to reinforce capital adequacy in the banking system, including directives that essentially prevented the distribution of dividends to shareholders. This regulatory policy, together the efforts of the banks to achieve the capital adequacy target, led to a significant improvement in the capital adequacy ratio, which reached a level of 13.7 percent in terms of Basel I and 13.6 percent in terms of Base II. This positive development was result of the expansion of the capital base through the growth in Tier 1 capital, which indicates an improvement in the quality of capital and a reduction in total risky assets. As part of the lessons learned from the crisis, most countries sought to raise the capital base of the banks and to improve its quality in order for it to serve as a buffer against higher-than-expected losses. As a result, the capital ratios worldwide improved considerably, as they did in Israel, and for the first time the Israeli banking system's capital adequacy ratio reached an internationally accepted level.

Table 3.1
Indices of Risks and Capital Adequacy in the Banking System, 2001–09 (end-of-year)

	Market value/ Book value ratio (MV/BV)	Average yield gap between bank and government bonds	Ratio of annual loan-loss provision to total credit risk (multiplied by 100)	Share of non-performing loans in total credit to the public (%)	Share of balance sheet credit to problem borrowers[a] in total credit to the public (%)	Share of the balance of the loan-loss provision in total problem debts[a] plus the balance of the loan-loss provision (%)	Capital adequacy (%)	Equity[b] as share of total assets (%)
2001	**0.8**	**0.8**	**0.85**	**1.7**	**8.8**	**28.3**	**9.38**	**5.11**
2002	**0.6**	**0.8**	**1.32**	**2.5**	**10.1**	**30.1**	**9.90**	**5.11**
2003	0.8	0.7	1.12	2.6	10.5	32.6	10.32	5.52
2004	1.0	0.8	0.90	2.5	10.6	34.2	10.73	5.71
2005	1.4	0.7	0.69	2.3	9.5	37.1	10.67	5.72
2006	1.3	0.6	0.52	2.0	8.4	39.3	10.82	6.04
2007	1.2	1.1	0.28	1.4	6.1	44.3	10.96	6.25
2008	**0.6**	**1.9**	**0.72**	**1.5**	**7.0**	**40.0**	**11.16**	**5.87**
2009	**1.1**	**1.7**	**0.75**	**1.4**	**6.6**	**43.5**	**13.69***	**6.43**
							13.61**	

a Including non-performing loans, restructured loans, loans to be restructured, loans temporarily in arrears, and loans under special supervision.
b Including minority shareholders' rights.

* Calculated according to Basel I directives.

** Calculated according to Basel II directives.

SOURCE: Based on published financial reports.

1. CREDIT RISK

Credit risk is the primary type of financial risk faced by a bank in its operations. A bank's credit portfolio risk is affected by total credit, the quality of credit and the portfolio's level of diversification, such that greater diversification reduces credit risk. The risk of the credit portfolio is also affected by country risk, which can be a manifestation of political risk or transfer risk.[1]

In this section, we will survey the changes in the composition of assets of the five largest banking groups this year. We will examine the changes in the composition of their aggregate credit portfolio and its quality, including the financial situation of firms and households in Israel. We will also look at the degree of concentration in the portfolio, including diversification between industries and the various borrowers.

During 2009, there was a gradual decline in all three components of the bank's credit risk, i.e. the quality, total amount and concentration of credit. The quality of the credit portfolio improved as a result of the renewed expansion of real economic activity in Israel alongside a recovery in the labor and capital markets, which halted the deterioration in the repayment ability of borrowers and improved their financial situations. The situation also improved in industries that were particularly affected by the crisis, i.e. real estate and diamonds, which was also the case for leveraged credit. Nonetheless, their implicit levels of risk remain high. In addition, the situation of households also improved with the increase in the value of their portfolios of financial assets and the improvement in the labor market during the second half of the year.

The size of the banking system's credit portfolio shrank in 2009, for the first time in the last five years, and the ratio of balance-sheet credit to GDP declined. This development is an indication of a decline in credit risk since GDP is an indicator of borrowers' repayment ability. The reduction in total credit was a result of the contraction in credit provided to the business sector due to the drop in demand for bank credit, the banks' cautious credit policy during the crisis and the renewal of activity in the non-bank credit market. This was partly offset by the expansion of credit to households in general and for housing in particular, which had a positive effect on the diversification of credit among borrowers and led to an improvement in the concentration of the credit portfolio. In parallel to the decrease in total credit, the share of low-risk assets, i.e. cash, bank deposits and government bonds, and the banks' total risk assets declined.

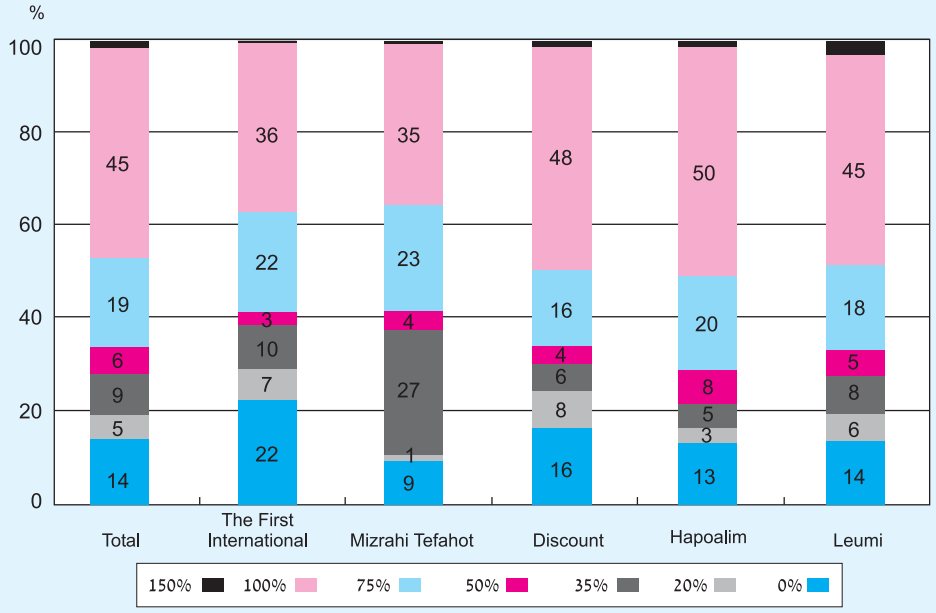
[1] Which is the result of an inability to redeem a loan in the same currency.

a. Composition of the asset portfolio

The composition of the banks' asset portfolio changed during 2009, such that its share of risk assets was reduced. Thus, there was a decrease in the share of commercial credit, which is characterized by a high level of risk, while there was an increase in the share of low-risk assets, i.e. cash, bank deposits and government bonds.[2] The factors behind the decrease in commercial credit included the reduced demand for credit as a result of slower growth and economic uncertainty, the banks' cautious credit policy as a result of the crisis, the renewed activity in the non-bank credit market and the redemption of credit by two large groups of borrowers. The changes in the asset portfolio were manifested in the substantially improved share of risk components within the total of all components, which reflects the asset mix's degree of risk (Table 3.2). The transition to the standardized approach in the measurement of credit risk in accordance with Basel II led to a decline in this ratio due to the change in the risk weighting of assets (Table 3.2).

An examination of the breakdown of credit exposure according to the new risk weights (Basel II) shows that 45 percent of the banking system's credit risk, most of which is

Figure 3.1
Composition of Credit Risk exposure by Risk Weights calculated According to the Standardised Approach of Basel II, The Five Major Banking Groups, December 2009



SOURCE: Published financial statements

[2]For further details see Chapter 1.

Table 3.2
Indices of Credit Portfolio Quality, the Five Major Banking Groups, 2003-09

	Year	Leumi	Hapoalim	Discount	Mizrahi–Tefahot	First Intl.	The five groups
Ratio of risk-weighted assets to total assets[a]	2003	0.685	0.711	0.581	0.645	0.654	0.669
	2004	0.674	0.714	0.588	0.670	0.617	0.667
	2005	0.679	0.719	0.600	0.673	0.614	0.673
	2006	0.670	0.722	0.598	0.666	0.613	0.669
	2007	0.690	0.728	0.619	0.682	0.588	0.680
	2008	0.695	0.723	0.648	0.669	0.591	0.683
	2009*	0.642	0.679	0.606	0.671	0.544	0.641
	2009**	0.604	0.632	0.594	0.543	0.497	0.594
Share of balance sheet credit to problem borrowers[b] in total credit to the public (%)	2003	9.8	11.3	11.7	7.7	12.3	10.5
	2004	10.7	11.5	10.2	6.5	12.7	10.6
	2005	9.7	9.9	9.0	6.8	11.9	9.5
	2006	9.8	8.5	7.8	6.0	7.6	8.4
	2007	6.5	6.4	6.3	5.0	5.1	6.1
	2008	8.5	6.1	7.0	6.7	5.9	7.0
	2009	7.8	6.4	7.3	4.9	4.8	6.6
Share of non-performing loans in total credit to the public (%)	2003	2.3	2.9	3.8	1.4	2.5	2.6
	2004	1.5	3.2	3.5	1.4	3.3	2.5
	2005	1.3	2.9	3.1	1.5	2.7	2.3
	2006	1.4	2.4	2.8	1.4	1.6	2.0
	2007	0.8	1.8	2.2	1.3	1.2	1.4
	2008	0.9	1.8	2.0	1.3	1.2	1.5
	2009	0.9	1.8	1.9	1.0	1.1	1.4
Ratio of annual loan-loss provision to total risk to the public (multiplied by 100)	2003	1.11	1.27	1.11	0.50	1.34	1.12
	2004	0.87	0.93	1.08	0.56	0.99	0.90
	2005	0.79	0.66	0.79	0.45	0.62	0.69
	2006	0.51	0.53	0.63	0.44	0.42	0.52
	2007	0.21	0.25	0.44	0.31	0.33	0.28
	2008	1.01	0.68	0.67	0.44	0.39	0.72
	2009	0.74	0.94	0.87	0.39	0.44	0.75
Share of the balance of the loan-loss provision in total problem[b] debts plus the balance of the loan-loss provision (%)	2003	31.7	33.3	36.6	31.9	25.6	32.6
	2004	30.8	34.7	40.5	37.1	29.9	34.2
	2005	34.6	38.2	42.8	37.4	30.8	37.1
	2006	33.6	41.0	46.4	40.4	41.2	39.3
	2007	40.4	44.5	48.1	43.9	50.1	44.3
	2008	35.3	44.0	43.4	34.8	44.2	40.0
	2009	40.2	45.6	44.2	42.1	50.1	43.5

[a] Total risk assets are total balance sheet and off-balance-sheet assets weighted by risk. Total assets are total balance sheet and off-balance-sheet assets without risk weighting.
[b] Including non-performing loans, restructured loans, loans to be restructured, loans temporarily in arrears, and loans under special supervision.
* Calculated according to Basel I directives.
* Calculated according to Basel II directives.
SOURCE: Based on published financial reports.

credit to corporations,[3] is assigned a risk weight of 100 percent and about 28 percent, which is primarily credit to the government and housing loans, is assigned a weight of between zero and 35 percent (Figure 3.1). Particularly noticeable is the heterogeneity among the banks in the breakdown of credit exposure according to risk weights, which is a result of the differences in the composition of their assets. Thus, for the Mizrahi-Tephahot and First International groups, the share of assets with risk weights of between zero and 35 percent was high relative to the other groups, which is due to the fact that the Mizrahi-Tephahot group is characterized by a high rate of housing loans and the First International group is characterized by a high rate of cash, bank deposits and the nostro of governments and banks.

b. Total credit[4]

The total value of the aggregate credit portfolio[5] of the five largest banking groups declined by a rate of 6 percent in 2009. This followed a period of five years during which it grew at an annual average of about 8 percent. The decrease included both off-balance-sheet credit (-12 percent)[6,7] and balance sheet credit[8] (-3 percent) and was the result of the reduction in credit provided to the business sector (-8 percent).[9] The contraction in commercial credit was offset by the significant expansion of balance-sheet credit to private individuals (10 percent), primarily housing loans (13 percent), which was the result of the low rate of interest and the increased risk implicit in financial assets, although also in non-housing credit (7 percent) with the recovery in the household sector.

There was a contraction of total credit while the level of GDP remained basically unchanged, which reflected the decreased risk of the credit portfolio. Furthermore, there was a decline in the ratio of credit to the capital base, which is meant to absorb the banks' losses, including losses due to credit risk.

c. The quality of the credit portfolio

The quality of the bank credit portfolio deteriorated in 2008 as a result of the global crisis. During 2009, there was no further deterioration and as a result of the recovery from the crisis there were indications of a limited improvement towards the end of

[3]Most of the credit exposure to corporations is not rated and is weighted with a weight of 100 percent.

[4]Total credit includes balance-sheet risk and off-balance-sheet risk according to the report on total credit risk to the public according to industry in Appendix F to the financial statements.

[5] Balance-sheet and off-balance-sheet credit.

[6]The decline in the value of off-balance-sheet credit is primarily attributed to the reduction of unused credit lines at the Hapoalim and First International groups.

[7]For further details, see Chapter 1.

[8]Including credit to the public and the public's investment in bonds.

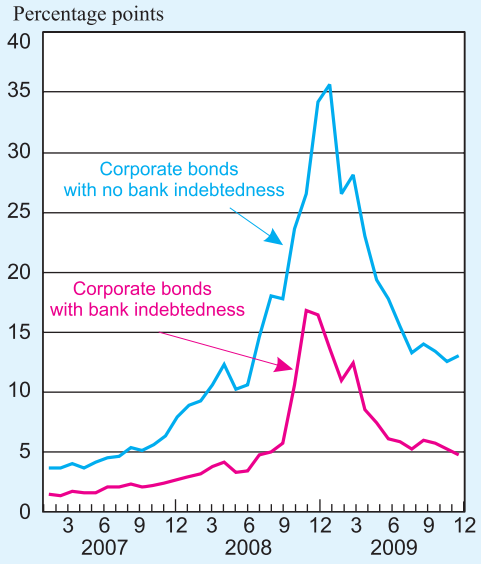
[9]See Section 1a.

the year, which was reflected in financial statements and in the capital market.

There was a significant recovery in the local capital market[10] during the course of the year, which led to an improvement in the situation of borrowers for whom shares form a significant part of their assets.

During this period, the gap in yields between corporate bonds and government bonds narrowed considerably, which was reflected in the reduced risk of firms (Figure 3.2).

Figure 3.2
The Gap between the Yield on Corporate Bonds and the Yield on Government Bonds,[a] 2007-09



[a] Calculated as the median gap, and not the average gap, because the gap does not have a normal distribution. The calculation is based on data relating to 30 corporate bonds of companies with no indebtedness to banks, and 107 bonds of companies that do have indebtedness to one or more of the five major banking groups. Government bonds are represented by *Galil* bonds with the same duration as the corporate bonds.

SOURCE: Bank of Israel.

It is worth mentioning that credit risk among firms with significant debt to the banks[11] and who issued bonds on the Tel Aviv Stock Exchange was lower than that of firms that issued bonds and did not have significant debt to the banks. In our opinion, the reason for this is the banks' highly developed system for the monitoring and assessment of borrowers. The banks have adopted a cautious and conservative approach to the monitoring of borrowers, which involves the evaluation of the borrower's collateral, his repayment ability and his financial resilience.

The ratio of annual expense due to the loan-loss provision to total credit to the public stood at about 0.7 percent, which was similar to its level in December 2008. However, the changes in the ratio[12] over the course of the year show that its upward trend leveled off during the last quarter of 2009 and that it even declined relative to December 2008, at the peak of the crisis (Table 3.2).

The ratio of the annual expense due to the loan loss provision to profit from financing activity before the provision fell during the year relative to 2008, which was due to the significant improvement in the banks' financing profits, while the provision remained essentially unchanged. During the recent crisis, the ratio stood at only 28 percent as compared to 42 percent at the peak of the previous crisis in 2002. It is worth mentioning

[10] An increase of 65 percent in the Tel Aviv 25 Index since the beginning of the year.

[11] Over NIS 20 million.

[12] The ratio between the quarterly expense for the loan-loss provision and total credit to the public in annual terms.

Table 3.3
Distribution of Problem Loans, the Five Major Banking Groups, 2007-09

(NIS million)

	Year	Leumi	Hapoalim	Discount	Mizrahi–Tefahot	First Intl.	The five groups
Non-performing	2007	1,604	3,750	2,230	934	662	9,180
	2008	2,012	4,108	2,347	1,145	713	10,325
	2009	1,846	3,976	2,191	908	643	9,564
Rescheduled	2007	929	1,536	278	185	281	3,209
	2008	405	848	366	194	324	2,137
	2009	679	767	1,543	1,079	215	4,283
Due to be rescheduled	2007	85	338	33	2	2	458
	2008	558	1,884	231	307	3	2,983
	2009	410	2,419	266	126	26	3,247
In temporary arrears	2007	764	1,164	387	1,027	172	3,514
	2008	562	703	832	1,034	153	3,284
	2009	584	765	670	746	106	2,871
Under special supervision	2007	9,618	6,261	3,521	1,582	1,696	22,678
	2008	14,545	6,075	4,427	3,275	2,430	30,752
	2009	12,349	5,924	3,721	1,766	1,928	25,688
of which: Debts for which there is a specific loan-loss provision	2007	4,672	4,085	893	120	401	10,171
	2008	7,373	3,919	622	682	301	12,897
	2009	6,313	4,206	980	50	240	11,789
of which: Housing credit for which there is a loan-loss provision according to the depth of the arrears	2007	523	499	188	670	107	1,987
	2008	505	460	178	615	100	1,858
	2009	389	453	156	539	125	1,662
Total balance-sheet credit to problem borrowers	**2007**	**13,000**	**13,049**	**6,449**	**3,730**	**2,811**	**39,039**
	2008	**18,082**	**13,618**	**8,203**	**5,955**	**3,623**	**49,481**
	2009	**15,868**	**13,851**	**8,391**	**4,625**	**2,918**	**45,653**
Total off-balance-sheet credit to problem borrowers	2007	2,438	1,512	1,038	616	255	5,859
	2008	3,482	2,040	1,359	941	407	8,229
	2009	3,065	2,591	873	688	315	7,532

Table 3.3 (cont.)
Distribution of Problem Loans, the Five Major Banking Groups, 2007-09

(NIS million)

	Year	Leumi	Hapoalim	Discount	Mizrahi–Tefahot	First Intl.	The five groups
Bonds of problem borrowers	2007	4	525	21	0	14	564
	2008	506	358	64	0	38	966
	2009	683	144	12	0	31	870
Other assets related to derivatives of problem borrowers	2007	32	1	22	0	0	55
	2008	612	12	209	0	0	833
	2009	252	9	24	0	0	285
Total exposure to problem borrowers	**2007**	**15,474**	**15,087**	**7,530**	**4,346**	**3,080**	**45,517**
	2008	**22,682**	**16,028**	**9,835**	**6,896**	**4,068**	**59,509**
	2009	**19,868**	**16,595**	**9,300**	**5,313**	**3,264**	**54,340**
Total credit risk of problem banks	2007	0	0	0	0	0	0
	2008	108	57	6	124	0	295
	2009	190	41	11	42	0	284
Total credit risk of problem borrowers and banks	**2007**	**15,474**	**15,087**	**7,530**	**4,346**	**3,080**	**45,517**
	2008	**22,790**	**16,085**	**9,841**	**7,020**	**4,068**	**59,804**
	2009	**20,058**	**16,636**	**9,311**	**5,355**	**3,264**	**54,624**

SOURCE: Based on published financial reports.

that even at the peak level recorded in 2002, the banks had the ability to absorb the provisions without any threat tot heir capital.

As part of the analysis of credit quality, we also examined the credit ratings determined by the five largest banking groups[13] for a firm whose total risk credit exceeds NIS 20 million. These borrowers together account for about 70 percent of total commercial credit risk.[14] An analysis of these borrowers indicates a downward trend in the quality of credit which began at the outset of the crisis in December 2007 and intensified somewhat during 2009 (Figure 3.3). The deterioration in credit rating can be seen in almost all industries, particularly those most affected by the crisis. It is also reflected in the drop in the proportion of low-risk borrowers and at the same time in the increased proportion of medium- and high-risk borrowers[15] (Figure 3.4).

13 The banks rate the credit risk of firms whose total debt exceeds NIS 20 million as part of the reporting to the Bank Supervision Department. Since the rating scales reported by the banks differ from each other, we constructed a uniform rating scale for all the five largest banks for the purposes of this survey. The scale ranges from 0 to 100, where a lower value indicates a firm with higher-quality credit (0-36 indicates low risk, 37-57 medium risk and 58-100 high risk).

14 Total credit risk apart from credit to private individuals.

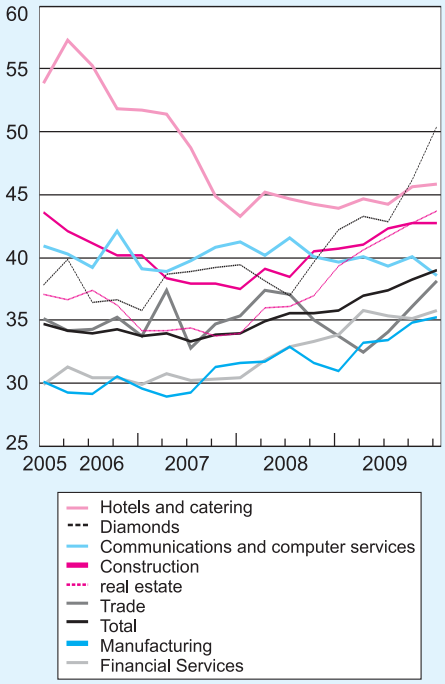
15 Borrowers with a high probability of default.

Table 3.4
Distribution of Credit by Principal Industry, the Five Major Banking Groups, 2008-09

	Total credit to the public[a]				Balance sheet credit risk[b]								
	Balance		Distribution		Balance		Distribution		Change in credit	Share of problem credit in total balance sheet credit		Ratio of annual loan-loss provision to balance sheet credit	
	2008	2009	2008	2009	2008	2009	2008	2009	2009	2008	2009	2008	2009
	(NIS million)		(percent)		(NIS million)		(percent)		(percent)	(percent)		(percent)	
Agriculture	7,606	6,779	0.7	0.6	6,011	5,309	0.8	0.7	-11.68	8.5	8.0	-2.26	0.98
Manufacturing	129,151	116,219	11.2	10.7	74,210	65,244	10.1	9.1	-12.08	11.4	10.8	1.71	1.35
Construction and real estate[c]	163,222	165,766	14.1	15.3	103,525	101,700	14.1	14.2	-1.76	17.9	15.9	1.05	1.09
Water and electricity	9,665	8,227	0.8	0.8	5,168	4,549	0.7	0.6	-11.98	0.9	0.4	0.08	0.04
Commerce	68,321	60,842	5.9	5.6	48,439	43,251	6.6	6.0	-10.71	5.3	6.5	0.41	0.59
Tourism[d]	15,317	13,285	1.3	1.2	12,361	11,623	1.7	1.6	-5.97	29.9	28.9	0.32	0.77
Transport and storage	21,730	18,952	1.9	1.7	16,234	14,214	2.2	2.0	-12.44	5.8	9.5	0.68	0.47
Communications and computer services	21,201	24,200	1.8	2.2	13,730	13,062	1.9	1.8	-4.87	12.0	11.3	1.02	2.04
Financial services	112,994	102,772	9.8	9.5	64,424	57,037	8.7	8.0	-11.47	10.0	8.3	1.00	0.75
Other business services	39,910	37,871	3.5	3.5	29,046	26,317	3.9	3.7	-9.40	4.5	4.1	0.78	0.85
Public and community services	21,567	20,674	1.9	1.9	16,074	16,477	2.2	2.3	2.51	6.4	5.7	0.18	0.16
Individuals	379,186	363,043	32.9	33.5	234,425	258,912	31.8	36.1	10.45	3.2	2.6	0.39	0.40
of which: housing loans	148,473	166,771	12.9	15.4	141,762	159,750	19.3	22.3	12.69	2.7	2.1	0.12	-0.01
of which: non-housing loans	230,713	196,272	20.0	18.1	92,663	99,162	12.6	13.8	7.01	3.9	3.4	0.79	1.05
Borrowers' activity abroad	163,903	146,163	14.2	13.5	112,667	99,610	15.3	13.9	-11.59	6.2	8.2	0.43	0.73
Total	**1,153,773**	**1,084,793**	**100.0**	**100.0**	**736,314**	**717,305**	**100.0**	**100.0**	**-2.58**	**8.1**	**7.6**	**0.68**	**0.72**
Municipalities	9,051	8,936	0.8	0.8	8,414	8,370	1.1	1.2	-0.52	3.1	2.1	-0.02	0.00

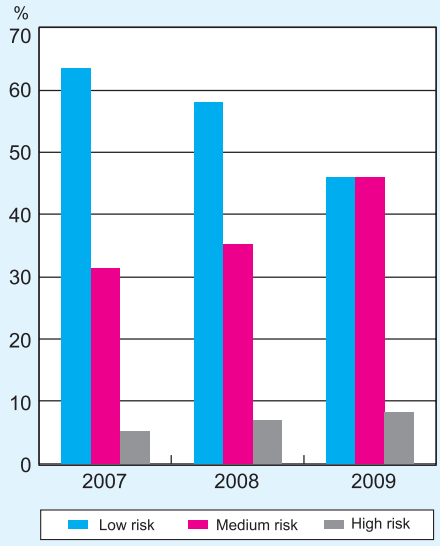
[a] Including outstanding credit to the public, the public's investment in bonds, other assets in respect of derivatives and the credit value equivalent of off-balance-sheet items in respect of borrowers' activity in Israel and abroad.
[b] Including the public's investments in bonds.
[c] The data for this industry are calculated without regard to the industry concentration limitation.
[d] Hotels, catering and accommodation.
SOURCE: Published financial statements.

Figure 3.3
Average Credit Risk Rating by Industry in the Five Major Banking Groups, December 2005 to December 2009



SOURCE: Returns to the Bank Supervision Department.

Figure 3.4
Distribution of Credit Risk Ratings by Risk Level in the Five Major Banks, December 2007 to December 2009



SOURCE: Returns to the Bank Supervision Department.

d. The quality of the credit portfolio by industry and the household sector[16]

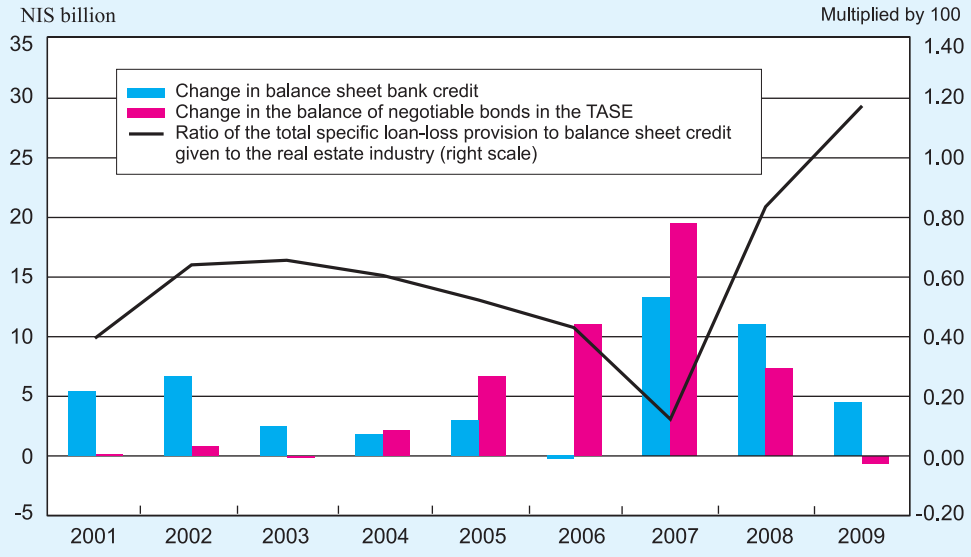
The global crisis had a dominant effect on credit risk in the banking system, particularly in the real estate and financial services industries, which were located at the focus of the crisis, the diamond industry, which was affected by a drop in global demand and consumption, and leveraged credit, which was affected by the losses in the capital markets. The recovery in real economic activity in Israel, which began in the second quarter of 2009 and the sharp price increases in the financial markets led to a halt in the deterioration of borrowers' repayment ability and their financial situation began to improve; however, the level of risk in these industries remains high.

[16]The analysis of credit by industry in this section includes both credit provided for the activity of borrowers in Israel and that provided for activity abroad (unlike the presentation in Table 3.4), apart from the household sector which includes the activity of borrowers in Israel alone.

(1) The real estate industry

There was an increase in risk in the real estate industry, particularly among borrowers who had invested in real estate abroad and were affected by the bursting of the real estate bubble in foreign markets. The limited ability of borrowers who obtain financing from the capital market to recycle their debt, which was a result of the difficult conditions in this market and the global credit shortage, exacerbated their situation. These borrowers are characterized by a high rate of debt and in coming years they will face the problem of redeeming their bonds. Some of them do not have the resources to redeem their debt and their ability to raise new debt is limited. Although the issue of bonds by firms in the industry was gradually renewed during 2009,[17] the characterization of issues had changed. Thus, the companies issuing debt were those whose bonds are traded at low yields, i.e. stable low-risk firms, while high-risk firms did not manage to obtain funding in the capital market. The increase in the level of risk among companies in the real estate industry, which began in 2008, was reflected in the accounting measures calculated using

Figure 3.5
Changes in Balance Sheet Credit Given to the Real Estate Industry, in capital Registered for Trading of Negotiable Bonds of Real Estate Companies on the Tel Aviv Stock Exchange (TASE), and the Ratio of the Total Specific Loan-Loss Provision to Balance Sheet Credit Given to the Real Estate Industry, 2001-09



SOURCE: Bank of Israel and returns to the Bank Supervision Department.

[17] As a result of the crisis, issues by companies in the real estate industry had stopped entirely.

the financial statements and capital market indicators. Thus, the ratio of annual expense due to the loan-loss provision to total balance-sheet credit in the industry rose sharply during the last two years and reached 1.2 percent in December 2009 (Figure 3.5); the credit risk rating contained in the reports to the Bank Supervision Department indicates an upward trend in the risk of firms since 2008 (Figure 3.3); and the risk premium on the corporate bonds of real estate companies remained at a high level, despite the narrowing of spreads in the bond market during 2009, and the bonds of about half of the companies in the industry were being traded at yields that exceeded 10 percent at the end of the year. Additional evidence of the deterioration in the resilience of real estate companies could be seen in the ratings of the bonds issued by the industry, which were lowered during the year by external rating companies. Following two consecutive years in which balance-sheet credit to the real estate industry grew at an annual rate of 23 percent and despite the high level of risk in the industry, total credit continued to grow this year. Thus, total balance-sheet credit to the industry grew by a rate of 6 percent and the industry's share of total balance-sheet credit stood at about 11 percent at the end of 2009. An analysis of changes in the credit risk of these borrowers on a quarterly basis shows that the improvement that appeared in the financial markets during the course of the year, which enabled some real estate companies to again raise capital through non-bank credit, and the slow recovery that appeared in the second half of 2009 in most countries lead to an improvement in the situation of borrowers towards the end of the year. Nonetheless, as already mentioned, their level of risk remained high.

(2) The construction industry

During 2009, there was no major change in the ratio of annual expense due to the loan-loss provision to total balance-sheet credit in the construction industry, which stood at 0.8 percent. This compares to a record level of 2.2 percent during 2004–5 when the construction industry was stagnant. Residential construction was affected this year by the increase in housing prices and was characterized by increased purchases of apartments for investment. The increase in prices followed about a decade of decline in the real value of houses. However, the industry's risk increases in the case of a sharp drop in prices and an increase in provisions is therefore required (for further details, see Section 6). The expansion in the scope of activity of purchasing groups, up to the point that they became an important component in residential building starts, highlighted the risks in providing credit both to the members of the group and to the banks. These risks include the stoppage of payments by some of the members of the group, which will reduce the flow of cash to the project; disagreements within the group and unplanned cost increases. Therefore, the Supervisor of Banks has decided that starting from the reports for June 30, 2010 credit to purchase groups in the process of construction will be classified as the debt of a corporation in the construction and real estate industry until the completion of the process and will be have a weight of 100 percent in the calculation of capital adequacy.

(3) The diamond industry

The diamond industry in Israel was particularly affected by the global crisis since the drop in demand and global consumption led to a contraction in the industry's scope of activity and profitability. Israel plays a central role in the activity of the global diamond industry and therefore the industry was particularly hard-hit by the crisis. This was reflected in a significant reduction (about 40 percent) in the trade in diamonds during 2009. As a result of the crisis in the diamond industry and its increased level of risk, the banks began to reduce their exposure to the industry and in parallel there was less demand for credit from the industry. These developments led to a sharp reduction (31 percent) in total balance-sheet credit to the industry. The significant increase in the diamond industry's risk was reflected in the increase in the ratio of annual expense due to the loan-loss provision to total balance-sheet credit to the industry from 1.6 percent in 2007 to 3.2 percent this year, the increase in the share of problematic debts within total balance-sheet credit[18] to about 16 percent and in the lowering of the credit ratings of companies in the industry, as revealed in the reports submitted to the Bank Supervision Department (Figure 3.3).

(4) Leveraged financing

Another type of credit whose level of risk rose significantly as a result of the crisis is leveraged financing, which includes credit provided for the purchase of control in a company. This credit is characterized by high rates of financing and the repayment ability is based primarily on the purchased company. In some cases, part of the credit is provided without recourse to the borrower. In cases where the repayment ability of the borrower is based on the shares of the purchased company, a decline in the value of the company will lead to the erosion of the market value of collateral and an increase in credit risk. The global financial crisis particularly affected borrowers whose rate of leverage was especially high, which led to a recognition of credit losses. This was exacerbated by the additional financing obtained by these borrowers against the increase in value of their controlling interests, which later proved to be only temporary. Although the turnaround in the financial markets during 2009, in which the sharp drop in prices on the Tel Aviv Stock Exchange were replaced by sharp increases and in which the volatility of the markets declined, led to a drop in the level of risk implicit in this type of credit, the need to strengthen the management of credit risk related to these companies has increased. Therefore, the Supervisor of Banks has required the banks[19] to perform a detailed analysis of these borrowers' repayment ability, including a comprehensive sensitivity analysis and the use of conservative margins of error when providing credit on the basis of shares that are used as collateral in the purchase of controlling interests.

[18] For activity in Israel and abroad.

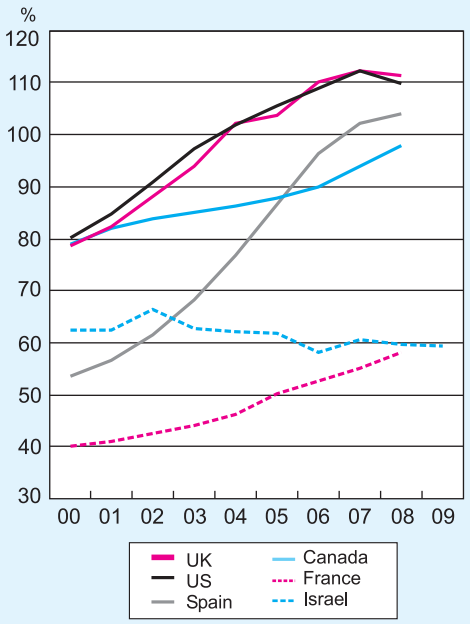
[19] See Appendix 4.1

(5) The household sector

Total credit[20] to private individuals[21] significantly increased during the last two years and its share in the credit portfolio rose to 34 percent in December 2009, as compared to 29 percent in December 2007 (Table 3.5). Despite the rapid increase in credit to households, the debt burden, which is used as a measure of borrowers' repayment ability and reflects the relationship between balance-sheet credit given to private individuals and disposable income, remained essentially unchanged and is low relative to other Western countries (Figure 3.6). The low level of the debt burden is a result of, among other things, the high rate of saving in Israel relative to other countries.

Due to the unique characteristics of housing loans, the analysis in this section will differentiate between housing loans and non-housing loans:

Figure 3.6
Ratio of Household Debt to Disposable Income in Selected Countries, 2000-09



SOURCE: Bank of Israel 2009 Annual Report.

(a) Housing credit

In 2004, total housing loans began a fairly steep upward trend as a result of the economic growth during that period. During the period 2004–7, balance-sheet credit for housing loans expanded by an average annual rate of about 8 percent and during the last two years by 13 percent. Despite this increase, the level of credit for housing loans in Israel relative to income remains low in comparison to other developed countries. The growth in total credit since 2008 is a result of the significant growth in housing prices, which led to an increase in the size of mortgages, and the low rate of interest, as well as the transition from financial to real investments, as a result of the financial crisis, which led to an increase in the number of loans provided.

Credit for housing is characterized as low risk relative to credit to the business sector and non-housing credit provided to private individuals. Indeed, various studies done worldwide have shown that the effects of macroeconomic factors on credit losses due to housing loans are small in scope and variables that were found to be significant were

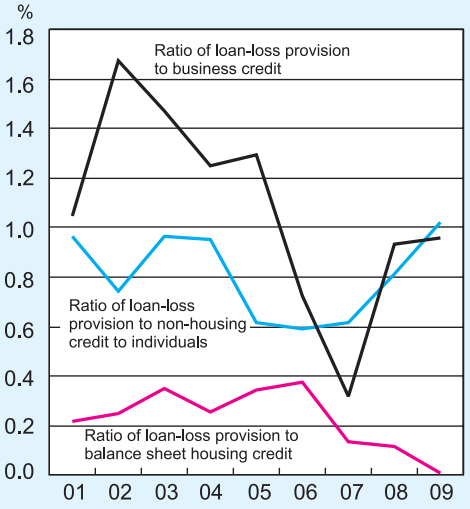
[20] Including total credit to the public, other assets related to derivatives and the credit risk in off-balance-sheet financial instruments due to the activity of borrowers in Israel, as calculated for the determination of borrower debt limits. It should be mentioned that the growth in total credit to private individuals was reflected both in balance-sheet and off-balance-sheet credit.

[21] Including households and the private banking industry.

the level of debt, income gearing[22] and income.

When the crisis worsened in September 2008, there was a dramatic reduction in the Bank of Israel rate of interest and with it the interest rates on housing loans. This led to a transition in the mix of housing loans from variable-rate CPI-indexed mortgages to variable-rate unindexed mortgages. In February 2009, the proportion of variable-rate unindexed loans reached a record level of 77 percent; however, the leveling off of the downward trend in the rate of interest led to decline in the share of these loans during the subsequent months. Nonetheless, their share remained high and in December 2009 was 51 percent. The changes in interest rates also led to a reduction in the debt burden[23] of borrowers who had taken variable-rate unindexed loans starting from the second half of 2008 (Figure 3.8).

Figure 3.7
Ratio of Specific Loan-Loss Provision to the Balance of Balance Sheet Credit to Individuals and to Business Credit, 2001-09



SOURCE: Reports to the Supervisor of Banks.

Although borrowers who took out variable-rate unindexed loans currently benefit from a reduced debt burden, they are exposed to the risk of an increase in the Bank of Israel rate of interest, which is expected to gradually occur in view of the currently low rate of interest. Therefore, we looked at the effect of an increase in the rate of interest on the debt burden of households who took out variable-rate unindexed housing loans. It appears that a greater debt burden is indeed expected to increase the provisions for housing and with it an increase in the sector's risk; however, this is not sufficient to endanger the stability of the banking system. For further details, see Section 6.

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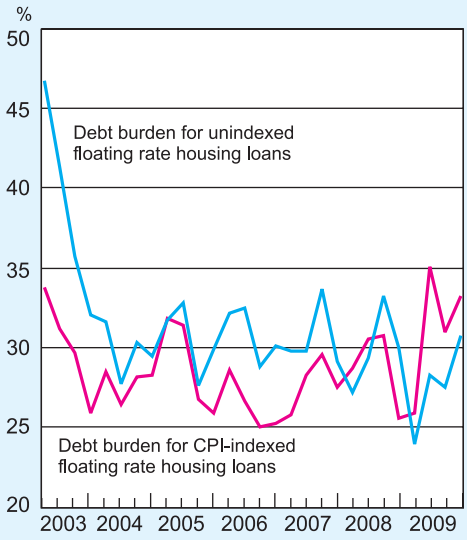
[22] See:

Hoggarth, G, Sorensen, S and Zicchino, L (2005) "Stress tests of UK banks using a VAR approach Household sector models", *Bank of England Working Paper no. 282*.

BIS (2008), "Stress Testing Credit Risk: Comparison of the Czech Republic and Germany", *FSI Award 2008 Winning Paper*

[23] The debt burden is defined for our purposes as the proportion of the average payment on a housing loan within average income. The rate of payment was calculated on the basis of the average original period to redemption, the average rate of interest, the size of the average housing loan and the expectations of inflation. Average income was calculated on the basis of the average real wage per salaried post.

Figure 3.8
Households' Debt Burden[a] for Unindexed Floating Rate Housing Loans and the Debt Burden for CPI-Indexed Floating Rate Housing Loans, 2003-09



[a] The debt burden is defined as the average repayment of the housing loan as a proportion of the average income. The repayment is calculated from the average original term of the loan, the average rate of interest , the average size of housing loans, and inflation expectations. Average income is calculated from the average real wage per employee post. The debt burden is calculated in a quarterly basis.

SOURCE: Bank of Israel and returns to the Bank Supervision Department.

(b) Non-housing credit

Non-housing balance-sheet credit provided to private individuals continued to expand this year by a rate of 7 percent and represents 38 percent of total credit to private individuals in Israel. The level of this credit relative to income is similar to the average for the developed countries.[24] During the crisis, the situation of households deteriorated as the value of their financial wealth declined and conditions in the labor market worsened. This is reflected in the increased ratio of annual expense due to the loan-loss provision to total non-housing balance-sheet credit which reached a level of 1.0 percent in December 2009 (Figure 3.7). The recovery in the capital market, in real activity and in the labor market during the year led to an improvement in the situation of borrowers relative to the peak of the crisis and to renewed growth in private consumption and in the demand for credit. Nonetheless, as mentioned, the improvement in the situation of borrowers was not yet completely reflected in the indexes of credit quality, which are based on financial statements.

e. The concentration of credit

The level of concentration in the credit portfolio is estimated in two ways in this survey: 1) According to industry: credit risk due to concentration decreases as the credit portfolio becomes more diversified; 2) according to size of the borrower: the exposure to credit risk decreases as the credit portfolio becomes more diversified among the various borrowers, and vice versa.

[24] This finding contradicts those regarding the ratio of balance-sheet credit to private individuals to income and the ratio of balance-sheet housing credit to income, which, as mentioned, are lower than the average for the developed countries. This is due to the share of non-housing credit to private individuals within total credit to private individuals in Israel, which is higher than the average for those countries.

(1) Concentration of the credit portfolio by industry[25]

The concentration of the credit portfolio according to industry was affected by a number of factors in 2009, including the growth in balance-sheet credit to private individuals,[26] the drop in the value of credit to borrowers whose activity is primarily abroad and the contraction of the commercial credit portfolio. This led to an improvement in the level of concentration for the total credit portfolio while the increase in the share of credit to the construction and real estate industry raised the degree of concentration in the commercial credit portfolio.

The upward trend in balance-sheet credit to private individuals continued this year and increased at a particularly high rate of 10 percent (Table 3.4). In contrast, credit in the commercial sector[27] shrank such that the share of credit to private individuals within total credit reached a level of 34 percent (Table 3.5). Since households are characterized by a greater degree of diversification among borrowers and a relatively low correlation between them, the increase in their share of credit reduced the concentration of the banks' total credit portfolio. An examination of the changes in balance-sheet credit to private individuals shows that credit for housing[28] grew this year at a high rate (13 percent) and its share in total balance-sheet credit reached 22 percent (Table 3.4).

Simultaneous with the improvement in concentration of the total credit portfolio, the commercial credit portfolio became more concentrated, as a result of the increase in the share of credit to the construction and real estate industry to 15 percent. The building and construction industry has, as mentioned, the largest share in the commercial credit portfolio. It is characterized by a high level of risk which increased even further as a result of the crisis. At the same time and in contrast to the previous two years during which the share of the industry increased as a result of the significant growth in credit to the industry,[29] this year its share increased as a result of the contraction of credit to other industries.

Credit to borrowers whose activity is primarily abroad shrank in 2009 for the second consecutive year and by the end of the year its share of total credit reached 14 percent in comparison to 18 person at the end of 2007 (Table 3.5). The decline was primarily the result of the reduced exposure to the manufacturing industry, which differed from the situation in the previous year when the decline was due to the investments in mortgage-backed securities (MBS).

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[25]Credit by industry in this section includes both balance-sheet credit risk and off-balance-sheet credit risk due to the activity of borrowers in Israel, as it appears in the financial statements. Credit to borrowers whose activity is primarily abroad appears as a separate category.

[26]There was a 28 percent decline in off-balance-sheet credit to private individuals among the five largest banking groups due to the sharp reduction of unused credit lines by some of the banking groups. This followed the implementation of the Basel II rules, according to which capital must be allocated against unused credit lines.

[27]For further details, see Section 1a.

[28]For further details, see Section 1c (5).

[29]Credit to this industry rose at a rate of only about 2 percent (Table 3.4).

Table 3.5
Indices of Concentration in Public's Credit Portfolio[a], the Five Major Banking Groups, 2006–09

	Year	Leumi	Hapoalim	Discount	Mizrahi–Tefahot	First Intl.	The five groups
Concentration by principal industry							
Herfindahl-Hirschman (H) Index of concentration in the total credit portfolio excluding credit to individuals[b,c]	2006	0.089	0.086	0.103	0.053	0.098	0.083
	2007	0.090	0.095	0.104	0.060	0.103	0.087
	2008	0.092	0.073	0.090	0.045	0.067	0.074
	2009	0.091	0.078	0.086	0.038	0.069	0.074
H-Index of concentration in the business credit portfolio[d,e]	2006	0.175	0.167	0.162	0.216	0.178	0.169
	2007	0.184	0.173	0.169	0.199	0.190	0.174
	2008	0.190	0.170	0.168	0.184	0.172	0.172
	2009	0.202	0.171	0.169	0.187	0.177	0.176
Credit to individuals as percentage of total credit (percent)	2006	26.2	30.2	21.0	49.5	26.0	29.0
	2007	27.1	28.6	22.0	44.4	26.3	28.7
	2008	27.8	33.0	26.1	50.1	37.4	32.9
	2009	29.9	30.0	28.0	54.4	38.0	33.5
Share of credit for borrowers' activity abroad in total credit portfolio (percent)	2006	20.9	22.3	19.0	3.8	7.8	18.2
	2007	20.5	21.8	21.4	3.9	5.9	17.9
	2008	19.1	13.4	21.0	3.1	4.9	14.2
	2009	17.2	11.9	23.0	3.0	4.4	13.5
Concentration by borrower size							
Gini index of credit diversification by borrower size[f]	2006	0.905	0.886	0.901	0.798	0.903	0.891
	2007	0.907	0.896	0.909	0.825	0.897	0.897
	2008	0.908	0.909	0.904	0.810	0.837	0.896
	2009	0.905	0.903	0.891	0.806	0.854	0.892
Share in the group's total credit of credit given to borrowers whose indebtedness exceeds NIS 40 million (percent)	2006	41.9	51.6	44.8	26.0	41.5	44.3
	2007	41.6	52.0	42.9	32.6	41.0	44.5
	2008	43.6	51.1	41.6	29.0	33.7	43.1
	2009	40.3	50.6	41.1	26.1	30.8	41.3
Share in total credit of borrowers whose indebtedness exceeds five percent of the group's equity[g] (percent)	2006	5.0	8.3	8.7	6.5	14.0	
	2007	6.1	8.4	7.3	10.2	15.0	
	2008	8.4	10.4	8.3	8.9	11.9	
	2009	5.0	11.4	9.0	6.5	9.6	

[a] On balance-sheet and off-balance-sheet basis.
[b] This index is the sum of the squares of the weights of the credit in an industries (excluding credit to individuals) in total credit to the public (including credit to individuals).
[c] The weighted industries in this index include the borrower's activity both in Israel and abroad, unlike in Table 3.4, in which the industries only cover the borrowers' activity in Israel, and activity abroad is shown as a separate industry.
[d] This index is the sum of the squares of the weights of credit in industries (excluding credit to individuals) to total credit to the public (excluding credit to individuals).
[e] The weighted industries in this index include the borrowers' activity in Israel only, in accordance with the data shown in Table 3.4.
[f] The Gini index reflects the inequality of the distribution of credit by borrower.
[g] Plus minority shareholders' rights.
SOURCE: Based on published financial statements.

The banks' investment in corporate bonds totaled NIS 17.5 billion this year, which represented a drop of 6 percent relative to the previous year and constituted about 2 percent of the risk of balance-sheet credit to the public. An analysis of the mix of these assets shows that the investment in bonds is characterized by a high degree of concentration. Thus, about 61 percent of the bonds are concentrated in the financial services industry abroad and only about 27 percent is invested in Israel and is dispersed among various industries.

(2) Concentration of the credit portfolio by size of borrower

The credit portfolio in Israel according to size of borrower is characterized by a relatively high degree of concentration due to the centralized structure of ownership and control in the Israeli economy. This year, one of the largest companies was unable to redeem its debts on time; however, the damage to the banks was minimal and did not endanger the banking system. This was partly due to the regulatory restrictions that apply to the indebtedness of a single borrower and a group of borrowers.[30]

The non-bank credit market returned to a situation of growth in 2009. About 90 percent of the issues were by companies with significant debt to the banks.[31] An analysis of these companies shows that while the total value of their issued bonds grew, their total bank credit declined. These firms are characterized by a high level of bank credit and about 76 percent of them are among the 1,000 largest borrowers of the five largest banking groups. Furthermore, the rating of these companies according to the reports submitted to the Bank Supervision Department show them to be low-risk relative to the average for the business sector. The shift of large borrowers to the non-bank credit market and the decreased demand for business credit, alongside the cautious credit policy of the banks and the redemptions of credit by two large borrowing groups, had a positive effect on the diversification of the credit portfolio. This improvement was reflected in the drop in total credit to large borrowers within the large borrower groups.[32] Thus, the credit risk of the ten largest borrowers at the end of 2009 represented 3.5 percent of total credit risk and 34.4 percent of the capital base,[33] as compared to 4.0 percent and 49.3 percent in December 2008. The share of the largest six groups stood at 8.9 percent of credit risk and 88 percent of the capital base, as compared to 9.7 percent and 120 percent in December 2008. The improvement in the concentration of the credit portfolio is also attributed to the significant expansion of credit to private individuals during the last two years, which was reflected in the decrease of the Gini coefficient for the dispersion of credit according to size of borrower (Table 3.5).

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30 Regulation 313 of the Proper Conduct of Banking Business.

31 Over NIS 20 million.

32 Source: Reports submitted to the Bank Supervision Department.

33 Total capital for purposes of the calculation of capital ratios for risk components.

The use of the Spanish Index[34] is an additional measure used widely in other countries to estimate the concentration of credit according to size of borrower. During 2009, there was somewhat of a decline in concentration of the 1,000 largest borrowers while at the same time their proportion of the credit portfolio also declined.

f. Country risk

Country risk is a result of the exposure to private individuals or institutions in foreign countries. This type of risk has three components: political risk which reflects external or internal threats to the stability of the regime, contract violation by the government and nationalization or confiscation of assets by the government; economic risk which is the risk of a deterioration in the country's economic situation; and transfer risk which arises from the inability to redeem a loan in the same currency. This can occur as a result of a moratorium on the country's foreign debt or the country's decision not to allow free capital movements in foreign currency. Country risk is created when a bank provides credit to a foreign resident, to foreign institutions or sovereignties and when foreign branches of the bank provide local residents with credit that is not offset by local liabilities.

As a result of the financial crisis, country risk increased significantly, particularly for countries that were directly affected by the crisis. Signs of improvement in the global economy began to appear in mid-2009 as a result of the interventionist polices of various countries. However, the continuation of the expansion of economic activity is threatened by large government deficits that have led to sharp increases in public debt, instability in the financial markets, fragility in the banking systems and very high rates of unemployment. Doubts began to arise in early 2010 as to the repayment abilities of a number of countries, including Portugal, Ireland, Greece and Spain (PIGS), some of which suffered from an unbalanced fiscal policy previous to the crisis as well. The quarterly reports for March 2010[35] show that the balance-sheet exposure of the five largest banking groups to the PIGS countries within total assets is about 0.2 percent.

The total exposure of the Israeli banking system to foreign countries[36],[37] declined this year by a rate of 7 percent to NIS 237 billion, of which 76 percent was to countries with an AAA rating (Table 3.6). The rate of exposure to the US and Britain in total exposure

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[34] The Spanish Index is calculated as follows: $\text{ב} = \frac{\sum x^2}{(\sum x)^2} \cdot \frac{\sum x}{\sum y} \cdot 100$ where $\sum y$ is the credit provided to the 1000 largest borrowers and $\sum x$ is total credit.

[35] In May 2010, the Bank Supervision Department required the banks to disclose their exposure to the PIGS countries in their quarterly reports.

[36] The total exposure to foreign countries includes the balance-sheet exposure to foreign countries (the balance-sheet exposure abroad and the balance-sheet exposure of branches in foreign countries to local residents) and the off-balance-sheet exposure to foreign countries (credit risk due to off-balance-sheet financial instruments as calculated for the purposes of a borrower's debt limits).

[37] These include countries for which the exposure to each of them is over 1 percent of total consolidated assets or over 20 percent of capital, whichever is less, and less-developed countries (LDC) that are classified by the World Bank as being in the low or intermediate income group.

Table 3.6
Exposure of the Five Major Banking Groups to Other Countries,[a] December 2008 and December 2009

(NIS million)

	Total exposure[b]		Problem debts outstanding	
	2008	2009	2008	2009
AAA-rated countries	185	179	3.0	3.8
of which: US	108	101	2.4	2.7
UK	45	39	0.5	1.0
Exposure to other countries	69	57	1.3	1.0
of which: Turkey	5	4	0.0	0.1
Less developed countries[c]	14	12	0.1	0.2
Total	**254**	**237**	**4.3**	**4.9**

[a] The foreign countries are those the exposure to each of which is more than 1 percent of the consolidated assets or more than 20 percent of equity/capital, whichever is the lower.

[b] The total exposure to foreign countries includes the balance sheet exposure to foreign countries (balance sheet cross-border exposure and the balance sheet exposure of overseas offices of the banking corporation to local residents) and the off-balance-sheet exposure to foreign countries (credit risk on off-balance-sheet financial instruments as calculated for the purposes of the limitation on that type of debt).

[c] Less developed countries classified by the World Bank in a low- or medium-income group. Disclosure regarding those countries is also required when the exposure to them is more than 1 percent of total assets or more than 20 percent of equity/capital, whichever is the lower

SOURCE: Published financial statements.

to foreign countries stood at 43 percent and 17 percent respectively in December 2009. During the year, the total value of problematic debts grew by 13 percent and their share in total exposure grew by 1.7 percent and 2.1 percent respectively. The increase in problematic debt is mainly attributed to the exposure to the US and Britain which were at the center of the crisis and are currently threatened by heavy government debt. In December 2009, the proportion of problematic debt within total exposure to the US and Britain stood at 2.7 percent and 2.6 percent, respectively.

g. Credit exposure to foreign financial institutions

In reaction to the crisis, the banks began reducing their exposure to foreign financial institutions in the last quarter of 2008. The exposure to foreign financial institutions[38] of

[38]The definition of foreign financial institutions includes banks, investment banks, brokers/dealers, insurance companies, institutional bodies and entities controlled by these institutions. The credit exposure to foreign financial institutions does not include the investment in mortgage-backed securities nor the exposure to foreign financial institutions that have a full and explicit government guarantee. It should be emphasized that credit risk includes bank deposits, which differs from total credit risk to the public according to industry (Appendix F to the Executive Summary) nor the potential off-balance- sheet credit exposure due to derivative instruments since the focus is on the current credit exposure.

Table 3.7
Current Credit Exposure[a] of the Five Major Banking Groups to Foreign Financial Institutions,[b] December 2008 and December 2009
(NIS million)

	Leumi		Hapoalim		Discount		Mizrahi-Tefahot		First International		Total	
Credit rating[c]	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
AAA to AA–	12,200	7,105	10,509	5,142	4,392	4,719	2,893	1,740	4,540	2,996	34,534	21,702
A+ to A–	22,107	21,679	9,391	7,556	8,242	2,668	1,658	738	3,662	2,810	45,060	35,451
BBB to BBB–	485	525	1,367	841	704	570	146	57	82	66	2,784	2,059
BB+ to B–	417	176	793	242	389	291	105	20	3	20	1,707	749
Below B-	122	0	49	130	6	0	155	48	12	4	344	182
Unrated	793	951	610	449	522	207	46	78	36	53	2,007	1,738
Total credit exposure to foreign financial institutions	**36,124**	**30,436**	**22,719**	**14,360**	**14,255**	**8,455**	**5,003**	**2,681**	**8,335**	**5,949**	**86,436**	**61,881**
Balance of problem debts[d]	135	190	90	380	46	12	124	42	14	23	409	647
Total exposure/equity (%)	193.5	139.2	120.9	69.7	162.0	84.6	84.1	41.0	151.8	96.5	149.8	95.0

[a] Current credit exposure includes the balance sheet credit risk—bank deposits, credit to the public, investments in bonds, securities borrowed or purchased under reverse repo agreements, and other assets related to instruments—and off-balance-sheet risk, mainly guarantees and commitments to give credit, including guarantees to secure third party debt. The credit risk is shown after deducting the specific loan-loss provision.

[b] Investment banks, brokers/dealers, insurance companies, institutions and entities controlled by them. Credit exposure does not include exposure to financial institutions that have explicit and full government guarantees, or investment in asset-backed securities.

[c] External credit rating by rating agencies S&P, FITCH and Moody's.

[d] Balance of problem debts minus debts covered by securities that can be deducted for purposes of the single-borrower and group-of-borrowers indebtedness limitation, including off-balance-sheet risk components.

SOURCE: Published financial statements.

the five largest banking groups declined during the year by about NIS 25 billion and stood at about NIS 62 billion in December 2009, which was similar to the banking groups' total net worth (Table 3.7). Of this, balance-sheet credit to foreign financial institutions stood at NIS 57 billion, which represents 5 percent of the banks' total assets.

The worsening situation of global financial markets in September 2008 led to a sharp increase in the banks' exposure to foreign financial institutions. As a result of the crisis, the banks were forced to deal with risk in their asset management which until that point had been perceived as having a low level of risk, such as deposits in foreign banks, securities of foreign financial institutions and credit provided to those institutions. The losses suffered by the banks as a result of the exposure to foreign financial institutions in 2008 led to a new perception of the risks implicit in this exposure and banks' executives continued to take steps to reduce its duration this year.

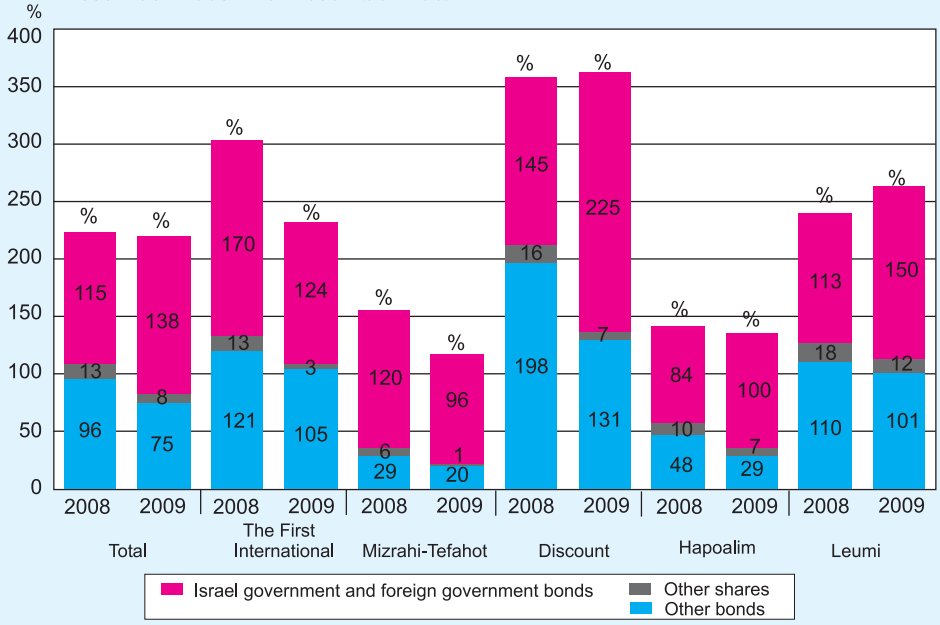
The risk implicit in the exposure to foreign financial institutions is affected by total exposure, the period of the exposure, the quality of the financial institutions (which is reflected in the institution's external credit rating) and the degrees of diversification among the various financial institutions and the various countries. We would emphasize that the correlation between countries increased during the crisis and there was less advantage in diversifying between countries. About 96 percent of the debt is to investment-grade financial institutions;[39] about 2 percent is to less-than-investment-grade financial institutions; and the rest is to unrated financial institutions, which in general are more risky than rated ones. This year, total problematic debt to foreign financial institutions increased to NIS 647 billion, which constitutes 1 percent of total exposure as compared to 0.5 percent in the previous year.

h. The securities portfolio of Israeli banks

The banks' securities portfolio totaled NIS 144 billion in December 2009 as compared to NIS 129 billion in 2008. This represents about 14 percent of the banks' total assets. The growth in the securities portfolio was a result of two main factors: the purchase of government bonds by the banks and the increase in the fair value of the those securities that the banks do not intend to hold until maturity as a result of the positive developments in the capital market this year, which erased the write-down in the book value of these securities in 2008. The increase in government bonds and the decrease in other bonds (of banks and corporations) and in shares led to a change in the composition of the portfolio and the reduction in its implicit risk (Figure 3.9).

[39] A rating of between AAA (the highest rating which is for the most solid firms) and BBB.

Figure 3.9
Ratio of Investment in Securities to Equity,[a,b]
December 2008 and December 2009



[a] In the repayment portfolio, trading portfolio, and available for sale portfolio.
[b] In the Discount group other bonds include bonds of US government agencies, which constitute 70 percent of that item.
SOURCE: Published financial statements

2. MARKET RISK

a. General

Market risk is defined as the risk of erosion in the net worth of the bank due to unexpected changes in market prices (interest rates, shares, the exchange rate and inflation). The analysis of market risk in this survey is based on VaR (Value at Risk), which expresses the maximum expected loss from holding financial instruments that are sensitive to movements in market prices for a given planning horizon and level of significance at a particular point in time. For further explanation of the VaR model, see the 2008 Annual Survey of Israel's Banking System.

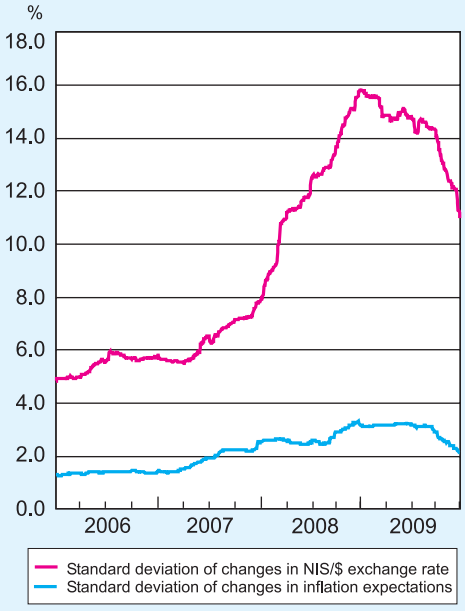
b. Developments in the financial markets

The year was characterized by recovery in the financial markets and by reduced volatility in the various markets (interest rates, share prices and the exchange rate). However, standard deviations did not return to their pre-crisis levels (Figures 3.10 and

3.11). Share and bond prices rose sharply following a downtrend in 2008 and this was reflected in the increase in the value of securities within the bank's nostro portfolio. Foreign currency risk, which is reflected in the standard deviation of daily changes in the dollar exchange rate, also declined significantly from its high level at the peak of the crisis (Figure 3.10)

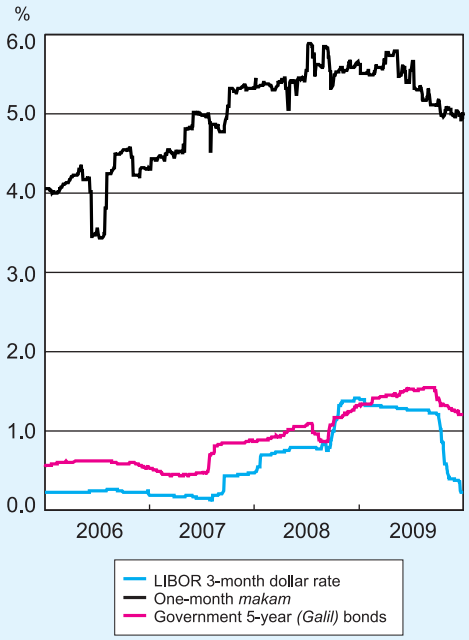
As a result of the crisis, the Bank of Israel adopted an expansionary monetary policy, which left the monetary interest unchanged during the course of the year at a level close to zero[40] which led to a decline in the volatility of interest rates in the two types of indexed assets, i.e. the interest rate on makam in the unindexed shekel segment and the interest rate on CPI-indexed bonds in the indexed segment (Figure 3.11). These steps were taken by the Bank of Israel in parallel to those of other central banks worldwide,

Figure 3.10
Standard Deviation[a] of the NIS/$ Exchange Rate and of Changes in Inflation Expectations, 2006-09



[a] Calculated on a daily basis over the previous year.
SOURCE: Bank of Israel.

Figure 3.11
Standard Deviation[a] of Changes in Selected Interest Rates, 2006-09



[a] Calculated on a daily basis over the previous year.
SOURCE: Bank of Israel.

[40] As part of the steps taken by the Bank of Israel to dampen the effect of the global crisis on real local activity, the rate of interest was reduced by 2 percentage points, from 2.5 percent in December 2008 to 0.5 percent in April 2009, which was maintained until September 2009. From that date onward, the Bank of Israel began to gradually reverse its expansionary policy and the rate of interest was raised by 1 percent by December 2009.

such as the Fed which left its rate of interest at a level close to zero during the year and thus significantly reduced the volatility of the dollar LIBOR interest rate (Figure 3.11).

The correlations between "price risks" within each of the risk categories (indexation-base risk and interest rate risk) and between the two risk categories weakened during 2009, after reaching almost perfect positive correlation due to the worsening of the crisis in September 2008, and as a result total risk declined. We would mention that the model on which the analysis of market risk is based in this chapter does not take into account the correlation between "price risks". Thus, total risk is calculated as the simple sum of all the exposures in all the risk categories. Thus, although the model is simplistic, it is also conservative.

c. Interest rate risk

(1) General

Interest rate risk is the risk that unexpected changes in the rate of interest will undermine the bank's financial situation (or will reduce the economic value of its capital).[41] This risk is created when the relative sensitivity of the value of the bank's assets to unexpected changes in interest rates is different to that of its liabilities.

The exposure to interest rate risk, which is expressed by the VaR of the bank's position,[42] is influenced by three factors: 1) the difference between the present value of assets and the present value of liabilities with the addition of the effect of futures transactions (hereafter: the position);[43] 2) the sensitivity of the position to changes in the interest rate which is measured by duration or adjusted duration; and 3) the maximum change in the rate of interest during the planning period. The first two factors are dependent on the distribution of assets and liabilities of each bank and their characteristics over time while the third factor is the same for all banks since it is derived from the volatility of interest rates.

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[41] The net worth of a bank is calculated as the difference between the present value of assets and the present value of liabilities. The present value of assets and liabilities is obtained by capitalizing the future cash flow (principle and interest) using a risk rate of interest according to the time structure of the relevant interest rates for each sector.

[42] This value is the expected change in the net worth of the position for the maximum expected change at that interest rate and is calculated according to the following equation: $VaR_p = P \cdot \frac{D_k}{(1+i)} \cdot D(1+i)$ where P – the position, D_k – the economic duration of the bank's net worth, i – the discount rate of interest and $D(1+i)$ – the maximal change in the rate of interest with a probability of 99 percent (in other words, with a probability of 99 percent, the change in the rate of interest will be smaller than that and with a probability of 1 percent, it will be larger). The second element on the right-hand side of the equation is the duration of the adjusted net worth. As the duration of the adjusted asset increases, a change in the interest rate will lead to a larger change in the present value of the asset and therefore represents higher interest rate risk. For further details, see Table 3.8.

[43] On the basis of the accounting report in Appendix D of the Annual Report to the Public.

(2) Interest rate VaR[44]

The interest rate VaR fell during the period being surveyed, as a result of the Bank of Israel's policy to leave the monetary interest rate unchanged at a level of close to zero. This led to a drop in the volatility of interest rates (Table 3.8). The interest rate VaR ranged from 2.0 to 10.9 percent of net worth among the five banking groups.

In the unindexed sector, in which the main activity involves a variable interest rate indexed to the prime, and a relatively short period to maturity for both assets and liabilities, the sensitivity of assets and liabilities to changes in the interest rate are smaller than in the other intermediation segments. In contrast, the volatility of the interest rates in this segment, which are in general correlated with the yields-to-maturity on makam, is high relative to the interest rates in other intermediation segments (Figure 3.11).

In the CPI-indexed segment, there has been a significant narrowing of the duration gap in recent years, as a result of the shorter duration of assets and the longer duration of liabilities. The downward trend in the duration of assets in recent years is due to the provision of long-term indexed credit, primarily by institutional bodies, which have a structured surplus of long-term indexed sources. This year, the duration of assets declined but that of liabilities remained unchanged.

The interest rate VaR in the foreign currency segment is usually lower than that in the shekel segments since it is the policy of the banks to maintain small positions and the volatility of interest rates, which is expressed by the standard deviation of the LIBOR interest rate, is low.

d. Indexation-base risk

(1) General

The exposure to indexation-base risk is influenced by two factors: the effect of quantity, which is the difference between the value of assets and that of liabilities, with the (net) addition of futures transactions (hereafter: the position);[45] and the effect of price which is the unexpected change in relative prices between the various indexation segments. The analysis in this survey focuses on the three indexation segments only (and ignores the large variety of foreign currencies) on the assumption that the financial capital is defined as unindexed. Therefore, the market risk in the shekel-indexed segments is realized in the case of unexpected deflation, which erodes the net worth of banks with a

[44]As a result of directives issued by the Supervisor of Banks, the methods of calculation and presentation of the Report on Exposure to Changes in the Rates of Interest (in Appendix D), which is used as the basis for calculating interest rate risk in this survey, have been changed, starting from December 2009. Thus, financial instruments are to be presented according to fair value, rather than balance-sheet value, and the internal rate of return is the rate of interest that is used to discount the expected cash flow of the financial instrument in order to obtain its fair value, rather than its balance-sheet value. As a result of these changes, there are differences between the calculation of the interest rate risk this year and that in previous years. In addition, we would mention that the duration of assets and liabilities for 2009 includes the net effect of futures transactions and options in order to be able to compare their values to those obtained last year.

[45]Based on Note 16 to the Annual Report to the Public.

Table 3.8
Exposure to Changes in Interest Rates[a], the Five Major Banking Groups, 2008-09

	Leumi		Hapoalim		Discount		Mizrahi-Tefahot		First International	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
Unindexed segment										
Total exposure[b] (NIS million)	11,676	16,925	10,602	15,318	2,878	6,170	2,925	3,387	3,161	5,839
Duration of assets (years)	0.60	0.32	0.56	0.50	0.76	0.54	0.30	0.30	0.34	0.40
Duration of liabilities (years)	0.32	0.31	0.45	0.40	0.44	0.31	0.35	0.30	0.17	0.26
Duration gap[c] (Dgap) (years)	0.30	0.05	0.15	0.13	0.34	0.25	-0.02	0.02	0.18	0.16
Modified duration of capital[d] (percent)	3.43	0.41	2.00	1.42	8.65	3.52	-0.45	0.38	3.07	1.81
Maximum change of interest[e] (percentage points)	2.62	2.34	2.62	2.34	2.62	2.34	-2.62	2.34	2.62	2.34
Value at risk[f] (VaR)	1,048	162	556	507	652	507	34	30	254	248
Indexed segment[g]										
Total exposureb (NIS million)	4,707	3,688	4,050	2,858	2,085	274	1,654	2,091	1,230	-939
Duration of assets (years)	3.66	2.96	3.99	3.41	5.14	3.64	3.49	3.08	3.96	3.72
Duration of liabilities (years)	4.29	3.58	4.98	4.31	4.71	3.82	3.82	3.67	3.81	3.25
Duration gapc (years)	-0.31	-0.42	-0.67	-0.71	0.77	-0.14	-0.17	-0.40	0.41	0.29
Modified duration of capitald (percent)	-4.04	-7.36	-10.47	-15.63	10.21	-15.77	-4.20	-7.69	5.77	5.15
Maximum change of intereste (percentage points)	-0.61	-0.56	-0.61	-0.56	0.61	-0.56	-0.61	-0.56	0.61	0.56
value of risk (Var)	116	152	260	250	130	24	43	90	43	27
Foreign-currency segment[h]										
Total exposure[b] (NIS million)	-5,240	-2,802	-242	1,310	-1,641	-1,309	436	349	-625	30
Duration of assets (years)	0.64	0.71	1.03	1.24	0.87	1.17	0.87	0.79	0.35	0.82
Duration of liabilities (years)	0.45	0.35	0.95	0.81	0.85	0.77	0.67	0.52	0.25	0.61

Table 3.8 (cont'd.)
Exposure to Changes in Interest Rates[a], the Five Major Banking Groups, 2008-09

	Leumi		Hapoalim		Discount		Mizrahi-Tefahot		First International	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
Duration gap[c] (Dgap) (years)	0.17	0.35	0.07	0.44	0.01	0.39	0.21	0.27	0.10	0.21
Modified duration of capital[d] (percent)	3.98	13.57	33.83	31.98	0.41	21.52	11.86	20.21	4.08	182.72
Maximum change of interest[e] (percentage points)	0.65	0.11	0.65	0.11	0.65	0.11	0.65	0.11	0.65	0.11
Value at risk[f] (VaR)	136	41	54	45	4	30	34	8	17	6
Net worth[i] (NIS million)	11,143	17,812	14,410	19,486	3,322	5,136	5,016	5,827	3,766	4,930
Total value at risk[j] (NIS million)	1,301	355	869	802	787	562	111	128	314	281
As percent of net worth	11.67	1.99	6.03	4.12	23.68	10.94	2.21	2.19	8.35	5.69

[a] Following directives of the Supervisor of Banks, there was a change in the method of calculating and showing exposure to interest rate changes (in Appendix D in banks' financial statements), which serves as a basis for calculating interest risk in this survey: the financial instruments are shown this year at their fair value instead of as balance sheet balances, and the internal yield is the interest rate that deducts the expected cash flows from the financial instrument to obtain the fair value instead of the balance sheet balance. As a result of this change, there are differences between the calculation of interest risk this year and last. The average duration of assets and liabilities in 2009 includes the net effect of futures transactions and options, to enable a comparison to be made between this year's values and last year's.

[b] Present value of assets less present value of liabilities including effect of futures and options. The present value of the assets and liabilities are obtained by discounting the future cash flow (principal and interest) at the market interest rate according to the time structure of the interest rate relevant in each segment.

[c] The duration gap measures the sensitivity of a bank's net worth to changes in the interest rate in terms of time, and thus enables it to calculate the average duration of the assets/liabilities that should be bought/sold to immunize itself against interest risk. It is calculated as $D_{gap} = D_A - D_L \cdot L/A$, where D_A is the average duration of assets, D_L is the average duration of liabilities, A is the current value of assets, and L is the current value of liabilities.

[d] The modified duration of capital is calculated as $D_k/(1+i)$, where $D_k = D_{gap} \cdot A/L$, the average duration of the bank's net worth, and i is the interest rate. The modified duration may also be taken as the rate of exposure of a position to a one-percentage-point change in the interest rate. When its sign is positive, an unexpected rise in the interest rate will reduce net worth, and a drop in the interest rate will increase net worth, and vice versa when the sign is negative.

[e] The maximum change in the yield to maturity on one-month *makam* in the unindexed segment, on five-year indexed bonds in the indexed segment, and on three-month Libor in the foreign currency segment is derived from the daily changes in the previous year, assuming a normal distribution, at the 99% confidence level.

[f] The change in a bank's situation that would result from the maximum change in the interest rates, calculated from the VaR model: $VaR = P \cdot [D_k/(1+i)] \cdot \Delta(1+i)$, where, P is the position, D_k is the average duration of the bank's net worth, i is capitalization interest, and $\Delta(1+i)$ is the maximum change in the capitalization interest.

[g] Including the CPI/$ indexation option.

[h] Including foreign-currency-indexed.

[i] Total present value of assets less present value of liabilities including effect of futures and options for all segments.

[j] The total value subject to interest rate risk obtained by simply adding the adjusted value at risk in the three segments under the strong assumption of the worst scenario, from the bank's point of view, in all the segments.

SOURCE: Based on published financial statements.

surplus of assets over liabilities or in the case of unexpected inflation which erodes the net worth of banks with a surplus of liabilities over assets in this segment. Similarly, market risk in the foreign currency segment is realized when an unexpected increase in the nominal NIS/$ exchange rate (i.e. a depreciation) erodes the bank's liabilities in the case that the value of its liabilities exceed the value of its assets and in the case of an unexpected decrease (i.e. an appreciation) the bank's assets are eroded in the case that the value of its assets exceed that of its liabilities.

The CPI rose by 3.9 percent in 2009 which exceeded the upper boundary of the target range. The increase was a result of government intervention and the rise in the prices of housing and energy. The deviation of inflation from the upper boundary of the target range of price stability and the fact that it exceeded expectations derived from the capital market—which were close to zero at the beginning of the year—led to an expansion of the net worth of most of the large banking groups, which were characterized by a surplus of liabilities in the CPI-indexed segment (Table 3.9). This year the NIS/$ exchange rate remained basically unchanged although two distinct periods can be discerned in its trend during the year. Thus, the first third of the year was characterized by a sharp depreciation of about 10 percent which worked to erode the net worth of the banking groups with a surplus of liabilities while the rest of the year was characterized by an appreciation of a similar magnitude which worked to increase the net worth of those groups.

The level of risk in the foreign currency segment decreased significantly relatively to its high level in the previous year, which was the result of the crisis. This can be seen in the standard deviation of daily changes in the exchange rate of the dollar, which was influenced by the Bank of Israel's intervention in trading on most days of the year

(2) Indexation-base VaR[46]

Indexation-base VaR fell in 2009 to a level of NIS 390 million. The decrease in the price risk during the year, which is expressed in the standard deviation of the NIS/$ exchange rate and prices changes in the Israeli economy (Figure 3.10) acted to reduce VaR.

3. OPERATIONAL RISK

One of the risks facing a bank in managing its assets and liabilities is operational risk, which is defined as the risk of a loss due to the inappropriateness or failure of internal processes, people or systems or as a result of external events. This definition includes a variety of significant operational risks that a bank faces and includes the most important causes of major operational losses. The types of operational loss events that have been identified as having the potential to end in significant losses include: internal fraud; external fraud; employment practices and workplace safety; clients, products and

[46]The calculation of the exposure of the banks to foreign currency in this survey is based on the positions obtained from Note 16 in the financial statements. The positions presented below do not take into account the effects of taxation which the banks are likely to consider in their management of risk.

Table 3.9

Exposure to Changes in CPI and the Exchange Rate, the Five Major Banking Groups, December 2008 and December 2009

(NIS million)

	Leumi		Hapoalim		Discount		Mizrahi-Tefahot		First International	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
Unindexed segment										
Assets minus liabilities plus the effect of futures and options	14,011	17,641	11,623	13,804	3,307	5,846	3,272	3,434	3,152	5,806
Net worth[a]	10,338	13,833	12,930	15,530	2,549	4,505	4,499	5,398	3,072	4,251
Total position in segment[b]	3,673	3,808	-1,307	-1,726	758	1,341	-1,227	-1,964	80	1,555
Indexed segment[c]										
Total position in segment[d]	2,457	418	1,543	1,680	1,031	410	1,289	1,867	653	-1,129
Change in CPI[e] (percent)	-1.48	-0.99	-1.48	-0.99	-1.48	-0.99	-1.48	-0.99	-1.48	0.99
Value at risk[f]	36	4	23	17	15	4	19	19	10	11
Foreign-currency segment[g]										
Total position in segment[d]	-6,130	-4,226	-236	46	-1,789	-1,751	-62	97	-733	-426
Change in real exchange rate[h] (percent)	7.34	5.12	7.34	-5.12	7.34	5.12	7.34	-5.12	7.34	5.12
Value at risk[f]	450	216	17	2	131	90	5	5	54	22
Total VaR from indexation-base risk[i]	486.4	220.5	40.2	19.0	146.6	93.7	23.7	23.5	63.5	33.0
As percent of net worth	4.71	1.59	0.31	0.12	5.75	2.08	0.53	0.44	2.07	0.78

[a] The bank's net worth is ascribed (by definition) to the unindexed segment, so that nominal exposure to indexation bases occurs in the indexed and foreign currency segments.

[b] The difference between the current value of assets and the current value of liabilities includes the effect of forward transactions minus the net worth of the bank.

[c] Including the CPI/$ indexation option.

[d] The difference between assets and liabilities, including the effect of futures transactions.

[e] The maximum change in the CPI that was derived from the distribution of changes in that index during the last year. The probability of a change greater than that is smaller than 1%.

[f] The change in the bank's situation as a result of the maximum change in the CPI and the foreign exchange rate calculated according to the VaR model.

[g] Including foreign currency indexed.

[h] The maximum change in the nominal foreign exchange rate of the dollar against the shekel which is derived from the distribution of changes in this index during the last year. The probability of a change greater than that is smaller than 1%.

[i] The total VaR subject to indexation base risk obtained by the simple addition of the values subject to risk in the unindexed and foreign currency segments under the assumption that the worst scenario, from the bank's point of view, occurs in the two sectors.

SOURCE: Based on published financial statements and Central Bureau of Statistics data.

business practices[47]; damage to physical assets; business disruption and system failure; and execution, delivery and process management.[48]

One of the main factors of operational risk is the failure of the banks' information and computer systems and problems in their means of communication. During the year, a number of software and hardware problems were identified in the banks' information technology systems, which led to disruptions in their activities and as a result to an interruption in the continuity of business practices and customer services for various periods of time. As a result, the Bank Supervision Department took a series of steps to rectify the situation in the banking system, including letters on the management of information technology assets and the management of the main information technology processes.[49] In addition, sporadic attempts continued by anti-Israel elements to create sites that masquerade as the sites of Israeli banks. Fortunately, these activities did not cause damage to the banking system and the Bank Supervision Department is monitoring this area in order to ensure that the banks are dealing with the problem appropriately.

The last decade has been characterized by an ongoing process, both worldwide and within the Israeli banking system, to combat money laundering and the financing of terror. The realization of money laundering risks and the financing of terror is likely to expose the banks to reputation, operational, legal and other types of risk. Furthermore, the exploitation of the banks for money laundering and the financing of terror is liable to hurt their reputation and that of the State of Israel, as well as the public's trust in the banking system. The Bank Supervision Department recognizes the importance of combating money laundering and the financing of terror and the preservation of the public's trust in the banks, as well as their reputation and that of the State of Israel. Therefore, it seeks to continually improve the management of money laundering and terror financing risks to the banking system. In this context, the Bank Supervision Department makes use of a number of tools that are intended to ensure that the banking system effectively assimilates and implements the requirements of the law and the various regulations and directives and that it meets international standards, as well as giving high priority to the array of risks in this area.

As part of the transition to Basel II this year, the Israeli banking system has for the first time allocated capital in the amount of about NIS 67 million (Table 3.10).

[47]For example, fiduciary breaches, misuse of confidential customer information, improper trading activities on the bank's account, money laundering, and sale of unauthorized products.

[48]For example, data entry errors, collateral management failures, incomplete legal documentation, unapproved access given to client accounts, non-client counterparty misperformance, and vendor disputes.

[49]See the Bank of Israel site: http://www.bankisrael.gov.il.

4. LIQUIDITY RISK

Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable loss. The fundamental role of banks in the maturity transformation of short-term deposits into long-term loans makes them inherently vulnerable to liquidity risk, both of an institution-specific nature and that which affects markets as a whole.[50] Effective liquidity management helps ensure a bank's ability to meet cash flow obligations, which entail uncertainty as they are affected by external events and other agent's behavior. Liquidity risk management is of paramount importance because a liquidity shortfall at a single institution can have system-wide repercussions. Financial market developments in the past decade have increased the complexity of liquidity risk and its management.

The financial crisis that began in the summer of 2007 in the sub-prime mortgage market in the US and gained momentum in September 2008 following the collapse of the Lehman Brothers investment bank increased the importance of managing liquidity risk. The intensification of the crisis led to a liquidity crunch that encompassed the inter-bank credit markets, the financial markets and the bond market, both in the US and other developed countries, and required action on the part of the banks that would provide support for the functioning of the financial markets and in certain situations that of specific banks as well. As a result of the crisis in the financial markets, the cautious management of liquidity risk became even more important and has received a great deal of attention worldwide. In September 2008, the Basel Committee on Banking Supervision (BCBS) (hereafter: "the Committee") issued a document of principles for the proper management of liquidity and for its regulation entitled: Principles for Sound Liquidity Risk Management and Supervision. The document stresses the importance of creating an appropriate framework for the management of liquidity risk and the maintenance of a sufficient level of liquidity. It also discusses the lessons learned by the Committee and other regulatory authorities with regard to liquidity risk and its regulation as a result of the crisis. The principles in the document include the following points, among others: the importance of establishing a liquidity risk tolerance; the maintenance of an adequate level of liquidity, including through a cushion of liquid assets; the necessity of allocating liquidity costs, benefits and risks to all significant business activities; the identification and measurement of the full range of liquidity risks, including contingent liquidity risk; the design and use of severe stress test scenarios; the need for a robust and operational contingency plan; and also the management of intraday liquidity risk and collateral. In April 2009, the Bank Supervision Department distributed a translation of the document to the banks, as part of the efforts to upgrade the banks' management of liquidity risk and in view of the importance it attributed to the guidelines appearing in the document. Furthermore, the banks were required to carry out a survey of gaps and to create a timetable for closing them. During the course of the year, the Bank Supervision

[50] The risk that a bank will not be able to easily exit a particular position at the market price or to offset it due to the insufficient depth of the market or due to disruptions in the market.

Department placed significant emphasis on closely monitoring the appearance of signs of liquidity shortages. Thus, for example, the banks were required to provide a daily report on the withdrawal of deposits by the public and on new deposits, the marginal interest rates for attracting jumbo deposits, the results of the internal model for each bank and the degree of dependency on inter-bank loans and loans from the Bank of Israel.

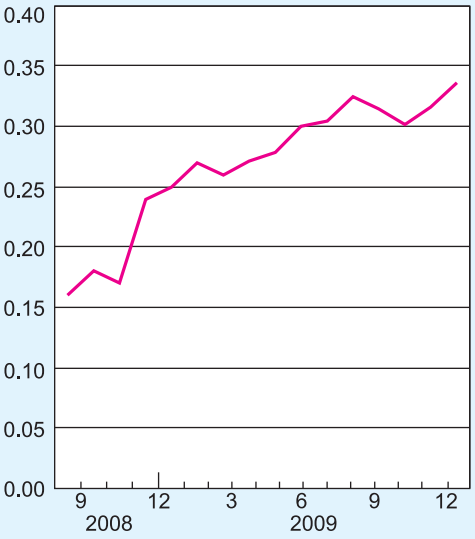
In December 2009, the Committee released an advisory document[51] entitled "International Framework for Liquidity Risk Measurement, Standards and Monitoring" which deals with international standards for the measurement and monitoring of liquidity risk and which includes, for the first time, two quantitative and uniform measures for the monitoring of liquidity risk:

(1) LCR – Liquidity Coverage Ratio: An index that is intended to reinforce the short-term resilience of the bank by enabling it to identify the scope of high-quality liquid assets that a financial institution is required to hold in order to redeem its liabilities when a short-run stress event occurs.

(2) NSFR – Net Stable Funding Ratio: An index that is meant to reinforce the resilience of a bank over longer periods.[52] The index measures the quantity of stable long-term sources of finance relative to the liquidity profile of the assets they are financing and the financing needs arising from their off-balance-sheet liabilities.

The banks currently measure their exposure to liquidity risk by means of internal models that allow each bank to determine—on the basis of its specific characteristics—the recycle rate of its deposits and its ability to monetarize its assets. The Committee's two new indexes introduce a new approach, according to

Figure 3.12
The Ratio of Liquid Assets[a] to Domestic- and Foreign-Currency Liabilities With Repayment Terms of Up To One Month According to the Standardised Model,[b] the Five Major Banking Groups, September 2008 to December 2009



[a] Liquid assets are those can be converted into cash quickly, simply, and at a reasonable cost, or for which repayment can be obtained when management expects a need for greater liquidity, such as cash, deposits in the reasury repayable up to one month, deposits for up to one month in the Bank of Israel other than those required for the liquidity requirement, negotiable government bonds, and deposits in banks for up to ne month, and other negotiable government bonds up to 25 percent of the average monthly trade in government bonds on the TASE in the previous three months.
[b] The standard model as per Directive 342 of the Proper Conduct of Banking Business.

SOURCE: Based on returns to the Bank Supervision Department.

[51] The published document is a first draft.

[52] Exceeding one year.

which the level of liquidity is calculated using simple and uniform quantitative indexes for all banks. These indexes assume, among other things, recycle rates for deposits and haircuts for assets according to the character of deposits and assets.

The Israeli banking system was liquid during the period of the crisis and following it[53] and the Israeli economy was a net lender to the rest of the world. Nonetheless, liquidity risk in Israel increased and, like other central banks, the Bank of Israel took a number of steps to increase the liquidity and the supply of credit in the economy. These included the purchase of government bonds which was intended to support the decline in longer-term interest rates and thus to loosen up credit conditions and support economic activity; the purchase of foreign currency as part of a process whose initial goal was to accumulate foreign exchange reserves and later on to prevent a major appreciation in the exchange rate. This expansionary policy injected liquidity into the market, which was absorbed through monetary deposits that significantly increased the liquid assets of the banks (Figure 3.12). In addition to the increase the deposits at the Bank of Israel, the banks purchased government bonds, which also increased liquidity. This activity occurred against the background of a conservative policy that developed among the banks regarding the provision of commercial credit as a result of the crisis.

5. CAPITAL ADEQUACY[54]

During 2009, the banks continued to increase the capital adequacy ratio in accordance with the directive of the Supervisor of Banks regarding a capital adequacy target of 12 percent. This was part of the initial lessons learned from the crisis in Israel and other countries and despite the negative economic conditions. The Bank Supervision Department took a number of steps to reinforce the capital adequacy of the banking system, including directives that essentially prevented the distribution of dividends to shareholders during the past two years and the formulation of a program to provide government guarantees for the banks' efforts to raise capital, in cooperation with the Ministry of Finance and the Israel Securities Authority.[55]

The capital adequacy ratio of the five largest banking groups rose this year by 2.5 percentage points to a record level of 13.7 percent in terms of Basel I and 13.6 percent in terms of Basel II (Table 3.10 and Figures 3.13 and 3.14).

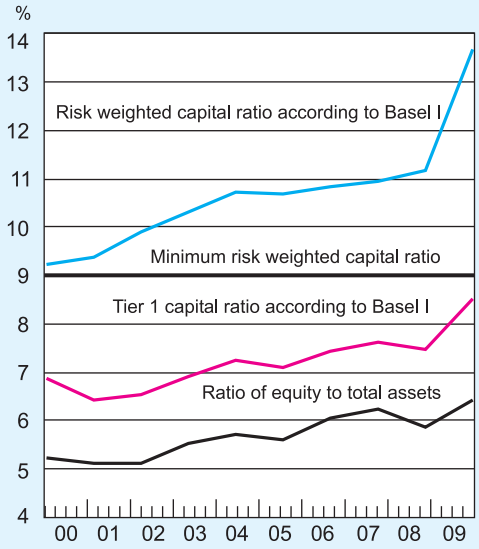
This positive development was a result of the expansion of the capital base, which involved a major increase in Tier 1 capital and thus an improvement in the quality of capital, and the decline in risk assets. The growth in the capital base was manifested through Tier 1 capital as a result of the profit accumulated by the banks during the

[53]The banking system in Israel is dependent primarily on retail deposits.

[54]Since the data for December 2008 are calculated according to Basel I rules, the analysis in this survey of changes in the capital adequacy ratio between 2008 and 2009 is presented in terms of Basel I. Later in the chapter, the effect of the transition to Basel II rules during 2009 will be discussed.

[55]In actuality, the banks did not use these guarantees.

Figure 3.13
Capital ratios[a,b] in the Five Major Banking Groups, December 2000 to December 2009



[a] The leverage ratio is calculated as the ratio of total equity to total assets, and the numerator includes equity plus minority shareholders.
[b] The ratios for December 2009 are calculated according to Basel I. If calculated according to Basel II the ratios are risk weighted capital ratio, 13.61 percent, and Tier 1 capital ratio, 8.29 percent.

SOURCE: Published financial statements

course of the year and the fact that dividends were not allocated during that period. This development is reflected in the increase of one percentage point in the ratio of Tier 1 capital to the risk components to a level of 8.5 percent in terms of Basel I and 8.3 percent in terms of Basel II. Alongside the growth in Tier 1 capital, the banks issued complex capital instruments and deferred promissory notes that increased their Tier 2 capital (Table 3.10 and Figure 3.15)

At the same time, the total of weighted risk assets used in calculating the minimum capital ratio of the five banks fell—for the first time since 2002—to about 3 percent in terms of Basel I (Table 3.10). The improvement in risk assets resulted from the change in the composition of the banks' asset portfolio, i.e. the decrease in credit to the public,[56] which was due to the weakening of demand for commercial credit as a result of the economic downturn and the recovery in non-bank credit. In contrast, there was an increase in the share of low-risk assets (cash, bank deposits and government bonds).

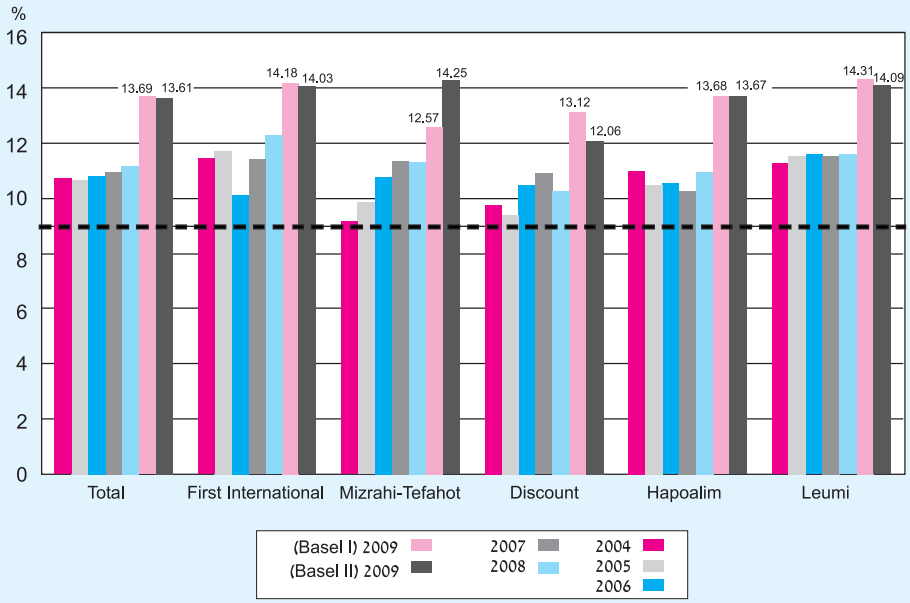
An international comparison shows that, for the first time, the level of capital adequacy in Israel reached accepted international levels (Figure 3.16). It also shows the increase in the size and quality of the capital base in most countries as a result of the crisis and the significant increase in the capital adequacy ratio in Israel.

As a result of the crisis, there is greater importance attributed to the leverage ratio of equity[57] to total assets, in addition to the capital adequacy ratio (Box 3.1). This ratio makes it possible to compare the level of leverage between the various financial institutions since it is not based on risk assets but rather on total exposure and is immune to the models' estimation errors. During 2009, the leverage ratio of the Israeli banking system rose from 5.9 percent to 6.4 percent (Table 3.10 and Figure 3.13). The

[56] The decrease in credit to the public included all the banking groups, apart from Mizrahi-Tephahot which was a result of the sharp increase in housing credit in this group and its high share of the group's total credit.

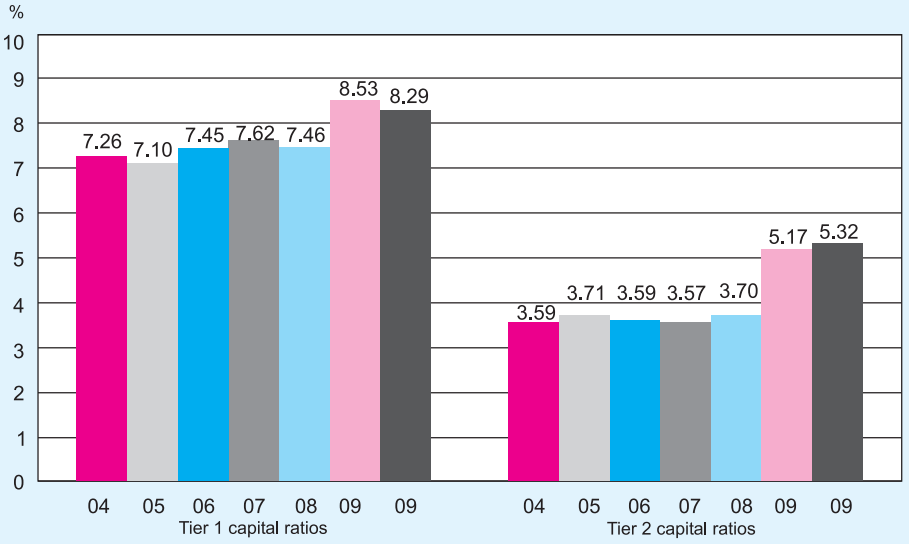
[57] Including the rights of external shareholders.

Figure 3.14
Risk-Based Capital Ratio of the Five Major Banking Groups, 2004-09



SOURCE: Published financial statements.

Figure 3.15
Tier 1 and Tier 2 Risk-Weighted Capital Ratios, 2004-09



SOURCE: Published financial statements.

Table 3.10
The Distribution of Capital, and the Capital Ratios in the Five Major Banking Groups, 2008–09

	Leumi			Hapoalim			Discount		
	2008 Basel I	2009 Basel I	2009 Basel II	2008 Basel I	2009 Basel I	2009 Basel II	2008 Basel I	2009 Basel I	2009 Basel II
	(NIS million)								
Equity[a]	18,917	22,144	22,144	19,225	20,948	20,948	9,023	10,292	10,292
Core capital[b]	.	.	21,478	.	.	20,285	.	.	9,064
Tier 1 capital[b]	19,290	21,578	21,478	20,873	22,623	22,562	10,130	11,653	10,699
Tier 2 capital[b]	10,449	14,640	14,863	9,752	13,363	13,631	3,849	5,742	6,485
Tier 3 capital[b]	0	0	0	0	0	0	0	0	0
Total capital for risk-weighted capital ratio calculation	29,739	36,218	36,341	30,625	35,986	36,193	13,979	17,395	17,184
	(NIS million)								
Total balance sheet	310,792	321,775	321,775	306,847	309,555	309,555	181,831	187,817	187,817
Credit risk	251,473	243,766	229,551	275,337	258,301	240,402	134,539	129,174	126,775
Market risk	5,476	9,415	7,418	5,189	4,811	4,460	1,916	3,401	2,752
Operational risk	.	.	20,928	.	.	19,835	.	.	12,969
Total risk-weighted items	256,949	253,181	257,897	280,526	263,112	264,697	136,455	132,575	142,496
	(percent)								
Equity/balance-sheet ratio	6.09	6.88	6.88	6.27	6.77	6.77	4.96	5.48	5.48
Risk-weighted core capital ratio	.	.	8.33	.	.	7.66	.	.	6.36
Tier 1 risk-weighted capital ratio	7.51	8.52	8.33	7.44	8.60	8.52	7.42	8.79	7.51
Tier 2 risk-weighted capital ratio	4.07	5.78	5.76	3.48	5.08	5.15	2.82	4.33	4.55
Total risk-weighted capital ratio	11.57	14.31	14.09	10.92	13.68	13.67	10.24	13.12	12.06

improvement in the ratio was a result of the sharp increase (13 percent) in the equity of the five banking groups as a result of accumulated profits, which totaled about NIS 5.4 billion,[58] and an increase of about NIS 1.8 billion in the value of the available-for-sale securities portfolio.[59] An international comparison shows that the leverage ratio of the Israeli banking system is similar to that in the surveyed countries (Figure 3.17).

During 2009, the Israeli banking system began implementing the international recommendations of the Basel Committee for Capital Measurement and Capital Standards (Basel II), which are the result of a new and more advanced approach to the management of risk and the allocation of capital. As part of the requirements for the implementation of the first pillar, during the year the banks reported data on capital adequacy according to the new regulations, along with the original reports.[60] From

[58]In 2008, the profits of the banking system were negligible.

[59]In 2008, the deterioration in net worth was the result of the fall in value of the available-for-sale securities portfolio, which amounted to NIS 1.6 billion.

[60]The Proper Conduct of Banking Business Directive no. 311 – Minimum Capital Ratio.

Table 3.10 (cont.)
The Distribution of Capital, and the Capital Ratios in the Five Major Banking Groups, 2008–09

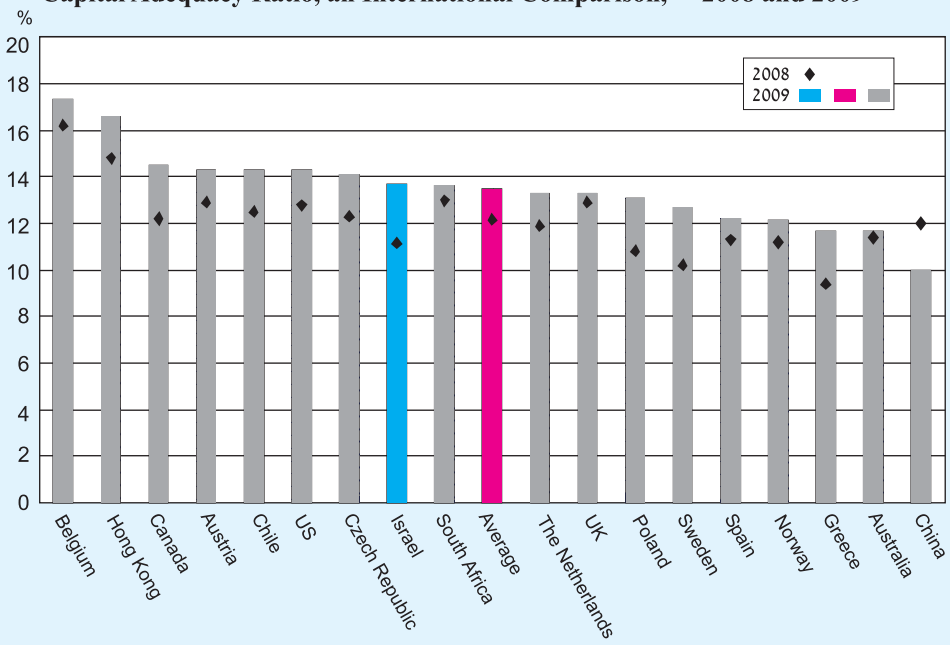
	Mizrahi-Tefahot			First International			The Five Groups		
	2008 Basel I	2009 Basel I	2009 Basel II	2008 Basel I	2009 Basel I	2009 Basel II	2008 Basel I	2009 Basel I	2009 Basel II
	(NIS million)								
Equity[a]	6,303	6,885	6,885	6,009	6,735	6,735	59,477	67,004	67,004
Core capital[b]	.	.	6,702	.	.	6,058	.	.	63,587
Tier 1 capital[b]	6,265	6,814	6,702	5,681	6,357	6,058	62,239	69,025	67,499
Tier 2 capital[b]	4,410	5,298	5,220	2,354	2,784	3,073	30,814	41,827	43,272
Tier 3 capital[b]	0	0	0	0	0	0	0	0	0
Total capital for risk-weighted capital ratio calculation	10,675	12,112	11,922	8,035	9,141	9,131	93,053	110,852	110,771
	(NIS million)								
Total balance sheet	114,886	118,439	118,439	98,922	104,568	104,568	1,013,278	1,042,154	1,042,154
Credit risk	91,842	94,007	75,982	63,886	62,837	57,380	817,077	788,085	730,090
Market risk	2,541	2,349	624	1,611	1,636	1,162	16,733	21,612	16,416
Operational risk	.	.	7,038	.	.	6,543	.	.	67,313
Total risk-weighted items	94,383	96,356	83,644	65,497	64,473	65,085	833,810	809,697	813,819
	(percent)								
Equity/balance-sheet ratio	5.49	5.81	5.81	6.07	6.44	6.44	5.87	6.43	6.43
Risk-weighted core capital ratio	.	.	8.01	.	.	9.31	.	.	7.81
Tier 1 risk-weighted capital ratio	6.64	7.07	8.01	8.67	9.86	9.31	7.46	8.53	8.29
Tier 2 risk-weighted capital ratio	4.67	5.50	6.24	3.59	4.32	4.72	3.70	5.17	5.32
Total risk-weighted capital ratio	11.31	12.57	14.25	12.27	14.18	14.03	11.16	13.69	13.61

[a] Including minority shareholders according to the groups' balance sheets.
[b] After deductions.
SOURCE: Published financial statements.

December 2009, the banks were required to allocate capital according to the provisional directive "Working Framework for the Measurement of Capital and the Adequacy of Capital". The transition to the implementation of the new directive emphasized the differences between the directives in the manner of calculating risk assets, as well as the importance of the second and third pillars in the capital allocation process.

The transition from Basel I to Basel II did not significantly affect the value of the capital adequacy ratio (which declined from 13.69 percent under Basel I to 13.61 percent under Basel II). The capital base did not change significantly while total risk assets increased by about one percent; however, their mix did change. Thus, within the capital base, there was a decrease of 2 percent in Tier 1 capital (which is the stable portion of the capital base) while Tier 2 capital grew by 3 percent. This change was a result of the inclusion of the balance for adjustment of securities in the capital base to fair value, in accordance with the new rules of Basel II, as well as the differences between the rules of Basel I and Basel II in the deductions required in each of the capital

Figure 3.16
Capital Adequacy Ratio, an International Comparison,[a,b] 2008 and 2009



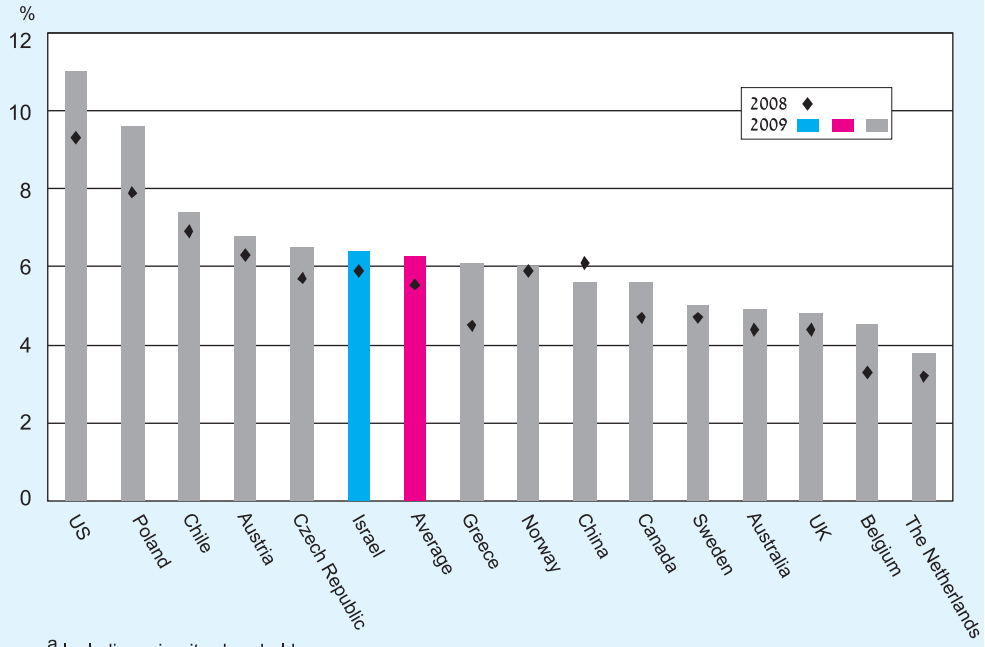
[a] The data for the Netherlands, South Africa, and the UK are as at June 2009; for Australia, Austria, Canada, Greece, Hong Kong, Norway and Poland, as at September 2009; for China, November 2009; for Belgium, Chile, the Czech Republic, Israel, Spain, Sweden and the US, December 2009.
[b] The ratio for Israel is shown in accordance with Basel I (13.69 percent). In terms of Basel II the ratio is 13.61 percent.

SOURCE: IMF and published financial statements.

tiers. There were several factors affecting risk assets: First, the banks were required to allocate capital against operational risk starting this year, which led to an increase of about NIS 67 billion in the banking system's total risk assets. Second, the transition to the implementation of the Standardized Approach led to a decline of about 7 percent in credit risk assets as a result of the changes in the risk weights. The largest decrease is attributed to the Mizrahi-Tephahot group (19 percent) as a result of the reduced weight of credit for housing.[61] Finally, there was a decline in the allocation of capital against the exposure to market risk which was primarily a result of the changes in the directives for the allocation of capital against market risk and their adjustment to the specifications

[61] According to the rules of Basel II, credit for housing is weighted by a risk weight of 35 percent (loans that constitute not more than 75 percent financing) or 75 percent (loans that constitute more 75 percent financing) as compared to 50 percent (loans that constitute not more than 60 percent financing) or 100 percent (loans that constitute more 75 percent financing) according to the rules of Basel I.

Figure 3.17
Ratio of Equity[a] to Total Assets, an International Comparison[b], December 2008 and December 2009



[a] Including minority shareholders.
[b] The data for the Netherlands and the UK are as at June 2009; for Poland, Austria, Greece, Norway, Canada and Australia, as at September 2009; and for the US, Chile, the Czech Republic, Israel, China, Sweden, and Belgium, as at December 2009.

SOURCE: IMF and published financial statements.

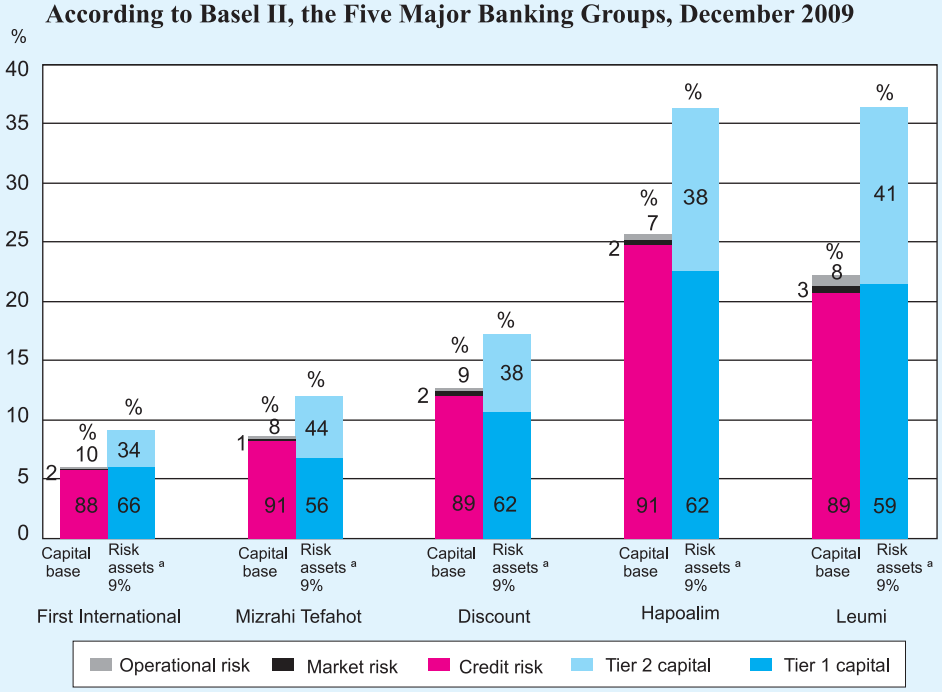
of the standard model included in the working framework of Basel II.[62] Nevertheless, as part of the second pillar, banks are required to allocate capital risks that were only partially dealt with in the first pillar or not all.[63] The data presented in Figure 3.18 show that the banking groups differ from one another with regard to capital base and risk assets, as well their mixes.

As part of the transition to implementation of the new directive for the measurement of capital adequacy in the Israeli banking system, the Bank Supervision Department worked towards the assimilation of the second pillar of Basel II among the banks. The

[62]The changes are as follows: The reduction of weights for shekel interest rate risk in line with the interest rate risk weights in Basel II; permitting the offset of shekel interest rate risk positions and CPI interest rate risk positions; and the cancellation of the capital allocation against inflation risk.

[63]Therefore, banks were required in the Second Pillar to allocate capital against risk that is a result of the difference in the variation of changes of the rates of interest in the shekel segment as compared to the rates of interest in the CPI segment and due to inflation risk. In addition, they are required to allocated capital against interest rate risk in the bank portfolio, which is not dealt with in the First Pillar.

Figure 3.18
Components of Capital and the Capital Requirements for Various Risk Assets[a] According to Basel II, the Five Major Banking Groups, December 2009



[a] According to 9 percent, the minimum capital ratio.

SOURCE: Published financial statements.

second pillar lists four principles that apply to banks and the regulatory authority and which prepare the overall framework for a Supervisory Review Process (SRP). The main goal of these principles is to strengthen the relationship between a bank's capital on the one hand and its risk profile, its risk management system and the reduction of risk on the other. In this context, the banks are required to implement an internal review process of their capital adequacy and to formulate a strategy to ensure capital adequacy, which is known as the Capital Adequacy Assessment Process (ICAAP). This process is meant to ensure that the banks maintain a level of capital that is appropriate to all the risks implicit in their business and that they develop and implement appropriate risk management processes. The process combines, among other things, the determination of capital targets and of capital planning processes, as well as the assessment of the capital status in a variety of stress scenarios. In parallel, the Bank Supervision Department should implement a review (known as SREP) of the banks' ICAAPs, in order in order to determine whether the level of capital and the capital targets are appropriate and whether any adjustments are required, including the strengthening of corporate governance, risk management or internal auditing.

Box 3.1
Strengthening the resilience of the banking sector

One of the main reasons for the severity of the recent financial crisis was the high leverage of the banking industry in many countries. This phenomenon was accompanied by the gradual erosion of the capital base and its quality since many banks were holding insufficient liquidity buffers. As a result, the banking system was not able to absorb the resulting systemic trading and credit losses nor could it cope with the reintermediation of large off-balance sheet exposures that had built up. As a result, the market lost its confidence in the solvency and liquidity of many banking institutions. This was followed by a trickling down of these weaknesses to the real economy. The magnitude of the crisis forced the public sector to intervene on an unprecedented scale, which included the injection of liquidity, capital support and guarantees. As part of the lessons of the crisis, the Basel Committee on Banking Supervision (BCBS) (hereafter: the Committee) published "Strengthening the Resilience of the Banking Sector"[1] whose goal is to improve the stability of the banking system through strengthening the regulatory capital system, which is based on the three pillars of the Basel II directive. Following are the highlights of the Committee's recommendations:

a. Raising the quality, consistency and transparency of the capital base

In late 2007, as the financial crisis emerged, the quantity and quality of the banks' Tier 1 capital (which is the main component of the capital that is meant to absorb losses, both on a current basis and due to liquidation) was found to be insufficient. In the mid-1990s, the banks (primarily in the US) began to issues new instruments, which had the characteristics of both equity and debt. These instruments have advantages both for issuers and investors; however, they have a number of disadvantages as well, including their limited ability to absorb losses, their relative complexity and their lack of transparency. One of the ramifications of these developments was the gradual erosion of the capital base and its quality. Essentially, banks worldwide held core capital that constituted no more than 2 percent of their risk assets and still maintained the overall capital ratio and the primary capital ratio. As a result, the market participants lost their confidence in the ability of the Tier 1 capital to absorb losses. Apart from this, the current definitions of Tier 1 capital are not sufficiently transparent or uniform across countries. Thus, the Committee recommended that focus be placed on

[1]The document published was a first draft. The Committee will accept comments from the public on the document until April 16, 2010.

strengthening the "predominant form of Tier 1 capital", i.e. core capital, such that it will include common shares and retained earnings. The remainder of its components will primarily consist of hybrid instruments that meet strict criteria in order to ensure their ability to absorb losses on a current basis. This framework will include deferred instruments whose dividends and coupons are paid out on a discretionary basis and which have no date of maturity or have no incentive to redeem. In contrast, innovative hybrid instruments with an incentive to redeem, which today are limited to 15 percent of Tier 1 capital, will not be included in Tier 1 capital. Another recommendation stipulated that Tier 2 capital will treated as a bloc. In other words, the differentiation between upper Tier 2 capital and lower Tier 2 capital will be eliminated and as a result dealing this component of the capital base will become simpler. In contrast to Tier 1 capital, which will include instruments that can absorb losses on a current basis, it was proposed that Tier 2 capital will only include instruments that are able to absorb losses in the event of insolvency. Furthermore, the allocation of Tier 3 capital, which is held against market risk, is to be cancelled, thus ensuring that the capital allocated against this risk will be identical to the level of quality required in the case of credit risk and operational risk. At the same time, the Committee recommended three separate constraints expressed as a proportion of risk assets: the core capital ratio, the Tier 1 capital ratio and the overall capital ratio. In order to increase the transparency of the capital base, it was proposed that additional disclosure requirements be introduced that require a description of capital components in financial statements.

b. Enhancing risk coverage

One of the lessons learned from the crisis is the need to strengthen the risk coverage of the capital framework. The failure to capture major on- and off-balance sheet risks, as well as derivatives-related exposures, has been one of the destabilizing factors in recent years. Therefore, the Committee completed a number of critical reforms to the Basel II directives in July 2009.[2] These included raising capital requirements for the trading book and complex securitization exposures, a major source of losses for many internationally active banks; the use of VaR, which is based on a 12-month period of financial stress; requirements to increase capital against resecuritizations in the banking portfolio and the trading portfolio; and the tightening of standards related to the Supervisory Review Process (in the framework of the Second Pillar) and disclosure requirements (as part of the

[2]The changes were published in "The Committee's Enhancements to the Basel II Framework and Revisions to the Basel II Market Risk Framework." (July 2009)

Third Pillar). Beyond the modifications published in July 2009, the Committee recommended in an advisory document to tighten capital requirements regarding credit exposure of the counterparty due to financial activity in derivatives, repo transactions and securitization. These changes will enlarge the capital buffer against these exposures, will reduce cyclical effects and will constitute an incentive to transfer OTC derivatives contracts to central counterparties (CCPs) through increased capital requirements and therefore will bring about a reduction in systemic risk.

c. Supplementing the risk-based capital requirement with a leverage ratio

One of the underlying features of the crisis was the build up of excessive on- and off-balance sheet leverage in the banking system. The Committee therefore recommended the use of a leverage ratio, which expresses net worth as a proportion of total assets, as an additional measure (alongside the ratio of capital adequacy to risk components). This ratio which is not based on risk assets but rather on gross exposure and therefore is not subject to the estimation errors of the model,[3] serves as a backstop measure to the banks' exposure in times of crisis. According to the recommendations of the Committee, the ratio will be calculated in a way that will make it possible to make international comparisons between financial institutions that have adopted different accounting rules.

d. Reducing procyclicality and promoting countercyclical buffers

One of the main factors in the undermining of stability during the crisis was the procyclical amplification of financial shocks. The tendency of market participants to behave in a procyclical manner has been amplified through a variety of channels, such as accounting standards for both mark-to-market assets and held-to-maturity loans. Therefore, the Committee has proposed a number of measures that will help ensure that the banking sector serves as a shock absorber, instead of a transmitter of risk to the financial system and the broader economy. These measures will reduce pro-cyclicality and will strengthen the resilience of the banking system in periods of prosperity. Within this context, the Committee has dealt with the following issues:

- Cyclicality of the minimum capital requirement: As a result of the Basel II directive, the link between risk and the capital base has been tightened, in parallel to the increasing influence of cyclicality. Therefore, the Committee

[3]During the crisis, the ratio of capital adequacy to risk components did not accurately reflect the level of leverage in the financial system since it was subject to estimation errors.

has made a number of suggestions for reducing the influence of cyclicality, such as changes in the estimation of the probability of default (PD).

- Forward-looking provisioning: A change in accounting rules, involving a move to the implementation of the expected loss (EL) approach, which makes it possible to more clearly identify incurred losses and is characterized by less cyclicality than the current approach.
- Capital conservation: The build-up of adequate buffers above the minimum that can be drawn down in periods of stress. During the crisis, some of the banks continued to distribute dividends, to implement share buy-backs and to make generous compensation payments, despite their financial situation and the dire forecasts regarding the deterioration in the financial industry. Therefore, the Committee has recommended a framework that will provide regulators with stronger tools in order to encourage capital conservation in the banking industry. The creation of this framework will assist in increasing the resilience of the banking industry in recessions and in creating a mechanism for rebuilding capital during an economic recovery.
- Excess credit growth: One of the phenomena witnessed during the financial crisis is that losses incurred in the banking sector during recessions prior to periods of excess credit growth can be enormous. This can destabilize the banking sector and lead to a contraction of real economic activity that will be followed by an additional deterioration in the situation of the banks. This internal relationship emphasizes the importance of creating capital protection during periods of excess credit growth. The Committee is proposing that the capital buffer range be modified, as mentioned above, when signs appear of accelerated credit growth. In this way, the banks will create anti-cyclical capital buffers and thus increase their ability to absorb losses during a crisis.

e. Addressing systemic risk and interconnectedness

One of the important lessons learned from the crisis is the need to focus on reducing the risk of the financial system as a whole (i.e. systemic risk). The interrelationships between many of the large banks and between other financial institutions led to the spread of negative shocks to the whole financial system and to the economy in general. Therefore, the Committee is developing practical approaches in order to assist supervisors in measuring the importance of banks to the stability of the financial system and the real economy and reviewing policy options to reduce the probability and impact of failure of systematically important banks.

6. STRESS TESTING

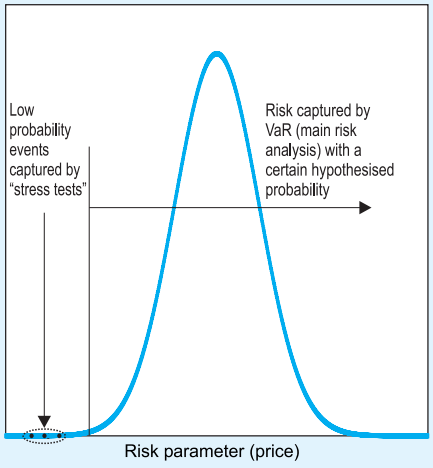
a. Introduction

In recent years, stress testing has become one of the most important tools for risk management. It is used by banks as part of their internal risk management process and by regulators to assess the stability of the system and to identify sources of risk. In this context, the Bank Supervision Department carried out stress tests in 2009 and also estimated macroeconomic models for testing the stability of both the banking system and individual banks and their sensitivity to risk factors.

The stress tests can provide a bank's management with warnings of unexpected negative results related to various types of risk and can give an indication of the capital required in order to absorb losses in the case of large shocks. They are a supplementary tool to models such as VaR (Value at Risk) and focus on exceptional events. Thus, for example while VaR reflects the day-today behavior of the market, stress tests look at the performance of a portfolio over "irregular" periods and therefore provide information on risk outside the range captured by the VaR model (Figure 3.19).

The financial crisis that began in 2007 emphasized the importance of stress testing. The depth and perseverance of the crisis raised doubts among regulatory authorities as to the reliability of the stress tests used prior to the crisis and their ability to adjust to rapid change, since the results of the crisis were more serious than those predicted by stress testing. In May 2009, the Basel Committee on Banking Supervision published "Principles for Sound Stress-Testing Practices and Supervision"[64] (BCBS 2009) following its investigation of the procedures used in carrying out stress tests prior to and during the crisis. Based on this investigation and in an effort to improve the existing procedures, formal guidelines were developed for banks and regulators with regard to the goals and management of stress tests, as well as their implementation in analyzing risk and specific financial products. The document required that, among other things, the stress tests should cover the bank's various types of risk and areas of activity while taking into account the interrelationships

Figure 3.19
Stress Tests Capturing Exceptional but Plausible Events



SOURCE: Committee on the Global Financial System. (2005), "Stress Testing at Major Financial Institutions: Survey Results and Practice." CGFS Publication No.24 (January).

[64] In January 2010, the Bank Supervision Department distributed a translation of the document as part of its efforts to upgrade the systems for the management of risk, auditing and corporate government.

between banks, in order to provide a complete picture of the bank's risk. Furthermore, the stress tests should include scenarios that reflect a variety of events and levels of severity, including a series of macroeconomic and financial shocks, while taking into consideration system-wide interactions and feedback effects.

A study carried out by the Economic Unit of the Bank Supervision Department examined a number of scenarios that reflected a variety of events, including scenarios that examine the effect on the banking system of a collapse of a large group of borrowers, and which analyze the ability of the banks to meet their capital adequacy targets for 2009. In addition, macroeconomic stress tests that link a system of macroeconomic factors to the banking system's credit risk were also carried out. The scenarios and model presented below reflect only part of that study.

a. Stress scenarios

(1) Credit risk
The bank credit portfolio
Sensitivity tests confirm that of the various risk factors, the effect of the realization of credit risk on the stability of the banks is the largest. We therefore analyzed the effect of a deterioration in the quality of credit on the loss rate of the capital base. In order to do so, we tested a scenario involving an increase in the proportion of balance-sheet credit to problematic borrowers within total credit to the public to a level of 10 percent, where it was in 2002. The assumptions underlying this scenario are as follows: (1) Total non-performing credit,[65] which is the most problematic type of credit, has been recognized as a loss; and (2) the other components of problematic credit have been partially translated into losses at a rate of between 10 and 60 percent according to level of severity.[66] These assumptions are equivalent to a ratio of annual loan-loss provision to total balance-sheet credit that ranges from 2.7 to 5.2 percent for the various banks. The planning of the scenario was based on the assumption that in a slowdown the risky borrowers are those that will experience the most serious difficulties. In the tested scenario, it was found that the loss rate from the banking system's capital base was estimated at about 20 percent. The results of the scenario show that the capital adequacy ratio remained above the required minimum for all the banking groups.[67]

We would emphasize that Israel's past experience with crises is relatively limited and that an examination of financial crises in other countries shows an average increase of

[65]According to its share of total credit to the public in December 2002.

[66]Rescheduled credit was weighted by 60 percent, credit marked for rescheduling by 40 percent, credit in temporary arrears by 30 percent and credit under special oversight by 10 percent. The result is equivalent to an average loss rate of about 40 percent of total problematic debt.

[67]It should be mentioned that the scenario does not take into account the directive of the Supervisor of Banks regarding the adoption of a core capital target of not less than 7.5 percent, which will go into effect from December 31, 2010.

about 10 percentage points in the ratio of non-performing loans to total balance-sheet credit about one year following the crisis and an average rate of recovery of about 60 percent.[68]

Housing credit

The dramatic reduction of the Bank of Israel interest rate and the sharp rise in the proportion of variable-rate unindexed loans within total housing credit[69] increased the exposure of the banks to an increase in the rate of interest. Although borrowers who took out variable-rate unindexed loans currently enjoy a small debt burden, they are exposed to an increase in the Bank of Israel rate of interest, which is expected to occur gradually given its currently low level. Therefore, we examined the effect on the debt burden[70] of an increase in the rate of interest on variable-interest unindexed loans. The results showed that an increase of about 5 percentage points[71] in the interest rate to 7 percent increased the debt burden by 14 percentage points to 44 percent, similar to the level in 2003. Such an expansion of the debt burden is expected to bring about an increase in the loan-loss provision due to housing credit.

During the last two years, housing prices have increased significantly in Israel following a long decline over a period of 10 years, and some of the purchases and transactions involve apartments for investment purposes. In Israel, the average loan-to-value ratios (LTV) and the average debt burden are low relative to accepted levels in the developed countries. Nonetheless, the realization of a scenario involving a significant drop in housing prices together with a decline in household income will likely lead to the sale of apartments at prices lower than the mortgages taken out for their purchase, and hence to an increase in the loss rates of the banks from their housing credit portfolios. However, we do not foresee a direct threat to the stability of the banking system from the realization of such a scenario.

(2) Interest rate risk

Testing was carried out for the effect of a 300 basis point shift upward in the yield curve of the unindexed segment and a 200 basis point shift upward in the indexed and foreign currency segments. The scenarios included only the direct effect on the banking

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[68] IMF Country Report No. 08/63 "Israel Selected Issues", IMF (2008).

[69] The proportion of variable-interest shekel loans reached a record level of 77 percent in February 2009.

[70] The debt burden is defined in this context as the average proportion of repayments on housing loans within average income, which was calculated on the basis of the average original period to maturity, an average rate of interest, an average-sized housing loan, and taking inflation expectations into account. Average income was calculated on the basis of the average real wage per salaried post.

[71] According to Bank of Israel Research Department estimates (based on the DSGE model) of the Bank of Israel rate of interest for the end of 2011, a level of 6 percent is located in an area that covers 66 percent of the distribution of the expected rate of interest, or in other words, an increase of about 5 percentage points relative to its current level (Inflation Report, Fourth Quarter 2009).

system and did not include any indirect effects, which may be significant.[72] The results of the scenario indicate a loss of up to about 2 percent of the capital base for some of the banks.[73]

(3) Exchange rate risk

The effect of a 20 percent depreciation in the NIS/$ exchange rate was examined.[74] The direct effect of a change in the exchange rate on the banking system's losses was found to be negligible (about 1 percent of the banking system's capital base). The reason for this is the policy of the banking system to maintain only small positions in the foreign currency segment. In contrast, the indirect effect on the risk components and on capital adequacy was found to be non-negligible.

Box 3.2
Macroeconomic stress tests for credit risk

Macroeconomic credit risk models link a system of macroeconomic factors to the probability of default and are used to carry out stress tests. However, these models use historical statistical relationships to forecast the development of risk in the future and therefore their ability to capture exceptional responses is limited, particularly when they are based on a long period of stability. Thus, notwithstanding the importance of using macroeconomic models, they should not be relied on exclusively but rather should be used alongside stress testing that reflects a variety of events and levels of intensity, as described above.

Macroeconomic stress testing is a multi-stage process. The first stage involves choosing an external shock (Stage 1). A macroeconomic model[1] is then used to estimate the effect on macroeconomic variables (Stage 2). An example would be to test for the effect of a sharp drop in GDP on the interest rate and the exchange rate. Since macroeconomic models do not usually include financial variables, it is necessary to add a satellite model to the process, which will link

[1]Such as models used by central banks to carry out macroeconomic forecasts or models such as vector autoregression (VAR) or VEC (vector error correction).

[72]An increase in the nominal rate of interest raises the real rate of interest and makes it more difficult for borrowers to pay back their debts and to obtain new credit. In general, there is a positive relationship between a high rate of interest and credit losses.

[73]The scenario that was tested involved an increase in the rate of interest and therefore the threat was to banks with a positive adjusted duration.

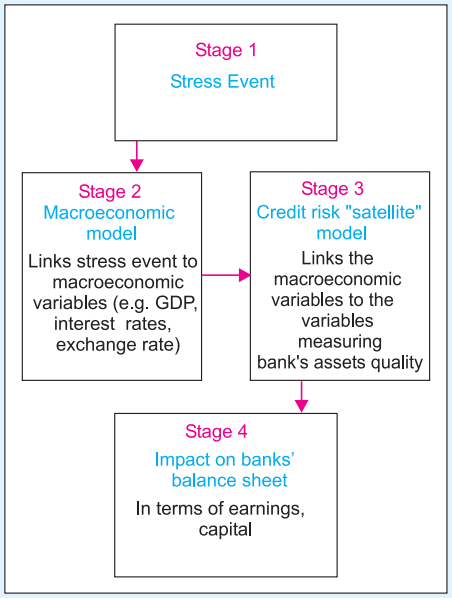
[74]A depreciation scenario was chosen since the position of most of the banks in the foreign currency segments was negative as of December 31, 2009 and therefore they were exposed to a depreciation.

the macroeconomic variables to the financial variables, particularly those that describe the quality of the credit portfolio (Stage 3). The two models combined can be used to estimate the effect of an external shock on the credit portfolio, on the bank's losses and on its capital (Stage 4).

As part of the Bank Supervision Department's work on stress testing, we estimated a macroeconomic credit risk model based on Wilson's model,[2] which links the system of macroeconomic variables to the probability of default[3] and is used for stress testing. The model was testing for the business sector and for the construction and real estate industry and included the following variables:

- In the business sector: changes in the Composite State-of-the-Economy Index,[4] changes in the real Bank of Israel real rate of interest and changes in the Tel Aviv 100 Index.[5]

Credit risk - a typical macro stress testing process



SOURCE: Cihak, Martin, 2007 a, "Systemic Loss: A Measure of Financial Stability," Czech Journal of Economics and Finance (Finance and Credit), Vol. 57 (1-2).
Antonella Foglia, 2008. "Stress testing credit risk: a survey of authorities' approaches," Questioni di Economia e Finanza (Occasional Papers) 37, Bank of Italy, Economic Research Department.

[2]The model was initially developed for McKinsey & Co. and is known as the Credit Portfolio View. See:
Wilson, T.C. (1997a). "Portfolio Credit Risk (I)," *Risk*, vol. 10, issue 9, pp. 111-17.
Wilson, T.C. (1997b). "Portfolio Credit Risk (II)," *Risk*, vol. 10, issue 10, pp. 56-61.

[3]A company was defined as being in default if a bank has created a provision for doubtful debts for it. The probability of default (*PD*) for each quarter was obtained by dividing the number of companies defined as being in default by the number of companies active during that period.

[4]The Composite Index is a synthetic cyclical indicator for determining the direction of real economic activity in real time and is calculated on the basis of the monthly change in seven components that represent various aspects of real economic activity: the Index of Manufacturing Production, the import of consumption goods, the import of production inputs, the revenues from commerce and services, the number of salaried posts in the business sector, the export of goods (without agriculture, fuel, diamonds and planes and ships) and the export of services (tourism, computers and information, communication, insurance and other business services).

[5]The macroeconomic variables chosen are similar to those commonly used by many other regulatory authorities. For a survey of the macroeconomic credit risk models used by regulatory authorities world wide, see: Foglia Antonella (2008). "Stress testing credit risk: A survey of authorities' approaches", Banca d'Italia, Banking and Financial Supervision.

- In the construction and real estate industry, two models were estimated; an "output" model which included total output in the construction industry and the rate of change in the rate of interest and the "housing prices" model which is used to analyze the effect of changes in housing prices in Israel on the probability of default in the industry.[6]

In addition, we considered a number of widely-used models from the literature in order to estimate the relationship between the bank's losses due to credit provided to the household sector and the economic environment, using aggregate data on the sector's credit risk.[7] Also tested was the effect of changes in the rate of unemployment and changes in the public's portfolio of financial assets on the ratio of expense due to the provision for doubtful debts to total non-housing credit to private individuals for the five large banking groups.

The results obtained from all the estimated models show that the average credit adequacy ratio for the banking system remained above the required minimum.[8]

[6]Since housing prices in the model that includes the construction industry's total output and the rate of change in the real rate of interest were not found to be significant, the effect of housing prices was estimated separately.

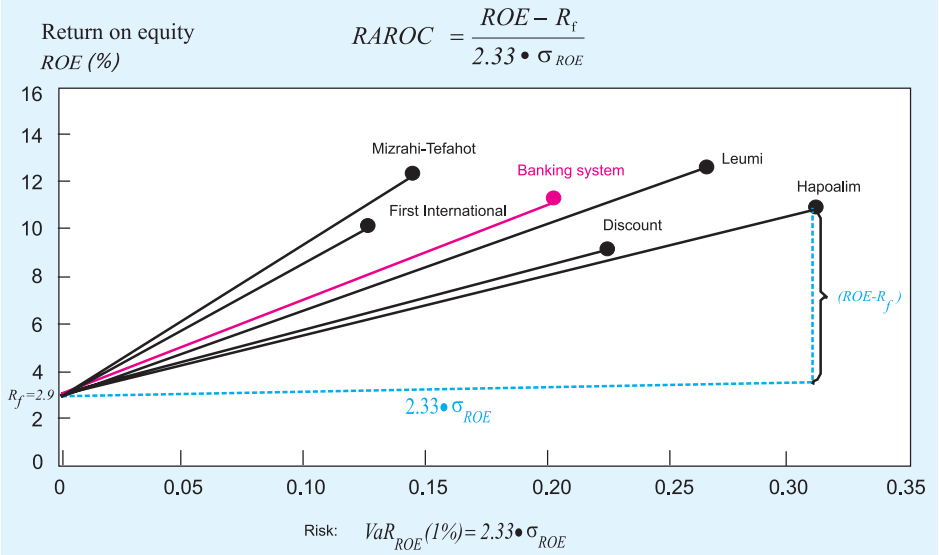
[7]This was in order to differentiate it from another widely-used approach for estimating credit risk in the household sector which makes use of models based on specific information on borrowers.

[8]It should be mentioned that this scenario does not take into account the directive of the Supervisor of Banks regarding the adoption of a core capital target of no less than 7.5 percent, which will go into effect on December 31, 2010.

7. RISK-ADJUSTED RETURN ON CAPITAL

This year there was a significant improvement in the aggregate risk-adjusted return on capital (RAROC) for the five banking groups relative to its low level last year (Table 3.11). The return of the banking system to profitability together with the decline in its level of risk led to an improvement in its RAROC. An analysis of risk-adjusted performance during the last five years shows differences, sometimes large, between the banking groups (Figure 3.20).

Figure 3.20
Risk-Adjusted Return on Capital during the last Business Cycle, Comparison of Five Major Banking Groups and Banking System, Average 2005-09



R_f - Annual average risk-free interest rate in the years 200108, based on the yield to maturity on *Galil* 5-year CPI-indexed bonds.
ROE - Average annual return in equity in the years 2005-09.
σ_{ROE} - Standard deviation of based on the ROE in every quarter in the period 2001-08 (i.e., the calculation is carried out on 20 observations).

SOURCE: Published financial statements.

Table 3.11
Risk Adjusted Return on Capital (RAROC), the Variance-Covariance Approach, by Banking Group, 2002–09

	Rf	Hapoalim	Leumi	Discount	Mizrahi –Tefahot	First International[c]	Total
2002	4.82	-0.10	-0.17	-0.40	0.34	-0.53	-0.22
2003	4.89	0.21	0.40	-0.13	0.45	-0.02	0.28
2004	3.76	0.72	0.81	0.33	0.59	0.24	0.81
2005	2.98	0.84	1.01	0.22	0.84	0.65	0.96
2006	3.70	1.00	0.89	0.36	0.75	0.56	1.00
2007	3.19	0.83	0.60	0.48	0.90	0.73	0.83
2008	2.93	-0.10	-0.27	-0.01	0.50	0.00	-0.13
2009	1.51	0.37	0.20	0.40	0.47	0.67	0.41

[a] *RAROC* is calculated by the variance-covariance approach: $RAROC_i=(ROE_i-R_f)/(2.33*\sigma_{ROE_i})$
where
ROE = return on equity in the last year (profit at end of year to investment at beginning of the year).
R_f = risk-free interest: yield to maturity on 5-year CPI-indexed government bonds (Galil).
σ_{ROE} = standard deviation of *ROE*, calculated from quarterly observations *ROE*s over seven years.
2.33 = the value of Z at the 99% significance level.
SOURCE: Published financial statements.

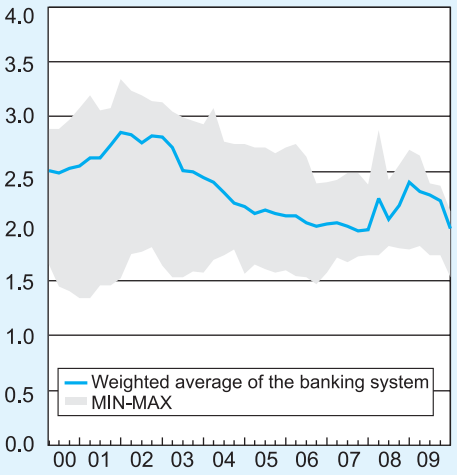
8. THE ROBUSTNESS OF THE BANKING SYSTEM ACCORDING TO THE ROBUSTNESS INDEX[75]

As a result of the positive developments in the capital markets and in real domestic economic activity this year, there was a significant improvement in the level of the Robustness Index, which is a weighted index indicating the stability and soundness of the banking system in Israel. (A higher value for the Index indicates a more positive situation in the banking system; Table 3.12 and Figure 3.21.) It appears that despite the severity of the crisis and the uncertainty that prevailed in the economy during the crisis, there was only a moderate effect on the banking system in 2008 and its stability was maintained.

The Robustness Index is based on six main categories: capital adequacy, quality of assets, quality of management,[76] profits and profitability, exposure to liquidity risk and exposure to market risk. Within each category, there are sub-categories which are composed of various financial ratios. There was significant improvement in all of the main categories of the Robustness Index this year:

- The capital adequacy of the banking system improved considerably this year, thanks to an increase in the capital base alongside a decrease in risk assets. This year, the capital adequacy ratio of the banks in Israel reached a level similar to that in other Western countries for the first time.
- The banks' exposure to credit risk declined. Total credit decreased and total risk assets declined significantly. The quality

Figure 3.21
The Overall Robustness Index of Israel's Banking Corporations, 2000-09



SOURCE: Returns to the Bank Supervision Department, published financial statements, and subjective assessments of experts in the Bank Supervision Department.

[75] This index was developed and implemented by the Banking Supervision Department. For a detailed explanation of the index and its components, see Box 1.1 of the Annual Survey 2003, p. 28–29 and Y. Fishman and D. Ruthenberg, "Robustness – an Index for the Evaluation of the Stability and Resilience of the Banks in Israel," Issues in Banking 17, p. 61–93. In this review, a number of changes were made in the calculation of the Robustness Index: First, the index was calculated on a quarterly basis, rather than an annual one, which had been the norm until now. Second, the principle that a bank whose financial ratios deviate from those of other banks is to be punished has been abandoned and therefore the scale of the index now ranges from 1 (the best score) to 4 (the worst), rather than from 1 to 5 as before. In addition, there have been changes in some of the financial ratios as part of an effort to improve the index.

[76] The quality of management is based primarily on the subjective assessments of the professional staff in the Bank Supervision Department.

of credit stabilized and there was even a certain improvement in the repayment ability of borrowers. In addition, the concentration of credit according to size of borrower declined.

- The improvement in profits and profitability was the result of a significant increase in profitability in the banking system as compared to the previous year, when profits were negligible due to the crisis.[77]
- The steps taken by the Bank of Israel to reinforce liquidity had an effect already in late 2008 and the liquidity of the banking system rose during 2009.
- The financial crisis increased the importance of proper and effective corporate governance, particularly among the banks, and the Bank Supervision Department has taken steps to strengthen it (for more details, see Box 4.1).

Table 3.12
The Robustness Index of Banking Institutions in Israel; Weighted Average for the Entire System, 2000-09

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
2.6	2.9	2.8	2.4	2.2	2.1	2.0	2.0	2.4	2.0

SOURCE: Reports to the Supervisor of Banks, published financial statements, and assessments by experts in the Bank Supervision Department.

Box 3.3
The directive for reporting to the public

The measurement and disclosure of impaired debts, credit risk and the provision for credit losses

The Directive for "The Measurement and Disclosure of Impaired Debts, Credit Risk and the Provision for Credit Losses" (hereafter: the "Directive") brings reporting requirements in line with those that apply to banks in the US and other developed countries and will go into effect for reports starting on January 1, 2011. The Directive significantly improves the standards for the disclosure and measurement of credit risk in the financial statements of the banks and credit card companies. The Directive creates a uniform basis for comparing the banks in Israel to one another and to banks in other countries and increases the uniformity and consistency of the measurement of expected credit losses, as well as creating a clearer link between changes in the quality of credit and changes in the provision for credit losses.

[77] For further details, see Chapter 2.

Following are the main issues dealt with by the Directive:

a. Changing the definition of problem debt (henceforth "criticized debt"): Three main types of criticized debt were defined:

- Impaired debt: A debt that the bank expects not to be able to completely collect according to the debt's contractual conditions. In general, the bank will discontinue the accrual of interest in its profit and loss statement for impaired debts. The change reduces the population of debts currently defined as in temporary arrears.
- Substandard debt: Credit that is not sufficiently protected by collateral or by repayment ability of the borrower and there exists a clear possibility that the bank will absorb a loss if the situation is not rectified.
- Indebtedness under special supervision (henceforth "special mention debt"): Credit with potential weaknesses which the management should pay particular attention to. These weaknesses, if not dealt with, are liable to lead to a deterioration in the redemption likelihood of balance-sheet credit risk or in the status of the bank as a creditor.

b. The process for determining credit loss allowances (hitherto "loan-loss provisions"): Directives have been created for a systematic and documented process for the determination of the allowance for credit losses. The directives deal with the process of classifying the debts of the banks and determining the allowance, as well as internal control and the involvement of the bank's management and Board of Directors in order to determine the allowance for credit losses in a credible manner.

The allowance for the coverage of expected credit losses will be determined on an individual basis for all debts that have been individually reviewed and identified as impaired and on a group basis for debts that have been reviewed on an individual basis and not identified as impaired and for large groups of small and homogenous debts.

Individual allowance: This allowance will be valued on the basis of expected future cash flow from the debt, capitalized at the debt's effective original rate of interest or according to the fair value less the costs of selling the collateral for that credit.

Collective allowance: The provision will be calculated for each group of debts with similar risk characteristics according to the rate of credit losses recognized for this group in the past,[11] with adjustments according to the circumstances on the date of the report.

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[1] The generally accepted accounting practices in the US allow for discretion in determining the groups and time periods for which losses will be measured. Due to the long period required to accumulate experience and adequate data to implement the new directives, the banks will be required during the period defined in the directives to calculate a minimal collective allowance according to the groups and time periods defined by the Bank Supervision Department.

c. Debt write-offs: It was determined that a write-off should be made for any debt not considered to be collectible and whose value is too low for it to be justifiably left as an asset. With regard to debts that are valued on a group basis, the rules for an write-off are based primarily on the period they are in arrears.

d. Interest income: Rules have been determined that are intended to ensure that the interest income on impaired debts will be recorded with the appropriate caution, as appropriate to the lack of certainty involved in these situations. Thus, in general, interest income that has not been collected will not be recorded.

e. Disclosure: The directives expand the disclosure provided in reports to the public regarding the quality of credit and provisions for credit losses, in accordance with generally accepted standards in other countries, and disclosure of the methods and assumptions used when measuring credit loss allowances, according to their various components. In this way, they enable users of the reports from the banks and credit card companies to better understand the changes in credit quality, the changes in the provisions for credit losses and the connection between them.

Table A.3.1
Distribution of Credit to the Public[a] by Single Borrower Indebtedness, the Five Major Banking Groups,[b] 2008-09

Credit per borrower	Outstanding credit to public, and off-balance-sheet credit risk		Number of borrowers		Average outstanding credit		Cumulative proportion of outstanding credit		Cumulative proportion of borrowers	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
(NIS thousand)	(NIS million)				(NIS thousand)		(%)		(%)	
Up to 10	13,915	17,201	3,295,774	3,442,864	4	5	100.00	100.00	100.00	100.00
10 to 20	15,489	19,680	935,051	1,196,904	17	16	98.80	98.40	54.96	55.25
20 to 40	28,690	31,806	934,400	1,038,278	31	31	97.40	96.60	42.18	39.70
40 to 80	49,772	49,924	854,947	869,239	58	57	94.80	93.60	29.41	26.21
80 to 150	60,539	52,695	556,552	490,632	109	107	90.40	89.00	17.72	14.91
150 to 300	83,632	66,458	414,998	319,163	202	208	85.00	84.10	10.11	8.53
300 to 600	83,131	82,522	202,341	197,691	411	417	77.60	77.90	4.44	4.38
600 to 1,200	58,916	71,623	73,430	89,459	802	801	70.20	70.20	1.67	1.81
1,200 to 2,000	27,655	31,799	18,296	21,151	1,512	1,503	65.00	63.60	0.67	0.65
2,000 to 4,000	33,670	35,002	12,038	12,694	2,797	2,757	62.50	60.60	0.42	0.38
4,000 to 8,000	38,957	37,717	6,970	6,744	5,589	5,593	59.50	57.40	0.26	0.22
8,000 to 20,000	72,579	65,788	5,744	5,282	12,636	12,455	56.10	53.90	0.16	0.13
20,000 to 40,000	72,943	69,549	2,604	2,520	28,012	27,599	49.60	47.70	0.08	0.06
40,000 to 200,000	222,558	199,090	2,802	2,485	79,428	80,117	43.10	41.30	0.04	0.03
200,000 to 400,000	91,078	83,050	331	299	275,160	277,759	23.30	22.80	0.00	0.00
400,000 to 800,000	86,050	70,294	155	125	555,161	562,352	15.30	15.00	0.00	0.00
800,000 to 1,200,000	29,968	41,861	31	44	966,710	951,386	7.60	8.50	0.00	0.00

Table A.3.1 (cont'd.)
Distribution of Credit to the Public[a] by Single Borrower Indebtedness, the Five Major Banking Groups, 2008-09

Credit per borrower	Outstanding credit to public, and off-balance-sheet credit risk		Number of borrowers		Average outstanding credit		Cumulative proportion of outstanding credit		Cumulative proportion of borrowers	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
(NIS thousand)	(NIS million)				(NIS thousand)		(%)		(%)	
1,200,000 to 1,600,000	16,891	22,549	13	16	1,299,308	1,409,313	4.90	4.60	0.00	0.00
1,600,000 to 2,000,000	18,116	8,513	10	5	1,811,600	1,702,600	3.40	2.50	0.00	0.00
2,000,000 to 2,400,000	4,366	8,676	2	4	2,183,000	2,169,000	1.80	1.70	0.00	0.00
2,400,000 to 2,800,000	5,258	5,250	2	2	2,629,000	2,625,000	1.40	0.90	0.00	0.00
2,800,000 to 3,200,000	2,857	0	1	0	2,857,000	0	1.00	0.40	0.00	0.00
Higher than 3,200,000	8,133	4,521	2	1	4,066,500	4,521,000	0.70	0.40	0.00	0.00
Total	**1,125,163**	**1,075,568**	**7,316,494**	**7,695,602**	**154**	**140**	**100.00**	**100.00**	**100.00**	**100.00**

[a] Includes the balance of credit to the public and credit-risk equivalent of off-balance-sheet financial instruments, calculated according to the definitions used for calculating the single borrower limitation. Excludes the public's investment in bonds.
SOURCE: Published financial statements.