Chapter 3
Monetary Policy and Inflation

- Inflation, economic activity, and monetary policy changed direction in 2011. In the first half of the year, as the annual inflation rate overshot the target range and the economy expanded rapidly, the Bank of Israel raised its monetary interest rate from 2 percent to 3.25 percent, continuing the trend since 2010. In the second half, as Europe's debt crisis escalated and concerns about its dampening effects on the domestic economy grew, the inflation environment declined and economic expansion slowed. In response, the Bank of Israel lowered its rate in the fourth quarter of the year to 2.75 percent by year's end. In early 2012, amid further indications of economic slowdown, the rate for February was cut by another quarter percentage point.
- The Consumer Price Index increased by 2.2 percent in 2011, approximating the midpoint of the target range (1–3 percent). In the first half of the year, the annual inflation rate was a brisk 4 percent; in the second half, it retreated toward the midpoint of the target range.
- The main contributing factors to CPI inflation in the review year were housing services (rent) and energy. The slowing of economic expansion was one of the factors behind the deceleration of price increases.
- In the course of 2011, the currency depreciated by 3.6 percent in nominal effective exchange rate terms (December 2011 average vs. December 2010 average).
- After three years of rapid increases in home prices, the housing market cooled in the review year: there were fewer transactions, a slowdown in the pace of price increases, and, toward year's end, a decrease in prices.
- To attain its objectives, the Bank of Israel wielded several policy tools in addition to monetary interest during the year—purchases of foreign currency (until July), imposition of a liquidity requirement on the inflow of short term foreign capital, and macroprudential measures in the mortgage loan market.

1. MONETARY POLICY

a. Policy measures

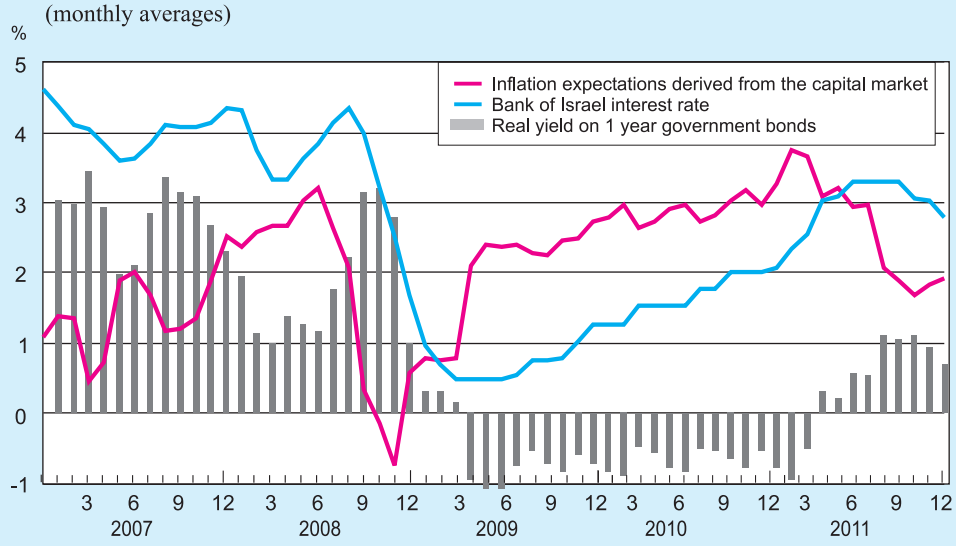
Monetary policy developed unevenly in 2011: in the first half of the year, policy was typified by a continued retreat from the accommodation that had ensued in late 2008 in response to the global financial crisis. In the second half of the year, in contrast, accommodation resumed due to the slowing of domestic growth and concern about escalation of the crisis abroad and its effect on the domestic economy.

The Bank of Israel applied a range of tools to attain its goals during the year: adjusting the interest rate (the primary tool of monetary policy), buying foreign currency, imposing reserve requirements on the inflow of short-term foreign capital, and macroprudential measures in the mortgage-loan market. Table 3.1 summarizes the monetary policy measures instituted during the review year.

At the beginning of the year, the Bank of Israel sped up the pace of rate increases. The rate-hiking process stopped in the third quarter, as the Eurozone's debt problems worsened and inflation expectations fell, and was succeeded by rate cuts in the fourth quarter.

At the beginning of the year, as inflation expectations rose for all terms and actual inflation overshot the target range, as real domestic activity expanded rapidly, and as home prices continued to rise, the Bank of Israel stepped up the pace of its interest rate increases pursuant to the trend that began in 2010. In February–April, the rate was raised by 1 percentage point, to 3 percent, and the rate for June was increased by another quarter percentage point, to 3.25 percent. In the second half of year, the trend changed: the escalation of the eurozone's debt problems, reflected in the widening of European countries' CDS spreads, triggered concern about a recession

Figure 3.1
Bank of Israel Interest Rate,[a] Inflation Expectations,[b] and Real Yield on 1 Year Government Bonds, 2007–11
(monthly averages)



[a] Effective interest rate in Bank of Israel auctions.
[b] For next twelve months; derived from the capital market.

SOURCE: Bank of Israel.

in the destination markets of Israeli exports, the slowdown in the domestic economic expansion, a steep decrease in US bond yields (flight to safety), a precipitous decline in inflation expectations, coupled with the easing of actual inflation against the background of the social protests, all halted the upward trend of interest in the third quarter of the year, and in the fourth quarter the Bank of Israel lowered its rate by half a percentage point. In early 2012, as indicators of slowing domestic growth continued to come in, the rate for February was lowered by another quarter percentage point, to 2.5 percent.

The Supervisor of Banks limited the ARM share of mortgage loans to one-third of the total issued by the bank to the borrower.

In April 2011, pursuant to his directives in 2010 concerning an increase in the capital assignment for high-loan-to-value adjustable-rate mortgage (ARM) loans, the Supervisor of Banks instructed the banks to limit the adjustable rate component of the loan to one-third of the total loan to the borrower. Since the borrower's monthly payback is more volatile in ARM programs—especially "prime" programs—than in other programs, adjustable rate mortgage loans are usually considered riskier. Consequently, by limiting the share of adjustable rate financing, the Supervisor's directive mitigates the banks' exposure to borrower default risks. Furthermore, since ARM interest moves in tandem with the Bank of Israel target rate, the directive weakens the pass-through of monetary policy to mortgage loans and gives the Bank greater flexibility in using interest to support growth. Finally, the Supervisor's measure made mortgage loans somewhat more expensive, helping somewhat to dampen demand for these loans and for housing in general.

Foreign-currency purchases continued, mainly in the first half of the year, and a 10 percent liquidity requirement was imposed on nonresident transactions in foreign currency derivatives.

In the first half of the year, the Bank of Israel continued to operate in the foreign-currency market to mitigate pro-appreciation pressures that had resulted due to, among other factors, the opening of an interest spread versus the developed countries, which was creating short-term capital inflows. These measures included, in addition to purchases of foreign currency, the imposition of a 10 percent reserve requirement on banks against nonresident transactions in foreign currency derivatives and compulsory reporting of various foreign currency dealings.[1] The foreign-currency purchases were smaller in 2011 than in 2009–2010 and stopped in the second half of the year. Purchases have an expansionary effect on economic activity via their influence on the exchange rate; concurrently, the reserve requirement dampened demand for domestic currency and, therefore, facilitate smaller purchases of foreign currency and greater latitude in the management of interest rate policy.

The liquidity requirement allowed greater flexibility in interest policy due to the difference in macro conditions between the tradable and nontradable sectors.

The lethargic level of activity in the developed countries, to which most Israeli exports are destined, joined forces with the appreciation pressure to threaten exports. This was one of the main factors that prompted the Bank of Israel to buy foreign currency at the beginning of the review year. In contrast, the rapid expansion of domestic economic activity, coupled with increases in inflation, inflation expectations, and house prices, argued in favor of monetary tightening. The difference in conditions between the domestic market and the rest of the world and, in particular, between the

[1] As the Bank of Israel took measures in the foreign-currency market, the tax exemption for nonresidents on capital gains on makam was abolished in the review year.

Table 3.1
Monetary policy measures during 2011

Month	Change in interest rate (percentage points)	Interest rate (percentage points)	Foreign currency purchases ($ million)	Other measures
January	No change	2	2,085	A reserve requirement of ten percent was imposedon nonresidents' transactions in foreign exchange derivatives.
February	+ 0.25	2.25	200	A reporting requirement was imposed on the following transactions of $10 million and above per day: 1. Shekel-foreign currency swaps, and foreign currency futures trades. 2. Nonresidents' transactions in *makam* and short-term government bonds (effective July).
March	+ 0.25	2.5	0	
April	+ 0.50	3.0	1,495	
May	No change	3.0	200	The floating rate component of a mortgage was limited to one-third of the total housing loan.
June	+ 0.25	3.25	425	
July	No change	3.25	225	
August	No change	3.25	0	
September	No change	3.25	0	
October	- 0.25	3.0	0	
November	No change	3.0	0	
December	- 0.25	2.75	0	

tradable sector and the non-tradable one, presented the shapers of monetary policy with a challenge because in a small and open economy with unrestricted capital flows, such as Israel's, it is hard to produce different macro conditions across sectors. In this situation, the imposition of restrictions, however gentle, on capital flows by setting a liquidity requirement abetted flexibility at the beginning of the year—the adoption of a contractionary policy for the domestic market and support of the export sector via operations in the foreign-currency market.

Having multiple policy targets called for the use of several policy tools.

The use of multiple policy tools lent support in achieving the goals of the Bank of Israel. A substitution effect usually exists among the targets, and the policymakers have to choose the weight to assign to each. The use of several tools may reduce the substitution between targets and hence support their attainment. At the beginning of the review year, for example, the exchange rate could have been supported by rate-cutting but this would have clashed with the attainment of the inflation target and would not have restrained house prices; in contrast, the imposition of a reserve requirement on nonresident transactions in the foreign-currency market supported the exchange rate without affecting the housing market. Alternatively, it is probable that downward pressure could have been applied to house prices back in 2010 by more aggressive rate-hiking, but this would have induced appreciation and thwarted the economy's recovery from the crisis; in contrast, macroprudential measures in the

Table 3.2
Main Indicators of Inflation and Monetary Policy, 2006–11

	2006	2007	2008	2009	2010	2011	2011 I	2011 II	2011 III	2011 IV
A. Inflation (%)										
1. Inflation target	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
2. Actual inflation[a]	-0.1	3.4	3.8	3.9	2.7	2.2	2.8	5.9	0.0	0.0
3. Seasonally adjusted quarterly inflation[b]							5.8	1.9	0.1	0.9
4. One-year inflation expectations derived from capital market[c]	1.8	1.4	1.9	1.8	2.9	2.7	3.6	3.1	2.3	1.8
5. Ten-year inflation expectations derived from capital market[c]	2.5	2.4	3.0	2.3	2.5	2.5	2.4	2.3	2.4	2.5
6.Forecasters' one-year inflation forecasts[c]	1.9	1.9	2.4	1.8	2.7	2.8	3.1	3.1	2.7	2.2
B. Yields (%)										
1. Bank of Israel key interest rate	5.1	3.9	3.7	0.8	1.6	2.9	2.3	3.1	3.3	2.9
2. One-year real yield to maturity on government bonds[d]	3.7	2.9	1.9	-0.4	-0.7	0.4	-0.7	0.4	0.9	0.9
3. Ten-year nominal yield to maturity on government bonds[d]	6.4	5.6	6.1	5.4	4.9	5.1	5.3	5.4	5.0	4.8
4. Ten-year real yield to maturity on government bonds[d]	3.8	3.4	3.5	2.9	2.2	2.4	2.4	2.7	2.5	2.3
C. Shekel depreciation[e]										
1.Nominal effective	-3.4	-1.4	-8.3	3.5	-7.1	3.6	1.6	-2.3	4.9	-0.5
2. Vis-à-vis the dollar	-8.9	-7.1	-0.9	-2.1	-4.9	4.7	-1.1	-3.9	7.5	2.5
3. Vis-à-vis the euro	1.5	2.4	-8.4	6.3	-13.9	4.2	4.6	-1.3	3.4	-2.3
D. Asset prices (%)[e]										
1. Total nominal return on shares	5.8	22.9	-46.4	78.8	12.6	-22.1	-2.5	-8.6	-15.7	3.7
2. Home prices[f]	-4.3	3.2	10.6	19.9	14.1	4.5	3.4	1.9	-1.1	0.2
E.The monetary aggregates (nominal rates of change)[e]										
1. M1 money supply	8.3	17.4	17.4	52.3	4.8	2.5	-1.5	5.1	-3.5	2.5
2. Total credit (C3)	2.3	6.0	6.6	-0.5	2.7	6.3	4.0	0.9	2.8	-1.6
F. Actual budget deficit (% of GDP)										
1. Domestic deficit excluding credit granted	0.2	-0.9	1.3	4.8	3.6	3.2	-1.2	2.9	2.5	8.2
2. Total deficit excluding credit granted	0.9	0.1	2.1	5.6	4.1	3.7	-0.6	3.3	2.5	9.5
G. Other background data (percent, seasonally adjusted quarterly data)										
1. Unemployment rate[c]	8.3	7.3	6.0	7.5	6.7	5.6	6.0	5.6	5.6	5.4
2. GDP growth rate[g]	5.6	5.5	4.0	0.8	4.8	4.7	4.7	3.7	3.4	3.2
3. Share of total government debt in GDP[h]	82.7	76.2	75.3	77.8	74.5	73.3				

[a] Change in CPI during the period. Quarterly rates shown in annual terms.

[b] In annual terms. As calculated by the Bank of Israel (see article on page 20 of the Inflation Report No. 30, January to March 2010).

[c] Period average

[d] Gross yield, based on the zero curve. Period average.

[e] Average of last month in period compared with average of last month in previous period.

[f] According to the Central Bureau of Statistics Survey of House Prices.

[g] Annual average compared with average of previous year.

[h] End of year figure.

SOURCE: Ministry of Finance, Central Bureau of Statistics and the Bank of Israel.

mortgage-loan market helped alleviate the demand for houses without affecting the foreign currency market. It therefore seems that the combined use of several tools has mitigated the substitutability of at least some of the targets.

Toward year's end, a Monetary Committee and Supervisory Council began to operate at the Bank, under the new Bank of Israel Law.

The new Bank of Israel Law went into effect in June 2010. In addition to defining the Bank's goals, the statute mandated the establishment of a Monetary Committee that would make policy for the attainment of the Bank's goals, and a Supervisory Council to oversee the Bank's conduct, work plan, and budget. In October 2011, the Government approved the appointments of public representatives to both the Committee and the Council. The Monetary Committee began activity shortly after the Government approved its composition and the interest decision for November was the first to be made under its auspices. The Supervisory Council held its first meeting in November.

Box 3.1: The Monetary Committee

The Knesset passed the new Bank of Israel Law in March 2010, replacing the law that had been in effect since 1954. The new law redefined the objectives of the Bank, its powers, and the manner of its organizational conduct. Among other things, it mandated the establishment of a Monetary Committee, as is conventional among many central banks.

Israel's Monetary Committee has six members: three representing the Bank of Israel—the Governor (who serves as Chairperson), the Deputy Governor, and another member of Bank of Israel staff, appointed by the Governor—and three from among the public. The latter do not work for the Bank of Israel; they are appointed by the Government per recommendation of a special search committee chaired by a retired Supreme Court justice. In October 2011, after a process that took more than a year, the Government appointed the external members of the committee. Setting the interest rate for November was its first policy decision.

The main innovation in managing monetary policy by means of a committee is that policy decisions are made by majority vote and not by one individual—the Governor—as had been the case. In the event of a tie, the Governor casts an additional vote. Until the Committee was appointed, monetary policy decisions were made on the basis of consultation by the Governor with the Senior Monetary Forum, an internal Bank of Israel panel that conducted discussions of policy related issues and presented the Governor with non-binding recommendations. Today, although the Monetary Committee determines its working procedures, its working process resembles that of the Senior Monetary Forum in most respects, at least thus far. Background material for policy decisions is prepared by the Bank's professional departments at their initiative and, in part, on the basis of guidelines from the members of the Committee, especially the Governor.

Generally speaking, there is a world wide trend[1] of transferring the authority to set monetary policy from a single individual to a committee, and thus far, no country that has operated on the basis of a monetary committee has reverted to the individual decision maker method (Maier, 2010). The central banks that have gone over to the committee method includes some of the leading ones—those of the UK, Japan, Norway, Sweden, Switzerland, as well as the ECB, which replaced a number of national central banks where in greater part policy decisions had been made by an individual.[2] According to Blinder (2006), the main reason for this trend is the transformation of central banks from institutions that implement government policy to autonomous entities that shape macroeconomic policy on their own, as has happened in Israel as well. In this situation, it is proper for reasons of checks and balances to have decisions made by several people in concert and not by one person only.

By and large, the checks and balances are reflected in the heterogeneity of the committee members. They include[3] (1) different specializations and backgrounds—for example, members from the central bank as against those from academia and the business sector. Three members of academia have been named to the Bank of Israel Monetary Committee; the other three are from the Bank's staff; (2) a different structure of preferences, e.g., a difference among committee members in the weight that they attribute to inflation as against to economic activity. However, the new Bank of Israel Law restricts, at least somewhat, each committee member's freedom to express his or her personal preferences by defining the objectives of the Bank and indicating, in general terms, the weight that should be attributed to each; (3) different attitudes toward the information presented—each member of the committee processes the information shown to them in their own way and has a unique perception of how the economy operates, i.e., a different model of the economy. One expects this situation to elicit different forecasts of economic developments even though all committee members base their forecasts on the same information; (4) the appointment of committee members to different terms in office. If the composition of the committee changes suddenly because several members finish their term of service at the same time, needless uncertainty about the future of monetary policy may arise, as could have happened when the sole decision-maker, the Governor, was replaced. In Israel, each of the Bank's representatives on the Monetary Committee has a different service horizon and the three representatives of the public were appointed to initial terms of service in a staggered way—to two, three, and four years—and therefore are unlikely to conclude their service together.

1 Blinder calls this "the quiet revolution."
2 The Fed has been using a monetary committee to make its policy decisions since the 1930s.
3 See Blinder (2006) and Maier (2010).

Collective decision-making has additional advantages. Most notably, collective decisions are better, on average, than those made by an individual. For example, when every decision-maker is exposed to information that has different noise levels, a group decision helps to neutralize noise that is specific to each decision-maker (idiosyncratic noise), making the decision better, on average, than the decision that each member of the group would make separately. Controlled experiments support this claim. For example, Blinder and Morgan (2005) and Lombardelli, Proudman, and Talbot (2005), in a simulation of monetary-policy management under conditions of uncertainty about the state of the economy, show that group policy decisions attained better results, on average, than one-man policy management. In reality, however, it is very difficult to evaluate whether monetary committees indeed outperform individual policymakers. One reason for the difficulty is that committees sometimes have a dominant member who influences their decisions, blurring the difference between his or her decisions and those of the committee. Second, even though laboratory trials may elicit an explicit criterion for a successful policy in accordance with a model chosen for a virtual economy, the criterion to be used in rating the performance of various policy decisions in a real economy is not clear.

Notwithstanding their advantages, monetary committees have drawbacks as well. A wide range of views among committee members is useful in maintaining checks and balances but may impede decision-making. Conversely, the wish to make decisions jointly may lead to "groupthink" that thwarts the full utilization of the advantage embodied in the heterogeneity of the committee members (Maier, 2010). In addition, as Blinder (1998) notes, committee decisions often reflect a compromise among members instead of a consensus. This may induce an inertia in policy that raises the probability of belated response or under-reaction to macro conditions. Some monetary committee working procedures, such as anonymous voting on policy decisions and rotating the speaking order across meetings, attempt to deal with these disadvantages. The current view, however, is that the advantages outweigh the disadvantages; therefore, the trend around the world, as stated, is to switch to committee management of monetary policy.

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b. The fundamentals and their effect on monetary policy

(1) Developments abroad

Risks of a double-dip recession abroad escalated during the year.

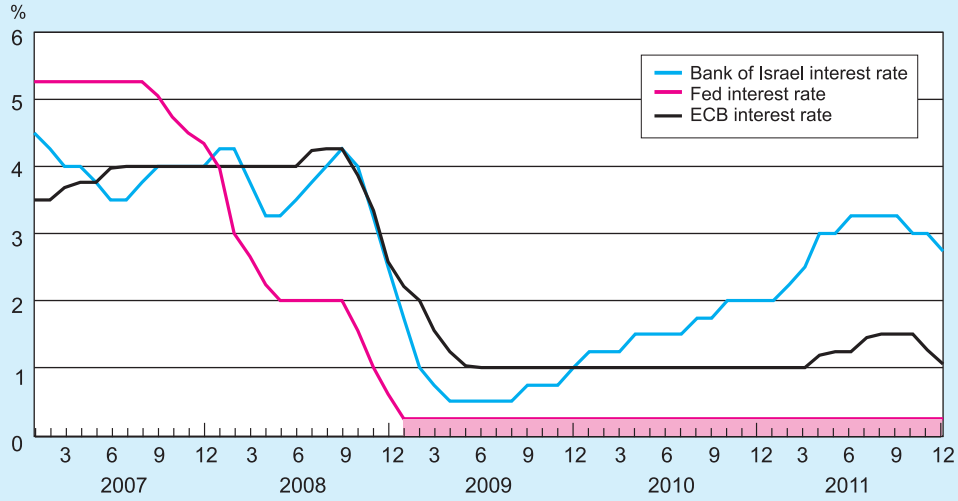
The signal event in 2011 was the worsening of Europe's government debt crisis, although the developments during the year were uneven: during its first half the global economic recovery that had begun in mid-2009 continued, whereas later in the year the global growth rate slowed, the expansion of global trade slowed, and the risks of a double-dip recession increased. Global growth was unbalanced: the emerging markets posted handsome growth rates while the developed markets, which had been the focus of the financial crisis, recovered more slowly. The downturn in the developed markets' situation and the increase in risk of a slowdown in these markets were reflected, among other things, in downward adjustments of the IMF growth outlooks for 2011—from 2.5 percent in January to 2.2 percent in June and 1.6 percent in September.

In the U.S., monetary accommodation and the growth of the federal debt continued in 2011. Signs of economic recovery became visible toward year's end.

In the United States, the transition from growth based on general-government demand to growth centering on private demand was delayed. At the beginning of year, as economic activity rebounded moderately, the markets moved up their expectation of Fed rate increases to late 2011. However, as fears of a double-dip recession escalated and the program of buying long term government bonds (QE2) came to an end, the Fed announced that its federal funds target rate would most likely remain at zero until the middle of 2013 at least. At the beginning of 2012, this horizon was extended to 2014. Concurrently, the Fed continued to act to lower long-term yields by recomposing its portfolio of assets—selling short-term government bonds and buying long-term ones (Operation Twist). On the fiscal side, the combination of continued high public expenditure and sluggish tax revenues, due to the languid level of activity, caused fiscal 2011[2] to end with a budget deficit of 8.7 percent of GDP. The federal debt/GDP ratio was 67 percent in 2011 as against 36 percent on average in the decade

[2] October 1, 2010–September 30, 2011.

Figure 3.2
Short-Term Interest Rates in Israel, the US, and the Eurozone, 2007–11
(monthly averages)



SOURCE: Bank of Israel, the Fed and the ECB.

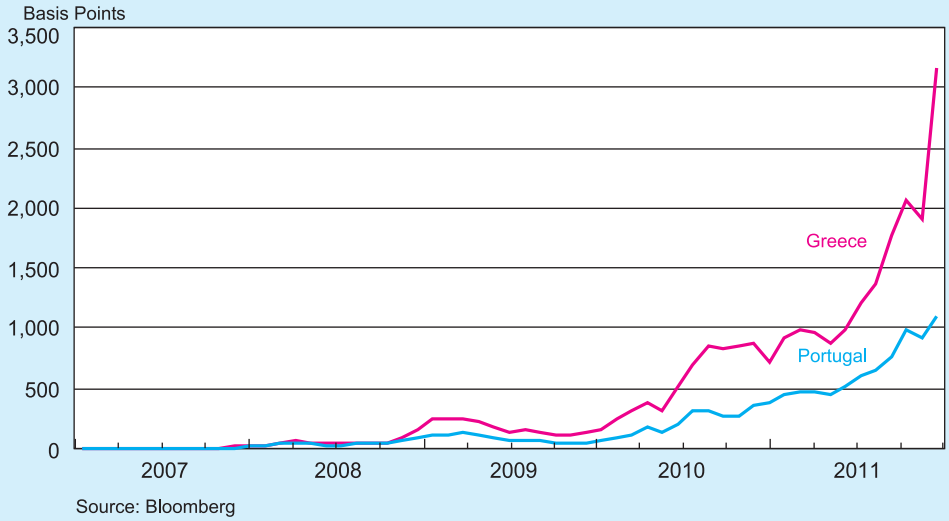
preceding the crisis. As the year wound down, however, several indicators of moderate US economic recovery came in, including a decrease in the jobless rate—evidently supported by the monetary and fiscal expansions.

In Europe, the benchmark rate was raised in the first half of the year. In the second half, as the Eurozone debt crisis worsened, the ECB reverted to a looser policy, applied via rate cuts and quantitative easing.

In Europe, the European Central Bank raised its rate by half a percentage point in the first half of the year, to 1.5 percent. Underlying this measure were an increase in eurozone inflation occasioned by rising global energy and commodity prices, and a sense at the beginning of the year that the continent's economies were climbing out of the financial crisis—even though most of the growth was concentrated the leading economies (Germany and France) and less in the peripheral ones. In the second half of the year, European economic activity slackened and the debt crisis worsened, as reflected in the widening of CDS spreads (Figure 3.3) and an increase in the cost to governments of issuing debt. Late in the year, the eurozone countries signed a pact that is expected to enhance their fiscal discipline and the supervisory mechanisms that apply to them. In August, the ECB resumed its purchases of eurozone countries' paper, and toward year's end it lowered its key rate by half a percentage point in cumulative terms. The ECB also announced that it would furnish the banking system with unusually long-term liquidity—up to three years—and broaden the definition of assets that could serve as collateral. In addition to these measures, the rescue fund (EFSF) acts to raise capital in support of the eurozone countries.

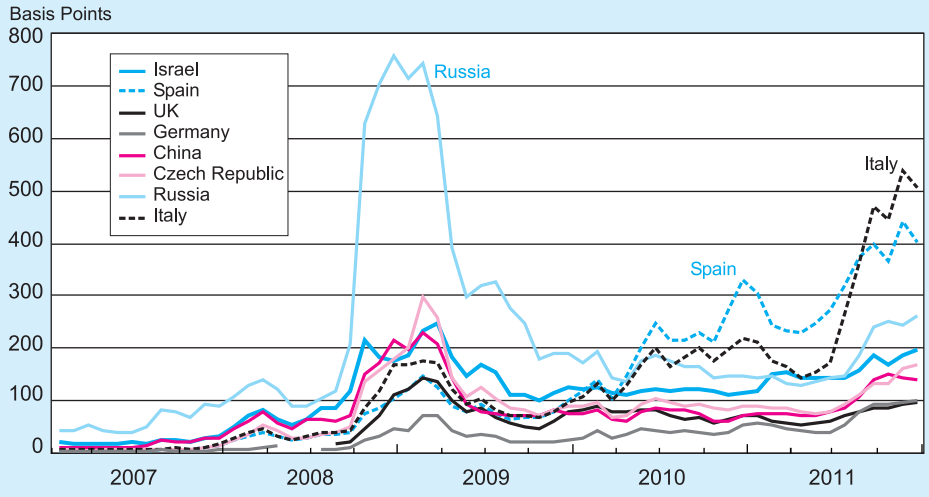
Europe's government-debt crisis followed rather closely on the heels of the financial rupture of 2008. In countries that experienced crises in their real-estate markets, e.g.,

Figure 3.3a
CDS Spreads for Greece and Portugal, 2007–11



Source: Bloomberg

Figure 3.3b
CDS Spreads for Selected Countries, 2007–11



Source: Bloomberg

Ireland and Spain, the rupture undermined financial stability and induced government support of the banks—or expectations of such support. Consequently, doubts arose as to governments' ability to repay their debts, especially given the low level of economic activity. Greece and Portugal, in contrast, did not undergo real-estate crises but probably would have tumbled into a debt crisis at some stage due to their deficit conduct; the recession that struck them pursuant to the 2008 crisis merely speeded up the process. Italy suffered from years of high debt/GDP ratios; it was this country's

slide into recession in the wake of the 2008 crisis, coupled with plummeting tax receipts, that frightened the markets about its ability to repay its debts. Thus, the current crisis, or at least its timing, appears to be mainly the outcome of the 2008 financial crisis.

In the Eurozone, the U.S., and the other industrialized countries, inflation climbed to 3 percent in 2011 despite lethargic activity.

Notwithstanding their sluggish level of activity, the developed countries had relatively high inflation in 2011 against the background of increases in energy and commodity prices, chiefly in the first half of the year. In the eurozone, the US, and the industrialized states at large, trailing-year inflation climbed to around 3 percent. During the year, however, the focus in central banks' policies apparently shifted to the support of economic activity as opposed to bringing down inflation, with the exception of the ECB at the beginning of the year.

Developments abroad were among the reasons for the stoppage of rate increases in mid-year and the rate cuts that followed.

As 2011 began, the combination of low interest in the developed markets and rapid rate-hiking in Israel led to an increase in capital-inflow and appreciation pressures—pursuant to trends that had been evident since 2010. Farther into the year, these pressures waned despite the interest spread for reasons including the restrictions that the Bank of Israel imposed on nonresident investors and the widening of Israel's CDS spread in view of the European debt crisis and political developments in the Middle East. The activity slump abroad and concern about the domestic economic implications of the European debt crisis, particularly in regard to exports, were among the main factors for the rate reductions that were made in the second half of the year and, in turn, the narrowing of Israel's interest spreads versus the rest of the world. Notably, even though economic activity in Europe has already tipped into recession, there is concern about an additional and steep downturn in the event of a national default. If such a development comes to pass, it will almost certainly affect the Israeli economy along real channels, by dampening exports, and along financial channels, by reducing the value of assets in Israeli hands.

(2) Domestic economic activity

From the second quarter on, the growth rate slowed after a year and a half of rapid economic expansion.

The growth of economic activity slowed in the review year after rapid expansion in 2010. In the first quarter, the economy grew by 4.7 percent in annual terms, after five consecutive quarters of growth of about 5 percent or more; however, since the second quarter, growth slowed to a pace lower than its potential[3]. In the second quarter, the unemployment rate fell to a low of 5.6 percent, indicating that the economy reached the top of its business cycle at around mid-year. The strong level of activity at the beginning of the year and the inflation pressures that it generated argued in favor of rapid increases in interest.

The background for the slowing of growth from the second quarter on was the deceleration of the global economy and the cresting of the domestic business cycle.

The background for the slowing of growth from the second quarter on was the global economic downturn, foremost in Europe. The effect of the situation abroad was manifested in exports, which decelerated in the second quarter and contracted in the second half of the year. However, there was reason to expect some decrease in 2011

[3] For a discussion about the growth rate of potential output see Box 2.2 in Chapter 2.

even without the slowdown abroad and the fears of escalation in Europe's debt crisis, because the combination of strong growth since 2009 and the lowest unemployment rate in recent decades suggest that the economy was verging on full utilization of its production capacity.

Signs of deceleration were also reflected in the growth rate of current consumption, which accounts for 55 percent of GDP, and a steep decline in purchases of durable goods. These developments suggest that the public was expecting the growth of its income to slow or had become more uncertain about its future income, for reasons including a stock-market slump during the year that eroded the value of its portfolio. The softness of private consumption was also evidenced in ongoing weakness in the consumer sentiment indices during the year.

The slackening of real activity supported a moratorium in increases in interest, and toward the end of the year, as concern about an additional dampening effect emanating from Europe's debt crisis gathered strength, the Bank of Israel began to lower its target rate moderately.

Even though growth has slowed at the present writing, two indicators are inconsistent with the continuation of the slump—investment, chiefly in machinery and equipment, and developments in the labor market. Both are important in making interest policy because they may be indicative of the perseverance or weakness of growth.

Fixed investment, particularly in machinery and equipment, remained strong in the second and third quarters of the review year. This indicator eased off in the fourth quarter, and foreign-trade data indicate a slowdown in machinery and equipment imports even though the National Accounts data for the fourth quarter of 2011 still show strong growth of this component. The high level of investment may reflect decisions made several quarters before they were carried out, suggesting that investment will decline now that the growth of activity has waned. In the labor market, even though the overall growth rate slowed, employment continued to increase and the jobless rate fell to its lowest level in recent decades—5.4 percent in the fourth quarter.

While most indicators apparently do suggest that domestic activity has slowed, uncertainty about the intensity of the slump and mixed signals from investment and the labor market were supportive of mild rate-cutting only. For broader discussion of real activity, see Chapter 2.

(3) Actual and expected inflation

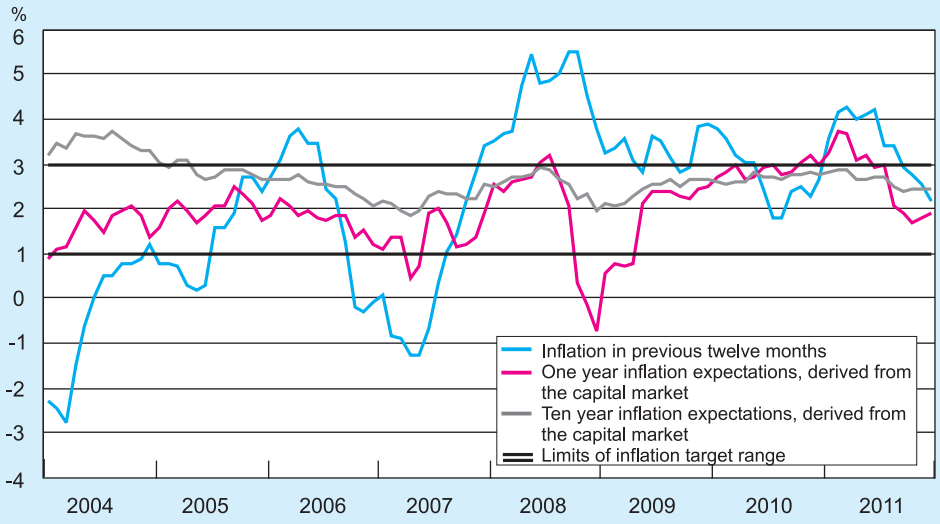
The Bank of Israel operates under a flexible inflation-targeting regime. Since its principal objective is the maintenance of price stability, the development of actual and expected inflation has a major effect on monetary policy. The Bank of Israel Law also requires the Bank to support the attainment of other goals of government economic policy—especially growth, employment, and the narrowing of social gaps—provided that its efforts in the service of these goals do not, in the opinion of the Monetary

Committee, cause the inflation target range to be overshot, or undershot, for more than two years.[4]

Under the flexible inflation targeting regime, an accommodative monetary policy was applied in 2008–2009 despite the high inflation rate—initially due to fears of an activity slump and later because the fears came to pass.

In the past four years, actual inflation has been around the upper bound of the target and has overshot the bound most of the time (Figure 3.4). The overrun in 2008 and 2009 reflected, among other things, flexibility in attaining the inflation target. In those years, monetary accommodation was applied despite a high rate of actual inflation, initially due to fear of an economic slowdown and subsequently because the slowdown had become a reality. In 2010, against the background of the retreat from monetary accommodation, inflation reverted to the target range, coinciding with the rebound of economic activity. At the beginning of the recovery, the level of economic activity was evidently low enough to avert inflation pressures, but the situation changed toward the end of 2010 and inflation began to move up. Twelve-month-ahead inflation expectations, as implied by the capital market and the analysts' outlooks, also rose steadily in 2010, from the midpoint of the target range to its upper bound.

Figure 3.4
Inflation in Previous Twelve Months, Inflation Expectations, and the Inflation Target, 2004–11
(monthly averages)



SOURCE: The Central Bureau of Statistics.

[4] The Bank is also required to support the stability and sound activity of the financial system. This goal parallels that of price stability; the law does not condition the Bank's effort to attain it on the non-impairment of price stability. As a rule, the tools for the attainment of financial-system stability—e.g., requiring banks to meet capital adequacy standards—are macroprudential; generally speaking, there is no need to change them in the middle of the business cycle, although it can be done (unlike the main instrument for the attainment of the price-stability target, monetary interest, which is wielded to moderate cyclical movements in inflation). Therefore, there is rarely a conflict between attaining the price-stability target and supporting financial stability.

Table 3.3
Nominal and Real Interest Rates, Inflation Expectations and Actual Inflation, 2006–11

(period average, percent)

	Bank of Israel key interest rate	The Bank of Israel's effective interest rate[a]	Effective interest on overdrafts	Difference between interest on overdrafts and Bank of Israel effective interest rate	1-year inflation expectations		Real yields to maturing on		CPI inflation during previous 12 months
					From capital market[b]	Forecasters' average	1-year CPI-indexed bonds[c]	10-year CPI-indexed bonds[c]	
Annuak average									
2006	5.1	5.3	11.0	5.4	1.8	1.9	3.7	3.8	-0.1
2007	3.9	4.0	9.9	5.7	1.4	1.9	2.9	3.4	3.4
2008	3.7	3.7	9.8	5.9	1.9	2.4	1.9	3.5	3.8
2009	0.8	0.8	8.0	7.2	1.8	1.8	-0.4	2.9	3.9
2010	1.6	1.6	9.2	7.5	2.9	2.7	-0.7	2.2	2.7
2011	2.9	2.9	10.5	7.3	2.7	2.8	0.4	2.4	2.2
2010									
January	1.25	1.26	8.8	7.5	2.7	2.4	-0.7	2.6	3.8
February	1.25	1.26	8.8	7.5	2.8	2.1	-0.8	2.6	3.6
March	1.25	1.26	8.7	7.4	3.0	2.4	-0.9	2.4	3.2
April	1.50	1.51	9.1	7.5	2.7	2.6	-0.5	2.5	3.0
May	1.50	1.51	9.1	7.5	2.7	2.7	-0.6	2.4	3.0
June	1.50	1.51	9.2	7.6	2.9	2.7	-0.8	2.2	2.4
July	1.50	1.54	9.1	7.5	3.0	3.0	-0.8	2.1	1.8
August	1.75	1.77	9.4	7.5	2.7	3.0	-0.5	1.9	1.8
September	1.75	1.77	9.3	7.4	2.8	2.9	-0.5	1.8	2.4
October	2.00	2.02	9.6	7.5	3.0	2.8	-0.6	1.7	2.5
November	2.00	2.02	9.8	7.6	3.2	2.9	-0.8	1.8	2.3
December	2.00	2.02	9.6	7.4	3.0	2.9	-0.5	2.1	2.7
2011									
January	2.00	2.06	9.6	7.4	3.3	3.0	-0.8	2.2	3.6
February	2.25	2.32	10.9	8.3	3.8	3.1	-0.9	2.4	4.2
March	2.50	2.55	10.2	7.5	3.7	3.1	-0.5	2.5	4.3
April	3.00	3.05	10.3	7.1	3.1	3.1	0.3	2.7	4.0
May	3.00	3.10	10.5	7.1	3.2	3.1	0.2	2.7	4.1
June	3.25	3.30	10.5	7.0	2.9	3.0	0.6	2.6	4.2
July	3.25	3.30	10.8	7.3	3.0	2.9	0.5	2.5	3.4
August	3.25	3.30	10.8	7.3	2.1	2.7	1.1	2.4	3.4
September	3.25	3.30	10.3	6.8	1.9	2.4	1.0	2.4	2.9
October	3.25	3.05	10.8	7.5	1.7	2.2	1.1	2.3	2.7
November	3.00	3.05	10.9	7.6	1.8	2.3	0.9	2.3	2.6
December	2.75	2.79	10.4	7.4	1.9	2.2	0.7	2.3	2.2

[a] Effective interest; in annual terms.

[b] Based on gross returns.

[c] Smoothed zero curve of *Galil* yields.

SOURCE: Bank of Israel and Central Bureau of Statistics.

The inflation rate was high at the beginning of 2011 but then slipped toward the midpoint of the target.

Inflation and inflation expectations developed unevenly in 2011. The inflation environment rose at the beginning of the year, again breaching the upper bound of the target. Farther on, the inflation environment returned to around the midpoint. The continuation of rapid growth affected actual and expected inflation, bringing their annual rates to 4.3 percent and 3.8 percent, respectively, in the first half of the year. In this context, it bears emphasis that the pass-through of economic activity to inflation depends more on the level of activity than on the growth rate. In periods of downturn, an economy develops excess production capacity; therefore, the exit from the slump may be accompanied by high growth rates and the increase in demand may be satisfied more by the expansion of activity and contraction of the capacity surplus than by increases in prices. As the economy approaches the full utilization of its production potential, it becomes harder to generate more activity; now, any further increase in demand tends to be met more by price increases than by the expansion of production. Against this backdrop, the Bank of Israel raised its rate more aggressively in early 2011, from 2 percent in January to 3.25 percent in June.

As the year continued, actual and expected inflation slowed in tandem with the slowing of economic growth and concern about the slowdown abroad and its effect on the domestic market. The development of actual inflation was particularly visible in the behavior of the seasonally adjusted Consumer Price Index, which dropped from 5.8 percent in annual terms in the first quarter of 2010 to around 1 percent on average later in the year (Table 3.2). These developments supported the ending of the rate increasing cycle and, subsequently, the onset of rate cuts. Furthermore, at least some of the downturn in inflation in the second half of the year seems to have been abetted by the rapid rate increases in the first half.

Medium-term inflation expectations overshot the upper bound of the target at the beginning of the year but reverted to the target zone later on.

The developments described above were reflected only somewhat in inflation expectations for the medium term. In the first quarter, expectations of annual inflation in 2–5 years ahead ("forward" expectations) overshot the upper bound of the inflation target by as much as 0.2 percentage points and returned, relative to the actual inflation rate and to the one year ahead expectations, rather quickly and stood at 2.5 percent at year's end. Despite the relatively large and protracted overshooting of inflation relative to the target from January to August, the overrun of inflation expectations was smaller and briefer (Figure 3.4). The convergence of expectations to the target range shows that monetary policy remained credible in market players' eyes during the year. The development of long-term inflation expectations reinforces this interpretation.

(4) The capital market

The transition from rapid growth to slowdown was evident in developments in the capital market.

Share prices fell by 18 percent during the review year[5] after trending upward since the beginning of 2008. This development resembles that of emerging-market share

[5] Tel Aviv 100 Index, December 2011 average vs. December 2010 average.

indices, although the decline in Israel was steeper. As a rule, share prices presage the development of GDP by about two quarters; after the fact, one might have seen in the share market developments signs of the impending slowdown in activity. It bears emphasis, however, that the severe volatility makes it hard to determine in real time whether changes in share prices reflect a change in trend or are transitory.

The 0.5 percent rate increase for April brought the real yield on 1 year government bonds into positive territory for the first time in two years.

For two years starting in the second quarter of 2009, the real yield on one-year government bonds was negative even though the monetary interest rate was raised from 0.5 percent to 2.5 percent. Only the rapid increase in interest at the beginning of the year—particularly the 0.5 percent rate hike in April—lifted the real yield into positive territory, but at a mere 1 percent even then. The paltry real yield amid rapid expansion of economic activity and above-target inflation suggests that monetary policy in the preceding years was expansionary despite the rising trajectory of nominal interest.

In the second half of the year, real yields on middle- and long-term government bonds slumped and yield spreads between corporate and government paper widened; both developments attested to expectations of a slowdown in economic activity.

At the beginning of 2011, real yield curves rose for all terms to maturity and one-year yields, as stated, became positive after two years in negative territory. The upward shift of the curve, especially at its long end, signaled expectations of continued economic expansion, and the increase in short-term yields was mostly a reflection of the decrease in inflation expectations. As the year continued, amid slowing domestic growth and rising concerns about the escalation of Europe's crisis and its effect on the Israeli economy, real yields fell back, foremost the middle and long durations. The flattening of the yield curve attests to expectations of an easing of growth.

From the second quarter on, the yield spreads of corporate bonds versus government paper widened in all rating groups. This signaled expectations of a slowdown because at times of receding activity, when corporate defaults become more probable, investors in the capital market demand a higher return to compensate themselves for the higher level of risk. Despite the widening of spreads, however, business credit did not appear to decrease in 2011 relative to 2010, least of all in non-bank credit.

The prevailing view is that monetary policy should not respond to asset prices unless they provide information about the development of the economy and inflation beyond the information embodied in other indicators.

As for whether monetary policy should respond to capital market developments generally, and asset prices particularly, the economic literature is of more than one mind. The prevailing view is that asset prices should have only a minor effect on ongoing monetary policy unless they provide information about the development of the economy and inflation beyond the information embodied in other indicators.[6] The rationale behind this attitude is that monetary policy tools are not delicate enough to focus on asset prices only; if they are used, they will affect the entire economy. For example, an attempt to attenuate asset prices by raising interest by more than the amount derived from macro conditions, i.e., economic activity and inflation, would

[6] See Bernanke, B. S., (2011), "The Effects of the Great Recession on Central Bank Doctrine and Practice," Speech delivered at the 56th Economic Conference, Federal Reserve Bank of Boston, Boston MA, October 18; Bernanke B. S. and M. Gertler, (2001), "Should Central Banks Respond to Movements in Asset Prices?" American Economic Review 91(2), 253–257; Svensson, L. E., (2011), "Central-Banking Challenges for the Riksbank: Monetary Policy, Financial-Stability Policy and Asset Management," speech delivered at the School of Business, Economics and Law, University of Gothenburg, Sweden, November 17.

thrust economic activity into recession. The use of monetary policy to restrain asset prices becomes even more problematic when asset prices become disengaged from their fundamentals; in this case, only an aggressive interest change would affect asset prices, resulting in a larger impact on the economy at large.[7] Others dispute this view, arguing that the stability of asset prices should be one of the central bank's objectives along with price stability and that, therefore, monetary policy should respond to asset prices on an ongoing basis.[8]

Developments in the asset markets may provide an indication of financial stability, which may be maintained by means of macro- and micro-prudential tools.

Despite the differences between these approaches, it is agreed that while capital market developments may be indicative of financial stability, the maintenance of stability can be accomplished by means of macro- and micro-prudential tools that are not necessarily part of the ongoing policy—tools that may be invoked for the spot treatment of specific markets, making a smaller impact on the economy at large. Indeed, in 2011 the Bank of Israel wielded a range of regulatory and supervisory tools outside its ongoing monetary-policy toolkit to enhance the stability and the sound activity of the financial system. They included a compulsory increase in banks' equity and tougher monitoring of their capital ratios, stress tests for the banking system and insurance companies, and surveillance of these institutions' stability. (See Chapter 4 for elaboration.) In the housing market, pursuant to macroprudential measures in 2010, the Supervisor of Banks ordered the banks to limit the adjustable-rate share of mortgage loans to one-third of lending to borrower. In the first half of the year, however, the Bank of Israel also used interest—the principal tool of monetary policy—to counter the surge in house prices. For expanded discussion of the housing market, see Section d below.

c. The exchange rate and the foreign currency market

The trend of shekel appreciation came to a halt in 2011. During the year, the currency depreciated by 3.6 percent in terms of the nominal effective exchange rate (December 2011 average against December 2010 average) and by 4.5 percent in real effective terms. The main pro-depreciation forces in 2011 were the slowing of exports and the deterioration of the current account, regional political instability, the appreciation of the US dollar abroad, the imposition of compulsory liquidity on nonresident transactions in foreign-currency derivatives, the repeal of the nonresident exemption on capital-gains tax, and, toward the end of the year, rate-cutting.

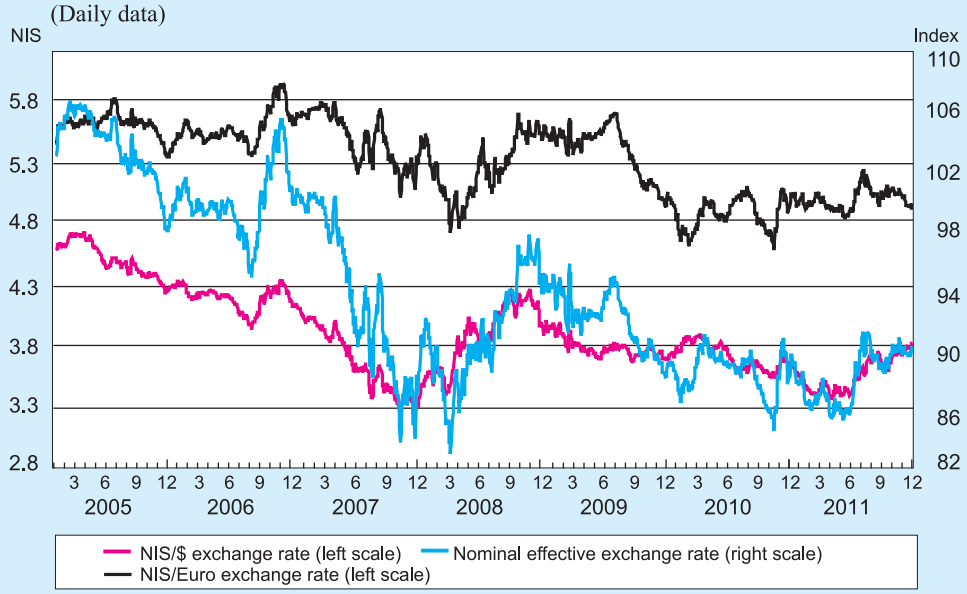
At the beginning of the year, the interest spread between Israel and the developed markets attracted short-term capital and created appreciation pressure.

Appreciation pressure was evident in late 2010 and early 2011, mainly due to short-term capital flows occasioned by the interest spread between Israel and the Western economies and expectations of domestic rate increases. In recent years, these forces have been typical not only of Israel but also of other fast-growing economies that

[7] For a discussion of this topic and, specifically, the effect of monetary policy on the US Great Depression in the 1930s, see Bernanke, B. S. (2002), "Asset-Price 'Bubbles' and Monetary Policy," Speech delivered before the New York Chapter of the National Association for Business Economics, New York, October 15.

[8] See Roubini, N., (2006). "Why Central Banks Should Burst Bubbles." International Finance 9(1), 87–107.

Figure 3.5
NIS/$ Exchange Rate, NIS/Euro Exchange Rate, and Index of Nominal Effective Exchange Rate (January 1, 2007 = 100), 2005–11
(Daily data)

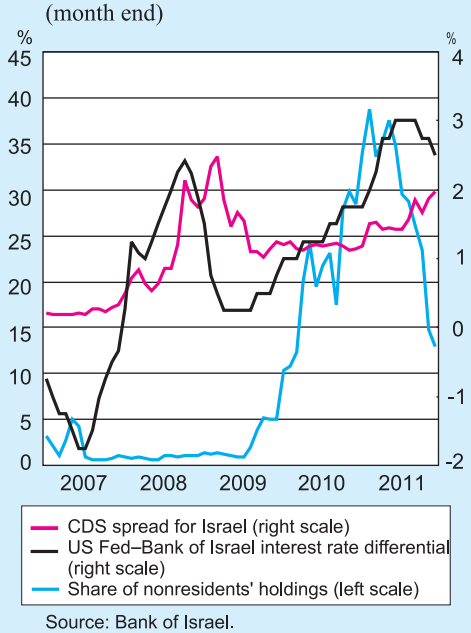


SOURCE: Bank of Israel.

had higher interest rates than those of the developed markets because they had been less badly harmed by the financial crisis. The short-term capital inflows were evidenced in a proportional increase in foreign investors' makam holdings (Figure 3.6). From January 2008 to the middle of 2009, nonresidents' share in holdings of this paper was around 1 percent only, but as the Bank of Israel interest rate increased and an interest rate spread to the advantage of the shekel took shape, along with the narrowing of Israel's CDS spread, it escalated to 39 percent in February 2011.

These developments presented monetary policymakers with a challenge. The high level of activity and its attendant inflation pressures, coupled with the roiling housing market,

Figure 3.6
Share of Nonresidents' Holdings of *Makam*, 2007–11
(month end)



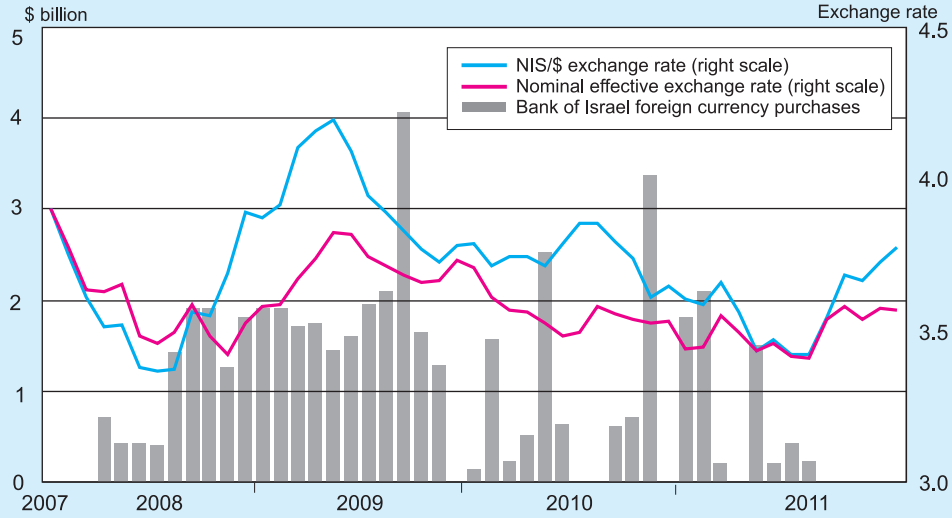
Source: Bank of Israel.

Domestic developments favored rate increases but appreciation pressure and its concomitant, possible detriment to exports, delayed them. In response to this dilemma, the Bank of Israel has been purchasing foreign currency in recent years.

warranted faster rate increases at the beginning of the year, as indeed happened. The widening of the interest spread between the shekel and the developed economies' currencies, however, induced an inflow of short-term foreign capital, causing powerful appreciation pressure. A strong shekel erodes the profitability of Israeli exports—an important engine of growth—and therefore may impair economic activity. As part of its response to this dilemma, the Bank of Israel purchased foreign currency in recent years, even though to maintain the effect of the purchases on the exchange rate it is necessary to forgo, under a regime of unrestricted capital flows, some flexibility in managing interest for achieving the inflation target. Consequently, the pace of rate increases up to 2011 was probably slower than what would be desired had there been no pressure on the exchange rate. This created the need for action not only by means of foreign currency purchases, which had lost some of their effectiveness,[9] but also by placing some controls, albeit modest ones, in the path of the capital inflows.

The challenge to the management of monetary policy was evident in the trajectory of the foreign-currency purchases and the development of the Bank of Israel interest rate (Figure 3.7): from August 2009, when fixed-sum daily purchases of foreign currency were changed to variable-size purchases as needed, to January 2011, when the reserve requirements were imposed, the size of the foreign-currency purchases

Figure 3.7
Bank of Israel Foreign Currency Purchases, the NIS/$ Exchange Rate, and the Nominal Effective Exchange Rate[a,b] (Index), December 2007 to 2011
(monthly purchases, monthly average exchange rate)



[a] The trade-weighted average shekel exchange rate against 28 currencies (used by 38 of Israel's trading partners).
[b] The nominal effective exchange rate is indexed to the dollar rate of December 2007.
SOURCE: Bank of Israel.

[9] See Sorezcky, A. (2010), "Did the Bank of Israel Affect the Exchange Rate?" Bank of Israel Research Department, Discussion Paper 2010.10.

increased relative to the previous month in every month when the Bank of Israel rate was raised.[10] This is indicative of the appreciation pressures that built up as a result of the rate increases, and of the need to offset them.

The imposition of the reserve requirement allowed the Bank flexibility about rate increases while supporting the exchange rate.

Against the background of these developments, the Bank of Israel imposed a 10 percent reserve requirement on nonresident transactions in foreign-currency derivatives. This eroded the profitability of domestic-currency deposits for nonresidents relative to foreign-currency deposits by allowing them to earn the domestic interest rate only on the principal less the liquidity requirement and not on the entire principal that they deposited. From these investors' point of view, then, the reserve requirement was tantamount to a domestic interest rate cut. Specifically, a 10 percent reserve requirement is equal to lowering every percentage point of the domestic interest rate by 0.1 percentage point, narrowing the effective interest spread that nonresidents may exploit. Indeed, after the reserve requirement was introduced, the proportion of nonresidents in makam holdings fell (Figure 3.6) and the shekel depreciated. It is difficult, however, to evaluate the effect of this measure on the exchange rate, since as it was imposed the appreciation pressures were diminishing in any case due to the slump in exports, the expectation of a downturn in domestic economic activity, and geopolitical instability, accompanied by the widening of Israel's CDS spread, all of which made it unnecessary to purchase foreign currency farther into the year. Furthermore, since the reserve requirement was imposed on banks only and not on institutional entities, nonresidents may have switched to the institutions to manage their activity, thereby avoided the erosion of return that the reserve requirement created. In addition, some nonresident holdings went over to government bonds that were about to mature as a substitute for makam.

As the Bank of Israel made the aforementioned moves in the foreign currency market, in June 2011 the Finance Committee of the Knesset abolished the nonresident tax exemption on interest income from short-term government bonds and makam and on capital gains originating indirectly, e.g. via mutual funds, in state loans that mature up to about one year from date of issue. Also, in November, the Income Tax Ordinance was amended to abolish the exemption from capital-gains tax on direct sale of and interest income from short-term state loans.[11,12]

d. The housing market

According to the indicators available at the present writing, 2011 appears to have been a watershed year in the housing market. In the first quarter, pursuant to the trend in the previous three years, house prices rose swiftly and were one of the factors

[10] An outlier in this respect was September 2009, immediately after the changeover to variable purchases of foreign currency and after the largest purchases were made in August since the Bank of Israel began to buy foreign currency in March 2008.

[11] Section 97(b2) of the Income Tax Ordinance, Amendment 186.

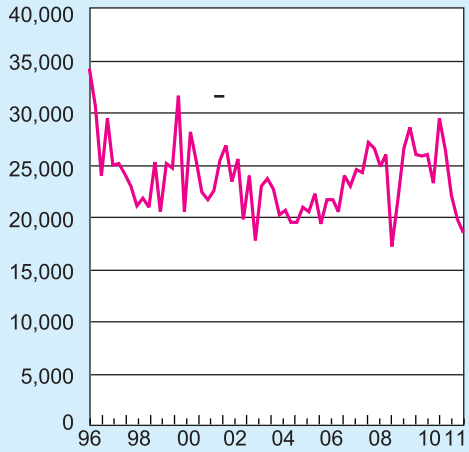
[12] The tax rate at which investors are charged depends on the investor's identity—individual or corporation—and on the existence or nonexistence of a tax treaty between Israel and the investor's country of origin.

that supported rate increases. Later in the year, however, the housing market appeared to have cooled off: first the number of transactions decreased; prices did the same afterwards.

In recent years, the number of transactions in the housing market has been an early indicator of the development of house prices. In the current cycle, transactions peaked in late 2010.

In 2008–2010, home prices increased by 36.6 percent in real terms—10.9% on annual average, far above the long-term pace. The surge in the housing market was first reflected in an increase in transactions, starting in 2007 (Figure 3.8). After a temporary pause in the last quarter of 2008 against the background of the global financial crisis, the number of transactions crested in the fourth quarter of 2010 and has been declining ever since, reflecting the moderation of the housing market. Even though prices continued to rise rapidly in the first quarter of 2011, the decrease in the number of transactions gathered speed; by year's end, transactions were at levels typical of previous recessions. The precipitous decrease in transactions took place against the backdrop of the cost-of-living protests and the buildup of expectations of price decreases, motivating potential homebuyers to postpone transactions.

Figure 3.8
Number of Housing Transactions Received at Purchase Tax and Betterment Tax Offices, 1996–2011
(actual transaction)

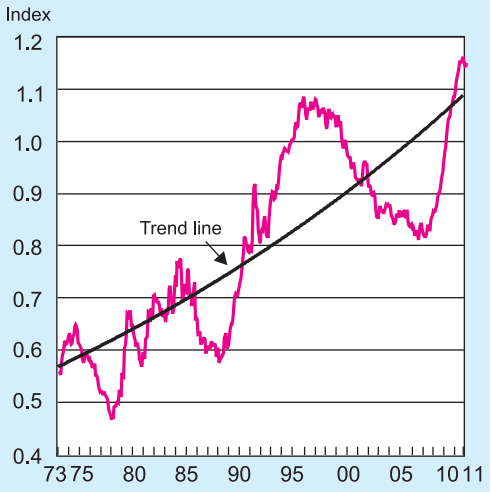


Source: Based on Tax Authority data.

Despite the rapid increase in house prices in recent years, the recent spike in the housing market is not unusually intense by the standards of previous upturns in Israel.

Assuming that these developments marked the peak of the home-price cycle, it is of interest to examine the development of house prices from a long-term perspective and, specifically, to compare what appears (at least at the present writing) to be the current peak with previous peaks. Figure 3.9, showing the development of real house prices since 1973, indicates that real prices rise over time, the multiannual pace averaged 1.7 percent, and that prices follow cycles of highs and lows of lesser frequency than the economy's business cycles. At the peak of the current cycle, the real price was 7.8 percent above the

Figure 3.9
Real House Price Index (Relative to the CPI), 1973–2011
(monthly data, January 2000 = 1)



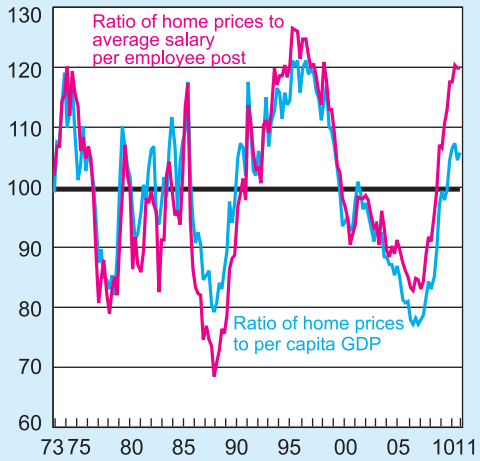
SOURCE: Based on Central Bureau of Statistics data.

trend as against higher margins in most earlier peaks. Figure 3.10 shows the development of house prices relative to income, measured in terms of per-capita GDP and average wage per employee post. The figure shows that in the middle of 2011, the price/per capita GDP ratio peaked at 8 percent over the multiannual averge and the price/average wage ratio peaked at 20 percent above the average; much as in previous peaks. These data suggest that the recent spike in the housing market is not unusually intense by the standards of previous upturns in Israel.

The upturn in house prices in recent years was accompanied by rapid increases in housing credit and the loan-to-value (LTV) ratio. In addition, low monetary interest rates contributed to a decrease in mortgage-loan interest, making adjustable-rate programs—non-indexed ones above all—more attractive than other programs, at least in the short term. As a result, the share of "prime" loans in total new mortgage lending increased vigorously (Figure 3.11). These developments, along with growing competition among mortgage banks, fueled concerns about damage to the banking system: although the ARM programs have been worthwhile in the short term, a future increase in interest would raise borrowers' repayments and topple some borrowers into default, especially given the general increase in the LTV ratio. This aside, the strong competition in the mortgage-lending industry has narrowed the banks' profit margins on housing credit.

Against this background, the Bank of Israel took macroprudential measures to

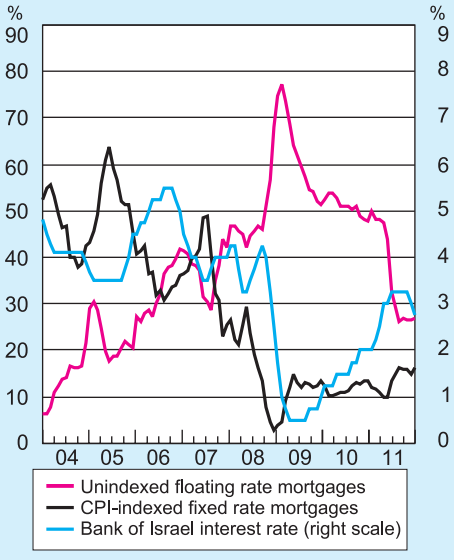
Figure 3.10
Ratio of Home Prices to Per Capita GDP and to Salary, 1973–2011
(quarterly figures, sample average = 100)



Source: Based on Central Bureau of Statistics.

The surging housing market led to a rapid increase in housing credit, an upturn in the share of "prime" loans, and an increase in home buyers' leveraging—all of which causing greater concern about the vulnerability of the banking system.

Figure 3.11
Share of Unindexed Floating Rate Mortgages in Total Mortgages; Share of CPI-Indexed Fixed Rate Mortgages in Total Mortgages; Bank of Israel Interest Rate, 2004–11



Source: Bank of Israel.

To mitigate the banks' credit risks, the Bank of Israel took macro-prudential steps in the housing loan market.

mitigate the banks' credit risks and the borrowers' risks as well. Pursuant to the actions taken in 2010, the Supervisor of Banks instructed banks to limit the adjustable rate component of mortgage loans to one-third of the total housing loan. The limit applied to new housing loans in all adjustable rate programs in which the rate may change over a period of less than five years. The directive lowered the share of adjustable rate lending significantly.

The average share of non-indexed ARM loans—so-called "prime" mortgage loans—in total new mortgage lending was 48.8 percent in the first quarter of the year, shortly before the Supervisor issued his directive. This share had been declining slowly but steadily from the last quarter of 2009 after peaking at 77.3 percent in February of that year (Figure 3.11). On the eve of the crisis, in the third quarter of 2008, the share of these loans stood at 46.3 percent after trending up steadily since 2003. Therefore, were it not for the Supervisor's directive, the potential likelihood of a significant decrease in this proportion appears to have been limited; thus, the directive was the main factor behind the fall to 27 percent at year's end. Notably, despite concerns about borrowers' solvency, the ratio of problem debts in housing loans has not risen to date. In fact, it has been drifting down for the past five years and stood at 2 percent in the third quarter of 2011[13] as against 4 percent in 2006.[14] However, the resumption of increases in interest after the current crisis blows over may push the rate of problem debts up.

The increase in rents outpaced the Consumer Price Index for the fourth consecutive year.

Rents increased by 5.1 percent in 2011, outpacing the Consumer Price Index for the fourth consecutive year; this component of the index was one of the main factors behind the above-target inflation rate during most of this time (Figure 3.12). A rapid increase in rent is indicative of strong demand for housing services—as distinct from demand for houses as such, which, of course, traces not only to the need for accommodations but also to investment motives. That is, the purchase of a dwelling may be motivated by an expectation of future capital gains due to appreciation of the property, whereas one who rents an apartment consumes nothing but the housing services that the dwelling provides and receives no gain at the end of the lease. In the long term, assuming no significant change in real long-term yields, rent and house prices move at similar rates. Since house prices have gone up faster than rent in recent years, one should expect the spread between them to close. This, however, may happen not only due to the moderation of house prices but also to an increase in rent prompted by the expectation of a slump in house prices; such expectations would probably lead to the postponement of purchases, increasing demand for rental accommodations, at least in the near term.

For an expanded discussion of the real activity in the housing market, see the section on Construction in Chapter 2.

[13] The most recent data available at the present writing.

[14] The increase in interest from a low of 0.5 percent in April 2009 to 3.25 percent in June 2011 raised the monthly payback on a twenty-year "prime" mortgage loan by more than 25 percent. In other words, despite this significant increase in monthly payback, the share of problem debts has not risen, at least at the present writing.

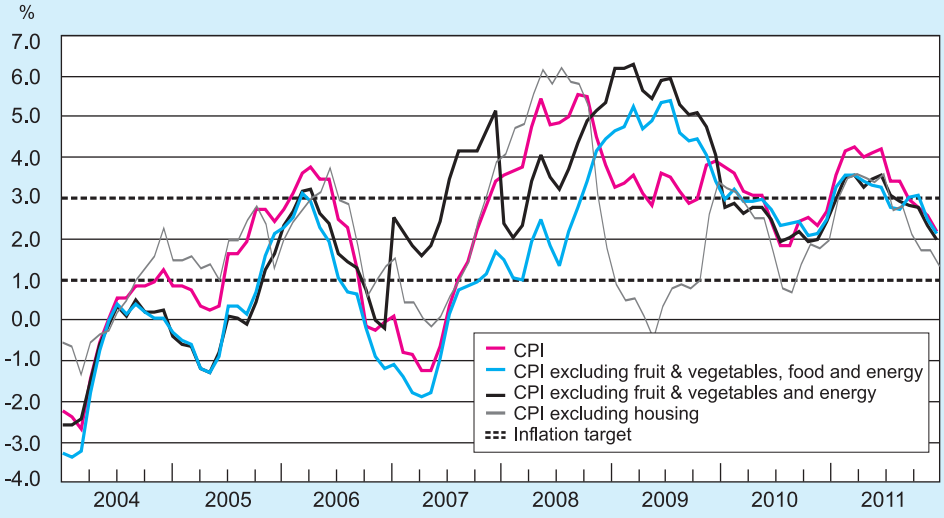
2. PRICES

a. Inflation and its components

CPI inflation was 2.2 percent in 2011, within the target range.

The inflation rate, measured by the Consumer Price Index, was 2.2 percent in 2011, not far from the midpoint of the 1–3 percent price-stability target that has been in effect since 2003. Inflation in the trailing twelve months overshot the upper bound of the target most of the year, peaking at 4.3 percent in March and returning to the target range in September (Figure 3.12).

Figure 3.12
Inflation in Previous Twelve Months: CPI and the CPI Excluding Certain Items, 2004–11



SOURCE: Based on Central Bureau of Statistics data.

The CPI excluding the fruit and vegetables and energy components[15] developed similarly—overshooting the upper bound of the target at the beginning of the year and receding later on. The fruit and vegetables and energy components are very volatile but relatively small, at around 10 percent of the index together. Changes in fruit-and-vegetable prices are reflective mainly of temporary supply shocks, and energy prices are set abroad; monetary policy has a limited effect on their development and they do

[15] In examining the "net of" indices, is sometimes accepted to remove also the housing component because in the past its fluctuations reflected those of the exchange rate more than the inflation environment—the outcome of the practice of quoting rent in US dollars. As the shekel has gathered strength in recent years, this practice has diminished, and in 2011 about 95 percent of leases were denominated in shekels. Consequently, the housing component has become less volatile and probably does a better job of reflecting the inflation environment even in the short-term. Accordingly, the need to net out the housing component from the CPI is not as strong as before.

Table 3.4
Price Developments, 2003—11

	CPI	Fruit & vegetables	Food	Housing	Dwellings maintenance	Furniture and household equipment	Clothing and footwear	Education, culture and entertainment	Health	Transport and communications	Miscellaneous	Energy index[a]	CPI excluding food and energy	General CPI seasonally adjusted[b]
							Year-end, percentage annual change							
2003	-1.9	4.2	0.3	-6.7	0.0	-2.6	-4.0	-0.5	-0.4	-0.6	-1.7	3.4	-2.6	
2004	1.2	6.0	1.8	-2.5	5.6	-1.4	-4.2	-0.6	3.3	3.3	3.0	12.1	0.3	
2005	2.4	-9.6	2.0	5.9	5.1	-1.4	-4.3	0.7	2.2	1.4	2.4	7.1	1.5	
2006	-0.1	12.0	3.6	-6.1	-1.2	-0.3	-1.7	1.2	1.8	0.0	2.0	-2.0	-0.6	
2007	3.4	7.0	6.3	1.9	6.1	0.6	-0.7	1.5	1.9	4.2	1.3	14.4	1.9	
2008	3.8	-2.0	9.1	12.1	3.9	-2.5	-3.0	1.6	1.8	-2.0	2.2	-9.5	4.2	
2009	9.3	8.4	1.1	6.5	2.5	-1.2	-4.4	1.4	2.5	6.5	4.5	13.0	3.6	
2010	7.2	16.0	2.0	9.4	-2.1	-2.8	4.5	1.5	0.6	2.0	3.2	-0.4	3.1	
2011	2.2	-8.1	2.3	1.5	9.3	-0.4	2.1	-0.3	2.6	1.7	1.3	9.2	1.6	
							Percentage, monthly change							
2011														
January	0.2	-0.8	0.8	0.4	-0.3	1.5	-6.4	-0.4	0.2	1.5	0.6	4.0	-0.2	0.6
February	0.3	0.6	1.2	0.4	0.3	0.2	-5.1	0.0	0.4	0.4	0.2	-0.1	0.2	0.6
March	0.2	-4.0	0.6	0.5	0.1	0.0	-2.1	0.6	0.2	0.4	-0.3	1.5	0.0	0.2
April	0.6	0.2	0.6	0.7	0.3	-0.8	5.4	0.7	0.2	0.6	0.0	0.8	0.6	-0.1
May	0.5	-1.6	0.4	1.1	0.4	-0.1	2.8	0.0	-0.1	0.2	0.5	1.7	0.4	0.3
June	0.4	-2.1	0.8	0.5	0.2	0.1	8.6	0.2	-0.1	-0.3	0.0	-1.4	0.5	0.3
July	-0.3	-0.6	-0.6	0.4	-0.7	-0.2	-8.1	0.3	2.1	-0.2	0.0	-1.8	-0.1	-0.6
August	0.5	1.2	-0.2	1.3	1.4	-0.3	-5.7	0.7	-0.2	0.5	0.5	1.8	0.5	0.4
September	-0.2	-5.3	-1.3	0.9	0.7	-0.5	0.7	-0.9	0.2	-0.2	-0.3	1.9	-0.2	0.2
October	0.1	0.0	0.3	-0.3	0.2	-0.1	5.8	-0.8	0.5	0.0	0.3	0.2	0.1	0.0
November	-0.1	3.5	0.2	-0.7	1.2	-0.2	3.0	-0.4	0.0	-0.8	-0.1	1.0	-0.2	0.2
December	0.0	0.9	-0.4	-0.1	0.1	0.0	4.9	-0.3	-0.8	-0.4	-0.1	-0.6	0.1	0.1

[a] The energy component includes motor fuel and oils, and electricity, gas and diesel oil for domestic use.

[b] Calculated by the Bank of Israel Research Department. (See Box article on page 20 of the Bank of Israel Inflation Report for the first quarter of 2010).

SOURCE: Based on Central Bureau of Statistics data.

not reflect the domestic "inflation environment". Therefore, when the development of inflation is examined, it is convenient to exclude them from the total CPI. The fruit and vegetables component fell by 8.1 percent in 2011 and the energy component rose by 11 percent. In examining core indices, it is the custom to subtract food prices as well,[16] which, like energy prices, are affected by global developments. Unlike past years, however, the development of food prices in 2011 resembled that of the overall index. Therefore, there is no perceptible difference between the CPI net of fruit, vegetables, and energy and an index that also excludes food prices (Figure 3.12).

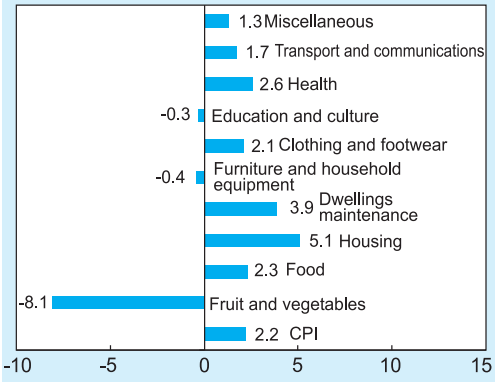
The core indices developed much as the CPI did—overshooting the upper bound of the inflation target at the beginning of the year and then slowing.

The moderation of headline inflation is evident in the development of the seasonally adjusted CPI. In the first quarter, the seasonally adjusted CPI advanced at a 5.8 percent annual pace on the heels of a rapid increase in the second half of 2010. From the second quarter on, however, the annual pace fell off to only 1 percent for the rest of the year (Table 3.4).[17]

The main components that contributed to CPI inflation in 2011 were housing, transport, and dwellings maintenance. The housing and transport components are the largest in the index, together accounting for 40 percent. The housing component, consisting mainly of rent, increased by 5.1 percent in 2011, contributing 1.2 percent to the total CPI (Figure 3.13) and overshooting the total index for the fourth consecutive year.[18] The transport component rose by 2.3 percent and contributed 0.4 percent to the overall index. The

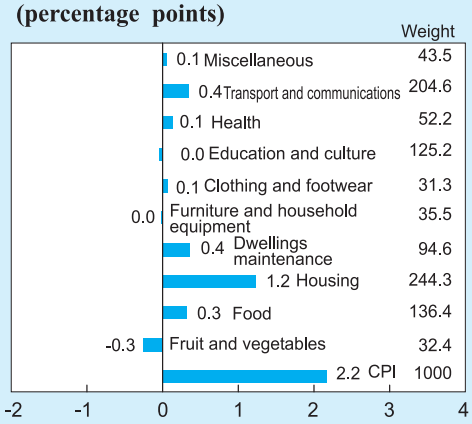
The components that contributed the most to the CPI increase during the year were housing, transport, and dwellings maintenance.

Figure 3.13a
Rates of Change in the Components of the CPI, 2011 (percent)



SOURCE: Based on Central Bureau of Statistics data.

Figure 3.13b
Contribution of the Components of the CPI to Total CPI Inflation, 2011 (percentage points)



SOURCE: Based on Central Bureau of Statistics data.

[16] For discussion of core inflation indices, see S. Ribon (2010), "Core Inflation Indices for Israel," Bank of Israel Review 84, 125–169.

[17] The seasonally adjusted CPI data are based on processing by the Bank of Israel; the seasonally adjusted index published by the Central Bureau of Statistics shows almost the same results. For elaboration on the Bank of Israel's approach to the seasonal adjustment, see D. Elkayam and A. Binyamini (2011), "Seasonal Adjustment of Israeli Consumer Price Inflation," Bank of Israel, Research Department, Discussion Paper 2011.10.

[18] For discussion of developments in housing prices, see Part d of the Monetary Policy section of this chapter.

increase in transport prices was occasioned, among other things, by higher energy prices—either directly via motor vehicle fuel and lubricant prices, or indirectly through the effect on the cost of producing transport services. Energy prices also affected the dwellings maintenance component, most of which is comprised of electricity, gas, diesel fuel, and kerosene; it increased by 3.9 percent. Dwellings maintenance accounts for 9.5 percent of the index and contributed 0.4 percent to its increase in 2011.

Conversely, fruit and vegetable prices declined by 8.1 percent in the review year. However, because this component counts for little in the total index, it lowered the total index by only 0.3 percent.

b. Background factors in price developments

The main factors that affected price developments in 2011 were the change of trend in domestic economic activity, the cessation of currency appreciation, the change of direction in commodity and energy prices, the social protests, developments in the labor market and labor costs, and the response of monetary policy to these developments and to expected developments.

(1) The demand side and the social protests

The rapid growth from late 2009 to the first quarter of 2011 was manifested in high inflation at the beginning of the year; when growth subsequently slowed, so did inflation.

The development of prices in 2011 corresponded to developments in the real economy. Two factors in concert—rapid growth from late 2009 to the first quarter of 2011 and the decline of the unemployment rate to its lowest level in several decades—show that the business cycle was nearing its peak, resulting in upward pressure on prices from the demand side. The slowing of growth from the second quarter on, the deceleration of the increase in current private consumption, the retreat of purchases of durable goods, and the decrease in consumer sentiment all attested to the slackening of demand, against the background of factors including developments abroad. The moderation in demand was reflected in a decline in the inflation rate. Evidently, however, the waning of the inflation environment as early as the second quarter preceded the change of direction in economic activity because in the second and third quarters the economy, although having slowed, was still expanding at around its long-term pace. At this time, then, the potential GDP growth rate may have been faster than actual growth, allowing inflation pressures to abate.[19] This hypothesis is supported by the pace of expansion of investment, particularly in machinery and equipment, which remained strong in the second and third quarters as well.

The social protests dampened demand and helped to slow the upward movement of the price level.

Another demand-side factor that slowed price increases was the cost-of-living protests that erupted in the third quarter. The protests demonstrated the significance of consumer power in Israel and its ability to impose price cuts on specific products, at least in the short term. Insofar as this organized consumer action manages to maintain its strength over time, it may enhance domestic competition. If this happens, it will not only lower the price level but also increase production and employment in

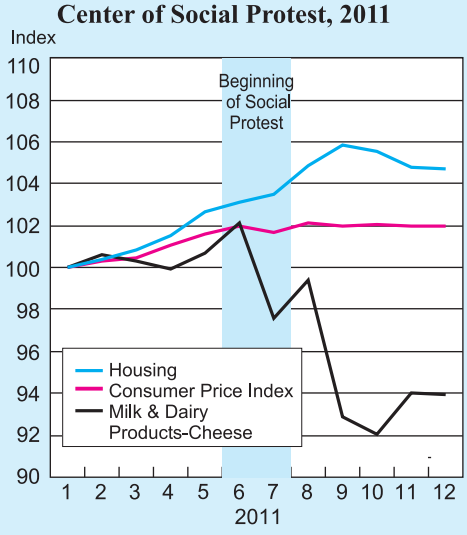
[19] For discussion of the development of potential GDP, see Box 2.1 in Chapter 2 of this Report.

concentrated industries, because the lower price level will induce a quantity increase in demand, which in turn will be met by larger output, albeit at lower profit margins. In the near term, however, the wielding of consumer power by means of boycotts, as happened last summer, will probably reduce production; the expansionary effect of the protests, if they succeed, will become evident in the longer run only.

Consumer protests are probably more effective in concentrated markets, e.g., Israel's dairy markets, than in competitive markets such as housing.

Even though the protests targeted the cost of living in its general sense, two industries commanded center stage in the public eye: housing and dairy products. These industries differ in terms of concentration: the housing market is very competitive, both in dwellings for sale, in which many builders and homeowners are active,[20] and in rental accommodations; whereas the dairy marketing industry has few players. The potential for success is evidently greater in concentrated markets. Indeed, that was the case in regard to dairy products last summer because the producers in this industry not only have profit margins that can be eroded but also set the price in the market; therefore, they can respond to consumer demands with relative alacrity. In competitive markets, in contrast, price shifts are derived from a large number of discrete transactions and not from decisions made by a handful of players.[21] The difference between housing (rent) and cheese in price developments during 2011 reflects the differences between these industries: rents continued to rise whereas dairy prices fell (Figure 3.14). Notably, even though the housing market is highly competitive, the land market is concentrated. Therefore, public pressure to increase supply, if it succeeds, will also lower the cost of land for housing.

Figure 3.14
Index of Prices of Products at Center of Social Protest, 2011



Source: Based on Central Bureau of Statistics.

House prices did begin to fall in the second half of the year. However, it is hard to credit the social protests for this because they probably would have fallen or at least leveled off in their absence, as evidenced in the decrease in number of transactions that began in the first quarter of the year (Figure 3.8) and the deceleration of the increase in house

[20] New dwellings account for 22 percent of the housing market. In 2010, for example, 23,000 new dwellings were sold among 104,000 housing transactions. Among the new dwellings, building at public initiative has a plurality in the market, at 13 percent. Private contractors have smaller shares, each of the largest building companies putting up only 7–8 percent of all dwellings under active construction in 2010.

[21] Interestingly, in concentrated markets such as that of dairy and other consumer goods, the protesters demanded fewer barriers and more competition, whereas in a competitive market such as housing they demanded government intervention in the free market.

prices that started even earlier. The softening of prices probably originated in the peaking of the cycle and policy measures by the Bank of Israel and the government in the housing market. The protests, however, may have speeded these developments.

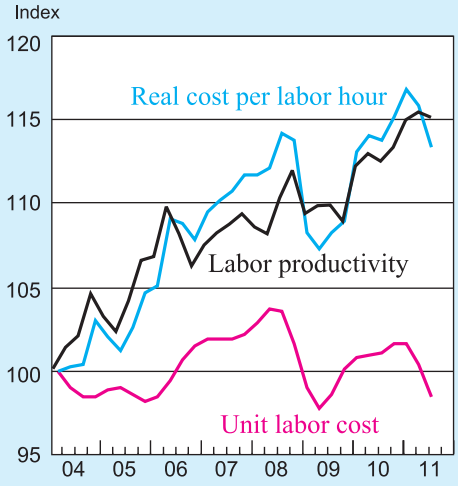
(2) The supply side

On the supply side, prices of inputs such as wages and raw materials affect production costs and, in turn, the prices that producers charge. An increase in production costs beyond the contribution of production factors to output generates upward pressure on prices.

The development of labor productivity as against the return to labor gives an indication of inflation pressures. During the year, upward pressure on prices from the labor market eased.

In competitive markets, the real return to labor is equal to the marginal product of labor. Accordingly, the development of labor productivity, i.e., real output per hour worked, is an indication of the development of its marginal product. By and large, productivity has been growing over time—by around 2 percent on annual average since the exit from the recession at the beginning of the previous decade (Figure 3.15). Since the real return to labor has increased at a similar pace during this time,[22] no rigidities that would create a protracted imbalance in the labor market have been evident over the past decade. However, in the frequency of business cycles there have been deviations, although not large ones, in the return to labor from productivity, and these may create pressure for inflation that is higher or lower than its long-term rate, depending on the direction of the deviation. In the period of economic buoyancy preceding the late-2008 crisis, for example, the return to labor surpassed productivity and actual inflation overshot the target at the end of that time. During the crisis, productivity exceeded the return to labor and inflation slowed considerably. Finally, amid the recovery from the crisis, the return to labor again surpassed productivity and inflation pressures increased.[23] In the review year, the gap between the return

Figure 3.15
Unit Labor Costs and Labor Productivity in the Business Sector, 2004–11
(quarterly data, seasonally adjusted)



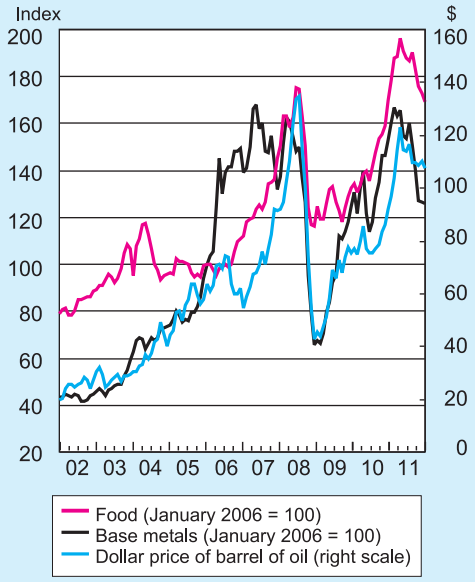
Source: Central Bureau of Statistics and Bank of Israel calculation.

[22] Notably, although the real return to labor has been trending up, real wage in terms of consumer prices has been virtually unchanged for a decade. The difference originates mainly in the acceleration of consumer prices relative to GDP prices, most of which starting in 2007.

[23] The standing of labor productivity relative to the return to labor assumes that inflation pressures from the labor market were balanced at the beginning of 2004. This assumption stands to reason because the economy was poised at that point between the recession of the intifada years and the growth that followed. The choice of a difference point of balance would change the standing of the two series slightly in timing but not in the trend of the discrepancy between them.

to labor and labor productivity was closed. Therefore, it seems that some of the increase in prices at the beginning of the year originated in pressure from the labor market that waned as the year progressed.

Figure 3.16
Indices of Prices of Base Metals, Energy, and Food, 2002–11



Source: Bloomberg.

The development of commodity prices abroad—up early in the year and down toward the end—were among the factors that abetted the similar development of domestic inflation.

The development of commodity prices was bumpy during the year (Figure 3.16): prices rose at first, pursuant to a decade-long trend that was temporarily interrupted in the second half of 2008 due to the global crisis. As a rule, the long-term upward trend is being powered by strong growth in the large emerging markets, foremost Brazil, Russia, India, and China. These markets' growth is increasing global demand for raw materials, energy, and food, therefore abetting higher world commodity prices. Commodity prices fell in the second half of the year as fears of a double-dip recession grew. Even though the focal point of crisis is in Europe, the ebbing of demand in the West may slow growth in emerging markets because much of these countries' production is destined to Western markets.[24] Therefore, the expectation of a slump in economic activity in the West was one of the factors that dampened global commodity prices. Notably, energy prices were also strongly affected in 2011 by political developments in the Middle East. The behavior of global commodity prices during the year—up at the start and down at the end—explains in part the similar development of domestic inflation.

The development of the exchange rate offset the effect of import prices on domestic prices during the year.

The exchange rate influences inflation via its effect on import prices, since import prices are generally denominated in foreign currency. Exchange-rate fluctuations affect the shekel price that importers must pay, and this price is passed through to the end consumer via its direct effect on the price of products or on production costs.[25] In the first half of the year, dollar denominated prices of imports for all uses—consumption, investment, and production intermediates—rose (Table 3.5). This

[24] The share of exports in GDP in 2010 was 30 percent in China and Russia, 22 percent in India, and a relatively low 11 percent in Brazil.

[25] Exchange-rate fluctuations may affect domestic prices indirectly on the demand side as well, insofar as they affect the real exchange rate. For example, real appreciation makes imports relatively less expensive and, therefore, tilts domestic demand in the direction of imports; the resulting decrease in demand for domestic manufacture pushes its relative price downward and erodes the initial real appreciation.

Table 3.5

Import Prices, the Exchange Rate and Consumer Prices, 2005-11

(percentage changes)

	Import prices ($)				Dollar exchange rate	Import prices[a] (NIS)				CPI
	Consumer goods	Investment goods	Production inputs			Consumer goods	Investment goods	Production inputs		
			Excl. fuel	Fuel				Excl. fuel	Fuel	
	(Change from to previous period, annual averages)									
2005	1.0	-2.4	3.0	36.7	0.1	1.1	-2.3	3.1	37.3	1.3
2006	1.4	-1.2	3.7	17.6	-0.7	0.7	-1.8	2.9	16.5	2.1
2007	3.4	3.7	8.7	13.1	-7.8	-4.6	-4.4	0.3	3.9	0.5
2008	8.8	2.7	10.8	43.1	-12.7	-5.0	-10.4	-3.3	24.4	4.6
2009	-3.5	-2.1	-12.0	-37.4	9.6	5.7	7.3	-3.5	-31.2	3.3
2010	3.0	-1.2	4.2	25.4	-5.1	-2.2	-6.2	-1.1	19.5	2.7
2011	7.5	3.3	9.4	39.3	-4.1	3.0	-1.0	4.9	33.5	3.5
	(Change from last quarter in previous year)									
2005	-2.1	-5.7	-1.8	25.4	5.5	3.3	-0.5	3.6	32.3	2.6
2006	4.4	2.5	9.0	3.2	-8.3	-4.3	-6.0	-0.1	-5.4	-0.2
2007	4.7	4.5	10.2	48.1	-7.4	-3.1	-3.2	2.0	37.2	2.8
2008	5.5	-2.5	2.3	-21.5	-3.2	2.1	-5.7	-1.0	-24.0	4.6
2009	-1.6	3.0	-5.9	8.5	-1.3	-2.9	1.6	-7.1	7.0	3.6
2010	4.9	-1.1	4.6	15.0	-3.9	0.9	-4.9	0.5	10.6	2.5
2011	2.5	0.1	4.6	29.3	2.8	5.4	2.9	7.6	33.0	2.5
	(Change from previous quarter)									
2010										
I	0.3	-2.0	-0.6	3.8	-0.8	-0.5	-2.8	-1.4	3.0	-0.7
II	-0.9	-2.3	-0.2	1.9	1.3	0.4	-1.1	1.1	3.3	1.2
III	1.8	1.3	1.0	-1.2	0.3	2.1	1.6	1.3	-0.9	1.2
IV	3.7	2.1	4.4	10.0	-4.6	-1.1	-2.6	-0.4	4.9	0.8
2011										
I	2.6	0.8	3.3	19.5	-0.5	2.0	0.3	2.7	18.9	0.7
II	2.8	2.5	4.0	14.4	-4.4	-1.7	-2.1	-0.6	9.3	1.3
III	-0.3	-0.8	-0.5	-1.9	3.1	2.8	2.2	2.5	1.1	0.4
IV	-2.5	-2.3	-2.0	-3.6	4.9	2.3	2.5	2.8	1.1	0.1

[a] The dollar import prices of goods multiplied by the NIS/$ exchange rate.

SOURCE: Based on Central Bureau of Statistics data.

increase was offset by appreciation of the shekel against the dollar, which caused the shekel prices of imports other than fuel to decrease in the second quarter. Later in the year, dollar denominated import prices fell against the background of descending global commodity prices, but shekel-denominated import prices rose because the shekel depreciated more rapidly at this time. The Bank of Israel Research Department estimates the direct contribution of the prices of imported consumer goods to the CPI in 2011 at 1.2 percent.

(3) Monetary policy

Monetary policy affects inflation via its influence on the real interest rate, the exchange rate, and inflation expectations.

Monetary interest affects inflation in several channels—via real interest, the exchange rate, and inflation expectations. Increases in monetary rates push up real interest—actual and expected—and therefore constrain demand and its attendant pressure for higher prices. An increase in domestic interest creates appreciation pressure and, in turn, pushes down import prices in the near term. Finally, rate increases trigger expectations of future slowing of prices and, therefore, induce consumers to postpone purchases of durable goods, restraining demand for them in the short run; they also mitigate wage demands and the concomitant increase in production costs.

The estimates of the Research Department, derived from several models, show that changes in monetary interest affect actual inflation mainly during the year following the change and the effect is strongest one to two quarters after the change.[26] As a rule, ceteris paribus, a 1 percentage point rate increase lowers inflation in the course of the following year by about half a percentage point.

The rate increases at the beginning of the year helped to dampen inflation farther on.

In early 2011 (February–June), the Bank of Israel raised its rate by 1.25 percentage point in cumulative terms. Thus, monetary policy seems to have had a dampening effect on inflation during the year, adding to the factors mentioned above. The impact on inflation of the rate cuts in the fourth quarter will be felt mainly in the first half of 2012, but it is expected that some of this effect will be offset by the factors that led to the rate cuts, mainly the deceleration of domestic and global economic activity.

3. MONETARY AGGREGATES

In a monetary regime that uses nominal interest as its main policy variable, the money supply is totally elastic and the quantity of money is determined on the basis of the

[26] See Ilek, A. (2006), "A Monthly Model for Evaluation of Inflation and Monetary Policy in Israel," Bank of Israel, Monetary Department, Monetary Studies 2006.04 (Hebrew).

Djivre, Y. and Y. Yakhin (2010), "A Constrained Dynamic Model for Macroeconomic Projection in Israel," Bank of Israel, Research Department, Discussion Paper 2010.11.

E. Argov, A. Barnea, A. Binyamini, E. Borenstein, D. Elkayam, and I. Rozenshtrom (2012), "A DSGE Model for Analysis of the Israeli Economy (MOISE)," Bank of Israel Discussion Paper (forthcoming).

In the DSGE model, the main effect of interest is reflected immediately with its change, unlike the other two models, in which the effect peaks at a lag of one to two quarters.

Table 3.6
Rates of Change in the Monetary Aggregates, 2005-11
(averages of last month in period compered with average of last month in previous period, percent)

	1		2	3=1+2	4	5	6	7=3+4+5+6
	Monetary base	Cash in the hands of the public	Current accounts	M1[a]	Term deposits up to 3 months	Term deposits up to 1 year	Self-renewing overnight deposits	M2[b]
2005	14.8	17.1	29.5	23.9	2.7	-10.7	8.3	5.3
2006	4.0	3.0	12.3	8.3	5.0	17.2	8.7	7.2
2007	13.6	15.0	19.5	17.7	14.2	10.9	13.7	14.4
2008	16.7	21.8	14.6	17.5	12.5	12.0	13.3	13.5
2009	19.9	19.6	75.3	52.1	-4.4	1.8	40.2	13.6
2010	6.3	7.6	3.2	4.6	4.0	16.2	-4.5	3.6
2011	12.3	11.5	-3.2	1.7	14.6	25.3	4.1	10.5
2008								
I	9.7	14.1	12.0	12.8	12.4	6.9	8.9	11.4
II	10.3	15.8	9.4	11.9	11.5	-1.3	1.8	8.7
III	12.5	15.4	9.4	11.8	6.2	-3.6	16.1	7.8
IV	16.7	21.8	14.6	17.5	12.5	12.0	13.3	13.5
2009								
I	25.0	28.6	49.2	40.8	4.2	10.6	50.6	18.3
II	27.5	28.8	75.1	56.2	-0.5	12.0	51.7	19.2
III	25.2	24.6	87.3	61.6	0.6	8.6	41.8	19.6
IV	19.9	19.6	75.3	52.1	-4.4	1.8	40.2	13.6
2010								
I	11.3	12.6	32.1	24.8	-1.2	-1.2	2.4	5.1
II	7.2	9.6	10.3	10.1	1.9	11.7	-2.2	3.9
III	7.0	11.4	-0.9	3.0	-1.5	26.3	-6.3	0.9
IV	6.3	7.6	3.2	4.6	4.0	16.2	-4.5	3.6
2011								
I	9.2	8.2	3.0	4.8	9.1	27.6	-2.6	7.4
II	9.4	7.2	7.8	7.6	13.0	27.7	-6.6	9.3
III	10.9	7.0	-2.7	0.6	22.1	20.0	5.8	13.3
IV	12.3	11.5	-3.2	1.7	14.6	25.3	4.1	10.5

[a] M1: cash and current accounts.

[b] M2: M1 plus unindexed term deposits of up to one year.

SOURCE: Bank of Israel and Central Bureau statistics.

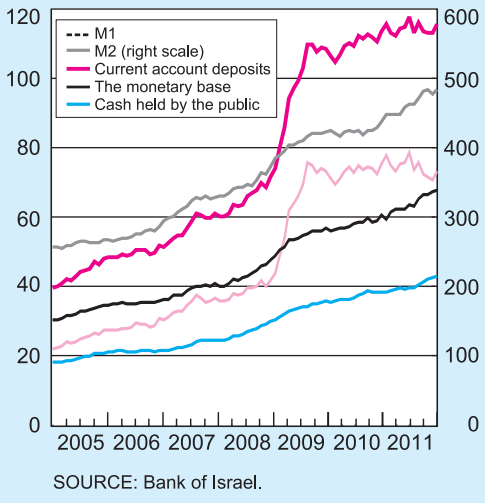
public's demand for liquidity, in accordance with the interest rate and the market conditions.

The steep increase in M1 due to exceptional rate-cutting in late 2008 did not trickle into demand; therefore, it did not manifest itself in a similar rate of price increases.

The aberrant lowering of interest due to the global crisis in late 2008 is readily visible in the development of the narrow monetary aggregates (Figure 3.17). The M1 aggregate, comprised of cash in the hands of the public and demand deposits, increased by 52 percent in 2009 (December 2009 average vs. December 2008 average). The upturn originated more in the growth of demand deposits than in an increase in cash in the hands of the public because the low interest rate led to the use of demand

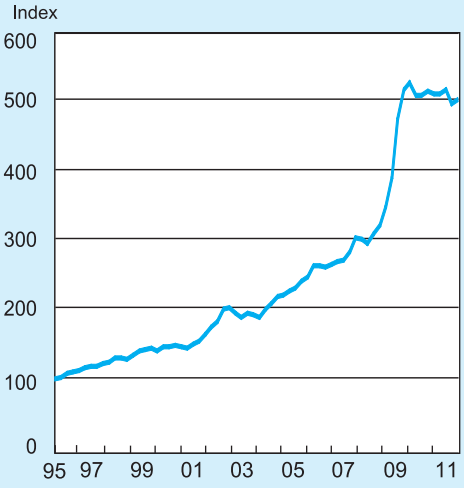
deposits as a savings instrument. The increase in M1 traced to the lack of attractive savings vehicles as opposed to an unusual need for liquidity to carry out transactions. Since the liquidity was not meant to satisfy demand, the steep increase in monetary aggregates was not mirrored in a general price increase of similar magnitude. This was evidenced in the development of M1 relative to GDP in constant prices. This ratio climbed steeply when the crisis erupted, to a level beyond its trend, demonstrating that the increase in money supply did not trickle into demand (Figure 3.18). Comparison of the development of M1 relative to domestic uses—private consumption, public consumption, and investment—yields an almost identical picture.

Figure 3.17
The Monetary Aggregates, 2005–11
(NIS billion, monthly averages)



SOURCE: Bank of Israel.

Figure 3.18
M1 relative to GDP, 1995–2011
(monthly averages)
(Index, 1995 = 100)



SOURCE: Based on Central Bureau of Statistics data.

M1 increased very slowly in 2011, pursuant to the trend in 2010. In the last quarter of the year, its rate of increase over the year-earlier period was only 1.9 percent, slower than GDP growth. The sluggish expansion of M1 in the past two years reflects its return to the trajectory preceding the 2008 crisis because its level remains higher than the pre-crisis trend. The recent rate cuts, however, will probably delay this process.

The slow expansion of M1 in the past two years reflects the return of this aggregate to the path that it had followed before the 2008 crisis.

4. SOURCES OF CHANGE IN THE MONETARY BASE

The main instrument of monetary policy is the short-term nominal interest rate. Since interest is the opportunity cost of holding liquidity, changes in it affect demand for liquidity and the quantity of liquidity in the markets. The segment of liquidity that the

Table 3.7
Sources of Change in the Monetary Base, 2006-11

(NIS million)

							2011			
	2006	2007	2008	2009	2010	2011	I	II	III	IV
1. Government and the Jewish Agency injection	-3,789	-10,809	-17,371	-14,195	1,418	-2,142	-13,638	7,138	120	4,238
of which: Government	-5,236	-11,977	-18,470	-14,949	598	-2,611	-13,659	7,059	-125	4,114
2. Foreign currency conversions[a]	-1,141	-870	43,034	78,216	43,064	15,901	8,185	7,212	525	-21
of which: Bank of Israel	0	0	43,995	77,413	43,752	16,170	8,131	7,273	766	0
3.Total (1+2)	-4,930	-11,679	25,663	64,021	44,482	13,759	-5,453	14,350	645	4,217
4. Bank of Israel injection	3,798	15,694	-17,305	-58,855	-32,962	-7,494	56	-13,826	9,864	-3,588
of which: Monetary loan	7,470	-7,500	0	420	-420	0	0	0	740	-740
Makam	-7,360	23,729	8,847	-13,040	-47,269	16,651	5,712	7,764	4,592	-1,417
Swaps	0	0	0	0	0	0	0	0	0	0
Banks' term deposits	3,560	-300	-28,011	-63,189	13,135	-27,635	-6,277	-22,528	3,605	-2,435
Interest[b]	133	20	11	420	1,253	2,894	469	775	777	873
Bond purchases	0	0	0	18,000	0	0	0	0	0	0
Repo	0	-6	1,974	-2,009	0	0	0	0	0	0
5. Total change in monetary base	-1,176	3,979	8,297	5,141	11,509	6,078	-5,433	525	10,481	505

[a] This item includes, inter alia, Bank of Israel and government receipts from and payments to the private sector, such as income tax payments. These payments do not change the monetary base, and appear in the item Government Injection, and with the opposite sign in this item.

[b] Excluding *makam*.

SOURCE: Bank of Israel.

Bank of Israel directly affects is the monetary base, composed of banknotes and coins in circulation and commercial banks' demand deposits with the Bank of Israel.[27]

The Bank of Israel absorbs or injects liquidity into the markets in several ways, including monetary auctions to the banks, makam issues, and trading in assets such as foreign currency and bonds. Monetary auctions are designed to support the interest rate that the Bank has set, meaning that the supply of liquidity is totally elastic to the level of interest established by monetary policy.

Another factor that affects the monetary base is government activity. In accordance with the Bank of Israel Law, the government's accounts are managed at the Bank of Israel. Every withdrawal or deposit by the government with the Bank affects the monetary base. If these transactions lead to excess market liquidity at the interest rate in effect, it will be returned to the Bank of Israel via the commercial banks' deposits or by the absorption of an increase in demand for makam. Similarly, a shortage of liquidity is reflected in banks' withdrawals from their deposits and a decrease in demand for makam.

The Bank of Israel absorbed the liquidity surpluses that the foreign-currency purchases had created.

Until the 2008 crisis, government activity was one of the main sources of influence on the monetary base and the Bank of Israel had to offset it. In 2008–2010, when purchases of foreign currency took place, and in 2009 due to the purchase of government bonds as well, the Bank also had to offset the effects of its own activities on the monetary base. This is because the purchases injected tens of billions of shekels into the market each year, and if they were not re-absorbed they would have generated pressure on short-term interest, lowering it to less than the level that the Bank had set (Table 3.7). In 2009, most absorption took place via the banks' deposits, which increased during that year by NIS 80 billion as against an upturn of only NIS 5.5 billion in the balance of makam. In 2010, conversely, the liquidity was absorbed by the issue of makam, the balance of which increased by NIS 51 billion while the banks' deposits contracted by NIS 9 billion (Table 3.8).

In the first half of 2011, foreign exchange purchases continued but were much smaller; in the second half of the year, they came to a nearly total halt and makam balances fell. These movements were reflected in the absorption of excess liquidity by means of the banks' deposits, which increased by NIS 30 billion during the year.

[27] The public's demand deposits are also part of liquidity in the economy, but the Bank of Israel affects their size indirectly only, via the liquidity requirement that it imposes on the commercial banks.

Table 3.8

Monetary Instruments[a] - Monetary Deposits, Monetary Loans and *Makam*, 2008–11

(total banking system, quarterly averages)

	Utilization of deposit auctions				Cost of daily deposit auctions	Utilization of loan auctions			Cost of loans in daily auctions	*Makam*	
	Daily	Weekly	Monthly	Total		Daily	Weekly	Total		Total	Held by the banks
	NIS million				percent	NIS million			percent	NIS million	
2008											
I	859	0	0	859	4.12	3,814	698	4,512	4.11	74,414	7,038
II	97	0	0	97	3.30	5,943	2,147	8,090	3.43	74,325	5,191
III	27	0	0	27	3.82	4,261	1,065	5,326	4.11	75,486	5,420
IV	2,690	0	0	2,690	3.10	1,366	0	1,366	3.51	77,918	4,889
2009											
I	13,948	13,463	0	27,411	1.12	0	0	0	---	76,987	6,149
II	22,736	26,556	0	49,292	0.50	0	0	0	---	76,256	12,647
III	35,897	40,085	0	75,982	0.60	0	0	0	---	77,828	16,703
IV	37,511	45,352	0	82,863	0.85	0	0	0	---	82,520	18,574
2010											
I	34,118	50,000	0	84,118	1.26	0	0	0	---	92,581	19,326
II	31,978	50,000	0	81,978	1.51	0	0	0	---	108,090	18,667
III	28,466	49,667	0	78,133	1.68	0	0	0	---	123,103	23,831
IV	33,693	40,108	0	73,801	2.01	0	0	0	---	133,554	25,272
2011											
I	35,629	47,767	0	83,396	2.31	0	0	0	---	131,455	21,762
II	47,619	52,952	833	101,404	3.14	0	0	0	---	124,303	14,808
III	40,491	39,677	30,215	110,383	3.30	0	0	0	---	119,518	10,932
IV	30,042	37,556	36,344	103,942	2.96	0	0	0	---	118,301	25,282

[a] Monetary instruments in addition to those mentioned are: the credit window, the deposit window, and repo.

SOURCE: Bank of Israel.