Chapter 4
The Financial System and its Stability

- After two years of positive trends and rapid recovery from the negative impacts of the 2008 global crisis, the domestic financial system took a turn for the worse in 2011.
- In several respects, the financial system was in better condition in 2011 than before the 2008 crisis; in others, it was in worse condition: a low debt ratio both relative to the past and relative to other countries; a strong increase in the foreign currency reserves, higher bank capital ratios; a functioning infrastructure for debt restructuring in the corporate-bond market; and an upgraded domestic payment and settlement system. However, in contrast, geopolitical risks grew, as did the quantity of problematic debt that had to be recycled in the corporate-bond market. Additionally, the situation of the business groups—the largest borrowers in the corporate-bond market and from the banks—worsened, and there is concern about a downturn in the residential construction sector, to which the banks have been increasingly exposed in recent years.
- The adverse developments in the domestic financial system in 2011 were abetted mainly by increases in risks in the global macro-financial environment, due to the escalation in Europe's debt crisis, and in domestic risks: growing regional geopolitical uncertainty and concern about the implications of the social protests for the budget and for corporate profits.
- The intensity of the shock that struck the domestic financial markets resembled that which buffeted the markets of Europe and the emerging markets. It focused on the stock market and the corporate-bond market, both of which responded to the crisis very vigorously, reflecting concern about the implications of the crisis for firms' profitability and their ability to pay their debts on time. In the last quarter of 2011 and in early 2012, the domestic financial markets underperformed most markets abroad, evidently due to the influence of domestic risks.
- Risk to the domestic financial system in 2011 focused on the corporate bond market, which expanded rapidly in 2005–2007 amid deterioration in the quality of debt issued. Risk spreads widened, foremost for below-investment-grade paper, real estate bonds, and instruments issued by large business groups. In the second half of the year, bond issues tapered off and the level of problematic debts rose.
- The rapid expansion of the corporate bond market allowed an increase in leveraging and in risk attributable to borrowings by business groups and industries that, had it not been for the nonbank market, could not have increased their exposure at such rates. Due to the concentration of credit and the fact that the largest nonbank borrowers are also the largest users of bank credit, the banks' exposure to these borrowers also increased.

- After two quarters of strong earnings, the banks' profitability declined in the third quarter as market risks in their securities portfolios materialized and the state of the real economy worsened. The banks' capital ratios decreased in the third quarter—mainly, however, due to the implementation of new directives regarding employee rights and impaired debts. The banks' direct exposure to the peripheral countries in Europe is minuscule.
- The insurance companies posted an overall loss and their net worth was eroded in the first three quarters of the year, reflecting their acute exposure to market risks. Despite the erosion, their capital ratios at the end of the third quarter exceeded the level mandated by the Supervisor of Insurance.
- The rate of increase in home prices slowed significantly in the second half of 2011 and prices even fell slightly in the third quarter, after uninterrupted rapid upturns that totaled 60 percent since 2008. The moderation of price increases in the housing market came against the background of interest rate increases and macroprudential measures by the Bank of Israel, measures which the government encouraged and which were accompanied by the government's own steps to increase housing supply; and growth in the supply of dwellings in response to the increase in prices.
- If the global slowdown continues (and, of course, if it worsens) and if regional geopolitical risk increases further, credit supply may tighten. This, against the background of the vulnerability of the corporate bond market and preparations by the banks to raise their Tier 1 capital ratios in the coming years in order to meet international standards.

1. MAIN DEVELOPMENTS IN THE DOMESTIC FINANCIAL SYSTEM IN 2011 AND AN ASSESSMENT OF ITS STABILITY

a. Main developments

After two years of positive trends and rapid recovery from the negative impacts of the 2008 global crisis, the domestic financial system took a turn for the worse in 2011 (Table 4.1). The negative developments were abetted mainly by the increase in risks in the global macro-financial environment due to the expected reciprocal effects of Europe's debt crisis on the global growth trajectory and the resilience of the world's financial institutions. The domestic financial system was also affected by an increase in domestic risks, including the upturn in regional geopolitical uncertainty occasioned by the wave of revolutions in the Arab world and the possibility of the declaration of Palestinian statehood in September, and also by concern about the implications of the domestic social protests on the government deficit and corporate profits.

The adverse developments in the global financial system and the domestic risk factors took a toll on the domestic financial system. Stock prices fell steeply and volatility in the financial markets increased; bond issues by nonfinancial corporations tapered off in the second half of the year and came to a nearly total halt in the fourth quarter; risk spreads in the bond market widened; the economy's risk premium rose; the inflow of portfolio investments slowed early in the year and became negative in the second half; and the profitability of the financial institutions—banks and insurance companies—was impaired. In the foreign-currency market, too, volatility increased considerably, the shekel's appreciation against the dollar, a trend in effect since 2009, reversed, and relatively steep depreciation ensued in August. The negative developments in the domestic financial system reflected concern about the implications of the global crisis and the global slowdown for domestic exports and growth, as well as fear for the resilience of the financial institutions due to an expected blow to the quality of their loan and investment portfolios. Conversely, government-bond prices rose by 5 percent because domestic investors considered them relatively low-risk assets.

The domestic financial system took a turn for the worse in 2011, affected by an upturn in risks in the global macro-financial environment and domestic risk factors.

The intensity of the shock to the domestic financial markets in 2011 resembled that absorbed by the European and emerging markets. Unlike developed markets abroad, however, the unfavorable trends in the Israeli markets began in the first half of the year despite rapid domestic growth, due to the increase in regional geopolitical risks. The response in Israel focused, as it did in the 2008 crisis, mainly on the stock market (Figure 4.1) and the corporate bond market, which reacted to the crisis with an intensity that reflected concern about its implications for corporate earnings and firms' ability to pay their debts on time. In the last quarter of 2011 and the first few months of 2012, Israeli markets underperformed global markets, evidently due to the effect of the upturn in domestic risks.

The intensity of the shock that struck the domestic financial markets resembled that which buffeted the European markets and the emerging market economies; it focused on the share and corporate bond markets.

The corporate bond market, the focal point of risk to the financial system in 2008, also reacted to the increase in risks in 2011. Its response was manifested in a steep decrease in issues in the second half of the year and upturns in yields and risk spreads, especially in low-rated or non-rated corporate bonds, real estate bonds, and bonds issued by the business groups (Figure 4.2). The widening of spreads was less aggressive in 2011 than in 2008; the spread level at the end of the review year resembled that in early October 2008, preceding the crest of the previous crisis. The level of problem debts also rose: the value of corporate bonds that were placed in debt restructuring deals increased again, as did expected redemptions of bonds that were trading at exceptionally high yields.

The increase in risks in 2011 was reflected in the corporate bond market in wider spreads, a slump in new issues, and an upturn in problematic debts.

Developments in the global financial system were uneven during the year: in the first half, the system appeared to be stabilizing in view of estimations of continued global recovery, rapid growth in the US and emerging markets, and the focus of Europe's debt crisis on the peripheral countries of the eurozone (Ireland, Greece, and Portugal). Later in the year, it became clear that the debt crisis was spreading to additional countries (Spain and Italy) amid growing fears that the core countries of the eurozone, such as Austria, Finland, France, and the Netherlands, would be affected due

In the first half of the year, the global financial system appeared to be stabilizing. In the second half, however, concern about the escalation of Europe's debt crisis increased and the global financial markets suffered from negative trends.

Table 4.1
Main Stability Indicators of Israel's Financial System, 2008–11

(percent)

	2008	2009	2010	2011	2011 First half	2011 Second half
A. The global environment						
Rate of growth of global GDP	2.8	-0.7	5.1	3.4	-	-
Increase in world trade	3.0	-10.7	12.8	7.5	-	-
Emerging markets' bond index (EMBI) spread (period average)	3.8	4.5	2.8	3.1	2.7	3.5
VIX (volatility) index of Chicago Board Options Exchange (period average)	32.7	31.5	22.5	24.2	18.0	30.3
B. The domestic environment						
Government debt/GDP ratio (end of period)	78.4	81.7	77.7	76.0	75.2	76.0
Net external debt/GDP ratio (end of period)	-21	-26	-24	-26	-26	-26
Private credit/GDP ratio (end of period)	142.7	136.9	135.8	132.4	131.4	132.4
Business-sector credit/product ratio (end of period)	139.5	131.5	129.0	123.3	122.2	123.3
Household credit burden (credit/disposable income ratio) (end of period)	52.1	51.4	53.6	53.8	54.5	53.8
Israel's risk premium (5 year CDS spreads, period average)	0.98	1.57	1.18	1.57	1.42	1.63
Yield gap between 10-year government shekel notes and 10-year US Treasury securities (period average)	2.24	1.83	1.49	2.16	1.79	2.54
Spread between corporate and government bonds (period average)	3.97	5.59	3.14	3.13	2.33	3.93
C. Financial assets						
Risk indices (period averages)						
Implied volatility of:						
Exchange rate	15.1	13.7	9.3	11.8	10.3	13.1
Tel Aviv 25 share price index	33.8	32.1	21.0	25.6	18.9	32.1
Actual standard deviation of:						
Exchange rate	14.6	10.4	6.3	8.8	9.1	8.5
General share price index	24.2	18.6	13.4	18.7	13.2	24.1
Prices and yields (in annual terms)						
Change in NIS/$ exchange rate (during the period)	-1.1	-0.7	-6.0	7.7	-3.8	11.9
Change in effective exchange rate (during the period)	-7.5	2.5	-7.0	4.8	0.1	4.7
Change in general share price index (during the period)	-46.4	78.7	12.6	-22.1	-11.0	-12.5
Yield to maturity on 5-year unindexed government bonds	5.2	3.9	3.8	4.2	4.5	3.9

(Cont.)

Table 4.1 (Cont.)
Main Stability Indicators of Israel's Financial System, 2008–11

(percent)

	2008	2009	2010	2011	2011 First half	2011 Second half
D. Resilience of the financial system						
The banking system[a] (period end)[b]						
Capital adequacy ratio	11.2	13.6	14.2	13.5	13.8	13.5
Risk-weighted equity ratio	7.5	8.3	8.6	8.2	8.4	8.2
Ratio of annual credit loss allowance to total balance sheet credit	0.72	0.75	0.41	0.35		
Insurance companies[b] **(period end)**						
Core capital/assets ratio	4.2	5.8	6.1	5.6	5.8	5.6
Share of risk assets in total assets	41.4	49.4	53.5	52.2	51.1	52.2
Provident funds[c] (period end)						
Share of liquid accounts in total liabilities	57.0	58.4	59.6	63.8	64.0	63.8
Ratio of liquid assets to liquid liabilities	23.2	28.7	28.3	29.0	27.4	29.0
Market liquidity						
Change in total daily turnover in the markets	4.6	-3.8	-7.8	11.0	10.5	11.8
Bid-ask spread in NIS/forex market (annual average)	0.11	0.10	0.07	0.08	0.08	0.07

[a] The five major banking groups.

[b] Data through September 2011.

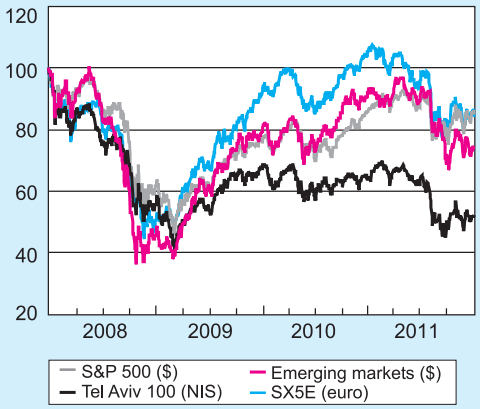
[c] Including central provident funds and advanced study funds.

SOURCE: Based on IMF data and data of the Capital Markets, Insurance and Savings Division of the Ministry of Finance, and the Tel Aviv Stock Exchange.

to their need to prop up their banking systems, which were exposed to the troubled countries' debts. The fear of escalation of the debt crisis in Europe projected onto the eurozone growth outlooks, which slipped steadily.

The early 2011 estimates of the US economic recovery also proved overly optimistic. The lengthy process surrounding the need to raise the US debt ceiling aggravated the uncertainty, as did the downgrading of US long-term government bond in August. All these factors tilted the global financial systems downward and plunged them into a negative trend in the second half of the year.

Figure 4.1
Share Price Indices in Israel and World Wide (Based on Dollar Prices), 2008-11
(1 Jan. 2007 = 100)



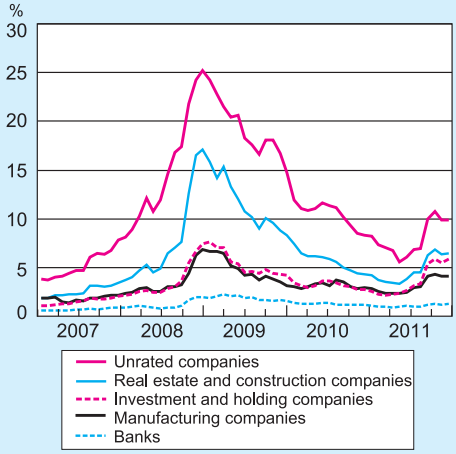
[a] SX5E is an index of 50 leading shares in EMU countries.
Source: Based on Bloomberg.

The eurozone difficulties prompted the continent's authorities to take several stabilizing measures during the year.

Given the difficulties in the eurozone, the continent's authorities took several measures during the year to cope with the instability that ensued in the financial system due to the implications of the debt crisis. The measures invoked at the beginning of the year, however, were inadequate; as a result, fears about general disintegration of the eurozone surfaced in the second half.

Only toward year's end, when it was understood that there was no certainty about the intensity of the shock that would strike Europe and the entire global economy due to the willing or unwilling secession of one or more countries from the eurozone, did the countries of Europe begin taking more resolute steps toward solving the crisis. The steps included the purchase of bonds of the troubled eurozone countries by the ECB, joint action by several European central banks and the Fed to bring down US dollar interest on swap transactions, and measures to reinforce the institutions that were to deal with the crisis and to increase the Tier 1 capital of the continent's banks, among others. Toward year's end, the ECB offered the banks in Europe unlimited-size loans to terms of up to three years and relaxed the collateral requirements pertaining to them so as to include the troubled countries' bonds. The purpose of these measures was to support financial stability in the eurozone by strengthening the financial institutions and increasing liquidity and credit supply. Indeed, by year's end these measures established a degree of stability in the zone and brought about a turnaround in the financial markets.

Figure 4.2
The Yield Gap between Government Bonds and CPI-Indexed Corporate Bonds, 2007-11
(monthly averages, excluding structured and convertible bonds)

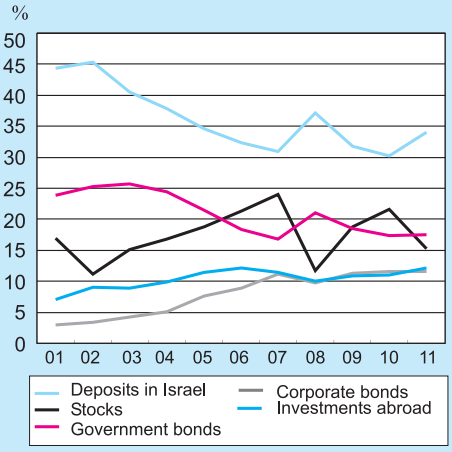


SOURCE: Bank of Israel.

The public's portfolio of assets lost 1.2 percent of its value, as investments abroad and deposits increased while the share of domestic shares contracted.

Due to falling prices in the financial markets in 2011, the public's assets portfolio lost 1.2 percent of its value after two years of continuous increases. The foreign investment and deposit components of the portfolio grew and the proportion of domestic shares fell (Figure 4.3). The increase in foreign investment

Figure 4.3
Public's Assets Portfolio, 2001-11,
(Year-ends)



SOURCE: Bank of Israel.

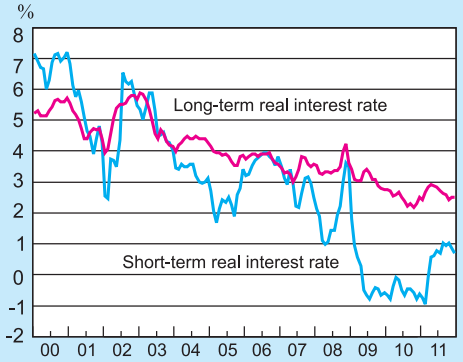
was powered by the provident, advanced-training, and old pension funds, which still had a smaller share of foreign investment than the insurance companies and the new pension funds. Increasing the exposure to foreign assets is helpful in diversifying the portfolio, but due to the strong dependency among global markets that has come about in recent years, it is effective mainly against domestic investment risks such as those relating to defense risks. Investing abroad does expose investors to currency appreciation risks, but this exposure can be hedged. In 2011, institutional investors reduced their hedging transactions against appreciation—possibly in the belief that the probability of depreciation had increased or perhaps due to a decline in supply of hedges against currency risks because of realizations of nonresident investments.

Nonresident short-term capital flows decreased gradually during the year and became negative in the second half.

Nonresident short-term capital inflows decreased gradually during the year and became negative in the second half, as the upturn in global risk assessments dampened capital flows to emerging markets and due to the influence of domestic factors such as the increase in regional geopolitical risk and measures by the Bank of Israel and the Ministry of Finance to attenuate the flow of nonresident investments to *makam* and short-term government bonds. (See section on macroprudential policy below.) The high share of nonresident *makam* investments stood out, peaking in April at 35 percent of outstanding *makam*; these rates tailed off steeply in the second half of the year, to 12 percent of stock at year's end. Nonresidents' liquidations of *makam* investments were partly offset by net investment in government bonds. The flow of nonresident investment in shares traded in Tel Aviv, and in direct investment, increased.

The wave of liquidations of nonresident portfolio investments, the effect of dollar appreciation abroad, and the significant contraction of the surplus on the current account created the backdrop for the end of the appreciation trend; from August on, the shekel depreciated against the dollar rather quickly.

Figure 4.4
Long- and Short-Term Real Interest Rates[a], 2000-11



[a] Long-term real interest rate–the average monthly yield on government CPI-indexed bonds with more than ten years to maturity.Short-term real interest rate--the average monthly yield on government CPI-indexed bonds with 1-2 years to maturity.

SOURCE: Bank of Israel.

The real long-term interest rate on government bonds edged upward in 2011 to 2.7 percent on average as against 2.5 percent in 2010 (Figure 4.4). The real short-term interest rate, negative 2010, climbed in 2011 to 0.5 percent on average. The persistence of low real long-term interest is associated with the low level of yields around the world, expectations of lethargic growth rates for several more years, and the credibility Israel's fiscal policies. Real long-term interest on government paper serves as benchmark for the costs of borrowing in

Real long-term interest on government bonds rose slightly in 2011.

of

a

by business. Even though this interest rate hardly changed in 2011, businesses' borrowing costs in the bank and non-bank markets rose due to the increase in the risk premium, as reflected in the widening of the corporate-bond spread and the spread between banks' lending and deposit interest rates.

b. Assessment of the risks in the domestic financial system

The increase in global and domestic risks in 2011 led to greater risks in the domestic financial system:

After two quarters of strong earnings, the banks' profits slumped in the third quarter and their capital ratios fell.

After two quarters of strong earnings, the banks' profits slumped in the third quarter as market risks to their securities portfolios materialized and the state of the real economy declined in the second half of the year. The banks' capital ratios also slipped in the third quarter, but this was due mainly to the implementation of new directives concerning employee rights and impaired loans. Market indicators pointed to an increase in the risk level of the banks' credit portfolios starting in August, but indicators based on the banks' financial statements suggest that the credit risk remained low by historical standards.

Despite the blow to their earnings, the banks have displayed strong resilience relative to financial institutions abroad.

Thus far, despite the blow to their earnings, the banks have displayed greater resilience to the effects of Europe's debt crisis than financial institutions abroad. (See Box 4.1.) Their resilience is linked to their relatively good condition, since the domestic economy was only mildly affected by the 2008 global crisis, relatively speaking, and rebounded from the crisis quickly. The banks' resilience was also assisted by the small extent of their direct exposure to the bonds of Europe's peripheral countries (0.1 percent of assets in September). The banks' principal reliance on deposits from the public for sources, as opposed to raising sources in the domestic or foreign financial markets, also abetted their relative stability due to the worsening of conditions for raising sources in the financial markets. Finally, the domestic banking system is conservative by developed countries' standards and operates under comprehensive regulation and close supervision. Just the same, after the components of capital that may be used in calculating the banks' core capital were redefined under Basel III, the domestic banking system began to prepare to increase its core capital ratio in accordance with the international standards because its current ratio is low by international measures.

The insurance companies posted an overall loss and erosion of capital in the first three quarters of the year.

The insurance companies posted an overall loss and erosion of capital in the first three quarters of the year due to the acute exposure of their nostro investments to market risks and impairments to their performance-dependent fees. Despite the erosion, their capital at the end of the third quarter exceeded the mandatory level set by the Supervisor of Insurance.

The pension savings programs lost money in 2011, but at much lower rates than in 2008.

Managers of provident and pension funds are not directly exposed to market risks because they manage most of the public's savings in ways that pass the market risk to the savers (defined contribution plans). Indeed, these vehicles posted negative returns in 2011, causing the pension savings portfolio to erode, but at much lower rates than in 2008.

From the second half of 2011, credit supply to the business sector has been tightening slightly in view of the increase in risks, foremost in credit to real estate firms and companies that belong to large business groups. The tightening is reflected in a decrease in the ability to roll over debts in the nonbank market and in tougher terms for bank loans. Although the tightening of credit supply occasioned by the increase in risks may affect the GDP growth rate, the damage to GDP growth that could occur from an increase of the exposure of financial institutions to risky industries might be much greater.

Since the second half of 2011, credit supply to the business sector has been tightening slightly in view of the upturn in risks.

The increase in risks in 2011 also negatively impacted the corporate bond market. This market saw rapid development and rising risk levels in 2005–2007 due to record-size issues by real estate firms and firms belonging to large business groups.[1] These firms raised their leverage ratios steeply[2] and some also increased their exposure to real estate assets in foreign countries that were undergoing grave real estate crises. Consequently, the market became more vulnerable and responded vigorously to the upturn in risks in 2011.

The bond market expanded rapidly in 2005–07 and the quality of debt issued declined.

The rapid expansion of the corporate bond market in 2005–2007 abetted the increase in leveraging and risk of borrower groups and industries that, had it not been for the nonbank market, could not have expanded their leveraging at such rates, due to the quality of the banks' debt underwriting and the regulatory restrictions that the banks have to honor in regard to large borrowers and borrower groups. As a function of the increase in this exposure, however, the banks' exposure to risk also increased because, given the concentration of credit in Israel's economy, the largest borrowers in the corporate bond market are also the largest borrowers from the banks.

The rapid expansion of the corporate bond market also increased the banks' exposure to risk.

To recover from the difficulties that it contracted during the boom years and to become a less vulnerable market and a stable source of funding for the business sector, the domestic bond market will evidently have to gradually cleanse itself of problematic debts. Another necessity is to continue improving the ways in which institutional entities invest in these bonds; the adoption of the Hodek Committee recommendations marked the beginning of this process. To purge the market of problematic debts, write-offs will be needed, some relating to paper that perhaps should not have been issued to begin with, and the implementation of debt restructuring for firms that, in the bondholders' opinion, should be allowed to continue functioning as going concerns. This process will probably result in a smaller bond market than the one that, during the boom years, ballooned to an extraordinary 30 percent of GDP, much larger than its counterparts in other developed countries.[3]

To regain its health, the domestic bond market will have to cleanse itself of problematic debts and continue to improve the ways in which institutional entities invest.

Despite the failures that have been detected in the nonbank market in recent years, no one disputes the importance of the existence of this market, alongside bank credit, for the enhancement of competition in the credit markets and the dispersion of credit risks in the economy. Accordingly, it is important to continue

The existence of the nonbank credit market, alongside bank credit, is important for the enhancement of competition in the credit market and the dispersion of credit risks in the economy.

[1] In fact, 75 percent of outstanding corporate bonds that were traded at the beginning of 2011 were issued before late 2008 (when the previous crisis peaked).

[2] For example, the ten largest borrowers in the bond market were leveraged at 84 percent in 2008.

[3] See Figure 3.3 in Bank of Israel, Israel and the Global Crisis 2007–09 (September 2011).

acting to improve the procedures relating to the purchase of corporate bonds by institutional investors, to improve corporate governance of these entities and the issuers of debt, and to reduce the potential of conflicts of interests in their activity and enhance enforcement and supervision of regulations. The recommendations of the Committee for Increasing Competitiveness in the Economy regarding separating entities that control real corporations from those that manage financial entities and serve as credit providers (see Box 4.2) should be adopted. Institutional players should be given greater incentives to participate in debt restructuring when borrowers fail, in order to maximize savers' utility, and more resources should be allocated for enforcement and supervision in the nonbanking market.

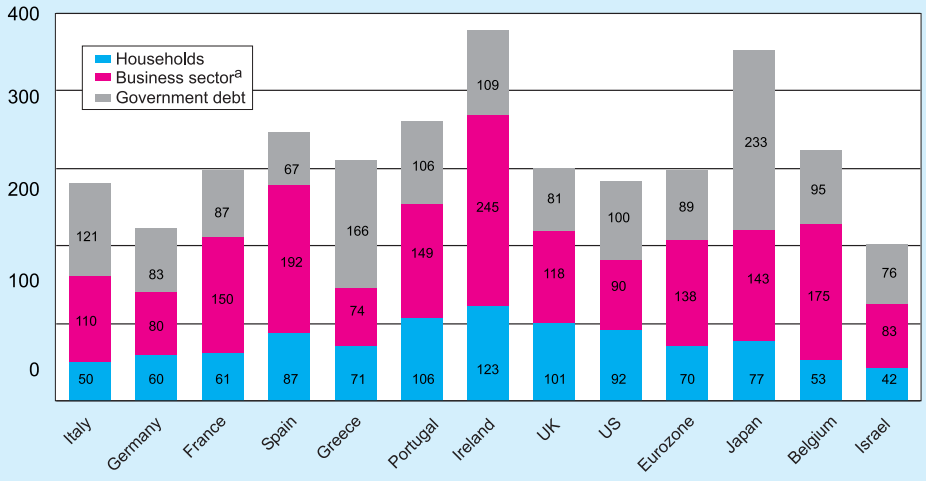
In several respects, the financial system was in better condition in 2011 than before the 2008 crisis; in others, it was in worse condition.

Given the increase in risks in 2011 and concerns about further escalation in 2012, the question is whether the economy's ability to cope with a crisis resembling that of 2008 is still as strong as it was in 2008, or whether it has declined.

In several respects, the financial state of the economy was better in 2011 than in 2008:

The economy's total debt/GDP ratio continued to fall relative to 2008, contrary to the trend abroad. At the end of 2011, it was far below that of many developed markets, especially those that had been seriously affected by the crisis (Figure 4.5). Credit for this belongs mainly to especially low levels of household debt: household debt in Israel as a share of GDP is very low by international standards, even after rising by 4 percent of GDP since the beginning of 2008 due to the rapid expansion of credit for housing. Business debt in GDP is also low by global standards and has been falling steadily since 2011. The ratio of government debt to GDP which had been high

Figure 4.5
Government and Private Debt to GDP Ratios, Israel and Selected Countries, End of 2011



[a] Excluding the financial sector.
SOURCE: Debt ratios in foreign countries--estimates from the IMF Global Financial Stability report, September 2011. Israel–Bank of Israel.

by the standards of many developed countries, declined steeply in 2004–2007 due to the maintaining of fiscal discipline. In the past two years, this ratio has continued to decline moderately, unlike the trend in many developed countries which needed massive government rescue plans in the wake of Europe's debt crisis and posted significant increases in their government debt ratios. However, higher interest rates increase the debt service cost in Israel relative to other countries.

Israel's total debt ratio is low both relative to the past and relative to other countries.

The increase in the foreign currency reserves since 2008 also helps to boost the economy's financial stability and its ability to cope with crises.

The economy's foreign currency reserves increased.

The banks' ability to cope with crises has actually gotten stronger due to the improvement in their capital ratios since 2008 and measures that they took after the Supervisor of Banks instructed them to improve their corporate governance and the quality of their risk management.

The banks' capital ratios and the quality of their risk management improved.

In the corporate bond market, a debt restructuring procedure for companies in liquidity trouble was worked out after 2008. The restructuring procedure parallels the one applied by the banking system, which includes rescheduling of debt, bolstering of collateral, and interest-rate adjustments, inter alia. The procedure allows companies in temporary liquidity trouble to continue functioning as going concerns and pay off their debts after the conclusion of a settlement that benefits both them and their creditors. The procedure has been used to settle the debts of approximately ninety firms since 2008.

In the corporate bond market, a debt settlement procedure was worked out after 2008.

The national payment and settlement system has been upgraded.

Finally, as one of the lessons of the crisis, **the implementation of a macroprudential policy that may help to enhance the financial system's resilience and its ability to cope with crises has begun;** it includes stronger coordination and cooperation among supervisory authorities.

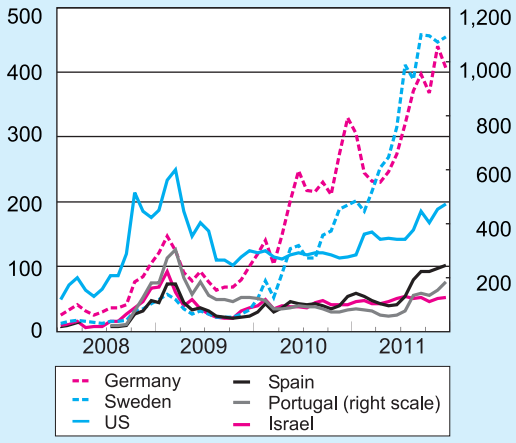
In one of the lessons from the 2008 crisis, the implementation of a macroprudential policy has begun.

In several other respects, however—according to various indicators—Israel's relative position is less auspicious than it had been on the eve of the 2008 crisis:

The increase in regional geopolitical risk, reflected among other things in the widening of Israel's risk premium as measured in the CDS market, shows that the country's relative standing has slipped (Figure 4.6). The rate of increase in the CDS spread in 2011 exceeded that of similar countries that had not been directly affected by the crisis in Europe.

Regional geopolitical risk has escalated.

Figure 4.6
5-Year CDS Spreads for Israel and Selected Other Countries, 2008-11
(basis points, monthly averages)



SOURCE: Based on Bloomberg.

The amount of debt that has to be recycled in the corporate bond market has gone up.

The corporate bond market has become more fragile because it has to accommodate a much larger amount of debt recycling than before the 2008 crisis—when most of the debt had not yet matured, having been issued in 2006–2007.

The condition of most business groups has worsened.

Most of the business groups, the largest borrowers in the bond market, were better off in 2008 because they were not suffering from liquidity problems as they are today and there was no concern about a blow to their earnings due to various reforms that have been implemented in the past few years, as well as the social protests.

The risks to which the banks are exposed have increased.

The risks to which the banks are exposed have also increased due to several years of growing exposure to the residential construction industry—of which there is concern of a turn for the worse—and a deterioration in the condition of the business groups, which are also the banks' largest borrowers.

Despite the relative resilience that the domestic financial system has shown thus far, the continued stability of the system depends largely on developments in the global financial system, which remains shaky and faces many risks to its continued stability, and in the regional geopolitical situation. The main risks that project onto the domestic financial system are the following:

Looking ahead, the main risks facing the economy are related to the worsening of the global downturn or the realization of any of the regional geopolitical risks.

- Acceleration of the global slowdown in the wake of the global crisis may also exacerbate the slowdown in Israel, a small and open economy that depends heavily on demand from abroad. The deceleration of domestic growth may impair the earnings of domestic financial institutions and make the banks less able to increase their lending, coupled with the trend (abroad and in Israel) toward increasing banks' capital ratios to maintain their stability. To mitigate the effect of the increase in capital on credit supply, the capital requirement must be implemented gradually.
- Regional geopolitical risks escalated in 2012. If such risks come to pass, they may harm real activity and investment, induce capital outflow and rapid depreciation, and cause asset prices and financial institutions' earnings to plunge. International diversification of investments may help to mitigate the risk of a decrease in asset prices.

In addition to these risks, the domestic economy is susceptible to the concentration of its business sector—both real and financial. Due to this concentration, the failure of one large financial institution may impact on other financial institutions and confidence in the financial system at large. The acute concentration of the business sector also amplifies system risk in the financial system because the large business groups are the largest borrowers in both the bank and the nonbank credit markets. Accordingly, the collapse of one large group may raise the risk premium in the entire credit market and dampen investment. The existence of the business groups also exacerbates institutional risk in the financial system because their situation as too big or too complex to fail gives them a motive to take excessive risks. Recent measures to tackle the credit concentration problem include the additional reduction of the risk that banks may take vis-à-vis borrower groups and large borrowers (effective at the end of 2011) and the establishment of the Committee on Increasing Competitiveness in the Economy, which published its recommendations in early 2012.

Box 4.1
A model for estimating the effect of the macroeconomic situation on the probability that financial institutions in Israel will default

The stability of the financial system depends primarily on that of the financial institutions. The main concern is that a major financial institution will default—a risk that may derive from various causes, not all of which can be predicted. The macroeconomic situation has a considerable effect on the functioning and stability of financial institutions, so that it is very important to analyze its effect on the risk that financial institutions will default.

The question is how to assess this risk. Several models have been proposed for this purpose, one of the most widely accepted being that of Merton[1] for estimating the risk that a firm will default. This model regards a firm's shares as call options on its assets at a price that is equivalent to the face value of its liabilities: if after a given period (e.g., a year) the value of the firm's total assets is higher than that of its liabilities, shareholders will receive the remaining assets after the debt has been paid, while if the firm's assets are less than its liabilities they will not receive anything. Similarly, lenders can be regarded as holding a put option on the liabilities: if at a given point the value of the firm's total assets is smaller than that of its total liabilities the debt-holder will obtain its assets.[2] This view of capital and liabilities, with the aid of equations from options theory, makes it possible to derive the value and standard deviation of a firm's assets, as well as to develop various indices of the risk embodied in its activity.

A popular risk index obtained from the model is the probability of default within a given time-frame: since the expected change in the value of the assets over a given period (e.g., a year) is not known, there is a distribution of their value at the end of the period. If the value of its total assets is higher than that of its total liabilities, the firm can repay its debts and continue functioning; if the value of its assets is less than that of its liabilities to an extent which prevents the firm from repaying all its debts, it will have to default. By means of the model it is possible to assess the probability thatdefault will occur at the end of the period. Naturally, the greater the debt relative to the firm's balance sheet, the higher the risk. Similarly, the greater the expected increase in the value of its assets, the higher will be their value at the end of the period, thereby reducing the risk of default.

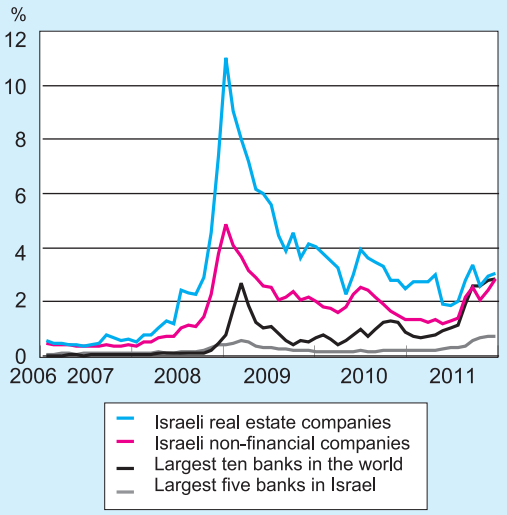
The advantages of the model lie in its combination of market data with accounting data, and in its ability to capture the non-linear development of the probability that a firm will default, which depends on its structure (equity vis-à-vis debt).[3] However, the model is limited to the information implicit in the market and in financial statements; risks which are not captured in one of these are not included in it, and this information – e.g., off-balance-sheet assets – can be critical, as occurred with Lehman Brothers. Nevertheless, if investors assess that a specific firm's difficulties will give rise to difficulties in others ('contagion'), and this assessment is incorporated in market data (e.g., a lower share price for firms at risk of contagion), the

1 Merton (1974).
2 For clarification and implementation with reference to Israeli firms, see Sasi-Brodesky (2011).
3 In other words, it is not only the probability of default that increases as the debt represents a greater part of its liabilities; the change in this probability is also greater, other things being equal.

situation of these firms will be reflected in the model's calculation of the probability of their default.

Like every theoretical model, Merton's is based on several simplified assumptions, among them the normal distribution of default events. The Bank of Israel's Research Department has data on the probability of default of Israeli firms – both financial and real – obtained from implementing the model and improving it by means of historical data on defaults from the rest of the world.[4] This produces results that are derived from the actual occurrence of default events. One of the principal products of implementing the model is EDF (Expected Default Frequency), which expresses the risk of default within a year.[5] EDF is calculated for every public company, but adjustments have to be made for financial institutions, whose character is different. In the final event a range of values from 0 to 35 percent is obtained,[6] within which lies each firm's probability of defaulting within a year. Despite the obvious disadvantages of the model, as mentioned above, EDF is used in several countries (Sweden, Chile, the EU, etc.) to study firms' risks.

Weighted Average Expected Default Frequency, December 2006 to 2011



SOURCE: Based on Moody's KMV.

The figure above gives the weighted average (weighted by the value of the assets) of the EDF of the five largest banks, nonfinancial public companies,[7] and real-estate firms in Israel, as well as the world's largest ten banks.

The figure, which provides a comparison of the risks in the various sectors, shows that despite the rise in the average risk of banks in Israel during the 2008 crisis, it was significantly lower than that of the world's largest banks. Today, too, when the risk level of the banks is rising again (led by the European banks), the risk level of banks in Israel is significantly lower than that of the world's largest banks. The figure also illustrates the gap in risk between the real estate industry and all the nonfinancial companies in Israel. This gap was larger during the 2008 crisis than at the end of 2011, reflecting the greater exposure of Israel's real-estate firms to real estate abroad, a sector which was hard hit by the last crisis, as well as the greater leverage of these firms. Beyond the average level presented in the figure, note that the variance

4 Implementation by means of Moody's KMV.

5 There is also a calculation of EDF for periods of more than a year, but in this box we focus on the data for a year.

6 The distinction between different levels of probability in the range from 35 to 100 percent is not possible, for empirical reasons.

7 Excluding holding companies.

in the real estate industry throughout most of the period is slightly higher than that of all the nonfinancial companies, and that both variances are far greater than that of the banks in Israel.

A consistent and uniform index of the probability of default is very important, as it is of great assistance in assessing risks in investment portfolios as well as in various sectors of the economy. Another significant use of the index is its inclusion in stress tests for financial institutions in order to estimate the risk that they will default in various macroeconomic scenarios. This risk may be assessed by analyzing the institutions' assets (primarily credit portfolios), but it is also possible to calculate the probability of default directly for the institution itself, assuming that it is affected by the macroeconomic situation, as is indeed the case regarding the activity of financial institutions.

In order to ascertain which macroeconomic factors have the greatest effect on the probability that a bank will default, as defined by EDF, we estimate a model in which the explanatory variables are the main macroeconomic variables—business sector growth, the inflation rate, effective depreciation, the Bank of Israel's interest rate, and the change in the Tel Aviv 100 index of share prices. All these variables were taken at quarterly intervals and measured as the deviance from their long-term trend, as well as in annual terms. An attempt was also made to examine the effect of long-term interest.

The analysis shows, as expected, that EDF is sensitive to the macroeconomic situation to a significant level, and that the model's explanatory power is relatively great. As expected, when the real economic situation (measured by business sector growth) and the financial situation (measured by the change in the Tel Aviv 100 Index) are both positive, this is accompanied by a reduction in banks' risk, the effect of the financial situation being the greater. Inflation also reduces risk, and this finding apparently reflects the surplus of assets over liabilities in the CPI-indexed sector. Shekel depreciation increases risk – particularly because of the rise in foreign-currency-indexed credit, which forms part of the total risk assets according to which the banks' capital adequacy is calculated. If total risk assets rise, capital adequacy declines, thereby increasing risk.

The probability of default, as presented here, combined with the model which connects this probability with macroeconomic developments, is incorporated within the stress tests conducted on the banking system both in Israel and elsewhere, making it possible to obtain a quantitative assessment of the level of risk given different economic scenarios. It is also possible to compare the predictions derived from a model of this kind with historical levels of risk, as well as to make comparisons between various institutions. A quantitative assessment of this kind in the framework of stress tests is another tool (though not the only one) for examining the expected stability of the financial system in different macroeconomic situations.

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2. MACROPRUDENTIAL POLICY IN ISRAEL

Macroprudential policy focuses on relations among all players in the financial system; its purpose is to mitigate system risk and prevent crises.

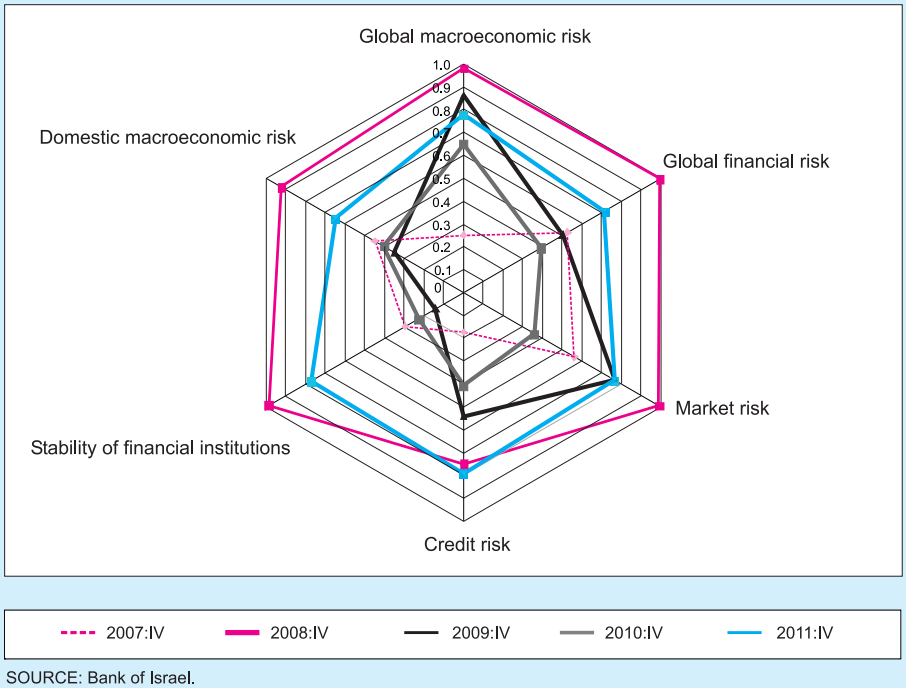
Macroprudential policy, a relatively new term, denotes a policy that focuses on relations among financial institutions, markets, the financial infrastructure, and the economy at large, to mitigate systemic financial risk and prevent financial crises that inflict steep macroeconomic costs. Promoting this policy is one of the lessons that the world learned from the 2008 crisis; until then, the maintenance of financial stability focused mainly on the stability of individual financial institutions.

Several countries, including Israel, have applied macroprudential policies in the past two years.

Despite intensive occupation with the management of macroprudential policy and the development of research around the world, the field still lacks a conceptual and analytical framework, e.g., financial stress tests or models that would permit analytical linkage of the interrelated effects of the various tools on all components of the financial system. Experience in applying the policy is lacking as well. Just the same, several countries (Norway, Sweden, Canada, China, Hong Kong, etc.) have applied the policy in the past two years on the basis of intelligent discretion, e.g., to deal with rapid increases in housing prices. Israel, like other countries, has taken macroprudential measures to counter the development of systemic risk in the housing market in response to the precipitous increase in home prices—more than 60 percent—between 2008 and the end of 2011.

The Bank of Israel took macroprudential policy measures back in 2010 to mitigate housing credit risks to banks and homebuyers alike. Thus, new loans with

Figure 4.7
Risks to Financial Stability Shown on a Radar Chart, 2007-11



SOURCE: Bank of Israel.

loan-to-value (LTV) ratios exceeding 60 percent were made more expensive and a larger capital assignment was required for some loans issued in amounts exceeding NIS 800,000.[4]

In the past two years, the Bank of Israel has taken macroprudential measures to contend with the rapid increase in housing prices.

The continued increase in home prices in 2011 and the growing share of adjustable-rate mortgage (ARM) loans prompted the Bank of Israel to take further macroprudential measures in the mortgage-loan market. Thus, in May 2011 the Banking Supervision Department limited the ARM share of a mortgage loan to one-third of the total loan to the borrower in order to lower borrowers' and lenders' exposure to abrupt changes in interest. This is because interest on non-indexed ARM loans is closely linked to changes in the Bank of Israel rate, and it was feared that a future increase in the Bank of Israel rate would expose borrowers to such large repayments that they would default. The restriction applies to new housing loans in all ARM programs that allow interest changes during a period of less than five years. These measures, coupled with the increase in the Bank of Israel interest rate and a range of additional measures by the government, helped to attenuate the increase in home prices in the second half of 2011. (For details, see the Construction section in Chapter 2.)

In early 2011, the Bank of Israel took macroprudential steps to deal with non-resident short-term capital inflows.

At the beginning of 2011, the Bank of Israel wielded the macroprudential policy tool to tackle the difficulty in managing monetary policy that had arisen due to capital inflows that were reflected, among other things, in an increase in the share of nonresidents in the *makam* market to 35 percent. Thus, compulsory reporting on activity in the foreign-currency derivatives market, the *makam* market, and the short-term government bond market was introduced at the beginning of the year. Farther on, a 10 percent liquidity requirement was imposed on nonresident transactions in foreign-currency derivatives. Concurrently, the Ministry of Finance abolished the nonresident tax exemption on capital gains from investments in *makam* and government bonds of up to one year maturity.

The radar chart is helpful in analyzing the development of risks in the financial system.

A helpful tool in analyzing the development of risks in the financial system is the "radar chart" (Figure 4.7), which plots the level of risk in various components of the financial system and in the real economy in Israel and abroad at different points in time[5] without engaging in prediction or forecasting. The chart in Figure 4.7 shows

[4] At adjustable rates—if the LTV ratio exceeds 60 percent and the adjustable-rate share of the total loan surpasses 25 percent.

[5] Hanan Zalkinder (forthcoming), "Measuring Stress and Risks to the Financial System in Israel on a Radar Chart." Each vertex on the radar chart represents a different source of risk to the financial system, calculated by weighting several variables:

The domestic macro risk vertex: the Bank of Israel's composite state-of-the-economy index;

The global financial risk vertex: the VIX index, the MSCI EM equity index, the MSCI G7 equity index, the MOVE index (implicit standard deviation of short-term US Treasuries), the implicit standard deviation in the G7 countries' foreign-currency markets; the "Ted Spread" (the spread between interbank interest and the short-term US Treasury yield), and the MSCI index of the equities of large banks in developed countries.

The credit risk vertex: long-term corporate bond spreads, the spread between indexed and non-indexed mortgage loan interest, on the one hand, and the yield on indexed government bonds, on the other; and the spread between Israel's indexed bond yield and indexed US Treasuries (5Y).

The financial institutions star: the TA Banks index, the spread on banks' bonds, the banks' return on capital, and Tier 1 capital adequacy.

that the risk levels in all components of the financial system rose considerably during the year but that the shock—both in Israel and abroad—was less intense than that in late 2008. According to the radar chart, the only component that climbed to levels exceeding those in 2008 was the economy's credit risk. This was due, among other things, to the increase in regional geopolitical risk, manifested in the spread between Israel government and US Treasury yields. In the other components of credit risk in the chart—including corporate bond and mortgage loan spreads—the level was lower at the end of the third quarter of 2011 than in 2008.

3. ASSET PRICES AND CREDIT

a. Home prices

The upward march of home prices slowed considerably in the second half of 2011 and prices even fell slightly in the third quarter.

The upward march of home prices slowed considerably in the second half of 2011 and prices even fell slightly in the third quarter after an uninterrupted 60 percent upturn, in nominal cumulative terms, since 2008. The steep increase of home prices originated in stronger demand by the public for home purchase, in some cases for investment purposes, in view of the meager returns on investment vehicles that are considered low-risk, low mortgage lending rates, and the shortage of housing. (For greater detail, see the Construction section in Chapter 2.)

The deceleration of home price increases was the result of several measures taken by the Bank of Israel (described in the Macroprudential Policy section of this chapter) and steps by, and the encouragement of, the government to expand housing supply—along with an increase in housing supply in response to the upward movement of prices.

b. Share prices

The General Share Index lost 22 percent in 2011 after two years of uninterrupted increases.

In 2011, after two years of rising prices in the share market, the trend turned around pursuant to regional geopolitical developments and the worsening of Europe's debt crisis in the second half of the year. The General Share Index lost 22 percent in 2011 after gaining 13 percent in 2010 and 79 percent in 2009. The decrease in share prices resembled corresponding downturns in emerging market economies and European countries and contrasted with share prices in the United States, which rose mildly. In the last quarter of 2011 and in the first few months of 2012, the Israeli equities market underperformed compared with the global markets, evidently affected by the increase in domestic risks.

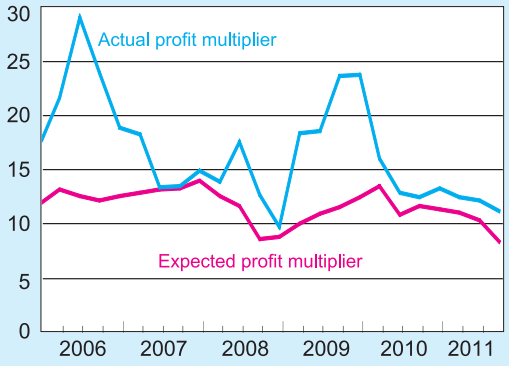
The decrease in share prices was accompanied by an upturn in market risk.

The decrease in share prices was accompanied by an upturn in market risk, mirrored in an increase in the implicit standard deviation of options on the Tel Aviv 25 Index to 36 percent in August–December 2011 as against 21 percent in 2010. The change of trend in the share market was also reflected in trading volumes, which fell from NIS 2.1 billion on daily average in 2010 to NIS 1.8 billion in 2011.

In the third quarter of the year, the historical and expected price to earnings ratios were below their long-term averages.

In the third quarter of 2011, the historical and expected price to earnings ratios[6] were below their long-term averages (Figure 4.8). The historical ratio stood at 11.7, the lowest since the financial crisis crested in the last quarter of 2008, and the expected ratio was 8.4. The risk premium that investors in equities demanded, as implied by the spread between the return demanded on shares and government yields, was positive at 5.3 percent,[7] not far from its historical peaks. This shows that the public responded to the acute uncertainty that prevailed at this time by demanding a stiff premium for investing in shares.

Figure 4.8
Profit Multiplier of the Tel Aviv 25 Share Index
(January 2006 to December 2011, quarterly)



SOURCE: Based on Bloomberg.

Share prices in Tel Aviv fell despite the positive inflow of foreign investment.

The price decreases in Tel Aviv took place despite a $2 billion positive inflow of foreign investment, against the background of an outflow of institutional investors' money.

The primary market for share issues was drowsy in 2011.

The primary market was sluggish in 2011, raising NIS 4.9 billion in share equity, far below the 2010 level of NIS 12 billion and lower than in any of the previous three years. Eleven new firms were listed for trading (including two that were dual-listed). The number of firms that had shares listed for trading was 600 at year's end, almost unchanged in the past two decades.

The decrease in share prices affected all industries and stood out in particular in holding companies and banks.

The decline in prices affected all industries. The smallest decline was in manufacturing (13 percent) and the largest, at 41 percent, in investment companies, which include the business groups' holding companies. Domestic bank shares lost 35 percent, much like their European counterparts,[8] evidently in view of investors' fears of the implications of the realization of risks in Europe and the exposure of the banks' financial results to the business groups and the real estate industry.

[6] The ratios were calculated on the Tel Aviv 25 Index. The expected price to earnings ratio is calculated as the ratio between the current price and expected profit during the next four quarters. Expected profit during the coming year is calculated as the average of analysts' forecasts, as published by Bloomberg.

[7] The required return on shares is estimated by the inverse of the price to earnings ratio (dividing 1 by the price to earnings ratio). The risk free interest in this analysis was the yield on unindexed ten-year government notes.

[8] Six hundred banks in Europe, based on the Stoxx Europe 600 Banks Index.

c. Credit to the nonfinancial private sector and the corporate bond market

Total outstanding credit to the nonfinancial private sector[9] was NIS 1.1 trillion at the end of 2011, up 4.1 percent from a year earlier (Table 4.2), reflecting continued growth in credit to households and a mild increase in credit to the business sector.

The development of credit is one of the most important early indicators of an evolving imbalance in the financial system.

Development of credit is one of the most important early indicators of an evolving imbalance in the financial system. Since borrowers and lenders are willing to take more risks at times of rapid growth, credit can expand rapidly, possibly fueling the development of bubbles and, if the economic conditions head downward, dealing the financial institutions a shock. Conversely, when recession or economic slowdown strikes, lenders tend to cut back on their risks and on the supply of credit, exacerbating the effect of the economic cycle on growth. This effect may be especially acute because the impact of the recession on demand for credit does not always act in the same direction: sometimes it actually increases borrowing needs by damaging borrowers' cash flow.

Credit tightening is a situation in which banks restrict credit supply in view of an increase in risks.

The contraction of credit supply—due, for example, to a shortage of sources or regulatory restrictions relating to capital adequacy—represents a situation of a credit squeeze, in which the banks cannot lend even to good customers to whom they want to lend. Credit tightening, in contrast, is a situation in which banks restrict credit supply although they have plenty of sources and although demand for credit persists even at higher interest—because, in their estimation, an increase in supply in the presence of the risks will not contribute to their earnings and may even impair their stability. A credit shortage occasioned by credit tightening may also damage activity and growth but the destabilization of financial institutions would damage growth much more.

(i) Credit to the business sector

Outstanding credit to the nonfinancial business sector was NIS 779 million December 2011, up only 2.4 percent from the beginning of the year.[10] The mild increase in credit was the result of moderate growth in lending by banks and a slight upturn in domestic nonbank credit.

Credit to the business sector increased moderately, pursuant to sluggish growth rates since 2008.

Business credit has been expanding sluggishly since the 2008 crisis, at only 1.8 percent on annual average—slower than the growth of business output. Consequently, the ratio of business credit to business output fell from 142.1 percent in the middle of 2007 to 123.3 percent at the end of 2011 (Figure 4.9).

Against the background of the moderate pace of business credit expansion in 2011, bank lending in particular, the question is whether this reflects a slowdown in corporate demand for credit or supply side problems. Evidently, the relatively strong increase in business output in 2011 and the swift growth of investment indicate that firms had enough sources to expand their activity, apparently from internal surpluses.

[9] Bank and nonbank credit to the nonfinancial business sector and to households.

[10] The data are measured against January 2011 instead of the end of 2010 because a new directive from the Banking Supervision Department concerning impaired debt effective the beginning of 2011 caused outstanding credit to decrease significantly from January on.

Table 4.2
Distribution of Credit to the Private Sector by Type of Borrower, 2007–11

(end of period)

	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	2011[b] (December compared with January)
	Balances[a], NIS billion, at current prices					Rate of change from previous period (%)					
Debt of the private nonfinancial sector (1+2)	981	1,032	1,049	1,104	1,142	11.1	5.3	1.6	5.3	3.5	4.1
of which: Bank credit[b]	592	645	647	700	722	7.0	8.9	0.3	8.2	3.2	5.6
1. Business sector debt	713	743	737	764	779	12.4	4.2	-0.9	3.8	1.8	2.4
Bank credit[c]	380	410	387	409	403	5.6	7.8	-5.5	5.5	-1.5	1.9
Corporate bonds and nonbank credit	209	205	219	228	240	43.4	-1.9	6.8	4.1	5.3	4.9
Credit from abroad	124	128	131	129	136	-2.0	3.5	2.2	-1.8	5.9	-0.7
2. Households' debt	268	289	312	339	364	7.9	8.1	7.9	8.7	7.2	8.0
Bank credit	212	235	259	291	319	9.6	10.9	10.4	12.3	9.7	10.5
of which: Mortgages	184	199	214	238	258	5.9	8.1	7.4	11.4	8.5	8.3
Credit not for housing	84	91	98	101	106	12.4	8.2	8.7	3.0	4.1	7.3

[a] Bank credit data before allowance for credit losses; tradable bonds data at par value plus accrued interest.

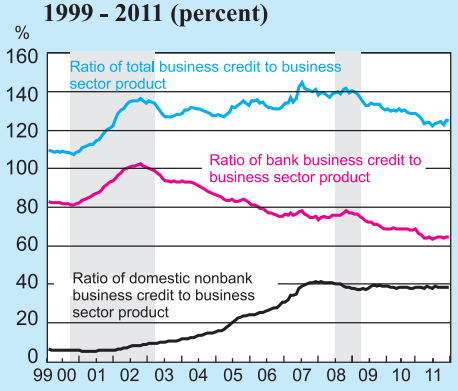
[b] A new directive went into effect in January 2011, regarding the calculation of impaired debts, which reduced the outstanding debt from January. Hence the change in credit from January is also shown.

[c] Excluding bonds issued by the business sector and purchased by the banks. This balance appears under the item corporate bonds and non-bank credit,

SOURCE: Bank of Israel.

In the second half of the year and especially in the fourth quarter, firms found it more difficult to obtain funding from either the banks or the nonbank system due to the increase in risks.

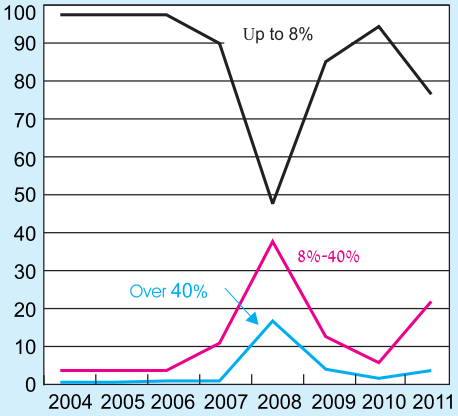
Figure 4.9
Ratio of Credit to the Business Sector to Business Sector Product, December 1999 - 2011 (percent)



SOURCE: Bank of Israel.

The real estate industry is verging its borrowing limit with the banks and saw an especially steep widening of spreads in the nonbank market.

Figure 4.10
Outstanding Balance of CPI-Indexed Corporate Bonds[a], by Yields, 2004-11
(percent of nominal value, excluding convertibles and structured bonds)



[a] Tradable bonds excluding convertible bonds, structures, CDS, and bonds issued by foreign firms.

SOURCE: Bank of Israel.

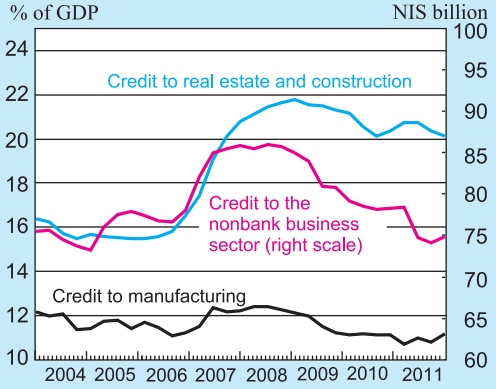
However, there is evidence that the upturn in uncertainty and risks in the second half of the year, particularly in the fourth quarter, reduced firms' ability to obtain funding from both the banks and the nonbank market. Thus, the nonbank market posted a steep widening of spreads, slowing of issues, an upturn in debts that were placed in debt restructuring deals, and a rising share of bonds trading at extraordinary yields (Figure 4.10). In the Central Bureau of Statistics' survey of trends, firms also reported greater difficulties in obtaining funding from the nonbank market.

The escalation of risks during 2011, expectations of a decrease in business earnings, and the intention of requiring banks to enlarge their capital assignments made the banks more selective in corporate finance and were reflected in a mild widening of banks' credit spreads[11] and demands for stronger collateral.

The real estate industry stood out in particular, verging on its borrowing limit with the banks and seeing an especially steep widening of spreads in the nonbank market. Credit to this industry was 20 percent of GDP (Figure 4.11) and very high leverage ratios were typical (Figure 4.12). This industry was a focal point of risk to the domestic banking system in the 2008 global financial crisis due to large-scale issuing in the nonbank market in the pre-crisis years, used in part to pay for investments in foreign countries where real estate prices were rising steeply. Due to its high leverage ratios, it may sustain particularly severe damage when activity slows and when the availability of credit, generally and to real estate firms particularly, tightens. Indeed, real estate firms were the first to advise the Bank of Israel (in its Companies Survey in 2011) of an increase in funding difficulties as early as the third quarter of the year.

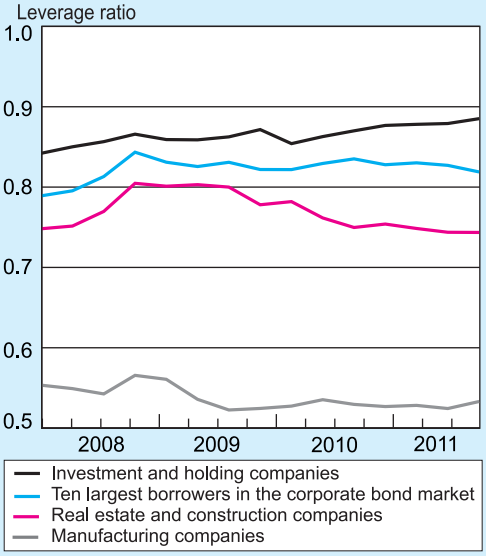
[11] The spread between lending interest and deposit interest.

Figure 4.11
Outstanding Domestic Credit[a] to the Business Sector, 2004-11
(end of quarter)



[a] Bank and nonbank credit, excluding credit from abroad.
SOURCE: Bank of Israel.

Figure 4.12
Weighted Leverage of Public Companies in Israel, by Industry, 2008-11
(quarterly)



[a] Leverage: total liabilities divided by total assets.
SOURCE: Bank of Israel.

Companies belonging to large business groups also came out badly in the risk assessment in 2011. Like real estate firms, these entities had exploited the boom years in the nonbank credit market (2005–07) to offer large bond issues, causing their leverage ratios to rise steeply. By April of 2011, they usually enjoyed narrow spreads, both in absolute terms and relative to corresponding similarly rated firms, and the spreads were 4 percentage points in December 2008. In the course of 2011, however, the risk premium that investors sought for investing in business group firms increased, causing these firms to trade at wider spreads than corresponding similarly rated concerns (Figure 4.13).

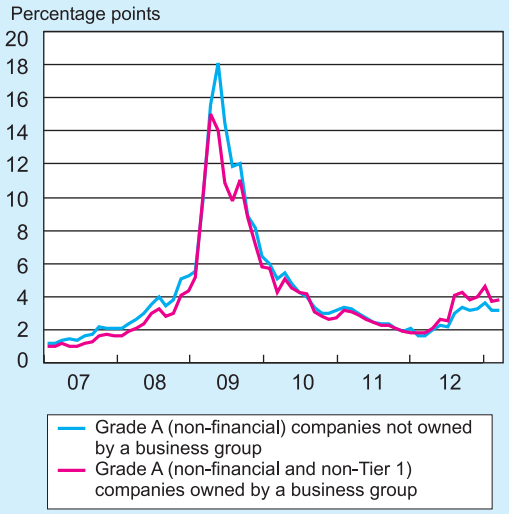
The business groups also came out badly in the risk assessment in 2011.

The banks' share in credit to the business sector has been trending down for more than a decade, coinciding with the development of the nonbank credit market. The latter accounted for 31 percent of total business credit at the end of 2011 as against only 5 percent at the beginning of the previous decade. The development of the nonbank credit market enhanced competition in credit and dispersed the economy's credit risks more widely by dividing them between the banks and institutional investors (the main providers of nonbank credit).

However, the nonbank credit market embarked on its rapid development before the institutional investors had adequate tools to assess and monitor the attendant credit risks. This abetted an increase in leveraging and riskiness of groups and industries that could not have raised their leverage ratios so vigorously were it not for the nonbank market. Therefore, the development the nonbank credit market did not mitigate the economy's credit risk as had been hoped. The real estate industry, for example, to which the

The rapid development of the nonbank credit market abetted an increase in the leveraging and riskiness of groups and industries that could not have raised their leverage ratios so vigorously were it not for this market.

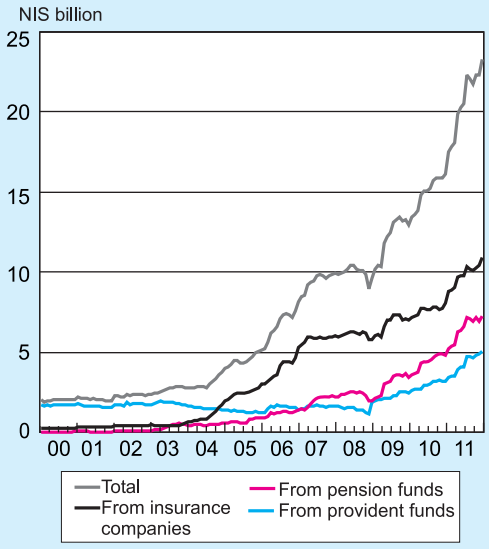
Figure 4.13
Yield Gap between Grade A Corporate Bonds and Government Bonds, 2007-11
(monthly averages)



SOURCE: Bank of Israel.

Due to the concentration of credit in Israel's economy and the fact that the largest borrowers from banks are also large borrowers in the nonbank market, the increase in these borrowers' leveraging in the nonbank market indirectly exacerbated the banks' exposure to risks.

Figure 4.14
Loans from Institutions to the Business Sector, December 2009 to December 2011
(end-of-month data)



SOURCE: Bank of Israel.

banking system was verging on its maximum permissible exposure, exploited the nonbank market for massive raising of sources and used some of the proceeds to finance real estate investments abroad. The business groups, too, which are constrained in their ability to borrow from the banking system due to the single-borrower and borrower-group constraints, turned to the nonbank market and increased their leveraging steeply. Due to the concentration of credit in Israel's economy and the fact that the banks' large borrowers are also large borrowers in the nonbank market, the upturn in these borrowers' leveraging in the nonbank market indirectly exacerbated the banks' exposure to risks—even though banks are usually in better condition than nonbank lenders, if only because most of their loans are collateralized.

To avert the continued deterioration of the credit portfolio and the risk of contagion from nonbank credit to the banking system, it is necessary to continue improving the monitoring of credit risk in the nonbank market. Measures in this direction were taken when the Director of the Finance Ministry's Capital Market, Insurance, and Savings Division adopted the Hodek Committee recommendations and applied them—gradually, starting in October 2010—to institutional players' long-term investments in the corporate bond market. The Securities Authority also issued mutual fund managers with directives including standards for the selection and ongoing management of investments; these directives are expected to go into effect

in April 2012. Concurrently, it is necessary to continue strengthening the nonbank entities' corporate governance and the control and supervision procedures that apply to them. In addition, restrictions of the kind that are imposed on banks concerning total permissible exposure to large borrower groups should be applied to all nonbank lenders that manage other people's money, and entities that control real corporations should be separated from those that manage financial entities (see Box 4.2).

To prevent contagion from nonbank credit to the banking system, it is necessary to continue improving the quality of debt issued in the nonbank market.

One of the avenues of credit that has gained momentum in recent years is direct long-term lending to businesses by institutional investors. At the end of 2011, such lending accounted for 9 percent of total nonbank business credit, at NIS 23 billion (Figure 4.14). The Hodek Committee directives do not apply to this kind of credit; they apply only to lending via the purchase of bonds. Given the rapid expansion of this credit vehicle and its low level of transparency, it is worth considering the imposition of restrictions similar to those applying to credit via bond purchases and enhancing the transparency and supervision of loans issued in this manner.

Box 4.2

Data on the riskiness of real and financial holdings in business groups in Israel

The final recommendations of the Committee on Increasing Competitiveness in the Economy, published in February 2012, included proposals for significant changes concerning real and financial holdings. The main recommendation was prohibiting any significant real corporation, or anyone who controls one, from having an interest in a significant financial entity beyond a specified share.[1] The committee's recommendations triggered a lively debate on the topic of business groups that include both real and financial corporations. In this box, we will try to examine this issue and analyze its effect on the allocation of capital in the Israeli economy and the risks that the economy faces. Among other things, we present descriptive statistics that suggest the existence of differences in risk levels between nonfinancial firms that belong to a group that also includes financial holdings and nonfinancial firms that do not belong to such a group.

A business group is defined as an aggregate of legally autonomous companies that are partly or wholly owned by an individual (or a group of individuals) that has the right to use the constituent firms' assets (Samphantharak, 2006). Business groups are a common form of ownership of Israeli companies and tend to focus on the financial sector (Bank of Israel Annual Report for 2009). Most financial institutions in Israel are controlled by large domestic business groups (OECD, 2011). In this box, we define a business group as a single economic entity that controls more than one public corporation.[2]

[1] Ten percent of a significant financial entity and five percent of a significant financial entity that has no controlling core.

[2] Importantly, this definition does not include private companies, for which the data available to us are less copious.

Various studies have found that business groups have both advantages and disadvantages. (For a review of the literature, see Khanna and Yafeh, 2007.) When business groups include financial firms, these advantages and disadvantages may be manifested more powerfully. Hoshi, Kashyap, and Scharfstein (1991) showed, for the Japanese economy, that companies belonging to business groups that cluster around a bank tend to be less financially constrained than independent firms. Perotti and Gelfer (2001) showed, for the Russian economy, that companies in financial-industrial groups that do not include a bank behave much as independent companies do, whereas those in a group that includes a bank tend to be less financially constrained.[3] Conversely, business groups that include financial companies may subject the economy to systemic risk if they fail (OECD, 2011).

Segmenting Israel's business groups by the industrial classification of their constituent firms,[4] we found that nine of the fifty-two identified groups in the third quarter of 2011 comprised both nonfinancial and financial companies.[5] Fifty-four public companies belong to these groups; they had a total market capitalization of NIS 102 billion—18 percent of the total "market cap" of public companies in Israel (22 percent of the total excluding Teva). Furthermore, four of the ten business groups that had the largest market capitalizations (at the end of the third quarter of 2011) included both nonfinancial and financial firms.

To better understand the effect of real and financial holdings within a business group on the constituents of the group, let us compare three kinds of nonfinancial companies: those that do not belong to a business group, those belonging to a business group that has no financial companies, and those belonging to a business group that includes financial companies as well.[6] The figure below shows the differences among the three types of companies with respect to three indicators of company risk: the ratio of assets to liabilities, the ratio of current assets to current liabilities, and the ratio of cash flow from operating activities to financing expenses.

The figure shows that nonfinancial firms in business groups that include financial holdings tend to be more heavily leveraged (fewer assets relative to liabilities) and less liquid (fewer

[3] Due to the small number of observations, the inquiry that follows does not distinguish between groups including a bank and those including another financial company.

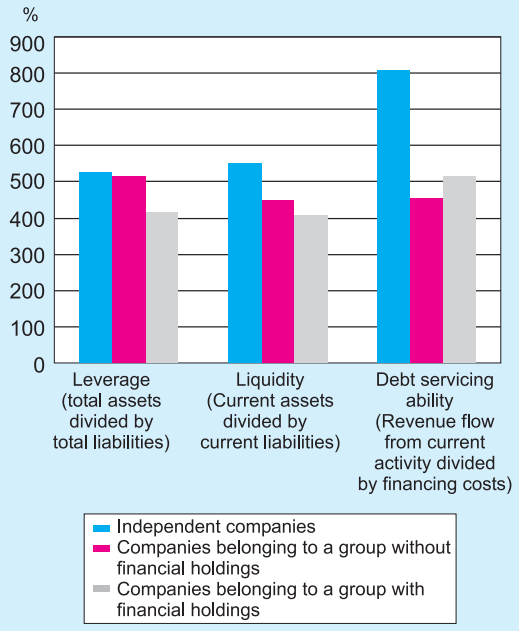
[4] Here and below, we distinguish between financial and nonfinancial firms using the Standard Classification of Economic Industries 1993 (Central Bureau of Statistics, 2008), which sorts the Israeli economy into sixty-five subindustries. The companies were sorted into industrial classes manually on the basis of the description of their activity at the Tel Aviv Stock Exchange web site (www.tase.co.il). A financial firm is defined as belonging to either the "Banking and Other Financial Institutions" sub-industry or to the "Insurance and Provident Funds" sub-industry.

[5] In this inquiry, a company was classified as belonging to a business group on the basis of the data used by Kosenko (2008), with updates. Three banks—Israel Discount, Mizrahi Tefahot, and Union Bank—that have a controlling core associated with more than one business group did not fit the definition of belonging to a business group by this method of classification. A more lenient classification method, particularly one based on the regulatory definition of control and/or size of stake only, would increase the number of business groups with financial holdings in the sample. Consequently, the number shown here underestimates the dominance of business groups that have real and financial holdings.

[6] Before the empirical examination, we trimmed the sample using the three variables of the inquiry. Six outlier observations were dropped.

current assets relative to current liabilities) than nonfinancial firms in groups that do not include financial holdings and than independent nonfinancial firms. The graph also raises the suspicion that nonfinancial firms that belong to business groups—whether or not these groups include financial firms—are less able than independent firms to serve their financing expenses. To examine in greater depth the differences between nonfinancial firms that belong to groups that have financial and real holdings and other nonfinancial firms, and to disprove concerns that the differences shown in the figure originate in differences in firms' characteristics that are correlated with inclusion in a business group that has financial holdings, we conducted a propensity-score examination. The results of this inquiry, which allowed us to compare similar firms on the basis of firm size and industry, support the above mentioned conclusions but are not statistically significant.[7]

Risk Indices of Nonfinancial Companies, by Ownership, 2011



SOURCE: Bank of Israel.

The differences in the figure between firms in business groups that include financial holdings and other firms suggest that firms of the former type outperform their competitors in raising credit.[8] These firms also seem to enjoy lower financing costs: the ratio of their financing expenses to their total liabilities is lower, on average, than that among the other nonfinancial firms,[9] despite their greater leverage.

These firms' excess leveraging may be the outcome of their controlling shareholders' reputation, based on examinations and requirements that the shareholders passed in order to obtain a permit from the relevant regulator to control supervised financial entities—

[7] An examination based on data from financial statements preceding the peak of the crisis elicited similar results. Before the crisis, too, nonfinancial firms that belonged to groups that included financial holdings tended to be more leveraged and less liquid than other nonfinancial firms and had lower ratios of cash to financing expenses than independent firms had. However, the propensity-score method yielded non-significant results for the pre-crisis period as well.

[8] In this context, it is important to note the regulatory restrictions that apply to financial institutions in their ability to lend to related parties and their exposure to borrower groups. (See, for example, Appendix 3.4 in Chapter 3 of the Interim Report of the Committee on Increasing Competitiveness in the Economy, 2011.)

[9] Here, too, the propensity-score examination yielded qualitatively similar but statistically insignificant results.

something that is perceived as mitigating the risk attributed to the controlling shareholder in regard to his other holdings as well.

An alternative explanation is that nonfinancial firms that belong to business groups which include financial firms attain higher leverage ratios and lower financing costs due to their relations with the financial firms. As there is no evidence that firms belonging to groups that have financial holdings enjoy better investment opportunities than other companies,[10] one may be concerned that their higher leverage is the result not of their performance but of their being a part of a group which includes financial firms under the same ownership. This state of affairs, in which financial firms that hold and allocate the public's money are tainted with conflicts of interest due to their relations with nonfinancial firms, may result in inefficient allocation of economic resources.[11] This is because certain firms' advantage over others in leveraging may impair the latter firms' ability to compete with them; in the long term, this may increase concentration and reduce incentives to entrepreneurship (Almeida and Wolfenzon, 2006).

The size and complexity of the business groups, their presence in more than one industry, and, in some cases, their problematic incentive structure make them sources of systemic risk. The risk escalates when the firms that belong to the business groups are highly leveraged. The problem may worsen further if credit providers and credit consumers are under common ownership, because in this case the resilience of the financial institution may be linked to that of the nonfinancial firms in the business group.

The data on the size of the business groups in general, and the groups that include financial holdings in particular, along with the data presented about the heightened unpriced riskiness of firms belonging to groups that include financial holdings, may provide support for the separation of real and financial holdings, as the Committee on Increasing Competitiveness in the Economy recommended.

Main sources:

Committee on Increasing Competitiveness in the Economy (2012), "Final Recommendations," http://mof.gov.il

Committee on Increasing Competitiveness in the Economy (2011), "Draft of Recommendations," http://mof.gov.il/lists/CompetitivenessCommittee/Attachments/36/2011-1111.pdf

Kosenko, K. (2008), "Evolution of Business Groups in Israel: Their Impact at the Level of the Firm and the Economy," Bank of Israel Research Department, http://www.bankisrael.gov.il/deptdata/mehkar/iser/10/iser_3.pdf

Almeida, H., and D. Wolfenzon (2006), "Should Business Groups Be Dismantled? The Equilibrium Costs of Efficient Internal Markets," Journal of Financial Economics 79, 99–144.

OECD (2011). "OECD Economic Surveys: Israel."

[10] For example, the average ratio of market capitalization to assets—a proxy for a Tobin's Q, widely accepted as an indicator of the market assessment of a company's investment opportunities—is lower among nonfinancial firms that belong to a group that has financial holdings than among other nonfinancial firms.

[11] Almeida and Wolfenzon (2006) provide theoretical support for this concern even when business groups allocate their funds efficiently from the groups' point of view.

(ii) The corporate bond market

(a) Primary market

Corporate issues approximated their 2010 level in 2011 but fell off steeply in the second half of the year.

In 2011, the nonfinancial business sector raised NIS 25 billion by means of bond issues (negotiable and non-negotiable) as against NIS 23 billion in 2010 (Table 4.3). Net issues (issues less redemptions) were NIS 7.7 billion as against only NIS 3.6 billion in 2010. The pace of issuing slowed considerably in the second half of 2011 and was especially lethargic in the last quarter, when only NIS 2 billion was issued as against NIS 5.5 billion in the year-earlier quarter.

In 2011, there was a clear preference for issues of the highest rated firms.

Analysis of the composition of negotiable issues, including the financial sector, shows that there was a clear preference in 2011 for issues of the highest rated firms (AA- or better), reflecting the increase in risk aversion. Thus, the proportion of these issues increased considerably, to 62 percent of total issues as against 44 percent in 2010, and the share of non-rated issues fell to 7 percent. The picture came into sharper focus in the second half of the year, when the proportion of issues rated AA- or better climbed to 72 percent.

The share of real estate firms in total issues of the business sector (including the financial sector) was 20 percent in 2011, much as in 2010, and the share of issues by non-rated firms in this industry was 14 percent.

2011 was the first year in which institutional investors operated in the bond market under Ministry of Finance guidelines based on the Hodek Committee recommendations.

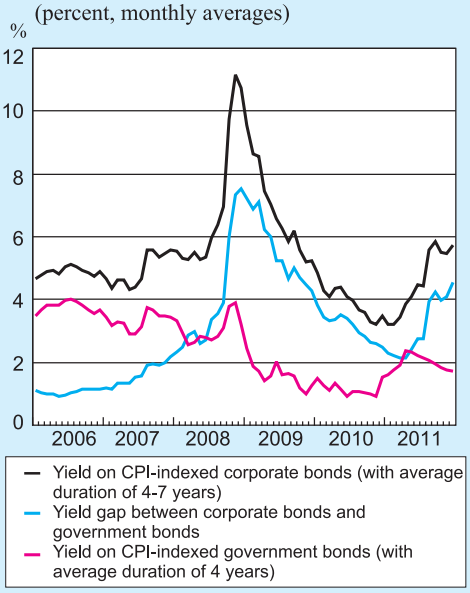
This was the first year in which institutional investors operated in the bond market under Ministry of Finance guidelines, based on the Hodek Committee recommendations that went into effect gradually starting in October 2010. Analysis of the bond issues shows that 41 percent of the total proceeds of nonfinancial firms' issues included covenants and encumbrances of various kinds, compared with 33 percent in 2010.[12] The covenants included, inter alia, the specification of terms for demanding early redemption of bonds, limits on transfer of control or distribution of dividends, increasing of interest in the event of a downgrade, etc. Despite the improvement from 2010, most issues were made with no covenants or encumbrances of any kind due to extensive use of the expansion of existing series that had been issued before the Hodek guidelines went into effect. The ability to do this in the future will decrease in tandem with bond durations.

(b) Development of yields and spreads during the year

The downward trend of corporate yields turned around in 2011. Yields increased gradually and approximated the October 2008 level by year's end (Figure 4.15). Until April, yields rose in tandem with the upturn in the risk-free yields of government bonds; later on, however, yields continued to climb despite the decline in risk-free yields, reflecting the broadening of risk assessments in the corporate bond market.

[12] These are the results of an examination of issues exceeding NIS 100 million, excluding issues by banks and insurance companies.

Figure 4.15
Yields on Corporate Bonds and CPI-Indexed Government Bonds and the Gap Between Them,[a] 2006-11
(percent, monthly averages)



[a] Negotiable bonds excluding: convertible bonds, structured bonds, and certificates of deposit (Cds) issued by foreign companies.
SOURCE: Bank of Israel.

Corporate spreads widened from April onward at all rating levels and in all industries, especially real estate and investment and holding, to which the business groups belong.

The increase in yields in 2011 came on the heels of declines in 2009–10 that brought yields to a historical low at the end of the latter year, in view of issuing costs that the business sector had never experienced before.

Corporate spreads widened from April onward at all rating levels and in all industries, especially real estate and investment and holding, to which the business groups belong. Unrated firms' spreads also widened conspicuously.

Although spreads at the end of the review year had widened steeply, they did not resemble those at the end of 2008. The explanation for this is evidently related not only to the different intensities of the crises in the respective years, but also to different behavior on the part of institutional investors and households. Pressure from households to withdraw money from provident and mutual funds was stronger in 2008[13], forcing these institutions to sell large quantities of corporate bonds in a market that exhibited low tradability to begin with. Thus, the upward march of yields, additionally abetted by the increase in the market liquidity premium, gathered speed.

Pressure from households to withdraw money from provident and mutual funds was not as strong in 2011 as it was in 2008; thus, these institutional investors brought less pressure to bear on the bond market.

Withdrawals from provident and mutual funds declined in 2011. This may be indicative of more judicious behavior by the saving public, which observed that those who had hurriedly withdrawn their savings as the 2008 downside bottomed out were those hardest hit by the price declines in the market. Furthermore, since the crisis, the provident funds reduced the share of corporate bonds in their portfolios (from 37 percent on average to 27 percent), leaving them with fewer corporate bonds to sell in the event of withdrawals. Finally, unlike in 2008, the corporate bond mutual funds acted—despite the large withdrawals—to increase the share and value of the corporate bonds in their possession. To accomplish this, they sold off other assets, foremost government bonds, and even raised the proportion of corporate bonds in funds that specialized in other instruments and had positive accrual. Thus, the share of corporate bonds climbed from 53 percent at the end of 2010 to 68 percent a year later in funds specializing in these bonds, and from 3 percent to 16 percent in money market funds,

[13] Net realizations (deposits less sales) in 2011 were NIS 6.5 billion from provident funds and NIS 16 billion from corporate bond mutual funds as against NIS 8.8 billion and NIS 23 billion, respectively, in 2008.

Table 4.3
Gross Security Issues by the Nonbanking Private Sector, by Type of Security,[a] 2007–11

	NIS billion, at current prices					2011	
	2007	2008	2009	2010	2011	First half	Second half
Total capital raised	**119.7**	**33.3**	**57.8**	**58.5**	**49.3**	**27.3**	**22.0**
of which: Via tradable securities	81.2	28.0	46.6	54.9	43.9	23.5	20.4
Capital raised for working capital (a+b)	98.2	27.0	49.4	53.4	43.9	26.1	17.8
a. Nonfinancial private sector	87.7	15.4	31.6	35.2	30.5	21.7	8.8
Shares and convertibles	15.0	5.8	6.1	12.2	5.0	3.4	1.6
Tradable bonds	37.2	5.9	19.3	19.8	20.1	14.5	5.7
Nontradable bonds[b]	35.5	3.6	6.2	3.2	5.3	3.9	1.5
b. Capital raised by banks and insurance companies	10.6	11.6	17.8	18.2	13.4	4.4	9.0
Shares and convertibles	0.0	0.8	0.6	0.2	0.0	0.0	0.0
Tradable bonds	7.6	9.9	12.8	17.7	13.4	4.4	9.0
Nontradable bonds[b]	3.0	0.9	4.4	0.3	0.0	0.0	0.0
Financial instruments	21.4	6.4	8.4	5.2	5.4	1.2	4.2
Equity ETFs[b]	5.0	-1.4	7.9	5.1	2.1	3.2	-1.1
Bond ETFs[b]	6.3	8.1	2.2	0.5	-1.1	-2.8	1.7
Structured bonds	5.3	0.8	0.2	0.8	0.0	0.0	0.0
CDs[b]	4.9	-1.2	-2.0	-1.2	4.4	0.8	3.5

[a] Not including issues to subsidiaries, issues by foreign companies, and issues abroad by dual-listed companies.

[b] Net issues *(issues minus redemptions)*, not including issues to subsidiaries.

SOURCE: Based on Tel Aviv Stock Exchange data.

and the pressure on the corporate bond market eased.

(c) The bond inventory

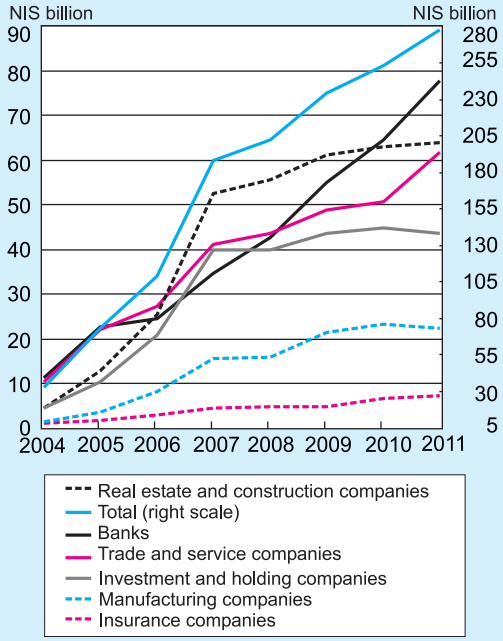
Outstanding bonds were worth NIS 280 billion at the end of 2011. They were issued mainly by banks (28 percent), real estate firms (23 percent), and trade and services companies (22 percent). Real estate bonds accounted for almost 30 percent of the market in the middle of 2008, uncharacteristic by the standards of bond markets abroad, where the banking system is the main source of funding for this industry

(d) Expected bond redemptions

Expected bond redemptions are NIS 40 billion in 2012 and even more in 2013–15.

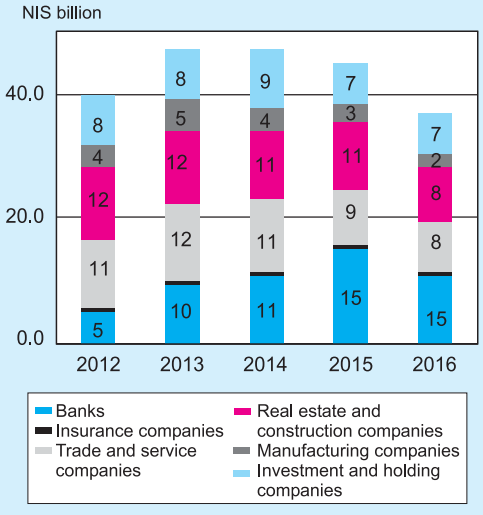
Expected bond redemptions (principal only) in 2012 are NIS 27 billion and NIS 40 billion including interest payments (Figure 4.17). Even larger redemptions are expected in 2013–15, at NIS 46 billion on average per year. Redemptions of bonds trading at real yields of over 12 percent are projected to be NIS 5.3 billion in 2012, and the outstanding balance attributed to those bonds is NIS 27.9 billion. Eighty-five percent of the balance of these bonds belongs to real estate firms and companies associated with business groups. Of this balance, NIS 5.4 billion is already in debt restructuring proceedings.

Figure 4.16
Outstanding Balance of Corporate Bonds,[a] by Industry, 2004-11
(end-year, nominal value)



[a] Bonds traded on Tel Aviv Stock Exchange, including those traded in Continuous Institutional Trading, excluding convertible and structured bonds and bonds issued by foreign companies.
SOURCE: Bank of Israel.

Figure 4.17
Expected Repayment of Corporate Bonds, 2012-16



SOURCE: Bank of Israel.

Box 4.3
Debt restructuring proceedings: a growing trend and what should be done to reduce it

Pursuant to the global financial crisis that began in late 2007 and peaked in September 2008, Israel's corporate bond market encountered a grave crisis reflected in steep increases in yields to maturity and high volatility of prices. The steep increases in yields were occasioned by fear of the effect of the global crisis on firms' business activity, particularly that of real estate firms that operate abroad, which were severely hit by the sharp decreases in the value of their properties. Many firms that had issued bonds in the boom years and now had to redeem them encountered difficulties in rolling over their debts and some had to enter into debt restructuring proceedings with their bondholders. The restructuring deals—those already concluded and those in the pipeline—vary from firm to firm and accommodate a wide range of provisions, such as rescheduling and deferral of payment in return for compensation, swapping of debt for company equity, injection of owners' capital, and, in some cases, unilateral partial write-down by lenders (a "haircut").

Since the crisis began, about ninety firms have entered debt restructuring proceedings with their bondholders. Their share among all firms that issued tradable bonds fell from 8.4 percent in 2009 to 4.5 percent in 2011. In terms of par value, the share of debt in restructuring proceedings declined from 6.4 percent of total debt outstanding in the bond market in 2009 to 2.1 percent in 2011. These rates are high by international standards;[1] however, it is important to note that they are biased upward. This is because the data abroad pertain to rated firms only, whereas in Israel they include unrated ("high yield") companies as well, and most companies that entered debt restructuring proceedings were unrated. By industry, 60 percent of firms that entered debt restructuring proceedings are in real estate. One of the most conspicuous developments, which placed the matter on the public agenda, is the involvement of leading Israeli firms that belong to business groups in debt restructuring. Although the number of such firms is small, their share in the total amount of debt in restructuring proceedings is around 40 percent.

The steep increase of bond yields in the last quarter of 2011, against the background of Europe's worsening debt crisis, aggravated fear that if the market trends continued, many firms would have difficulty in rolling over their debt and some may face difficulties in repaying their debt due to lack of other sources. The extent of the bonds that are expected to mature in 2012 amounts to NIS 29 billion, 18 percent of which traded at the end of 2011 at high real yields (over 12 percent) which will make it difficult to roll over the debt. Furthermore, many business groups have at least one firm with high-yield bonds maturing in the next few years.

Against the background of the steep increase in the number of firms entering debt restructuring proceedings and growing concern about more of the same in coming years, a public debate erupted about the need for regulatory intervention to protect pension savers, who are among the casualties of the debt restructuring deals. The main criticism was aimed at the controlling principals of business groups that entered into debt restructuring proceedings, for not having

[1] According to S&P data, the default rate of investment-grade bonds worldwide was 4 percent in 2009 and 1.1 percent in 2010.

done everything within their power to pay the debts in full. The criticism focused on the principals for several reasons. (a) Although they were few in number, the balance of outstanding bonds of their firms accounts for 60 percent of total tradable bonds in the market; therefore, their default might have implications on the stability of the financial system and investors' trust in the capital market. (b) The proliferation of debt restructuring among business groups might become a norm and a model for emulation for small and medium enterprises, thereby influencing payment ethics in the economy at large. (c) The controlling principals of the business groups, who raised debt on the basis of their reputation, withdrew large sums from the firms over the years by means of dividends and bonuses, reducing the firms' balances of earnings and cash. Therefore, the market expects them to avoid default by injecting money into the firms, even though the law does not require them to do so.

One of the main incentives for the controlling principal of a financially troubled company to meet the firm's entire commitment to its bondholders is concern about harm to his or her reputation, which might make it harder for him or her to issue debt in the future. The large number of cases of controlling principals in leading companies who entered into debt restructuring proceedings since the crisis broke out, and the success of some of them in issuing debt on the capital market afterwards, corroborates the hypothesis that this incentive is not adequately taken into account among the considerations of main players in the market. This may be due to the high level of market concentration, which strengthens the position of large borrowers and the potential for conflicts of interest that originate, among other things, in controlling principals' interlocking holdings in real and financial corporations.[2] With these developments in the background, there is growing support for the imposition of sanctions on controlling principals who fail to meet all their commitments, and several bills with this in mind have been tabled in the Knesset. Although punitive measures may indeed give controlling principals a stronger incentive to meet their undertakings, extreme caution should be used in implementing them due to implications they may have for the availability of nonbank credit to the business sector, firms' activity, and the stability of the financial system. For example, prohibiting controlling principals from issuing debt in the capital market until full payback of their obligations may impair the activity and stability of other companies that they control and, as a result, may erode the value of these firms' shares and harm the rights of minority shareholders who have nothing to do with the incompetent behavior of the troubled firm's controlling principal. The decrease in share value would also erode the banks' collateral because shares are often pledged as collateral for loans. It may also be harmful to the holders of bonds of other firms that the principal controls because payback of debt is often based on the firm's ability to roll it over via the capital market. The decrease in value of these companies' shares and bonds might infect additional companies, causing one specific firm's problem to turn into a systemic problem that would amplify shocks in the financial markets at times of crisis—especially if the firm in default belongs to one of the large business groups. Finally, enhancing controlling principals' incentive to meet their obligations by means of punitive measures would be only a partial solution to a broader problem in the capital market, as we explain below.

[2] The separation of control of real corporations from that of financial firms is one of the recommendations of the Committee on Increasing Competitiveness in the Economy.

Weakening market discipline and high leveraging

The existence of debt restructuring deals and the increase in their incidence at times of crisis do not necessarily indicate a market failure. First, wherever risk exists, it may sometimes be realized. Furthermore, when the company at issue is usually profitable, entering a debt restructuring proceeding is usually preferable to receivership. Just the same, the growing use of debt restructurings and the involvement of leading companies in them underscores the existence of material problems in the capital markets that worsen at times of crisis, foremost the slackening of market discipline, high leveraging levels,[3] and high market concentration.[4] Lack of market discipline is reflected, among other things, in (a) the underpricing of risks, allowing the leverage ratio to develop in an uncontrolled manner; (b) the quality of bonds, usually issued with neither collateral nor covenants; and (c) faulty monitoring of firms' solvency that allows some to behave irresponsibly, taking excess risks and eroding their balance of earnings and cash. The combination of high and, in some cases, unsustainable leverage ratios and the erosion of safety cushions exacerbates firms' vulnerability and thereby amplify the effect of shocks to the economy on their solvency. High leverage ratios also give shareholders a stronger incentive to take risks because much of the risk is borne by the firm's creditors—an incentive that escalates when a company runs into difficulties.

The main factors behind slack market discipline are (a) weaknesses in the structure of institutional players' incentives, due to which the institutions do not properly internalize the risks to which savers are exposed; (b) weaknesses in the protective mechanisms, particularly poor performance by some trustees in monitoring issuers' ability to honor their commitments, and lack of legal tools allowing investors to demand immediate repayment of outstanding debt in the event of a material decline in the issuer's solvency; and (c) potential conflicts of interest in relations between central players in the bond market.

Accordingly, the most efficient way to reduce the incidence of debt restructuring in the long run is to strengthen the protection mechanisms, improve the existing structure of incentives, and reduce the potential of conflicts of interest. Along with these measures, which will strengthen investors' position and enforce market discipline, measures are needed to reduce the concentration in the credit market and to lower the high leverage rates, particularly among large borrowers, in order to moderate the market's exposure to economic and financial shocks. Some of the requisite corrective measures are being dealt with and applied by regulators.

Strengthening protective mechanisms and improving the structure of incentives

Protective mechanisms become even more important when a firm runs into financial distress because at this point much of the firm's risk is borne by its creditors. One of the mainstays of the mechanisms that protect bondholders' rights is the trustee, whose job it is to make sure on an ongoing basis that the issuer is meeting its obligations.

[3] For example, the largest ten borrowers have an average leverage ratio of 0.87 and some firms have leverage ratios exceeding 0.9.

[4] For example, the outstanding bonds of the largest ten business groups account for 58 percent of the total in the market.

Strengthening the position of investors and trustees—the trustee's role is even more important when bonds are dispersed among many investors. Since each of the investors usually holds a relatively small portion of each series, none has an incentive to invest the resources needed to monitor the issuer's solvency. Consequently, the failure of some trustees to protect investors' rights is often a market failure. Accordingly, the Israel Securities Authority has initiated legislation that will spell out the trustee's obligations explicitly and strengthen his or her position. Central among the provisions of the bill that strengthen the trustee's position is the determination of circumstances that, when present, will constitute grounds for immediate repayment of the outstanding debt, thereby allowing bondholders to take action vis-à-vis the issuer before it is too late. The bill also treats, to some extent, the potential for conflicts of interest that the trustee faces due to having been appointed and paid by the issuing company. Under the proposed legislation, the trustee's continued service will be subjected to voting by a general assembly that is called annually. The bill also empowers the Minister of Finance to institute regulations concerning compulsory reporting by trustees to the Authority and the bondholders so that they can oversee the trustees' activity and, where necessary, replace them. To make trustees more effective, they should be legally empowered to force firms to enter into debt restructuring proceedings in the early stages wherever there is a strong likelihood of default. The implementation of these measures would strengthen the investors' position significantly, since in many cases proper monitoring of the issuer's solvency by the trustee may in many cases prevent the firms' financial deterioration and, in other cases, allow debt restructuring proceedings to begin earlier, resulting in more equitable terms for bondholders.

Institutional investors—institutional investors are essential in the enforcement of market discipline, both as the main investors in the bond market and as the main financial intermediators for long-term saving. The financial crisis emphasized the existence of material weaknesses in the institutional entities' investment process, manifested in the quality of the bonds that they purchased for the saving public and in the underpricing of risks. These weaknesses contributed much to the slackening of market discipline, which induced, among other things, an uncontrolled increase in leverage levels and excessive concentration in the bond market. The implementation of the Hodek Committee recommendations did improve the quality of the bonds that the institutions were buying, but investment vehicles that circumvent the constraints established by the committee are developing. For example, private loans from institutional investors to businesses more than doubled in 2011;[5] unlike investments in bonds, these loans are not subject to restrictions and their level of transparency is poor.

Improving the structure of incentives—this development is one of many examples showing that the underlying premise of the existing structure of incentives, i.e., that enhancing competition by allowing easier mobility between savings plans will operate to enforce market discipline, was not effective enough. The reasons for this include difficulty in making appropriate comparisons between the different savings vehicles due to the proliferation of programs and the lack of uniform standards for the presentation of their performance. This allowed entities to market their products on the basis of selective presentation of data, improving their position

[5] From NIS 3 billion 2010 to NIS 7.4 billion in 2011.

relative to their competitors. The Director of the Finance Ministry's Capital Market, Insurance, and Savings Division took several measures to deal with the problem—establishing standard rules for the advertising of returns, reducing the number of savings plans, etc. In addition to increasing transparency by reducing and simplifying the savings vehicles, mechanisms should be created that will give the institution's managers a stronger incentive to protect savers' money, such as linking executive remuneration to the funds' long-term performance and equipping savers with additional tools for the initiation of legal proceedings in cases of negligent conduct. To ensure that the institutions internalize the risks to which the savers are exposed, however, it is not enough to improving the structure of incentives. To attain this goal, it is also necessary to enhance the supervision of the capital market in order to attenuate the institutions' exposure to risks.

Strengthening corporate governance—after learning the lessons of the crisis, many countries including Israel launched regulation processes to improve corporate governance among the entities that manage long-term savings.[6] The aforementioned failures in the institutions' conduct show that there is room for further reinforcement of corporate governance among the entities that manage the public's savings. The requisite measures include the continued enhancement of transparency of investment principles and processes, the strengthening of control functions, and the creation of mechanisms that will mitigate potential conflicts of interest.

A better incentive structure and stronger corporate governance, accompanied by enhanced supervision, will motivate the institutions to internalize with greater effect the inherent risks in the investments that they make for the saving public; by so doing, they will enhance market discipline.

Reducing concentration and lowering leverage levels

One of the main causes of the growing incidence of debt restructuring, as stated, is the incidence of high leverage ratios, particularly among large borrowers, that exacerbate firms' exposure to shocks. Since the increase in leveraging in recent years took place mainly via issues in the capital market, and since the most important players in the market are the institutional investors, the most efficient way to reduce concentration and lower leverage levels is by tightening the regulations on institutional investors. One measure that may act in this direction is the significant toughening of limits on institutional players' exposure to single borrowers and borrower groups, as recommended by the Committee on Increasing Competitiveness in the Economy. In addition, it has been proposed to consider conditioning the level of the exposure limit on the borrower's leverage level. Measures in this direction would force institutional investors to be more selective in buying large borrowers' bonds; this in itself would give controlling principals a stronger incentive to honor their obligations. Obviously, to spare the market from shocks, this step should be applied gradually.

The firms that entered debt restructuring proceedings had a common pattern: a combination of high leverage levels and erosion of cash and earnings balances by the distribution of large

[6] See, for example, "Pension Fund and Governance," OECD Working Papers on Insurance and Private Pensions, no. 18.

dividends during the period before entering debt restructuring proceedings. The main reason for this was that despite the high level of leveraging, shareholders do not perceive the distribution of dividends at a time of economic buoyancy as something that might jeopardize the firm's solvency when crisis strikes. Establishing tougher terms for the distribution of dividends by firms that exceed a certain leverage level will give firms an incentive to reduce their leverage and prevent firms that have unsustainable leverage levels from eroding their safety cushion.

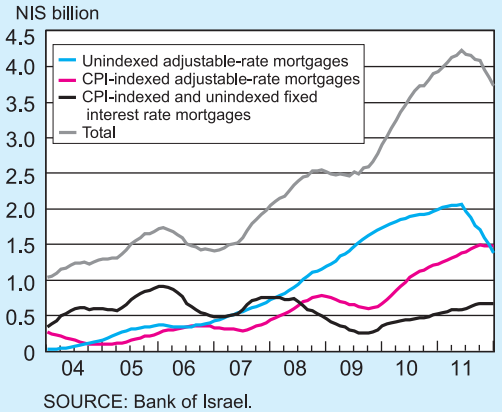
In conclusion, even though ostensibly the imposition of sanctions on principals who fail to meet their obligations would reduce the incidence of debt restructuring, such measures would not only have possible undesirable implications for the stability of the financial system but would also offer only a partial answer to the problem. This is because the growth of debt restructuring is only a symptom of more extensive problems in the capital markets that escalate in intensity at times of crisis, primarily high leverage levels, high market concentration, and weak market discipline. Therefore, its treatment should focus on these factors. Reducing concentration and lowering leverage ratios would mitigate the financial system's exposure to shocks and achieve a more balanced division of risks between shareholders and creditors, whereas enhancing market discipline would result in more appropriate pricing of risks and reinforce investors' position, giving firms a greater incentive to meet their obligations.

(iii) Credit to households

The pace of issue of new mortgage loans slowed in 2011.

Total outstanding household debt was NIS 364 billion at the end of 2011, an increase of 7.2 percent from the year-earlier level. Mortgage loans accounted for 71 percent of the total and their rate of increase slowed from 11.4 percent in 2010 to 8.5 percent in the review year. The moderation in the rate of increase was due to macroprudential measures by the Bank of Israel in 2010 and 2011, which led to a moderation in the rate of new mortgage loans taken. Thus, the monthly average of mortgage loans taken in the twelve months ending in December 2011 was NIS 3.7 billion, compared with NIS 4.2 billion in the twelve months ending in May (Figure 4.18).

Figure 4.18
Volume of New Mortgages Granted per Month in Previous 12 Months, 2004-11
(rolling average)



SOURCE: Bank of Israel.

In addition, the share of unindexed adjustable-rate mortgage (ARM) loans fell gradually from a peak of 79 percent of new mortgage loans in February 2009 to only 26 percent at the end of 2011. Since interest on unindexed ARM loans is closely related to changes in the Bank of Israel rate, it was feared that a future increase in interest would expose borrowers to high repayments that they could not meet. Accordingly, the Bank of Israel imposed a limit on the ARM share of total mortgage loans taken.

The proportion of non-indexed adjustable-rate mortgage loans declined.

Despite the relatively rapid increase in the growth rate of mortgage lending in recent years, the ratio of household debt to GDP climbed moderately—from 39 percent of GDP at the end of 2007 to 42.5 percent at the end of 2011—and is much lower than in many advanced economies. In addition, Israel's mortgage-lending market is much more conservative than counterparts abroad, particularly those that have experienced crises in their housing markets. For example the LTV ratios in Israel are far below the norm in other markets (60 percent on average) and the country hardly has a mortgage securitization market. Thus, mortgage loans remain on the books of the banks until final repayment, giving banks a motive to ensure borrower solvency even at higher interest rates. Furthermore, in addition to a mortgage on the dwelling, banks in Israel enjoy the right of recourse to the borrower in the event of repayment delinquency—again, unlike the norm in other countries.

The ratio of household debt to GDP has been rising in recent years but remains far below that of many developed countries.

4. THE FINANCIAL INSTITUTIONS

a. The banks[14]

(i) Financial intermediary activity and its pricing in the macroeconomic environment of 2011

Strong performance in the first two quarters of 2011 (Table 4.4) was followed by a change of direction in the third quarter: net interest earnings before allowance for credit losses declined, lowering the return on capital to 5.7 percent. As the ratio of credit to total assets[15] slipped and expenses on account of credit losses increased considerably, credit losses came to some NIS 1.3 billion, the highest quarterly level since December 2009.[16] In credit risks, which are reflected in the ratio of impaired debts and the balance of allowance for credit losses to total credit,[17] the downward

After good performance in the first two quarters of 2011, the picture changed in the third quarter.

[14] The analysis in this section is based in part on data from the public financial statements for the first three quarters of 2011.

[15] In the section on the banks, remarks about credit relate to bank credit only, unless otherwise noted.

[16] An analysis of the historical data shows that, with the exception of 2009, loan-loss provisions in the fourth quarter exceeded those in the third quarter by 30 percent.

[17] In 2011, the definitions were changed in accordance with a directive from the Supervisor of Banks, "Measurement and Disclosure of Impaired Debts, Credit Risk, and Allowance for Credit Losses" (2007). The changes included detailed instructions about allowance for credit losses, write-offs of debts, classification of problem debts, interest income, and disclosure in the public statements concerning credit quality. The directive affected the balance of allowance for credit losses, the level of equity, and faulty debts. The changes are shown in Table 4.4. For details on these redefinitions, see Box 2.1 in Israel's Banking System, Annual Survey 2010.

Table 4.4

Indices of the Banks' Performance,[a,b] 2007–11

	2007	2008	2009	2010	2011 Q2	2011 Q2	2011 Q3
				(Percent)			
Profitability[a,b]							
Return on equity (ROE)[c]	15.3	0.4	8.2	9.3	12.3	10.3	5.7
Activity							
Credit to the public/total assets	66.1	69.3	66.2	69.1	69.6	69.9	68.6
Credit to households/total credit	48	50.2	52.2	53.7	54.7	55.3	54.5
Operating efficiency							
Operating expenses/total assets[c]	2.5	2.5	2.4	2.5	2.8	2.6	2.4
Assets per employee post (index, at constant prices)	114	121.1	127.7	146.7	148.1	137.1	144.5
Risk							
Impaired debts/total credit[d]	7.1	8.4	7.8	6.3			
				(7.8)	7.4	7.9	7.2
Total credit loss allowance/total credit[d]	4.9	4.7	5.1	4.7			
				(2.3)	2.2	2	1.8
Credit loss allowance[e]	1,776	5,175	5,273	3,102	254	1,536.4	2,759.5
Capital adequacy							
Capital adequacy ratio[a,d]	10.9	11.2	13.6	14.2			
				(13.9)	13.8	13.8	13.5
Tier I capital adequacy ratio[d,f]	7.5	7.1	8.9	8.7			
				(8.3)	8.4	8.4	8.2

[a] The five major banking groups.

[b] In 2011 the definitions of certain items were changed. For those items, the data are shown according to both the old and the new definition.

[c] Quarterly figures, not cumulative, in annual terms.

[d] The figures in parentheses are for 2010 after applying the Banking Supervision directive from end-2007, Measuring and Presenting Impaired Debts, Credit Risk and Allowance for Credit Losses.

[e] Quarterly figures, cumulative, in annual terms.

[f] Till 2008 this ratio was computed according to Basel 1, and from 2009, according to Basel 2.

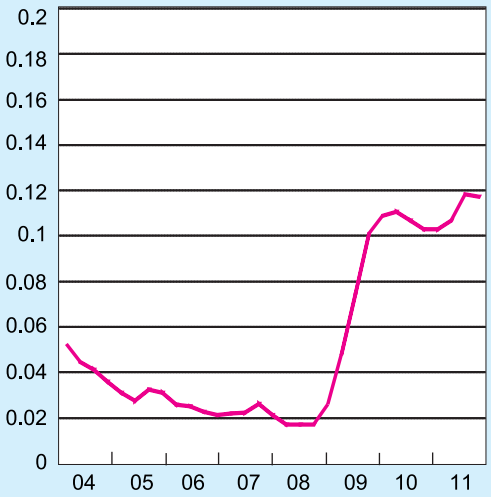
SOURCE: Banks' published financial statements, and the Annual Surveys of Israel's Banking System.

trend that began in the middle of 2009 continued. The capital ratio fell from its 2010 level as the increase in risk assets relative to the fourth quarter of 2010 outpaced the increase in equity (6 percent as against 2 percent, respectively).[18] The decrease in earnings in the third quarter is more pointed in view of expectations of an increase in the capital ratio upon the impending application of the Basel III directives.

[18] This happened under the technical influence of the directive of the Supervisor of Banks, "Measurement and Disclosure of Impaired Debts, Credit Risk, and Allowance for Credit-Losses," which went into effect in January 2011. One of the implications of the directive was the write-off of some doubtful debts, causing the equity of the five largest banks to contract by 4 percent in January 2011.

This section discusses, among other things, the integration of the banks' activities into the economic environment.

Figure 4.19
Share of Liquid Assets in Total Banks' Assets, 2004-11



SOURCE: Bank of Israel.

The banks' deposits with the Bank of Israel increased and their *makam* holdings were basically unchanged.

The liquid portion of total bank assets continued to grow as the year progressed. Thus, the banks' deposits with the Bank of Israel expanded by a strong 12.5 percent, quarterly rate, during the year and the banks' *makam* investments climbed again in the last few months of the year to the previous year's levels after falling steeply in the first few months of 2011. The rate of increase in deposits did not resemble that observed in the previous crisis (400 percent). In recent years, the Bank of Israel has been using these deposits to sterilize the effects of its foreign currency purchases on the money market (see Chapter 3).[19] The purchases stopped in the middle of 2011 as the exchange rate trend switched from appreciation to depreciation, but the banks' deposits with the Bank of Israel continued to grow. One of the reasons for this was the cutback in *makam* issues, but a larger share of *makam* holdings went over from the public to the banks. Figure 4.19 shows the share of liquid assets in total assets of the banks, including deposits with the Bank of Israel and *makam* holdings. This behavior on the part of the banks may be indicative either of excess liquidity or of a search for risk-free assets.

As their deposits with the Bank of Israel increased, the banks widened slightly the spread between their lending rates and the rate they paid for their sources (Figure 4.20). This evidently indicates that the limited growth of credit is due to the combination of an increase in demand for credit and an upturn in credit risks due to the change in the macroeconomic environment. In any case, the combination of the increase in deposits and the widening of the interest spread shows that credit supply grew only mildly. The banks' behavior in this regard may be explained, among other things, by their preparations for the increase in capital adequacy that they will have to make under Basel III.

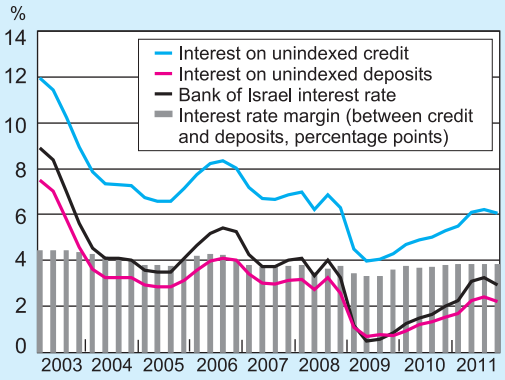
Credit to households increased more vigorously than credit to the business sector.

The redistribution of credit between households and businesses—a process that began in 2003—continued in 2011. Credit to households increased by 7.5 percent (10 percent in credit for housing and only 0.3 percent in lending for other purposes),

[19] The size of the banks' deposits with the Bank of Israel is set by the Bank in accordance with the interest level determined, but the combination of the size of the deposits and activity in *makam* reflects the banks' wish to hold risk-free liquid assets.

much more than credit to business. The increase in the share of households in total credit[20] reduces concentration in the credit portfolio because households are dispersed across all industries and the public sector. It also has a downward effect on a bank's risk assets because credit to households, housing credit in particular, carries lower risk weights than credit to businesses. However, household credit is not risk-free; when it increases, it exposes the bank to macro-level system risks (e.g., at times of recession). Although credit for housing is less risky because it is backed by collateral, a major decrease in property values would expose the banks to considerable risks on this account as well. In 2009, the trend turned around: the profitability of lending to households contracted, possibly due to an excessive increase in this activity—foremost in mortgage loans, which have a narrower interest spread. Still, the risks in the household sector (measured in terms of the ratio of allowance for credit losses to total assets in the sector) have been smaller than those in the business sector since 2008.

Figure 4.20
Interest Rates and Differentials, 2003-11



SOURCE: Bank of Israel.

In April 2011, the Supervisor of Banks instructed the banks to limit the ARM portion of mortgage loans to one-third of the total loan. This restriction, coupled with the increase in interest, had a downward effect on the number of mortgage loans issued and an upward effect on the banks' demand for medium- and long-term sources. The Supervisor's directive, sharpened in view of Basel III, will force the banks to match long-term sources to mortgage loans due to the increase in interest risk because a steep increase in interest has a stronger effect on liabilities than on assets. We expect the banks to respond to the directive by issuing more long-term bonds, possibly exploiting the slump in corporate bond issues for this purpose.

The restriction on mortgage loans is expected to increase the banks' issues of long-term bonds.

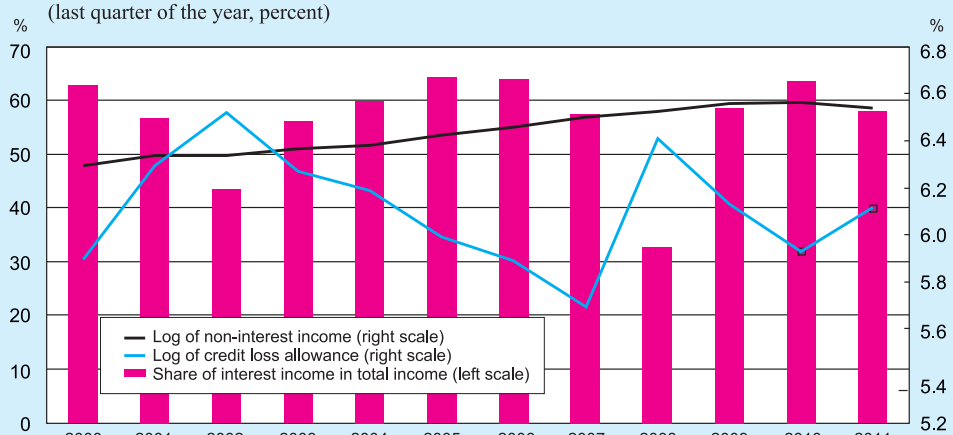
The decrease in earnings in the third quarter was mirrored in a falloff of net interest income (occasioned inter alia by an increase in allowance for credit losses; see Table 4.4) and a mild decrease in non-interest income. Figure 4.21, showing the ratio of banks' net interest income to total income (net interest income and non-interest income) shows that in the third quarter of 2011, the share of net interest income decreased despite the downturn in non-interest income and the continued upturn in allowance for credit losses.[21] The graph also shows that unlike non-interest income

The share of net interest income in total bank income declined in the third quarter.

[20] Until the end of 2008, the banks profited more from activity vis-à-vis households than from activity vis-à-vis businesses.

[21] Chapter 4 of the Bank of Israel Annual Report for 2009 showed that the banks' non-interest income corresponds less with business cycles than with their net interest income. Box 4.2 of Chapter 4 in the Annual Report for 2010 showed the cyclical element of doubtful debts.

Figure 4.21
Share of Banks' Interest Income in their Total (Interest and Non-Interest) Income, Non-Interest Income, and Credit Loss Allowance, 2000-11
(last quarter of the year, percent)



SOURCE: Bank of Israel.

(generated by fees) which typically grows at constant rates and does not seem to march in tandem with economic cycles, the share of net interest income in total bank income is pro-cyclical. What this means is that the banks use their income from fees as a safety cushion for a "rainy day": at such times, they rely more heavily on this income, which, for this reason, contributes to their stability.

(ii) The effect of the Basel III directives

The purpose of the Basel III guidance is to strengthen the stability of the financial system.

In December 2009, the Basel Committee on Banking Supervision (BCBS) prepared recommendations for a series of actions meant to bolster financial systems' capital and liquidity—the "Basel III" standard. The standard is designed to tighten regulation by improving the quantity and quality of banks' capital and internalizing the requisite risks by means of a requirement to reduce excess leveraging in the banking industry. The purpose is to improve the stability of the financial system and the banks' resilience to risks, including systemic risk,[22] and to ensure transparency so that the quality of the various institutions' capital can be assessed. The standard requires banks to increase their capital adequacy (Tiers 1[23] and 2[24]) and introduces certain changes in determining which assets to include in each tier of capital and the risk weights to be assigned to each of them. On global average, 75 percent of the requisite change originates in the

[22] Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems (December 2010).
[23] Share equity, accumulated earnings, and net capital funds, and perpetual subordinated bonds issued by the bank.
[24] Bonds that the bank issues to various terms as well as reserves, including general allownce for credit losses.

requirement to increase capital and/or cut back on the risk assets that the bank holds; the remainder is due to redefinition of the risk in bank assets.[25]

The directive from the Supervisor of Banks relating to minimum core capital ratios (March 2012) states that banks must raise this ratio to 9 percent by January 1, 2015, and that the largest two banks must gradually raise their ratios to 10 percent by January 1, 2017. The new minimum core capital ratios and the deadlines for their attainment were set in accordance with the BCBS recommendations and guidelines from other countries' supervisory authorities. The actual level of the core capital ratios of Israel's banks, the risk structure and activity environment in which the banking system operates, and the banks' ability to increase their capital adequacy and continue extending credit to support business activity were also taken into account. It was on this basis that the deadlines for the increase in core capital were specified—three years for banks that must attain a 9 percent ratio and five years for the largest two banks. Due to the size of the banking system relative to Israel's economy and the high level of concentration in the banking industry, almost all banks in Israel have much system-level influence. However, the largest two banks' scale of activity and the inability of other financial institutions to fill in the gap in the event of a failure in their activity make it necessary for them to maintain a higher core capital ratio—a requirement consistent with the Basel III guidance.[26]

(iii) Banking system stability—risks, pricing, and capital adequacy

Exposure to credit risk leveled off.

In the first two quarters of 2011, credit risks were stable and even improved slightly as mirrored in the provisions made on their account. In the third quarter, allowances increased considerably but by less than the expansion of credit. The increase in allowances, however, was evidently accompanied by the write-off of old debts in accordance with the directive of the Supervisor of Banks that went into effect in January 2011. Thus, the shares of faulty loans and of the balance of allowance for credit losses in total credit continued to trend down in the third quarter. The indicator of exposure to credit risks—the ratio of total bank credit to GDP—also leveled off (Figure 4.22).

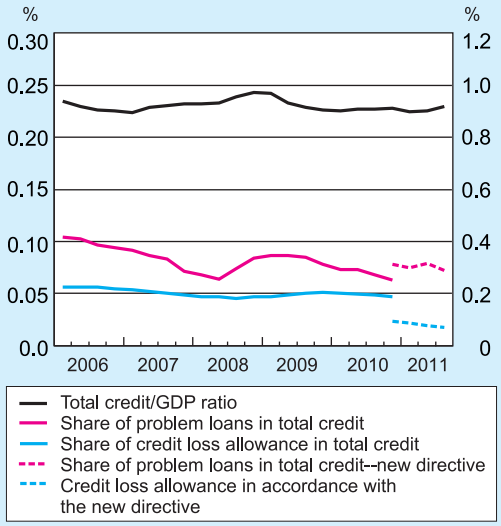
Capital adequacy decreased slightly in 2011.

Capital adequacy, reflected in the risk-weighted capital ratio, declined slightly in 2011 at the five banking groups, to an average of 13.5 percent as against 14.2 percent in 2010 (Table 4.4). The ratio of Tier 1 capital to total risk assets declined in 2011 from 8.7 percent to 8.2 percent, mostly due to a relatively small increase in equity in view of the directive from the Supervisor of Banks that went into effect in January 2011.

[25] I. Otker-Robe and C. Pazarbasioglu, "Impact of Regulatory Reforms on Large and Complex Financial Institutions," IMF (November 2010).

[26] Experience abroad shows that banks that have to increase their Tier 1 capital tend to slow the growth rate of their lending and reduce the inherent risks in their credit portfolios (by doing more lending that is defined as less risky, e.g., mortgage loans, at the expense of riskier credit such as business lending). See, for example, Francis and Osborn (2011), Hancock and Wilcox (1994), Berger and Udell (1994), Peek and Rosengren (1995), Neir and Zicchino (2005), Van den Heuvel (2004), Gambacorta and Mistrulli (2004), and Berrospide and Edge (2010).

Figure 4.22
Share of Credit Loss and Impaired Loans Allowance in Total Bank Credit, and Total Bank Credit, the Five Major Banking Groups, 2006-11
(quarterly)



SOURCE: Bank of Israel.

Credit risk depends, among other factors, on the degree of concentration of credit as measured by various indicators including the distribution of credit across industries[27] and loan size. Table 4.5 shows the development of these indicators in selected periods. The indicators shed light on several trends: in the distribution of credit by size, the share of credit to small borrowers (up to NIS 2 million) decreased relative to 2009 but exceeded that in 2007 and the share of lending to the largest borrowers (more than NIS 200 million) increased during 2010.

The share of credit to small borrowers declined and that to large borrowers increased.

By industries, the share of lending to trade and services went up until 2007 at the expense of most other industries, evidently because the share of these industries in business output increased at that time. This increased the concentration of credit, as reflected in an upturn in the Herfindahl index.[28] The picture has changed in the past three years, the proportion of credit to trade and services falling and that to construction growing considerably.[29] There was no perceptible change in the distribution of credit among industries in 2011 relative to 2010, except for a mild increase in lending to manufacturing after a protracted downturn.

The distribution of credit among industries showed no significant change in 2011.

As for credit issued to a single industry, the share of the construction industry in all credit issued by all banks was basically unchanged (see Note 2 to Table 4.5) and even retreated slightly in the third quarter in view of the possible change in the trend of housing prices. However, the share of the construction industry in allowance for credit losses increased sharply—from 40 percent of total allowances in 2010 to 70 percent in the third quarter of 2011—due to a steep increase in the provision for this industry. This, despite larger credit losses in other industries (primarily trade and services). This is consistent with the sharp widening of spreads between real estate bonds and government bonds (Figure 4.2).

The share of the construction industry in total credit contracted slightly in the third quarter.

[27] Loans to firms in the same industry are usually typified by strong correlation; therefore, they are riskier than loans dispersed among different industries.

[28] The Herfindahl index is calculated as follows: $H = \sum_{j=1}^{N} s_j^2$, where N is the number of industries, and s_j is the share to sector j in all credit. A higher level of this index represents higher concentration.

[29] The correlation among loans is especially strong in this industry: since most collateral for these loans is real estate, a decrease in the value of real estate assets may pose a risk the bank.

The banks' direct exposure to the peripheral countries of Europe is small.

Israeli banks' direct exposure to the peripheral countries of Europe, including the relevant countries' banks and financial institutions, is low; evern including France, it is only 1.25 percent of total assets.

In sum, the banks' exposure did not increase in 2011, with some risks improving and others worsening.

Table 4.5
Concentration of credit by loan size and industry in certain years

Distribution of credit by size	2003	2007	2009	2010
NIS thousands		Percent		
0–2,000	34.7	29.9	34	32.4
2,000–20,000	10.7	11	10.6	10.3
20,000–200,000	33.1	30.9	27.7	27.1
More than 200,000	22.7	28.3	27.6	30.2
Credit, by industry[b]	2003	2007	2010	2011/III
		Percent		
Agriculture	1.13	1.21	1.13	1.10
Manufacturing	22.45	21.56	18.71	19.09
Construction	26.90	26.39	30.58	30.59
Electricity and water	3.01	1.38	1.76	1.79
Transport and communications	9.20	6.57	7.09	7.13
Trade and services	37.29	42.86	40.70	40.28
H Index of concentration of credit	0.272	0.304	0.299	0.298
Credit to households as a percentage of total bank credit	31.0	34.4	38.9	39.1
Credit loss allowance, by industry	2003	2007	2010	2011/III
		Percent		
Agriculture	1.3	-1.1	0.7	-1.3
Manufacturing	28.2	44.6	23.9	-9.4
Construction	26	40.4	41.6	69.2
Electricity and water	0.2	0.2	0.2	0.5
Transport and communications	10.9	6.5	-8.3	-9.4
Trade and services	33.5	9.5	42	28.4

[a] Bank credit on balance sheet and off balance sheet, loan activity in Israel, consolidated balance, including the financial services industry and public and community services.
[b] The distribution is based on total credit to sectors of the economy, excluding credit to private individuals. This is different than the segment calculation for industry limitations by the Banking Supervision Department.
SOURCE: Banks' published financial statements, and the Annual Survey of Israel's Banking System.

b. Insurance companies

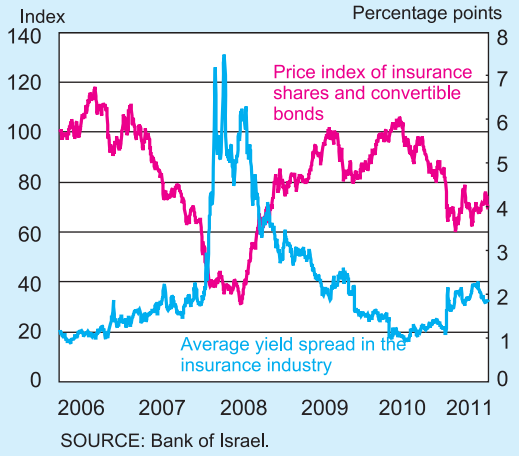
The insurance companies posted a comprehensive loss in the first three quarters of 2011, due to sizable losses on investments, and despite an increase in premiums charged.

In the first three quarters of 2011, the insurance companies posted a comprehensive loss of NIS 560 million, compared with a comprehensive profit of NIS 2.25 billion in the corresponding period of the previous year.[30] All the five largest insurance companies[31] recorded a comprehensive loss in the first nine months of the year. Nearly all of the transition to losses traced to investment losses, partly offset by an increase in premiums. In the first three quarters of the year, the companies lost nearly NIS 3.5 billion on their investments as against sizable revenues in the previous two years, because of market declines in 2011 compared with strong returns in 2009–10. Furthermore, due to the market declines, the companies were unable to charge variable management fees for defined contribution policies[32] and are not expected to charge management fees in the near future due to the large losses that have accrued in these plans.[33] In contrast, revenue from premiums increased by 7 percent in the first three quarters of 2011, due to an increase in life and health insurance premiums and no change in premiums for general insurance relative to the corresponding period of the previous year.

Prices of insurance companies' shares fell and the spread between insurance bonds and government notes widened.

The adverse effect of the declines in the capital markets on the insurance companies' earnings is also evident in the pricing that the capital market sets for them. The Tel Aviv Stock Exchange's "Insurance Shares and Convertibles" Index declined by 33 percent in 2011 after rising by 20 percent in 2010. The average spread of insurance company bonds over government bonds widened in August 2011 to 2 percentage points, the largest since July 2010, and stayed there until year's end.

Figure 4.23
Index of Insurance Company Shares and the Yield Spread between their Bonds and Government Bonds, 2006-11



SOURCE: Bank of Israel.

Insurance industry assets were NIS 298.2 billion at the end of the

[30] The comprehensive profit differs from net profit mainly in the depreciation of financial assets available for sale, which is ascribed directly to shraeholders' equity and not to the profit and loss statement. The insurance companies' aggregate net profit during this period was NIS 660 million.

[31] Phoenix, Harel, Clal, Migdal, and Menora.

[32] In these programs, the investment risk is incurred by the insured and not by the insurance company.

[33] For managing assets in defined contribution policies issued in 1991-2003, insurance companies are allowed to charge a fixed management fee of 0.05 percent per month of accumulated assets, and a variable management fee of up to 15 percent of the real return attained, net of the fixed management fee. In the event of losses, the insurance company is not entitled to the variable management fee until the cumulative loss is covered.

The combination of an increase in insurance companies' assets and a decrease in their Tier 1 capital caused the ratio of Tier 1 capital to the companies' nostro assets to decline.

third quarter of 2011, up 5 percent from a year earlier. The industry's Tier 1 capital contracted in the first three quarters of the review year. The ratio of Tier 1 capital to nostro assets of the insurance industry (not including defined contribution policies, in which the investment risk is passed on to the insured) fell to a historical low of 10.6 percent at the end of the third quarter of 2011 (compared with 11.5 percent a year earlier). The ratio of Tier 1 capital to total assets (solo) in the insurance industry also settled at a historical low of 5.6 percent (as against 6 percent at the end of the corresponding quarter in 2010).

The insurance companies were instructed to bring their capital into compliance, by the end of 2011, with the provisions of an amendment to the capital requirements published by the Commissioner of Capital Markets, Insurance, and Savings.

In September 2009, the European Union adopted the Solvency II directive. The Commissioner of Capital Markets, Insurance, and Savings decided to apply the provisions of the proposed directive to domestic insurance companies at approximately the time of their implementation in the European Union—January 2013. The Commissioner's revision of capital requirements in November 2009 and a circular titled "Composition of Insurer's Recognized Equity," published in August 2011, brought the capital requirements and capital structure of Israel's insurance companies closer to those set forth in the new directive. The companies were instructed to complete the alignment of their equity with the requirements of the amendment by the end of 2011.

In early 2011, all insurance companies distributed dividends, in sums ranging from NIS 80 million to NIS 170 million. Later in the year, however, as markets fell, most of them had to stop this practice.[34] At the end of 2011 and in early 2012, most large insurance companies raised hybrid Tier 2 capital by issuing capital notes. The comprehensive loss that the large insurance companies posted in the first three quarters of 2011, coupled with the distribution of dividends at the beginning of the year, partly offset by capital issues, left them with less recognized equity than they had at the end of 2010.[35] The contraction of recognized capital, coupled with the concurrent increase in capital requirements, lowered all five large insurance companies' ratios of recognized capital to required capital. The aggregate ratio was 113 percent at the end of the period but one company's ratio slipped below 105 percent. Even so, each of the five large insurance companies ended the first three quarters of 2011 with capital surpluses ranging from NIS 160 million to NIS 640 million above the compulsory minimum.

All five large insurance companies had less recognized capital than at the end of 2010 due to their total loss and the distribution of dividends at the beginning of the year, partly offset by capital issues during the year.

The main risks to insurance companies are market risk on the assets side and underwriting risk on the liabilities side.

Insurance companies are less exposed to credit and liquidity risk than banks because they have less direct exposure to credit risk and because their liabilities are less liquid than banks' liabilities. (The duration of banks' liabilities is shorter than that of their assets; the situation of the insurance companies is the opposite.) Therefore, concern about a "run" on insurance companies is low. In contrast, the main risks to insurance

[34] The current regulations allow insurance companies to ask the Insurance Supervisor to approve the distribution of a dividend provided that their ratio of recognized capital to required capital exceeds 105 percent. Companies that have a ratio greater than 115 percent may distribute a dividend with no need for the Supervisor's prior approval.

[35] Three of the five large insurance companies posted a decrease in recognized capital relative to the corresponding quarter of the previous year.

companies are market risk on the assets side and underwriting risk on the liabilities side.

At the end of the third quarter of 2012, most of the insurance companies' nostro portfolio was invested in government bonds, cash and cash equivalents, and bank deposits.

At the end of the third quarter of 2011, 59 percent of investments in Israeli insurance companies' nostro portfolios were in government bonds, cash and cash equivalents, and bank deposits—a lower ratio than in the past (e.g., 61 percent at the end of the corresponding period of the previous year). About half of the insurance companies' nostro portfolio was invested in government bonds,[36] nearly all of which were domestic. Even subtracting defined-benefit plans (which are typified by a large share of government bonds) from the companies' nostro portfolios, 28 percent of investments at the end of the third quarter of 2011 were in government bonds. Notably, however, the share of government bonds in the companies' assets had been even greater at the end of 2010, at 32 percent net of defined-benefit plans. The share of corporate bonds in nostro investments was 19 percent of assets at the end of the third quarter of 2011, essentially unchanged from the end of 2010. The rate of investment in shares[37] was a mere 4.4 percent of nostro investments at the end of the third quarter of 2011.[38] In addition to the risk of impairment to the value of the nostro portfolio due to falling market prices, the insurance companies are exposed to the risk of impairment of assets in defined-contribution plans that were sold in 1991–2003. In these policies, the investment risk is passed on to the insured but when these risks materialize, as happened in 2011, the companies are not allowed to charge variable management fees on their account. At the end of the third quarter of 2011, 24 percent of investments in defined contribution plans were in government bonds, cash and cash equivalents, and bank deposits.

The insurance companies' comprehensive loss in the first three quarters of 2011 traces mainly to the realization of market risks to which they are exposed. The companies try to disperse their risks by establishing an exposure to alternative investments—real estate, loans, and investment funds. Direct investments in real estate were 2.7 percent of the companies' total nostro investments in the third quarter of 2011 as against 2.4 percent in the corresponding period of the previous year. Importantly, the insurance companies also have a de facto exposure to the real estate industry via capital and debt instruments.[39] Loans (net of held companies) accounted for 6.9 percent of total nostro investment at the end of the third quarter of 2011, 1 percentage point more than the year before. Investment funds accounted for 1.5 percent of insurance companies' investments in the third quarter of 2011, up half a percentage point from the corresponding quarter of the previous year. Although the alternative investment

The insurance companies increased their investments in alternative assets in the past year.

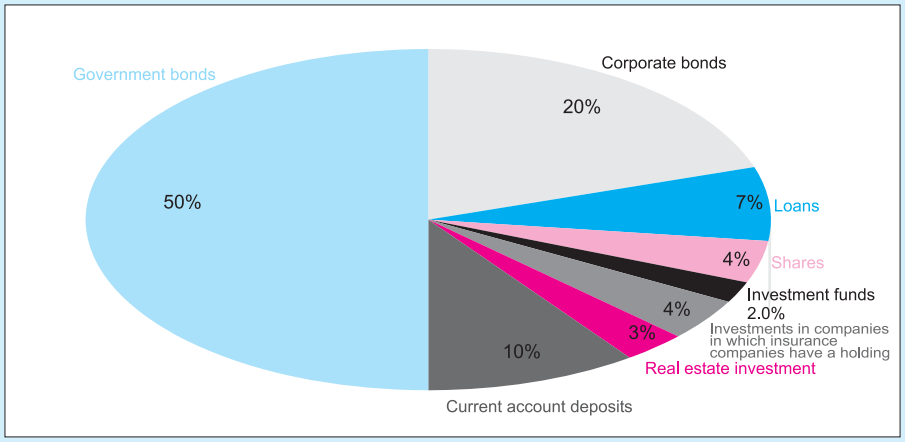
[36] By comparison, according to the ECB's Financial Stability Review (December 2011), 40 percent of large European insurance companies' total investments were in government bonds.

[37] Directly in shares, equity ETFs, and share options in Israel and abroad.

[38] According to the aforementioned ECB Financial Stability Review, large European insurance companies also make less than 5 percent of their total investment in shares.

[39] To illustrate, more than 9 percent of investment on account of defined contribution policies was composed of direct and indirect investments in real estate at the end of the third quarter of 2011. Notably, investment regulations limit the total share of real estate to 15 percent of the value of each insurance company's investment portfolio.

Figure 4.24
Main Investment Channels of Insurance Companies' Nostro Portfolios (Aggregate), End of Third Quarter, 2011



vehicles may help to diversify the insurance companies' investment risks, they have risks of their own and are usually less liquid than investments in stocks and bonds. Furthermore, these investments, unlike negotiable capital and debt instruments, are not traded on the stock exchange; therefore, the value at which they are recorded in the companies' books may be less accurate, and dependent on valuations.[40] These investments also tend to be less transparent than those in tradable debt and capital instruments, and regulations concerning them may be less stringent than those applying to traditional negotiable investment vehicles.[41]

Nearly all expected damage to general insurance business in the event of a catastrophe is covered by reinsurers who have high credit ratings.

On the liabilities side, insurance companies are exposed to underwriting risks, including longevity and morbidity risks in life and health insurance, and property damage risk in general insurance. An additional underwriting risk that may materialize suddenly is catastrophic risk—the risk that a single large-scale event such as an earthquake, a war, or terrorism will cause massive cumulative damages. A catastrophe on the liabilities side of the insurance company's books may be accompanied by impairment to the asset side in the aftermath of the same extreme events. The companies hedge against catastrophe risk mainly via reinsurance. All five large insurance companies use this practice to cover 98 percent of damage to their general insurance business in the event of a catastrophe. Hence, the main concern relating to a catastrophic event is of a failure by a reinsurer to honor its obligations. The five large companies rely on two main reinsurers, Munich Re and Swiss Re, to

[40] Insurance companies' non-negotiable debt assets are valued by Mirvah Hogen, Ltd., a firm that was chosen in competitive bidding to provide all institutional investors with quotes.

[41] For example, loans are not subject to the restrictions that were imposed on bond investments under the Hodek Committee recommendations.

which the aggregate exposure is about half of the total exposure of Israeli insurance companies to reinsurers. These firms, however, are the world's largest international reinsurance companies.[42] Among all the insurance companies, more than 95 percent of the reinsurance exposure is to reinsurers rated higher than A. The ability of the world's largest reinsurers to cope with catastrophes was put to the test in 2011: despite severe earthquakes in Japan and New Zealand and significant weather ravages that caused a total of $67 billion in damage,[43] none of the world's largest reinsurers was seriously affected.

c. Pension savings institutions

Most of the public's pension savings are held via channels in which the risks are borne by the savers.

The balance of long-term pension savings was NIS 806 billion at the end of 2011 as against NIS 775 million a year earlier, an increase of 4 percent. Pension savings are accumulated in new and old pension funds, defined-benefit and defined-contribution life insurance plans, and provident funds (Table 4.6). Most of the public's pension savings (91 percent) are managed in defined contribution type vehicles, in which savers do not have a guaranteed return and assume the market risks. For this reason, a strong shock to the markets that devalues the public's pension savings may harm the public's welfare and trigger a wave of compensation claims by savers, as happened in the provident fund crisis of 2008.

In recent years several reforms have been introduced in the long-term savings industry, aimed at giving priority to pension savings.

In recent years, there have been several reforms in the long-term savings industry, with the purpose of giving preference to allowance-type pension savings over other vehicles. As part of this trend, in 2004 the possibility of depositing money in provident funds for fifteen years was abolished, and in 2008 Amendment 3 of the Supervision of Financial Services Law equalized all vehicles of pension savings both in terms of tax benefits as well as the possibility of withdrawing money from them in monthly allowance form only. In addition, a compulsory minimum pension was established, regulations for transfer of funds between all the diverse types of savings vehicles were approved (from lump-sum programs to monthly allowance pension plans, and among pension plans), and the banks were allowed to enter the pension consulting field in a phased manner. The portability reform and the entry of banks into pension consulting demonstrated more pointedly the need to regulate the processes of information sharing among pension savings institutions, and there was progress toward creating a standard format for sharing of information and data by establishing a pension clearing house. Savers may also use the clearinghouse to locate their pension savings easily in view of the many changes that have been made in the pension system structure in recent years.

The 2008 financial crisis led to large negative returns in the various savings vehicles. Pension savings were included in the losses because pension industry reforms over the years have made them increasingly exposed to market assets (Table 4.6). Among the lessons of the crisis, new regulations are being promulgated requiring each pension

[42] Together, they generate 37 percent of gross income of the world's thirty-five leading reinsurers.
[43] For details, see ECB, Financial Stability Review (December 2011).

As part of lessons learned from the crisis new regulations are being prepared which will assign savers to default channels according to their age.

institution to offer a limited number of default programs, to which savers are assigned commensurate with their age (the Adjusted Savings model). The older the saver is, the more solid the investments in the default plan tailored to the saver will be. Although assignment to the default programs will be automatic, savers will be allowed to choose another default plan in accordance with their wishes and tastes.

If the model were applied to all the accrued pension savings, it is liable to significantly affect demand for various assets in the financial markets. Therefore, the model will be implemented gradually and will not be applied retroactively to savings already accrued.

Table 4.6
Institutional Investors: Main Developments, 2007–11

	Mutual funds	Provident and severance pay funds	Advanced study funds	Pension funds		Life insurance schemes[a]		Total	Total long-term savings[d]
				Old[b]	New[c]	Guaranteed yield	Profit sharing		
				Balance[e] (NIS billion, current prices)					
2007	119.4	186.1	88.0	157.1	62.8	50.1	96.4	760.1	552.6
2008	98.0	142.1	70.8	235.9	69.1	54.9	84.8	755.6	586.8
2009	133.2	176.7	94.5	264.7	91.0	60.6	118.4	939.1	711.4
2010	156.6	189.2	107.8	283.9	108.4	65.5	127.6	1038.9	774.5
2011	142.4	177.0	108.6	304.3	122.0	69.6	132.7	1056.6	805.6
				Percent of total assets of the public[e]					
2007	5.8	9.1	4.3	7.7	3.1	2.4	4.7	37.1	27.0
2008	5.2	7.6	3.8	12.6	3.7	2.9	4.5	40.3	31.3
2009	5.8	7.7	4.1	11.5	4.0	2.6	5.1	40.8	30.9
2010	6.2	7.4	4.2	11.2	4.3	2.6	5.0	40.8	30.5
2011	5.7	7.0	4.3	12.1	4.9	2.8	5.3	42.0	32.0
				Net accrual (NIS billion, current prices)[f]					
2007	5.0	-0.7	3.7	-4.2	6.3			10.1	1.4
2008	-9.4	-8.8	-0.6	-4.4	7.9			-15.3	-5.3
2009	21.3	-3.3	4.7	-5.1	9.0			26.5	0.5
2010	16.2	-3.5	5.0	-5.7	10.8			22.8	1.6
2011	-10.6	-6.5	5.0	-6.4	13.4			-5.2	0.5

[a] Asset balances of life insurance plans do not include fixed assets, receivables and deferred purchasing expenses.
[b] Since February 2008, assets of the old pension funds include the government's undertaking to help them. That undertaking has applied since 2003, but only in February 2008 were the funds directed to record it as part of their assets. The balance of the undertaking changes every month, and in December 2011 it totaled NIS 107 billion.
[c] Including general pension funds and central lump sum provident funds.
[d] Provident and severance pay funds, pension funds and life insurance schemes.
[e] All institutional investors' assets are net of investments in mutual funds, ETFs, structured bonds and CDs.
[f] Excluding transfers between funds.
SOURCE: Based on mutual funds' returns to the Bank of Israel and data of the Capital Market, Insurance and Savings Division of the Ministry of Finance.

5. PAYMENT AND SETTLEMENT SYSTEMS

a. Main developments

The Bank of Israel is encouraging the use of electronic means of payment and exploring ways of enhancing the settlement institutions' stability.

The Bank of Israel continued to take measures to enhance the stability and safety of the payment and settlement systems by encouraging the use of electronic means of payment and ensuring business continuity. In addition, as part of its implementation of the Bank of Israel Law, the Bank began to examine, from the legal and operational standpoints, the possibility of allowing the Stock Exchange clearing houses to open accounts with the Zahav (RTGS) system to improve their stability.

In 2011, the Bank of Israel published the Red Book for 2010, a report on developments in the payment and settlement systems. The Red Book is published each year in most countries that have RTGS systems and its data are presented in accordance with guidelines from the Bank for International Settlements (BIS).[44]

b. Activity of the payment systems

The Bank of Israel is acting in various ways to increase the use of the Zahav (RTGS) system.

Information from Zahav, Masav, the Checks Clearing House, CLS, and the Tel Aviv Stock Exchange reveals a gentle upward trend in the total amounts settled in these clearing systems. In the Zahav system, all types of activity increased—interbank transactions, settlement institutions, and monetary activity at the Bank of Israel—indicating greater awareness of the Zahav system and its advantages among both financial and private entities. Notably, the Bank of Israel strove to assimilate the use of this system in various ways, including regulation (limiting the use of Masav to movements of up to NIS 1 million) and advertising in the media. The increase in monetary activity at the Bank of Israel traced to the growth of the banks' shekel deposits with the Bank of Israel. Masav also posted an increase in activity and even the Checks Clearing House continued to pursue a moderate upward trend. Shekel activity in the CLS system grew significantly in the last quarter of 2011, possibly reflecting concerns among those who sense the uncertainty in the financial markets and prefer safe and final means of payment.

To test the stability of the Zahav system, various indicators are examined, such as liquidity surpluses in the system, the level of system availability, and the extent of concentration among the system's five main users.

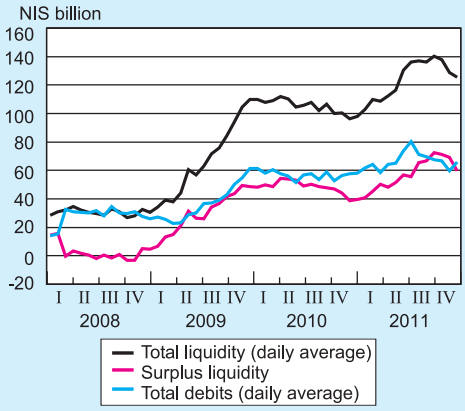
The liquidity surpluses in the Zahav system were maintained in 2011.

Liquidity surpluses in the Zahav system[45] have been rising moderately since the middle of 2008, when the crisis erupted, and continued increasing until the end of 2011. The existence of liquidity surpluses in the Zahav system mitigates liquidity risk in the system by allowing participants to transact in large sums and settle their transactions immediately. In this context, the total debits, which reflect the level of interbank activity in the Zahav system, are noteworthy: they followed a steady upward

[44] The entire Red Book may be found at the Bank of Israel web site: http://www.boi.gov.il/deptdata/hashav/mislaka/redb2010e.pdf

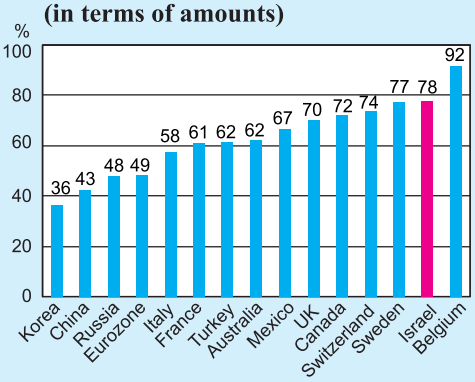
[45] The surpluses are calculated on the basis of daily averages: total liquidity in the system less total interbank charges.

Figure 4.25
Total Debits, Liquidity, and Surplus Liquidity in the Zahav RTGS, 2008-11



SOURCE: Bank of Israel.

Figure 4.26
Concentration ratio in RTGS-Type Systems Around the World (in terms of amounts)



SOURCE: Bank for International Settlements (BIS).

trend that began in the third quarter of 2009, continued with some volatility, and peaked in the middle of 2011. The banks' liquidity level is affected mainly by the size of their monetary deposits with the Bank of Israel, which remained large in the review year due to purchases of foreign currency and government bonds by the Bank of Israel in recent years (Figure 4.25).

Table 4.7
Concentration in the Zahav RTGS System, 2008–11

(in terms of amounts, %)

	Concentration	Annual change
2008	79.24	-
2009	76.62	-3.31
2010	77.56	1.23
2011	80.75	4.11

SOURCE: Bank of Israel.

The availability level of the Zahav system resembles that of RTGS systems abroad.

Zahav system availability has been strong ever since the system went into action four and a half years ago, despite various operational events during that time. The high level of availability mitigates operational risk and attests to the stability of Zahav and its ability to maintain business continuity. In 2010, Zahav's availability level was 99.97 percent, resembling that of RTGS systems abroad (e.g., 99.95 percent in the UK, 99.93 percent in Sweden, and 99.80 percent in Brazil.)

The high level of concentration in the Zahav system correlates with that of Israel's banking system.

The level of concentration among participants in the settlement institutions reflects the extent of interbank activity (in terms of value) of the five most active participants[46] for the purpose of assessing systemic risk: the greater the concentration, the greater the systemic risk. In Zahav, the concentration rate stands at 78 percent (Table 4.7)—high by international standards (Figure 4.26)—and correlates with the concentration rate of Israel's banking system.[47]

[46] It bears emphasis that the most active banks in the Zahav system are not necessarily the largest banks in the country.

[47] An international comparison by means of the Herfindahl-Hirschman index (H-index) shows that concentration in the Israeli banking system is far above the international average. For elaboration on this topic, see Israel's Banking System, Annual Survey 2010, page 10.