Recent Economic Developments 125

May - August 2009

Part 1: Review of Recent Economic Developments, May to August 2009

Main developments

According to the economic data for the review period—May–August 2009—the economy began to recover from the crisis with unexpected celerity. The recovery was powered by a mild increase in domestic demand, the onset of improvement in global trade, and an upturn in optimism abroad. The increase in optimism was tempered by concerns about possible implications of the deficits that most governments are facing due to their costly relief programs, as well as fear that the economic stabilization is based on these programs and does not reflect the beginning of protracted growth. For the Israeli economy to attain a sustainable growth trajectory, the recovery abroad must continue and the aforementioned concerns must wane.

The recovery of domestic and global demand led to an increase in GDP in the second quarter of 2009, reflected in upward movement of the composite state-of-the-economy index and in the activity of some industries. The Government's decision to raise indirect taxes, coupled with the expansionary monetary policy contributed to some price increases and inflation expectations to increase during the review period. However, the output gap, manifested in unemployment and low utilization of physical capital, along with the still-rife uncertainty in Israel and abroad about the continuation of the increase in activity, raises questions about whether the upward movement of prices will continue.

The interest rate has been at a historic low since April, in keeping with fears of an anomalous and long-lasting crisis. During the review period, however, these apprehensions, as stated, were succeeded by first signs of optimism. Accordingly, and to strike a balance between the need to keep inflation expectations within the target range and the need to maintain the accommodative monetary policy in view of the lethargic level of economic activity, the Bank of Israel raised its benchmark rate for September by 0.25 percentage point, to 0.75 percent.

The domestic recovery was expressed in an increase in the composite state-of-the-economy index from May onward after an uninterrupted downslide that began in the second half of 2008. GDP and business sector product increased in the second quarter of 2009 and the index of industrial output, the index of trade and services productivity, and tourism data showed that activity had moved ahead smartly. Although the level of activity is higher than before, it remains

low and is emphatically lower than the pre-crisis plateau. Furthermore, per capita product is still trending down and the unemployment rate is continuing to rise, pausing at 8 percent in the second quarter.

Tax revenues were slimmer during the review period than in the previous year. The downward trend continued during most of the period but stopped in the last months, largely due to an increase in indirect-tax revenue corresponding to the onset of the recovery of activity. For this reason, the government is expected to hold the deficit below the upward-adjusted ceiling that was set forth in the Budget Law. The ceiling was approved in July as part of the two-year budget for 2009–2010, after the government operated for seven months on the basis of the previous year's budget. The new budget includes an expenditure supplement beyond the fixed annual increase and tax increases that are expected to offset the upturn in spending.

Figure 1.1

The level of economic activity,* 1998-2009**
(index: 2004 average=100)
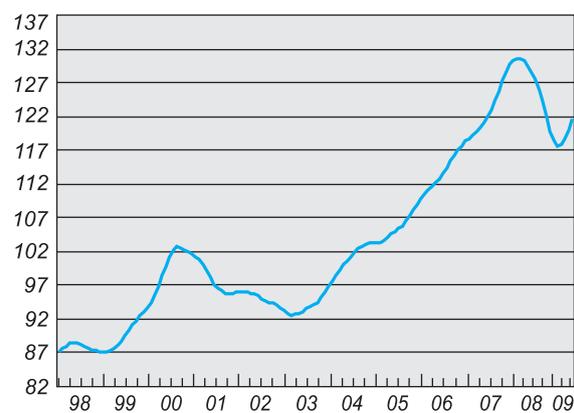
* The Bank of Israel composite index, including the change in economic activity trend growth.
** To August 2009.

The indicators of development in capital-market activity also reflect optimism: they remained positive, as did the indicators of activity in capital markets abroad. In July, mindful of the recovery of the capital markets, the Bank of Israel stopped buying government bonds in the secondary market after its cumulative purchases reached the total that it had announced when the program began.

The NIS exchange rate against the effective currency basket[1] appreciated during the review period. The depreciation of the USD abroad was a major factor in the appreciation of the NIS against the currency basket. Other factors that contributed to the appreciation of the shekel included the increase in the current account surplus in the first half of the year, and optimistic expectations that the recovery of Israel's economy from the crisis would be faster than that in other economies. During most of the period reviewed, the Bank of Israel made daily purchase of foreign currency in the market, a policy that moderated the appreciation of the shekel. In August, however, the Bank changed its policy to one of occasional purchases of foreign currency.

Aggregate real activity

According to National Accounts data, the downward trend of economic activity in the last quarter of 2008 and first quarter of 2009 stopped in the second quarter. GDP increased in the second quarter at a 1.0 percent annual rate and business sector product moved ahead by 1.3 percent. Imports of goods and services also expanded, giving the economy an increase in total sources. Uses also increased, led by upturns in exports of services and private consumption. However, per capita product continued to fall, this time by 0.8 percent, and gross domestic investment contracted.

Private consumption increased by 4.4 percent annual terms, largely due to a steep upturn in purchases of durable goods originating in expectations of an improvement in the standard of living, as reflected in the steady upward movement of the consumer-confidence indices in recent months. Consumption of durables is highly sensitive to changes in income and the value of the public's portfolio of financial assets[2]; the latter parameter has been increasing since the beginning of the year and recovered to its pre-crisis level in the review period.

Exports expanded briskly in the second quarter, mainly due to a steep increase in services exports. The recovery of exports owes its origins to the bottoming out of global demand after a precipitous decline. Despite the increase in goods exports overall, most manufacturing industries' exports continued to fall; only electronic components and diamonds showed steep upward movement. Israel's terms of trade (the ratio of export prices to prices of imported factor inputs) have been improving since the beginning of the year but this has not yet translated into a significant increase in exports of goods. Empirical findings show that changes in terms of trade affect Israel's industrial exports at a one-year lag.[3]

Public consumption spurted ahead due to a sharp upturn in domestic defense procurements after a steep decrease in the first quarter, whereas civilian consumption posted a gentle increase only. (See expanded discussion in the section on "The government."

Gross domestic investment contracted due to a decrease in fixed investment and a steep decline in inventory investment, as one would expect at a time of crisis. Although nonresidential investment continued to shrink, this does not contradict the other signs of recovery; future growth of nonresidential industrial activity is also expected to be based, in the short term, on the utilization of existing production capacity.

Imports moved ahead in the second quarter after tumbling in the two previous quarters. The increase in imports mirrors the recovery of domestic activity, especially since it is based on an upturn in civilian imports of both goods and services. The higher level of imports is consistent with the decrease in import prices relative both to GDP prices and to export prices (i.e., an improvement in external terms of trade).

By-industry real activity

The manufacturing output index dipped slightly (according to data for May–July), after a steeper decrease at the beginning of the year. The stronger downturn at the beginning of the year—pursuant to a decline that began in September 2008—eased from April onward. In May–July, production began to recover but remained volatile. A detailed examination shows that this behavior of the manufacturing output index typified most subindustries in manufacturing, at all levels of technological intensity (Figure 1.2). Data from the Survey of Companies for the third quarter provide further evidence of the recovery in manufacturing.

The stanching of the contraction of manufacturing output and the onset of recovery trace more to domestic factors than to external ones. Thus, private consumption of manufactured goods increased slightly in the second quarter after falling since the middle of 2008; the decrease in exports lost much of its momentum during the year; and exports increased in the second quarter, largely due to a surge in exports of electronic components. The other export industries posted only gentle recoveries in this quarter and will not grow vigorously unless global demand improves. To date, global

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[1]   The effective currency basket weights the exchange rates of Israel's trading partners by their shares in Israel's total trade.

[2]   See Yaakov Lavie, "Does Change in Current Income Help to Explain Change in Consumption in Israel? An Empirical Examination of the Permanent-Income Theory with Rational Expectations," Discussion Paper, Bank of Israel Research Department, 1995 (in Hebrew).

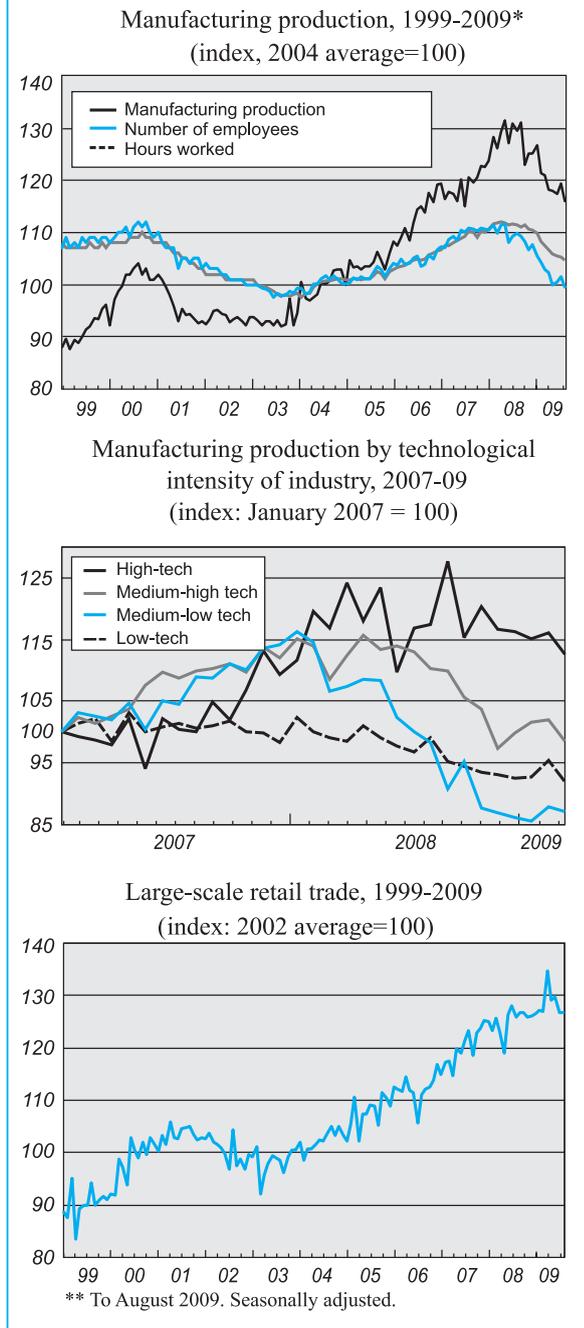[3]   See Box B3 in the Bank of Israel Annual Report for 2008.

Figure 1.2

Manufacturing production, 1999-2009*
(index, 2004 average=100)

- Manufacturing production
- Number of employees
- Hours worked

Manufacturing production by technological
intensity of industry, 2007-09
(index: January 2007 = 100)

- High-tech
- Medium-high tech
- Medium-low tech
- Low-tech

Large-scale retail trade, 1999-2009
(index: 2002 average=100)

** To August 2009. Seasonally adjusted.

Figure 1.3

The hotel industry: monthly bed nights
of tourists and Israelis, 1998-2009*

'000

Israelis

Tourists

* To August 2009. Seasonally adjusted.

Figure 1.4

Housing starts and completions,*
and relative price,** 1998-2009
(units per month)

'000

Completions

Starts

Index

Relative price

* Original data, to June 2009.
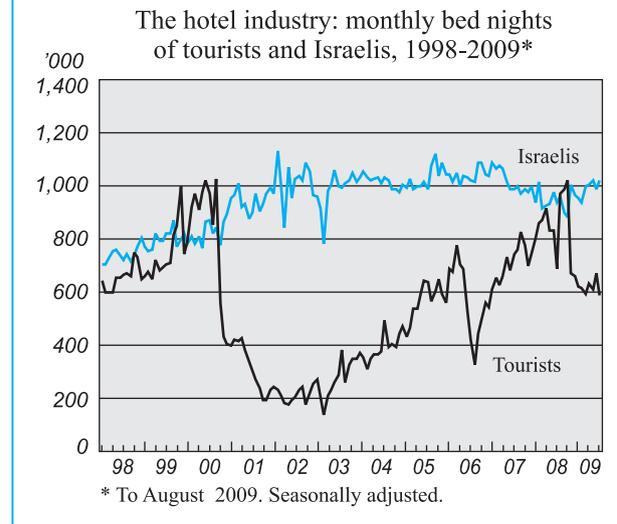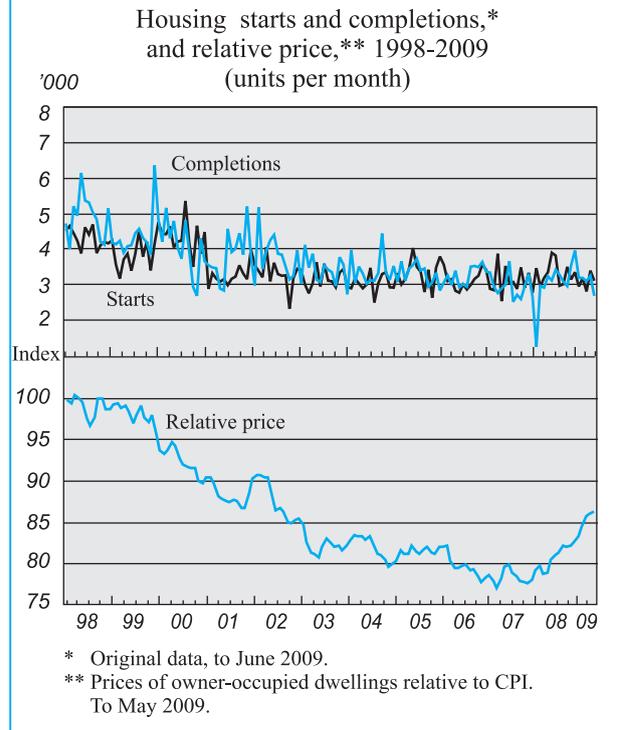** Prices of owner-occupied dwellings relative to CPI.
To May 2009.

demand has bottomed out after its steep contraction but remained far below its pre-crisis level in the review period.

Manufacturing employment continued to fall in the review period[4]; the upturn in output was attained by putting existing

staff to longer hours (Figure 1.2). According to (preliminary) data from the Survey of Companies, utilization of machinery and equipment increased slightly, something that also contributed to the upturn in output. These data, coupled with the decrease in per-hour and unit labor cost, aptly reflect the first phase of recovery from the crisis—the lagged adjustment

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[4] These indicators of manufacturing labor, culled from the Central Bureau of Statistics Manufacturing Survey, do not fully correspond with the data in the Labor Force Survey.

of headcount to the low level of output and an increase in activity on the basis of existing production capacity, taking advantage of the downturn in production costs.

In commerce and services, signs of reversion to the upward trend that typified this industry from 2004 to the middle of 2008 became evident. Thus, industry turnover began to climb and total credit-card sales already surpassed the pre-crisis level, reflecting expectations of a return to the growth trend.

Commerce turnover began to climb after a decrease in the second half of 2008 and flat performance in the first part of 2009 (Table 1.2). The trend in services was similar: turnover in business and hotel and restaurant services increased during the review period amid perceptible recovery. Total commerce and services turnover increased by 2 percent during this time.

Tourism, which took a serious blow from the fourth quarter of 2008, showed initial signs of recovery. Hotel activity, measured in person-nights, increased during the review period among both domestic and inbound tourists (Figure 1.3, seasonally adjusted data). However, average room occupancy was still considerably lower than in the year-earlier period. The recovery of tourism to its pre-crisis level depends heavily on the recovery of global tourism, of which, according to data from the World Tourism Organization, no signs are yet in evidence.[5]
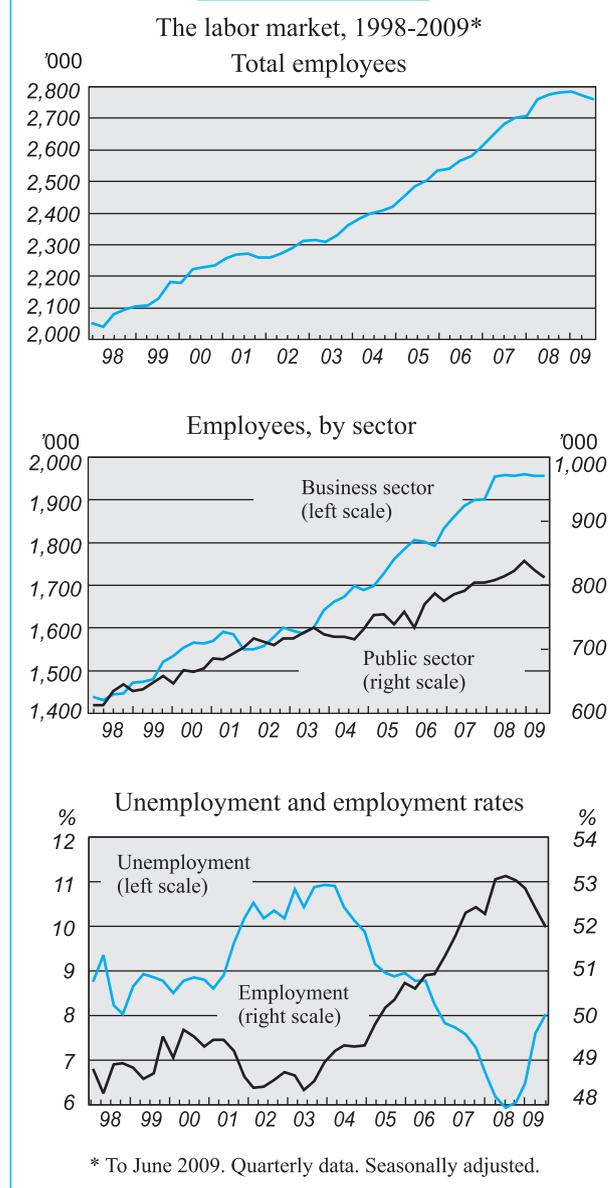
In construction, housing stock for sale declined pursuant to the consistent downward trend that began in late 2008. The decrease in housing stock evidently traces to stronger demand for dwellings—influenced, among other things, by low interest rates on housing loans that are abetting an increase in the number of dwellings sold. An increase in housing starts suggests that it is the demand side that has stimulated industry activity recently. (For an expanded discussion of housing prices, see Part 2.)

The labor market

The labor market continued to mirror the economic crisis, especially in view of the employment and unemployment data in the Labor Force Survey for the second quarter. Despite the onset of an upward trend, the average wage per employee post decreased and the numbers of jobseekers and jobless claims turned upward. These findings suggest that, as in the past and in other countries, the labor market will respond sluggishly to the increase in activity. (For an

Figure 1.5

The labor market, 1998-2009*

Total employees

Employees, by sector

Unemployment and employment rates
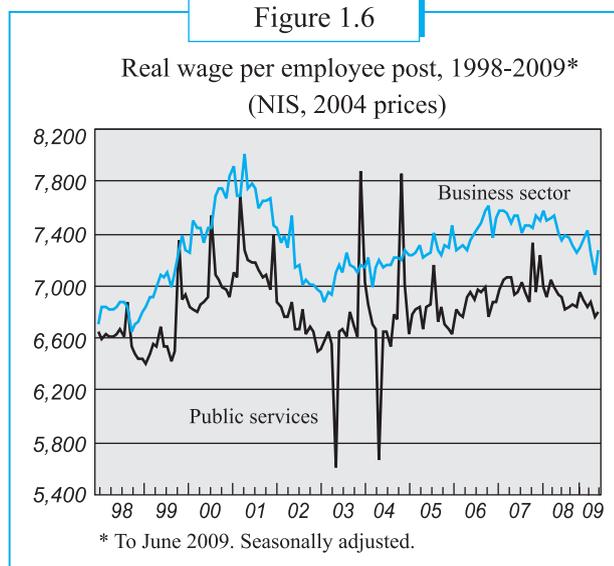
* To June 2009. Quarterly data. Seasonally adjusted.

expanded discussion of the labor market's response to the economic crisis, see Part 2 of this review.)

The unemployment rate continued to rise in the second quarter and came to 8.0 percent as against 7.6 percent in the previous quarter—a milder upturn than the abrupt 1.1 percentage-point increase in the first quarter of 2009 compared with the last quarter of 2008. Despite the cumulative 2.1 percentage-point increase since June 2008, the unemployment rate remained far below its level in 2003, when the previous crisis was at its worst—10.9 percent—because the current crisis followed almost five years of steady growth that had driven the unemployment rate down to a mere 5.9 percent. Although unemployment is expected

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[5] UNWTO World Tourism Barometer, UNWTO, Vol. 7, No. 2, June 2009.

Figure 1.6

Real wage per employee post, 1998-2009*
(NIS, 2004 prices)

* To June 2009. Seasonally adjusted.

Figure 1.7

Index of nominal unit labor costs (gross) in the
business sector, 1997-2008*
(1997 average=100)

* To June 2008. Quartely data. Seasonally adjusted.

to decrease, it will happen at a lag and will depend on the pace of product growth, especially in per capita product, which also contracted in the second quarter.

The participation rate dipped by 0.2 percent in the second quarter, after rising at the same rate in the previous quarter, and settled at the second quarter of:2008 level. Consequently, the increase in unemployment since June 2008 is the outcome of crisis-induced job loss and not of changes in the participation rate.

The employment rate has fallen by 1.1 percentage point since the third quarter of 2008, when the crisis had its first effects on the labor market. The entire decrease in the employment rate in the second quarter of 2009, from 52.4 percent to 52 percent, was occasioned by the 1.4 percent contraction of employment in the public services. In contrast, business sector employment was virtually unchanged in the second quarter, as a decrease in manufacturing, banking and financial services, and agricultural employment was offset by stronger employment in the other industries, including commerce and motor-vehicle repair, construction, and electricity and water, in which employment expanded perceptibly. The contraction of manufacturing employment in the second quarter brought the cumulative rate of decline to more than 6 percent in the past twelve months.
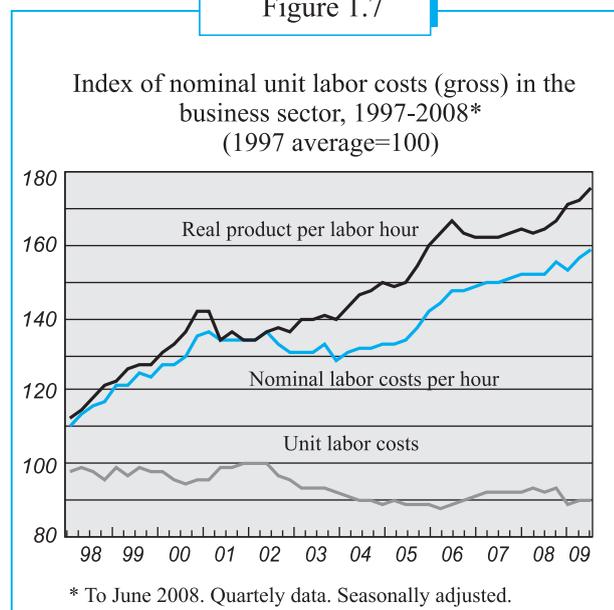
Additional sources of information about the state of the labor market show that the recovery in economic activity is not yet being reflected in substantial recovery in the labor market. However, first indications of improvement are evident: according to data from the Survey of Employers (Ministry of Industry, Trade, and Labor), labor demand continued to slump in the second quarter but at a slower rate than in previous quarters. The labor-demand index fell during the review period but leveled off in the middle and posted a slight upturn in June. The numbers of jobseekers and jobless claims increased, but these upturns, too, stopped during the review period.

The macro wage data also show first glimmers of improvement. Although nominal wage and real wage per employee post edged downward during the review period in both the business sector and in general government, like other macro indicators—especially in the labor market— the rate of decrease slowed during the period and wages advanced slightly toward the end of the period.

The government

Performance of the government budget during the review period was consistent with the initial signs of economic recovery. After tax collection slumped during 2008, the trend leveled off in recent months and allowed tax receipts to outpace the budget outlook. This auspicious surprise brought the expected share of the total deficit in 2009 (excluding the issue of credit) to less than the 6 percent of GDP deficit ceiling that was set forth in the Budget Law. Government expenditure so far represents underspending of the budget, but even if by the end of the year there is full expenditure of the budget, the government deficit is expected to be below the ceiling.

In July, the Knesset passed into law the state budget for 2009 and 2010, ending a seven-month period in which the government operated under the previous year's budget, which was unsuited to the actions warranted by the economic crisis. The new budget raised the expenditure ceiling by NIS 3.5 billion per year—in addition to the permanent 1.7 percent increase—in order to implement coalition agreements and facilitate measures such as earlier performance of infrastructure projects, an increase in the R&D budget, a larger budget for grants under the Encouragement of Capital Investments Law, and expanded credit assistance for exporters and small and medium enterprises. These measures were accompanied by a corresponding increase in indirect taxes, so that except for the fiscal expansion inherent in the "automatic stabilizers" (e.g., a decrease in tax revenue and an upturn in transfer payments during recessions in business activity), this year's fiscal policy is neutral.

Figure 1.8

Government revenue and expenditure,
1998-2009*
(12-month moving average)

* To July 2009.
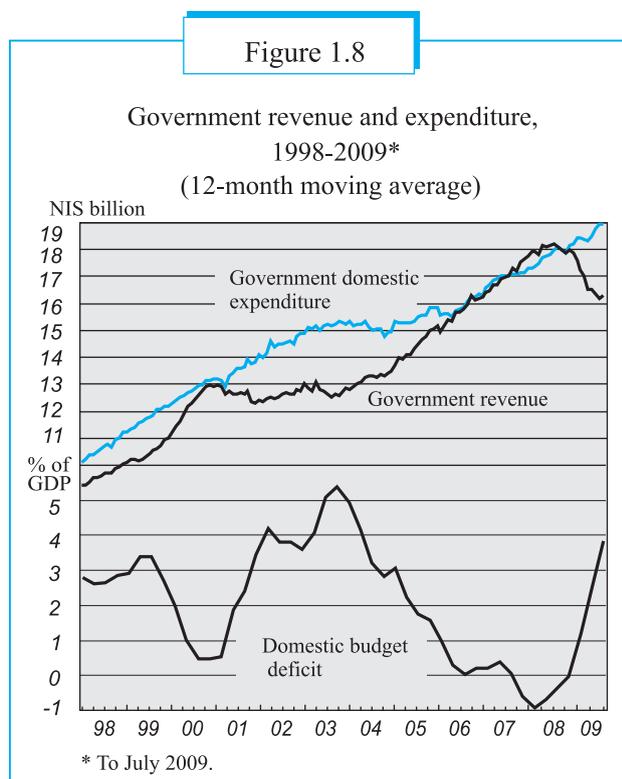
Due to the implications of the economic crisis, especially for tax revenue, the deficit ceiling was raised to 6 percent of product in 2009 and 5.5 percent in 2010. To stay within the higher limit, expenditure items such as vacation pay for general-government workers were lowered and tax rates were raised. The latter increases focused on indirect taxes: VAT went up by 1 percentage point, the rates of fuel and cigarette taxes were raised, and a duty on large-scale water consumption by households was imposed. The income ceilings for payment of National Insurance contributions

were raised and, as part of the trend toward "green taxation," the tax rates on large and pollution-intensive vehicles were moved upward.

Although tax revenues continued to slump during the review period, there was an improvement in the form of a moderate increase in indirect-tax revenues, occasioned by legislative changes among other factors. The lengthy downward trend of direct-tax revenues leveled off in August. Further evidence of the improvement in tax revenues during the review period was a 4.1 percent positive deviation of tax revenues from the original budget trajectory (excluding net issue of credit).

Government expenditure during the review period fell short of the level that corresponds to full performance of the budget. However, performance was uneven during the period: in May and June, expenditure followed the seasonal path that corresponds to full performance but underperformance was observed in July and August, even though the Knesset had passed the new budget into law. From the beginning of the year to August (the end of the review period), domestic expenditure was NIS 4.1 billion below the seasonal trajectory that would lead to full budget performance, corresponding to 2.7 percent underperformance. Since the government is weighing the possibility of moving up 2010 expenditures to the current year, the 2009 budget may ultimately not be underperformed.
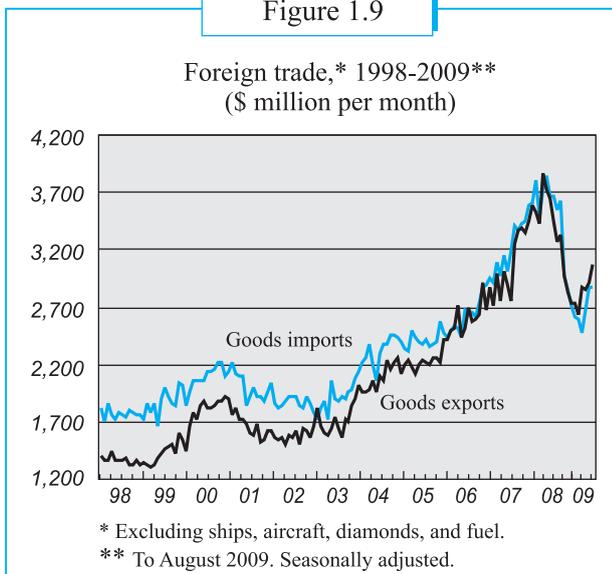
Utilization of the allocation for credit funds—the Export Fund, the Small Business Fund, and the Medium Business Fund—gathered momentum during the review period and NIS 1.3 billion in loans was disbursed through these mechanisms by the end of the period. Although this is a negligible fraction of total credit to the business sector (0.1 percent), most business credit accrues to large firms. These dedicated funds may eliminate barriers that SMEs face and may even leverage SME activities beyond the sums lent.

The balance of payments

The surplus in the current account of the balance of payments remained high in the second quarter, at $2.1 billion—albeit slightly lower than in the first quarter. This was the result of a marked increase in the surplus in the services account, which offset the decline in the other components of the current account, most notably the fall in the goods account.

In the first half of 2009 the current account surplus was significantly higher than that in the first half of 2008. Both exports and imports fell since the beginning of the year, due to the economic crisis in Israel and world wide, but as a result of the improvement in the terms of trade and real depreciation of the shekel during the year, the decline in

Figure 1.9

Foreign trade,* 1998-2009**
($ million per month)

Goods imports

Goods exports

* Excluding ships, aircraft, diamonds, and fuel.
** To August 2009. Seasonally adjusted.

Figure 1.10

Israel's high-tech manufactured exports to the US
and US high-tech manufactured imports,
1995 to 2009*
($ billion per quarter)

Israel's high-tech manufactured exports
to the US (right scale)

US high-tech manufactured imports
(left scale)

* To September 2009. Seasonally adjusted

exports was more moderate than that in imports. The most notable fall in imports was in imports of investment goods (producer durables), which persisted during the period reviewed despite indications of a recovery in the economy. It was not until August, the end of the period reviewed, that these imports increased (monthly data, at current prices), a development that may reflect a turnaround in economic activity.

The increase in exports in the period reviewed derived mainly from the increase in exports of services and of electronic

components. Exports of goods excluding diamonds and electronic components remained sluggish. That said, data at current prices of advanced economies indicate an increase in world trade that started in June, and the Tech-Pulse index also started to increase then. These trend changes are an expression of an increase in global demand, and if the trends continue, they are expected to lead to a real rise also in Israel's goods exports.

Foreign direct investment (FDI) in Israel, which has been stable throughout the crisis, fell steeply in the second quarter. In contrast, Israelis' direct investments abroad recovered, following their dramatic drop in the previous quarter.

Global developments

Real activity began to trend positively during the review period and the financial markets followed up on the improvement that began in the previous period. Despite indications that raise doubts about the sustainability of the new trend, the international agencies adjusted their global growth outlooks upward.
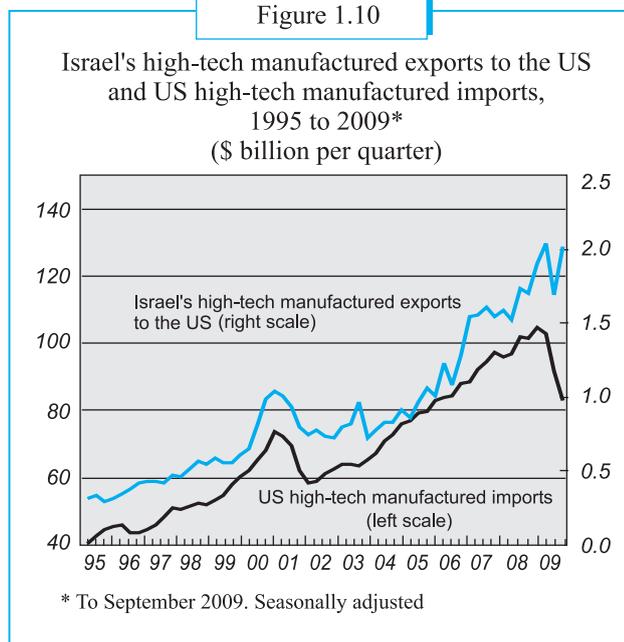
As a manifestation of the ongoing improvement in the financial markets, the MSCI Global Equity Index attained its highest level since October 2008, interbank interest spreads narrowed, corporate borrowing spreads narrowed at most ratings, and bond issues, especially in the U.S., continued to increase.

The favorable trend in real activity was expressed in a slowing of the contraction of U.S. product, an upturn in various countries' purchasing managers indices, and an increase in the European and Japanese manufacturing-output indices, albeit to levels far below pre-crisis. The low inflation environment in developed markets will allow central banks to maintain expansionary monetary policies that will support real activity.

Nevertheless, troubling indicators still cloud the growing optimism. Bank credit remains soft, for reasons including the continued application of tough loan qualification terms. The contraction of credit is inflicting hardships on households and small businesses, both of which rely on banks as their only source of credit. An additional concern is that the improvement in the capital and money markets may be based mainly on the far-reaching government programs and will dissipate once the programs end.

In the real domain, too, there is concern that the increase in activity is unsustainable and rests on fiscal support that is unprecedented and excessive relative to conventional countercyclical policy; once the support is terminated, it is feared, the growth of demand may be dampened.

Furthermore, many developed countries, foremost the U.S., are coping with enormous government deficits that endanger exchange-rate stability and may have to deal with them by measures including hefty tax increases that will reduce activity in the longer term.

Notwithstanding these fears, the global growth outlooks were adjusted upward during the review period. The IMF raised its outlook on global product growth from 1.9 percent to 2.5 percent, its outlook on advanced countries' product growth from zero to 0.6 percent, and its outlook on global trade growth from 0.6 percent to 1.0 percent. The World Bank's outlooks are even more optimistic: 2.8 percent global product growth and a 3.8 percent increase in global trade.
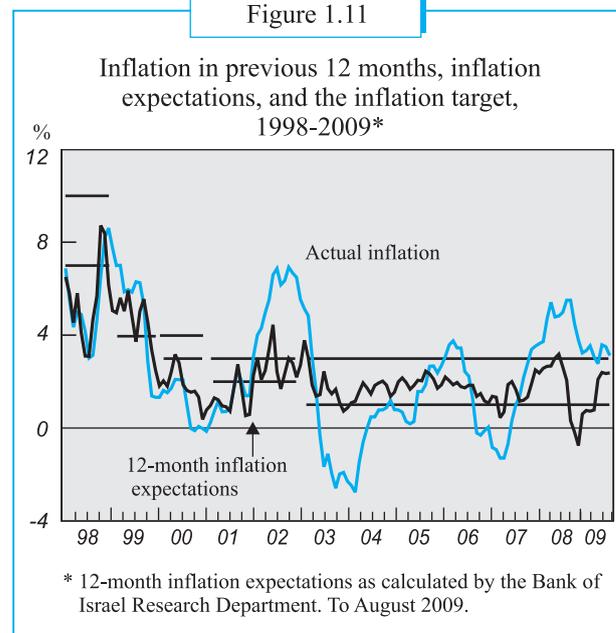
Prices, monetary policy, and the money and capital markets

The Consumer Price Index went up in May–August by 2.8 percent, bringing the rate of increase to 3.7 percent since the beginning of the year and 3.1 percent in the trailing twelve months—slightly overshooting the upper bound of the inflation target (Table 1.7 and Figure 1.11). The CPI increase in recent months marks the continuation of the upward trend in prices that began in March after several months of steady decreases that were consistent with the recessed state of domestic and global activity. In the aftermath of the increases in actual inflation and inflation expectations, the Bank of Israel raised its interest rate for September by 0.25 percentage point, to 0.75 percent, after four months of no change. This increase is consistent with the transition from fear of an anomalous and protracted crisis to the onset of optimism.

The acceleration of price increases was abetted by increases in the rates of VAT and taxes on fuel and cigarettes, and also by the imposition of a duty on excessive water consumption. Analysis of the components of the CPI shows that while the rate of price increases was perceptibly affected by these decisions, it verged on the upper bound of the target even exclusive of them. This finding lends support to the possibility that the low interest environment and the purchases of foreign currency and bonds also fueled the acceleration of price increases: the accommodative policy and the purchases of forex and bonds pushed the interest rate up, and this itself may have influenced the pace of actual inflation during the review period.

However, the negative output gap—reflecting higher unemployment than in 2008 and low utilization of physical capital—suggests that the price increases in recent months will not continue.

Figure 1.11

Inflation in previous 12 months, inflation expectations, and the inflation target, 1998-2009*

* 12-month inflation expectations as calculated by the Bank of Israel Research Department. To August 2009.

The Bank of Israel left its benchmark rate at 0.5 percent during the review period—a historical low that was compatible with the concerns about an anomalous and lengthy crisis. Responding to the shift from these concerns to the beginning of optimism and to the increase in inflation expectations, the Bank raised its rate for September by 0.25 percentage point, to 0.75 percent. This gentle increase, leaving the rate in a historically low environment, struck a balance between the need to keep inflation expectations within the target range and the need to continue supporting the expansion of activity, especially in view of the uncertainty that surrounds the continuation and pace of the recovery.

Inflation expectations to twelve months ahead overshot the midpoint of the inflation target during the review period but fell back slightly due to the Bank of Israel's rate increase at the end of the period. According to capital-market inflation expectations (breakeven inflation) and the average of the forecasters' estimates in September, inflation in the coming year will be 2.3 percent and 2.4 percent, respectively. After overshooting the upper bound to the inflation target, the breakeven rate to terms of 2–3 years ahead receded to 2.8 percent by the end of the period. The breakeven rate to longer terms fell moderately and rested in the upper part of the inflation target.

Since inflation expectations, especially to longer terms, was in the upper portion of the target range during the review period, the Makam curve at the end of the period mirrored expectations of further increases in the benchmark rate. The curve indicates that the market expects the benchmark rate to climb to 2.5 percent one year ahead.
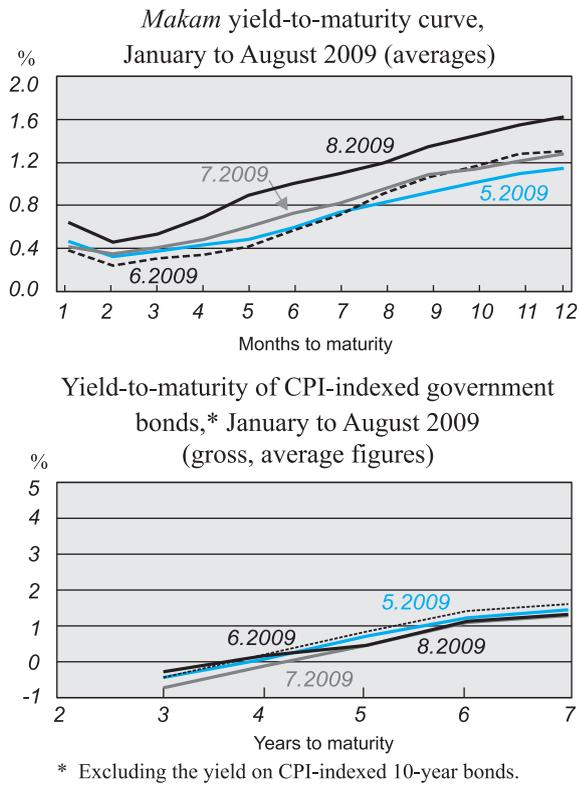
Figure 1.12

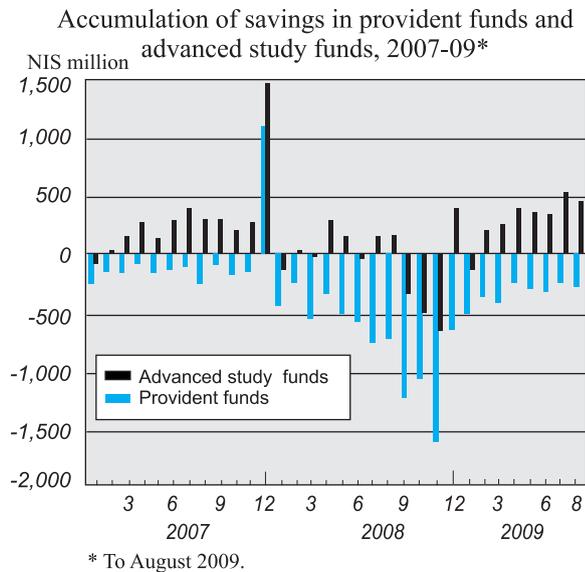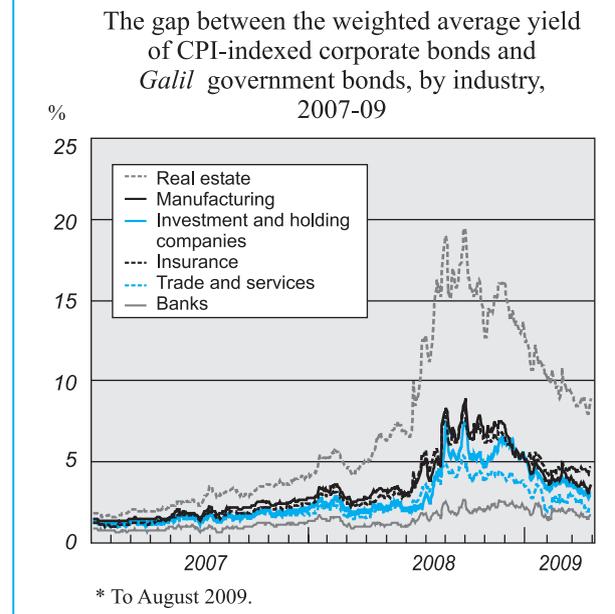*Makam* yield-to-maturity curve,
January to August 2009 (averages)

%

2.0
1.6
1.2
0.8
0.4
0.0

8.2009

7.2009

5.2009

6.2009

1 2 3 4 5 6 7 8 9 10 11 12

Months to maturity

Yield-to-maturity of CPI-indexed government
bonds,* January to August 2009
(gross, average figures)

%

5
4
3
2
1
0
-1

5.2009

6.2009

8.2009

7.2009

2   3   4   5   6   7

Years to maturity

* Excluding the yield on CPI-indexed 10-year bonds.

Figure 1.13

Accumulation of savings in provident funds and
advanced study funds, 2007-09*

NIS million

1,500
1,000
500
0
-500
-1,000
-1,500
-2,000

■ Advanced study funds
■ Provident funds

3   6   9   12   3   6   9   12   3   6   8
   2007   2008   2009

* To August 2009.

Figure 1.14

The gap between the weighted average yield
of CPI-indexed corporate bonds and
Galil government bonds, by industry,
2007-09

%

25

20

15

10

5

0

---- Real estate
— Manufacturing
— Investment and holding
    companies
---- Insurance
---- Trade and services
— Banks

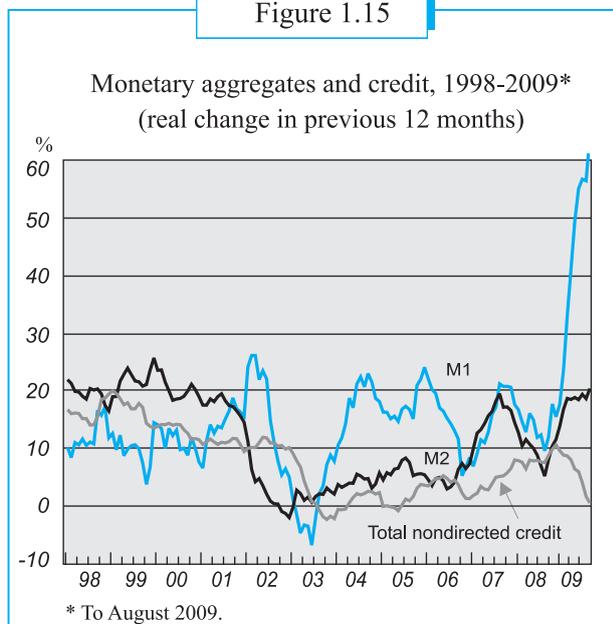2007   2008   2009

* To August 2009.

The NIS exchange rate against the effective currency basket[6] appreciated by 4 percent during the review period. The depreciation of the USD abroad—evidenced, for example, in the dollar exchange rate against the euro—was a major factor in the appreciation of the NIS against the currency basket. Other factors that contributed to the appreciation of the shekel included the increase in the current account surplus in the first half of the year, and optimistic expectations that the recovery of Israel's economy from the crisis would be faster than that in other economies. During most of the period reviewed, the Bank of Israel made daily purchase of foreign currency in the market, a policy that moderated the appreciation of the shekel. In August, however, the Bank changed its policy to one of occasional purchases when abnormal exchange rate fluctuations occur that are not consistent with the basic economic conditions, or when the forex market is not functioning properly. In order to moderate the increase in the money supply that would result from such purchases, the Bank conducted a policy of sterilization, via such steps as issuing makam and absorbing the banks' excess liquidity via monetary deposit auctions.

The growth rate of the money supply, including the liquid monetary aggregates, continued to accelerate perceptibly during the review period (Table 1.8 and Figure 1.14) against the background of low nominal interest. Nevertheless, the increase in outstanding bank credit was modest, mainly due to soft demand for bank credit against the background

_____

6   The effective currency basket weights the exchange rates of Israel's trading partners by their shares in Israel's total trade.

Figure 1.15

Monetary aggregates and credit, 1998-2009*
(real change in previous 12 months)

M1

M2

Total nondirected credit

* To August 2009.

of the financing constraint since the beginning of the year, as evidenced in the Bank of Israel Survey of Companies, supports the hypothesis that it is not the supply side that is inhibiting the acceleration of increase in bank credit.

Bond-market activity recovered during the review period and the pace of corporate issues stepped up. The range of companies that issued bonds widened as well: at the beginning of the year, the few issues that took place were by banking entities, whereas during the review period, companies in all industries issued. On the Tel Aviv Stock Exchange, the General Share Index climbed by 18.7 percent during the review period but remained 30 percent below its late-2007 peak. Against the background of the recovery in the capital markets, the Bank of Israel stopped buying government bonds in the secondary market in late July, after the cumulative extent of its purchases attained the sum that it had announced when the program began.

Due to the recovery in the financial markets, the public's portfolio of financial assets grew in value during the review period, bringing the cumulative real increase since the beginning of the year to 8.4 percent.[7] The portfolio growth in recent months was occasioned largely by rising prices of securities, foremost domestic and foreign equities and corporate bonds. In response to the low interest rates and the upturn in optimism, the share of securities in the portfolio increased and that of cash and deposits receded after having surged at the peak of the crisis.
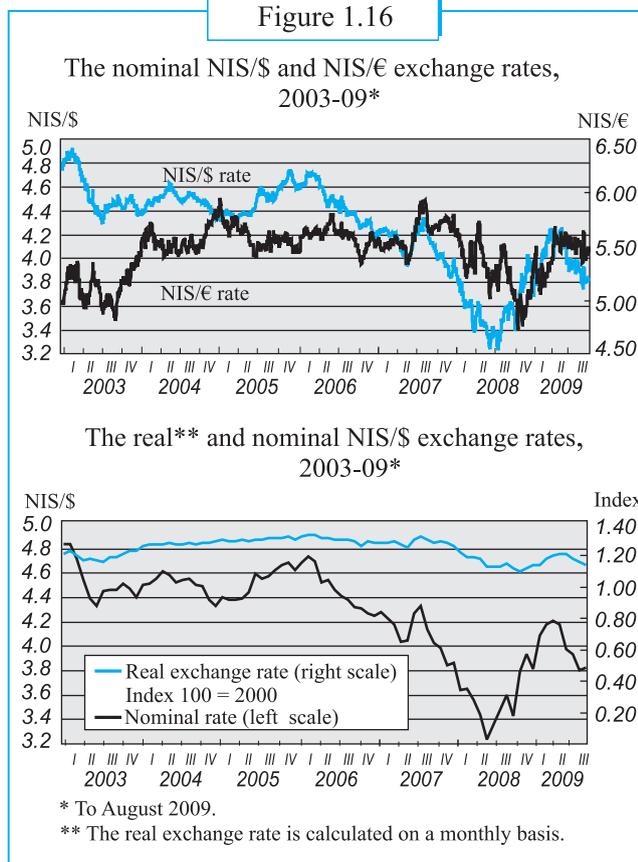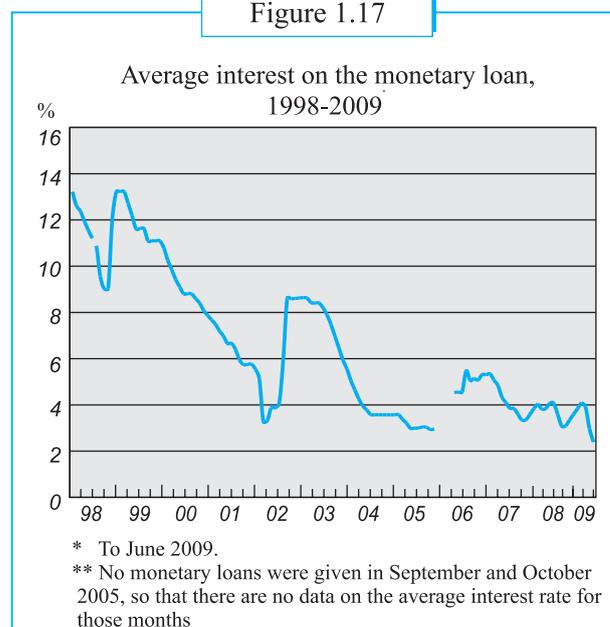
Figure 1.16

The nominal NIS/$ and NIS/€ exchange rates, 2003-09*

NIS/$

NIS/€

NIS/$ rate

NIS/€ rate

The real** and nominal NIS/$ exchange rates, 2003-09*

NIS/$

Index

Real exchange rate (right scale)
Index 100 = 2000
Nominal rate (left scale)

* To August 2009.
** The real exchange rate is calculated on a monthly basis.

Figure 1.17

Average interest on the monetary loan, 1998-2009*

%

*   To June 2009.
** No monetary loans were given in September and October 2005, so that there are no data on the average interest rate for those months

of the recession and an increase in the nonbank credit that serves some borrowers as an alternative. The mitigation

[7]   Net of government liabilities to the old pension funds.

Table 1.1 National Accounts,[a] 2008-09

| | | Change from previous quarter | | | | | 2009:QII | | |
| | | 2008 | | | 2009 | | | | |
	2008[b]	II	III	IV	I	II	Change from previous quarter	Year on year change[b,c]	Last month for which data available[*]
GDP	4.0	3.6	0.8	-1.6	-3.3	1.0	1.0	-0.8	6
Business-sector product	4.5	3.9	0.2	-2.7	-5.0	1.3	1.3	-1.6	6
Private consumption	3.6	-3.4	1.5	-2.6	-4.1	5.6	5.6	0.0	6
Gross domestic investment	1.4	27.6	-12.5	22.1	-19.1	-54.9	-54.9	-21.0	6
Fixed investment	4.4	-3.2	-14.9	-4.8	-15.2	2.0	2.0	-8.5	6
Goods and services exports	10.5								
excl. diamonds	10.5	-5.4	7.3	-22.9	-30.3	26.3	26.3	-7.6	6
Goods exports[d]	2.9	-3.0	5.8	-43.8	-20.1	4.5	4.5	-16.1	6
Services exports[d]	10.7	-23.0	-2.1	-14.4	-37.0	77.6	77.6	-1.6	6
Goods and services imports									
excl. diamonds	0.7	-6.0	-1.5	-6.2	-45.8	3.2	3.2	-15.2	6
Goods imports[e]	7.2	-8.7	1.5	-36.5	-46.4	12.1	12.1	-21.1	6
Services imports[e]	0.7	-6.7	0.8	-10.8	-31.6	2.1	2.1	-10.9	6
Public sector consumption	7.7	-9.7	5.3	-0.8	-4.7	12.1	12.1	2.8	6
Public sector consumption	2.1								
excl. defense imports	2.2	-3.2	8.4	-1.7	-6.5	20.7	20.7	4.7	6
Domestic use of ressources	3.1	3.2	-0.3	1.3	-7.8	-6.1	-6.1	-3.3	6

[a] Percentage change in annual terms, at constant prices, seasonally adjusted.

[b] Unadjusted data.

[c] In quarterly terms.

[d] New calculation - excluding subsidies.

[e] New calculation - excluding taxes.

SOURCE: Central Bureau of Statistics.

Table 1.2. Indicators of Business Activity,[a] 2008-09

| | | Change from previous quarter | | | | | May - August 09 | | |
| | | 2008 | | | 2009 | | Change from previous period | Year on year change[b,c] | Last month for which data available* |
	2008[b]	II	III	IV	I	II			
Composite state-of-the-economy index	1.3	6.2	-3.3	-10.4	-17.7	-5.9	0.5	-8.2	8
Unit labor cost	0.1	0.5	0.9	-3.2	-3.9	-3.5	-3.5	-3.5	6
Large-scale retail trade	4.4	-5.8	13.8	-2.2	2.2	14.6	-1.6	2.6	8
Manufacturing production									
(excl. diamonds)	7.0	6.2	-5.7	-6.8	-16.2	-6.2	-4.4	-8.9	7
Index of trade revenue	0.3	-6.8	-5.8	-15.4	-3.3	7.9	8.8	-2.9	7
Index of trade and services revenue	-0.4	-8.1	-3.5	-15.8	-3.8	4.8	4.8	-4.5	7
Index of export - services	9.9	-21.4	-26.0	12.2	-35.7	55.5	36.0	-2.5	8
Tourist arrivals	32.7	16.7	-19.7	12.8	-65.9	45.9	43.1	-10.2	8
Residential construction[b]									
Starts	5.1	3.9	15.2	6.0	-1.1	-2.8	0.0	-0.8	6
Completions	8.0	8.9	10.1	24.5	7.0	-1.2	0.0	-4.8	6
Nonresidential construction[b]									
Area of starts	19.5	72.7	19.7	-16.6	-4.8	0.0	-4.8	-4.8	3
Survey of companies (net balance, percent)[d]									
Weighted balance of the business sector	1.0	**10.0	** 2	** -28	** -38	** -13	** -13		6
Output of manufacturing firms	-7.0	**1.0	** -7	** -33	** -15	** -15	** -15		6
Sales by trading firms	-6.0	**-8	** -5	** -45	** -0	** -0	** -0		6

* When the last month is March or June, the comparisons are quarterly, and when the last month is July or August, the comparisons are of four-month periods.

** Not significant at 10% level.

[a] Percentage change, in annual terms, seasonally adjusted.

[b] Unadjusted data.

[c] In quarterly terms.

[d] A monthly index.When it is above 50, it indicates an increase, and when under 50, a decrease. The figures shown in the table are the average for the period.

[e] The net balance is defined as the difference between the number of firms reporting a rise and those reporting a decline, as a proportion of all reporting firms.

SOURCE: Based on Central Bureau of Statistics and Ministry of Construction and Housing data.

Table 1.3. Indicators of Labor Market Developments,[a] 2008-09

	2008	2008			2009		May - August 09		
		II	III	IV	I	II	Change from previous quarter	Year on year change[b]	Last month for which data available*
	('000)	percent change from previous quarter							
Civilian labor force	3,002.4	0.3	0.3	0.6	0.8	0.1	0.1	2.1	6
Israeli employees	2,761.1	0.6	0.2	0.1	-0.4	-0.4	-0.4	-0.2	6
of which: in general government	811.7	0.8	0.9	1.8	-1.7	-1.4	-1.4	-0.4	6
in business sector	1,954.9	0.1	-0.0	0.1	-0.1	-0.0	-0.0	-0.1	6
Foreign workers and Palestinians (unadjusted)[b]	271.5	-0.2	3.0	-0.3	-2.6	1.5	1.5	1.5	6
Average hours worked weekly per employee	36.0	1.1	-1.1	-3.0	0.8	0.3	0.3	-2.7	6
Labor input in business sector (incl. foreign workers and Palestinians)	94,314.0	1.0	-0.9	-1.4	-0.4	0.1	0.1	-2.7	6
of which: Israelis	82,132.0	1.0	-1.3	-1.7	0.0	-0.1	-0.1	-3.2	6
Labor input in general government (Israelis) work hours per week	17,260.0	2.6	0.5	-2.8	0.3	-1.4	-1.4	-1.4	6
Unemployed	241.3	-3.5	2.2	7.8	18.4	5.7	5.7	38.8	6
Work seekers	231.7	-2.1	6.7	4.6	9.6	4.6	0.1	24.8	6
Claims for unemployment benefit	91.2	2.5	6.1	8.4	20.9	14.8	52.8	58.2	8
Balance of employment[c]		0.5	1.1	-0.5	-1.9	-0.6	-0.6		6
Employment, according to Purchasing Managers Index[d]		48.8	46.5	35.6	27.2	40.0	48.6		8
NIS unadjusted data									
Real wage per employee post[e]	7,123.3	-1.1	-1.6	-1.3	0.2	-1.2	-8.6	-4.1	6
In general government	6,981.1	-1.1	-1.4	-0.6	0.6	-1.1	-5.7	-3.1	6
In business sector	7,192.7	-0.3	-1.8	-1.0	0.5	-1.9	-12.4	-4.6	6
Nominal wage per employee post[e]	7,955.3	0.1	-0.4	-0.6	0.5	-0.3	-4.9	-1.0	6
In general government	7,799.4	0.2	-0.1	-0.1	0.8	-0.0	-1.0	0.1	6
In business sector	8,031.5	1.0	-0.5	-0.2	0.5	-0.9	-7.4	-1.6	6
percent, seasonally adjusted									
Participation rate	56.5	56.5	56.4	56.5	56.7	56.5			6
Employment rate	52.0	53.1	53.0	52.9	52.4	52.0			6
Unemployment rate	8.0	5.9	6.0	6.5	7.6	8.0			6
Depth of unemployment[f]	33.4	36.2	32.1	30.5	30.1	33.4			6

* When the last month is June, the comparisons are quarterly, and when the last month is August, the comparisons are of four-month periods.

[a] Percentage change, seasonally adjusted.

[b] Due to an error in the method of calculation, the data from January 2008 have been recalculated.

[c] Posts filled minus terminations of employment as a percentage of the total number of employees in businesses in the Employers Survey sample.

[d] A monthly index. When it is above 50, it indicates an increase, and when under 50, a decrease. The figures shown in the table are the average for the period.

[e] Including foreign workers and Palestinians.

[f] Percent of unemployed seeking work for more than six months (unadjusted).

SOURCE: Central Bureau of Statistics, Labor Force Survey, except for data on Israelis, non-Israelis, and labor input in the business sector, and total Israelis employed, which are the Central Bureau of Statistics' National Accounts estimates.

Table 1.4. Government Budget Performance, 2008-09

| | 2008 | 2008 | | | 2009 | | May - August 09 | | |
		II	III	IV	I	II	Change from previous period	Year on year change	Last month for which data available[a]
Domestic deficit as percent of GDP	-0.5	0.1	0.6	-7.1	-1.1		-1.1	4.6	3
Deviation from domestic budget path, excl. credit extended[a]								NIS billion[b]	
Revenue	4.4	0.2	-3.4	-3.3	-3.6	1.2	4.1	3.7	8
Expenditure	-18.5	-0.8	-3.4	3.6	-4.7	2.2	2.0	1.4	8
Deficit	22.9	1.0	0.0	-6.8	1.1	-0.9	2.1	2.3	8
Total deficit excluding credit (NIS billion)	-15.2	-3.1	-0.9	-16.5	-4.8	-13.0	-3.3	-7.6	8
	Real percentage change, year on year								
Government tax revenue	-6.7	-3.2	-9.1	-11.3	-15.1	-10.6	2.4	-6.8	8
of which: income tax, net	-13.1	-8.5	-15.6	-14.1	-20.9	-15.6	-9.8	-16.7	8
VAT, gross	1.4	4.0	-0.4	-8.1	-14.0	-14.1	5.1	-7.3	8
Government expenditure	1.0	1.2	-7.6	6.1	-6.1	8.4	-0.1	4.3	7
National insurance allowances	1.7	1.7	0.9	1.3	6.7	7.0	-0.2	6.9	7
of which: Unemployment benefit	0.0	-3.0	0.7	17.2	47.9	71.2	7.9	70.1	7
Income support[c]	-5.5	-6.6	-4.7	-3.9	-3.0	0.9	-0.2	0.5	7
National insurance contributions received from the public	1.7	3.2	-1.5	-0.2	-2.2	-4.2	1.6	-3.8	8

[*] When the last month is March, the comparisons are quarterly, and when the last month is July or August, the comparisons are of four-month periods.

[a] Based on deficit target of 3 percent of GDP.

[b] Year on year change. Does not refer to the seasonal path.

[c] Not including income supplement in old-age and survivors' pensions.

SOURCE: Based on Ministry of Finance and National Insurance Institute data.

Table 1.5. Foreign Trade, Balance of Payments, [a] and the Reserves,2008-09

| | | 2008 | | | 2009 | | May - August 09 | | |
	2008[b]	II	III	IV	I	II	Change from previous period	Year on year change[c]	Last month for which data available[d]
		percent change from previous period[b]							
Trade in goods[d]									
Goods imports	15.4	3.4	1.4	-9.2	-19.4	-5.4	1.1	-26.1	8
of which: Consumer goods	20.1	-1.3	5.3	-5.7	-9.9	-2.2	4.5	-9.1	8
Capital goods	16.9	0.7	-2.8	-6.9	-20.3	-10.3	0.4	-27.1	8
Intermediates	13.4	6.3	2.0	-11.4	-22.5	-4.6	0.0	-31.3	8
Goods exports	16.9	4.1	0.1	-11.6	-13.1	0.3	6.8	-20.4	8
of which: Manufacturing	18.0	4.4	-0.4	-11.4	-13.7	0.6	7.5	-20.3	8
of which: High-tech	8.8	6.5	-3.3	-5.9	-3.1	11.6	13.8	0.6	8
Balance of payments				$ million					
Goods and services exports	81,249	21,455	21,159	17,817	15,612				6
Goods and services imports	84,313	22,263	22,863	18,267	13,961				6
Balance of trade in goods and services	-3,064	808	1,704	450	-1,651				6
Current account	2,120	10	56	809	2,756				6
Financial account (excl. foreign exchange reserves)[c]	2,024	-240	4,355	3,846	-416	-421	-421	-240	6
of which: Nonresidents' direct investment[c]	2,410	2,495	2,788	1,723	1,891	-328	-328	2,495	6
Nonresidents' portfolio investment[c]	-39	516	-1,305	398	655	17	17	516	6
Residents' direct and portfolio investment abroad[c]	2,555	2,251	1,645	5,318	1,056	1,046		2,251	6
Net foreign debt (percent of GDP)[c]	-23.1	-21.9	-21.4	-23.0	-26.3	-27.6		-21.9	6
Bank of Israel reserves, end-period[c]	42,337	31,265	36,152	42,337	44,161	49,989			8

[*] When the last month is June, the comparisons are quarterly, and when the last month is August, the comparisons are of four-month periods.

[a] Seasonally adjusted.

[b] The change relates to the dollar values of imports and exports.

[c] Unadjusted data.

[d] Not including ships, aircraft, diamonds, and fuel.

SOURCE: Central Bureau of Statistics.

	2006	2007	2008	Projection 2009	Projection 2010
Table 1.6. Indicators of Economic Development in Advanced and Developing Countries[a] (annual rate of change, percent)[b]					
World GDP	5.1	5.1	3.1	-1.4	2.5
Advanced countries	3.0	2.7	0.8	-3.8	0.6
Developing countries	7.9	8.3	6.0	1.5	4.7
World trade	9.2	7.2	2.9	-12.2	1.0
Advanced countries					
Imports	7.4	4.7	0.4	-13.6	0.6
Exports	8.2	6.2	2.0	-15.0	1.3
Developing countries					
Imports	14.4	13.8	9.4	-9.6	0.8
Exports	10.9	9.5	4.1	-6.5	1.4
Commodity prices (US$)					
Oil[c]	20.5	10.7	36.4	-37.6	23.1
Nonfuel	23.2	14.1	7.5	-23.8	2.2
Inflation (CPI) in advanced countries	2.4	2.2	3.4	0.1	0.9
Short-term interest[c] (%)					
Dollar deposits	5.3	5.3	3.0	1.2	1.4
Euro deposits	3.1	4.3	4.6	1.4	1.8
Unemployment rate in advanced countries	5.7	5.4	5.8	8.1	9.2

[a] According to World Economic Outlook, Israel is classified as an advanced country. The advanced countries include the industrialized countries and some emerging markets.

[b] Except for unemployment and interest rates, which are actual rates.

[c] Average price of Brent crude in 2008 was $97 per barrel, excluding transport cost.

[d] Six-month Libor rate for US dollar deposits, and three-month Libor rate on euro deposits.

SOURCE: World Economic Outlook (IMF), April 2009 update.

Table 1.7. Selected Price Indices,[a] 2008-09
(percent change)

		2008			2009		Change from previous period[b]	Year on year change[c]	Last month for which data available
	2008	II	III	IV	I	II			
Change during the quarter[a]									
CPI	3.8	2.2	2.0	-0.6	-0.1	2.3	2.8	3.1	8
CPI excl. housing, fruit and vegetables	2.0	3.0	0.1	-1.4	-0.8	2.4	2.5	0.9	8
CPI excl. housing, fruit and vegetables, price-controlled goods, clothing and footwear	1.3	2.3	0.7	-2.9	-0.2	2.4	2.4	0.1	8
Index of housing prices	12.1	1.0	8.2	4.9	1.3	1.5	2.7	11.8	8
Wholesale price index	-4.4	6.2	-0.1	-10.9	-0.9	1.6	1.4	-10.0	8
Nominal unit labor cost	2.6	1.1	0.0	-2.1	2.1	2.7	2.7	2.6	6
NIS/$ exchange rate	-0.9	-4.2	5.5	9.1	7.5	-5.2	-8.7	6.2	8
NIS/ € exchange rate	-8.4	-4.1	-2.4	2.2	4.5	1.5	-1.2	7.5	8
Real effective exchange rate	-10.7	-10.1	-13.3	-12.5	-2.2	4.8	-0.9	3.5	8
Year on year change[d]									
CPI	4.6	5.0	5.1	4.6	3.4	3.2	2.7	3.3	8
CPI excluding housing, fruit and vegetables, price controlled goods, clothing and footwear	4.5	5.3	5.6	2.9	0.2	-0.2	2.6	-0.1	8

[a] Last month of each quarter compared with last month of previous quarter.

[b] August 2009 compared with April 2009.

[c] August 2009 compared with August 2008.

[d] Period average.

SOURCE: Central Bureau of Statistics.

Table 1.8. Monetary Aggregates and Nondirected Bank Credit, 2008-09
(annual rate of change, percent)

	2008	2008	2008	2008	2009	2009	May - August 09	May - August 09	May - August 09
	2008	II	III	IV	I	II	Compared with previous period	Year on year change	Last month for which data available
Rates of change	Change from previous quarter								
M1[a]	14.1	21.5	24.6	20.0	69.0	118.9	84.0	57.8	8
M2[b]	9.8	12.2	8.0	22.7	29.5	15.7	12.1	19.1	8
M3[c]	8.0	6.7	4.7	20.5	24.6	14.8	8.5	15.9	8
Nondirected bank credit	8.2	9.4	10.3	14.0	0.2	-2.3	-3.7	3.3	8
Unindexed local-currency credit	18.2	23.9	15.8	19.1	6.5	2.8	2.1	8.8	8
CPI-indexed credit	4.9	3.3	6.9	1.8	-17.1	-8.5	-5.2	-5.6	8
Credit in and indexed to foreign currency	-12.8	-19.7	-1.0	24.6	19.2	-7.9	-20.7	3.2	8

[a] Narrow money supply (demand deposits and cash in the hands of the public).

[b] M1 plus short-term local-currency unindexed deposits.

[c] M2 plus short-term CPI-indexed demand deposits.

SOURCE: Bank of Israel.

Table 1.9. Interest Rates, Yields, and the Share-Price Index, 2008-09
(quarterly average, percent)

		2008	2008	2008	2009	2009	May - August 09	May - August 09	May - August 09
	2008	II	III	IV	I	II	Change from previous period	Year on year change	Last month for which data available
Nominal interest									
SRO deposits	2.7	2.4	3.1	2.4	0.7	0.3	0.3	2.7	8
Nondirected local-currency credit	7.9	7.4	8.0	7.9	6.8	5.7	6.0	7.8	8
Effective interest on daily deposit auctions	3.6	3.3	3.8	3.3	1.2	0.5	0.5	3.6	8
LIBID 3-month dollar intrest	2.8	2.6	2.8	2.6	1.1	0.7	0.5	2.6	8
Yield to maturity on:									
Makam (short-term Bank of Israel bills)	3.9	4.1	4.4	2.9	1.2	1.1	1.3	4.3	8
Yield on 5-year bonds	2.9	2.6	2.7	3.6	1.8	1.6	1.6	2.6	8
Risk premium[a]									
Expected inflation, twelve months forward[b]	1.9	2.8	2.6	-0.2	0.7	1.8	2.3	2.9	8
General Share-Price Index (change from previous period)	-46.4	5.5	-17.9	-25.8	20.3	18.3	18.7	-7.8	8

[a] January to March 2009.

[b] As measured by the 5-year credit-defalt-swap (CDS) market.

[c] Derived from the yield gap between indexed and unindexed bonds held by tax exempt institutional investors, minus the X-day effect on the price of the bond.

SOURCE: Bank of Israel.

Part 2: Broader Review of Selected Issues

The housing market—housing services prices and housing prices in the consumer price index

- The real price of housing (housing prices relative to the CPI) rose from the 1960s until the beginning of the 2000s. Following a downtrend at the beginning of the 2000s, a steep upturn in the real price of housing was recorded from the second half of 2008.
- Over time a relationship exists between apartment prices, rents and the real interest rate. In the short term, housing prices are affected by additional factors—the stock of apartments relative to the population, the number of building starts, the level of activity in the economy and developments in the NIS/dollar exchange rate.
- A temporary increase in the long-term interest rate leads to a decrease in the real price of apartments. A temporary increase in the Bank of Israel interest rate is reflected by a small and insignificant decrease in the real price of apartments.
- The rise in the housing price index during the last two years is attributed to two main factors—the fall in the unemployment rate and the rise in the housing-stock/population ratio.
- On the basis of the equations that were estimated, we expect the rate of increase in housing prices to moderate to some extent during the coming year.

The construction industry and the housing market constitute a major part of economic activity in Israel. The construction industry accounted for 7.3 percent of business-sector activity in the last two years. Expenditure on housing services represents over 20 percent of households' expenditure according to the Family Expenditures Survey, thereby explaining the high weighting of the housing component in the consumer price index. It is therefore important to analyze and understand the forces that operate in this industry and that affect the volume of activity and prices.
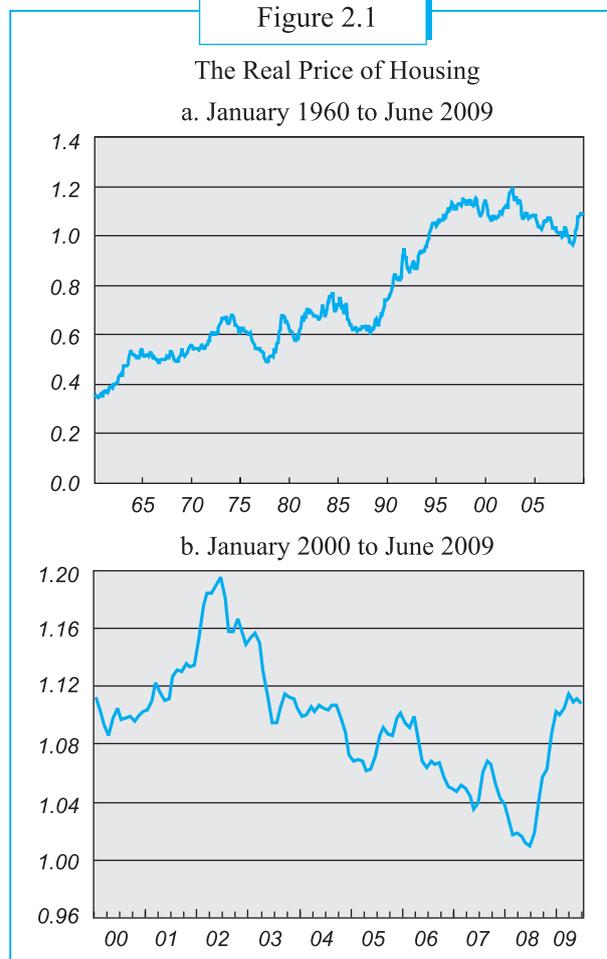
We will begin by describing the development of housing service prices, as measured in the consumer price index.[1] We will then present three approaches for analyzing nominal prices of apartments and housing services and the real price of housing.

1. The real price of housing

The development of housing prices can be studied by observing the real price—the ratio between the housing component and entire index. Figure 2.1 presents this ratio since the 1960s.[2] Overall, the real price of housing has followed a continued upward trend, which moderated in the last decade. A closer observation of the most recent period (Figure 2.1b) reveals a large increase in the second half of 2008, following a relatively large decrease from the second half of 2007. It is interesting to note that a similar large increase occurred during the previous recession, in 2001 and 2002, and only later, at the beginning of 2003, did the real

Figure 2.1

The Real Price of Housing

a. January 1960 to June 2009

b. January 2000 to June 2009

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[1] The measurement method and the connection with the exchange rate are described in a separate section in this review.

[2] Since until 1999 the price of the housing item was calculated on the basis of apartment prices, and not on the basis of rental prices, caution should be adopted when referring to the long series.

price of housing fall. The housing market therefore appears to react to the state of the economy with a lag, and housing prices only adjust themselves at a later stage of the business cycle, and their relative price is also adjusted.

2. Empirical analysis of owned apartment prices and apartment rent

The factors explaining the dynamics of the housing price index and apartment prices are of great interest in view of the high weighting of the housing service component in the consumer price index (21 percent) and the large rise in the housing price index relative to the general price index in the past year. In order to examine whether it is possible to forecast housing prices with a reasonable degree of accuracy, a theoretical framework was selected and demonstrated by means of a cointegration model between apartment prices and the owned dwellings service index.[3] Based on this model, we estimated a difference equation for the housing price index, which is not formulated within the framework of the cointegration model and includes additional variables for explaining housing price fluctuations.

The theoretical framework: The theoretical framework assumes that perfect substitutability exists between apartment prices and rents. In this framework, the price of an apartment reflects the discounted value of the apartment rent payments:
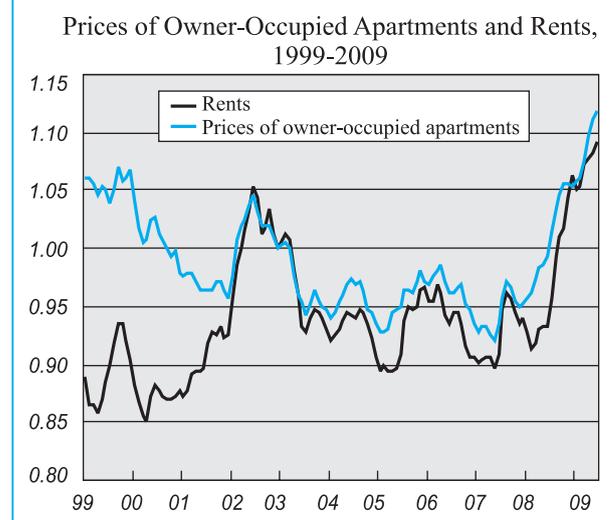
(1) $\quad p = \dfrac{R}{r} \Rightarrow r = \dfrac{R}{p},$

where P is the price of the apartment, R is the apartment rent (the dividend) and r is the interest rate. Under this approach, apartment rents and apartment prices are positively correlated and do not diverge from each other given the interest rate.

Figure 2.2 presents the development of apartment prices in the last decade, on the basis of the Central Bureau of Statistics' Survey of Housing Prices (the blue line) and the owned apartment component of the housing price index—the owned-housing services component, which is measured in accordance with renewed and new rental contracts (the black line). The diagram supports the hypothesis that apartment prices and apartment rents follow a common trend. Also supporting this hypothesis is the following cointegration regression, which examines the existence of trends common to a number of variables, that is, whether they are not dispersed over time (cointegration regression) even when a gap between them opens in the short term (error-correction equation).

Figure 2.2

Prices of Owner-Occupied Apartments and Rents, 1999-2009

Cointegration regression

The hypothesis regarding substitutability between apartment prices and rents in accordance with Equation (1) is examined by means of Equation (2), the co-integration regression with respect to (log of) apartment prices as a dependent variable:

(2) $\quad \log(P) = A + \beta_1 \log(R) - \beta_2 r + \beta_3 \log(dpt) + \varepsilon_t,$

where apartment prices and the owned-housing services index (rent R) are in nominal terms. As column 1 of Table 2.1 shows, a cointegration relationship was found in the last decade[4] between apartment prices, apartment rent[5] and the mortgage interest rate r.[6] As expected, a positive sign was obtained for apartment rent and a negative sign for the mortgage interest rate: when the interest rate rises, the demand for apartment purchase falls and apartment prices therefore fall as well. Since demand for housing services in

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[3] By means of an Engle-Granger two-step method.

[4] The equation was estimated for the period 1999/I–2009/II. This is because of the change in the definition of the housing price index, which from 1999 onwards has been measured under the rental equivalence approach.

[5] The cointegration relationship presented was found empirically in both directions, as shown in column 2 of Table 1, in which the apartment rental price is a dependent variable and the apartment price is an explanatory variable. Bar-Natan et al. (1998) estimated an econometric model for the Israeli housing market in the years 1974–90, and found an error-correction (EC) representation between the price of the apartment (the explanatory variable) and the apartment rental price (the dependent variable). However, they did not find an EC equation in the opposite direction.

[6] Since the interest rate in the estimation period was found to be I(1), it can be included within the cointegration equation.

a situation such as this is directed towards rentals, apartment rent increases. It should be noted that the cointegration regression also includes the inflation target (dpt) as an explanatory variable. This is because the disinflation process in the Israeli economy was continuing at the beginning of the estimation period.[7]

Error-correction equation

The cointegration regression supports the assumption that apartment rent and housing prices share a common trend, and do not diverge over time given the interest rate. This equation does not however explain the factors behind short-term change in each of the prices. The Granger representation theorem states that if a cointegration relationship exists, it is possible to present the dynamics in the short term by means of an error-correction (EC) model. In an EC model, the explanatory variable is the residual with a lag from the cointegration regression (ε_{t-1}), and additional variables (with lags) that affect the   dynamics in the short term are likely to be included.

Figure 2.3

Population/Housing Stock Ratio and the Real Price of Apartments and of Owned-Housing Services, 1980-2009

Table 2.1 presents the signs of the explanatory variables in the EC equation. Column 3 presents the results of the price equation, and column 4 the results of the apartment

rent equation. As expected, a significant negative coefficient was obtained for the one-period lagged residual, (–0.21) and (–0.34) respectively. The effects of additional variables were found in both equations: the effect of the housing-stock/ population ratio on housing prices was found to be significant and positive as expected (see below). Also found were a positive relationship between the general share index, which is a proxy for wealth effect, and apartment prices, and a negative relationship between that index and the index of owned-housing services. A negative relationship was found between the mortgage interest rate and apartment prices, and a positive relationship was found between that interest rate and the index of owned-housing services. Assuming substitutability between apartment purchase and apartment rental, as the interest rate rises demand for the purchase of apartments can be expected to fall and demand for apartment rental can be expected to increase. In addition, a positive relationship was found in the owned-housing services index equation between that index and the rate of change in the shekel-dollar exchange rate multiplied by the share of dollar-denominated contracts in total rental contracts.
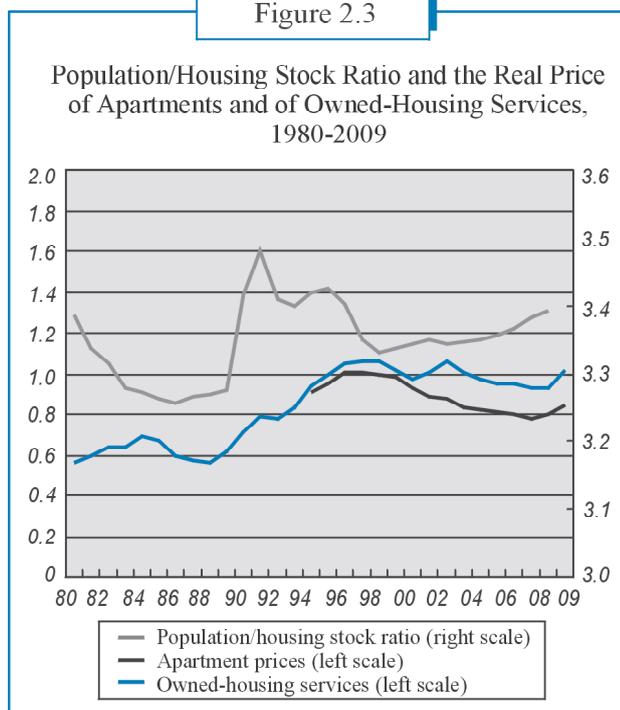
Figure 2.3 presents the ratio of the population to the stock of apartments from 1980 (gray line), the owned-housing services index (the blue line) and apartment prices from 1994 (the black line) at fixed prices, which were deflated by the consumer price index. This diagram shows that the development of housing prices does not necessarily match the usual business cycles because these prices are influenced by long-term effects out of the range of the business cycles. Thus, housing prices are affected by the ratio of the population to the stock of apartments with a considerable lag. Until 1987, this ratio fell continually while the owned-housing services index rose in real terms, apparently due to the impact of the hyperinflation that prevailed in that period. The wave of mass immigration at the beginning of the 1990s pushed up the ratio to a record level in 1991. However, the adjustment of the stock of apartments was an ongoing process, and prices continued to rise until peaking in 1997. Although the ratio of the population to the stock of apartments rose gradually from the end of the 1990s, prices continued to fall for approximately ten years, and a turnaround in these prices became apparent only at the end of 2007. The turnaround could be indicative of a trend that might last for several years, due to the increase in the ratio of the population to the stock of apartments.

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[7]   Running of the regression from 2002 onwards—a period when the inflation target was stable—makes the inflation target variable insignificant.

Table 2.1
The Signs of the Explanatory Variables in the Cointegration Equation (CO), in the Short-Term (Error-Corection) Equation (EC) and in the Difference Equation[a]

Equation	Equation[b] OC		Equation[c] CE		Difference equation[c]
	1	2	3	4	5
Dependent variable / Explanatory variable	Apartment prices	Owned-housing services	Apartment prices	Owned-housing services	Housing price index
EC – error correction			-0.21	-0.34	
Index of owned-housing services	+		+		
Apartment prices		+		+	
Dollar				+	+
Population/housing stock ratio			+	+	+
Building starts					-
Inflation target	+	-			
Capital-market inflation expectations					+
Unemployment					-
Real interest on mortgages	-	+	-	+	+
Share price index			+	-	
Adj.R2			0.80	0.86	0.81
DW			1.86	1.81	1.70

[a] The estimate was carried out for the period 1999:Q2 to 2009:Q1. All the variables except for the interest rate and unemployment are in logs, and significant at the 5% level.
[b] Non-stationary variables.
[c] Stationary variables.

Difference equation for the housing price index

The existence of a cointegration regression between housing prices and the owned-housing services index (measured by means of rental contracts)—an index that accounts for about 75 percent of the housing index—was shown above. It is thus reasonable to assume that the variables that explain the changes in the owned-housing services index in the above equations also explain much of the change in the housing index. The equations do indeed provide us with an insight into the basic factors that affect house prices and rents, but in the equations these two explain each other, while we are interested in finding the basic factors that explain the development of the housing price index, without using house prices and rents as the explanatory variable. We therefore estimated difference equations for the housing index outside the framework of the error-correction model, by introducing some of the explanatory variables of the error-correction model (e.g., the housing-stock/population ratio and the exchange rate) shown in the previous section, and other variables—inflation expectations, building starts, and the unemployment rate.

Column 5 in Table 2.1 presents the results of the difference equation. The results showed that all the explanatory variables from the EC owned housing services model in column 4, apart from shares, appear in the difference equation housing prices index as well as additional variables together with them. The change in the housing price index is therefore explained by the following factors: a positive relationship with the rate of depreciation of the shekel against the dollar multiplied by the proportion of dollar-denominated contracts; a positive relationship with the change in the ratio of the population to the stock of apartments with a lag of about a year, a lag that can be explained by the slow pace at which the stock of apartments adjusts to demand surpluses deriving from a growth in the population; a negative relationship with building starts with a lag of approximately two years, which reflects the supply side; a negative relationship with the change in the unemployment rate—when the unemployment rate is rising due to occupational uncertainty, the motivation for transactions decreases, which has the effect of reducing prices; a positive relationship with the change in the mortgage interest rate with a lag of about a

year; and a positive relationship with the change in inflation expectations for a year derived from the capital market, with a lag of three quarters.

Figure 2.4

The Contribution of the Different Variables to the Changes in the Annual Rate of Change in the Housing Index, 2005-09

Legend:
- Residual
- Unemployment rate
- Building starts
- Mortgage interest
- Population/housing stock ratio
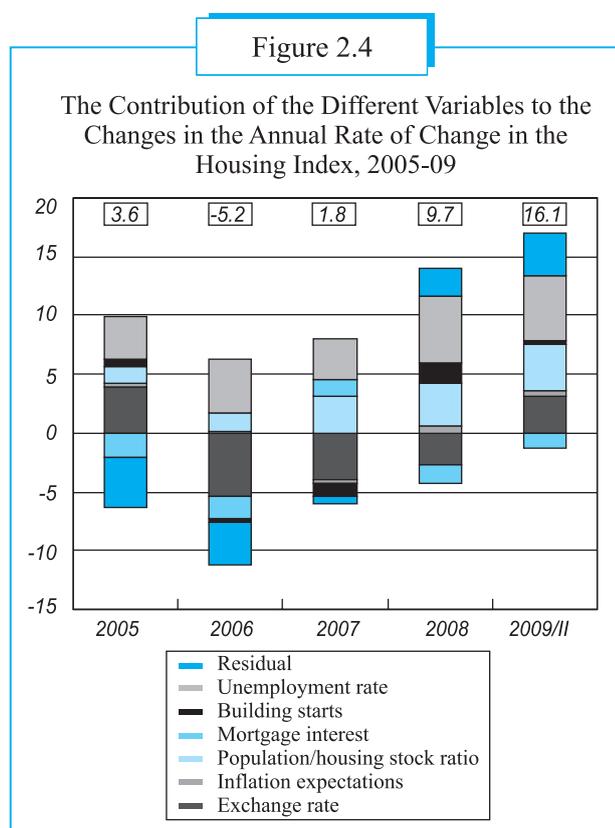- Inflation expectations
- Exchange rate

Figure 2.4 presents the contributions of the different variables to the development of the annual rate of change in the housing price index during the period from 2005 to the second quarter of 2009, as derived from the difference equation.

An analysis of the contributions shows that two main factors explain the rise in the housing price index during recent years—the fall in unemployment and the increase in the ratio of the population to the stock of apartments. The change in the unemployment rate reflects the cyclical factor (which acts with a lag): The decline in the unemployment rate from the fourth quarter of 2004 until the second quarter of 2008 contributed to an increase in the motivation for transactions and to a rise in prices. The ratio of the population to the stock of apartments, which affect prices with a considerable lag (Figure 2.3) and reflects supply and demand effects in the housing market—a ratio that increased rapidly from 2001—also contributed to a rise in the index. An analysis of the contributions shows that the exchange rate has a major impact on the index. After the exchange rate had contributed to a rise in the index in 2005 and between 2008/III and 2009/

II, during the years 2006–08 it contributed to a fall in the index. Since 2008, the flow of building starts, which was then at its lowest level since 2002, has contributed to a rise in the index. Finally, the decline in the mortgage interest rate, except in 2007, had the effect of reducing the housing price index, as explained above. It should be noted that the gap between the forecast and the actual figure between 2005 and 2009/II, with the exception of 2007, is considerable: An excessively high forecast of 4.3 percentage points and 3.6 percentage point respectively was derived for 2005 and 2006, and an under-forecast of 2.3 and 3.7 percentage points respectively was derived for 2008 and 2009.

During recent years and as described above, the cyclical factor (the unemployment rate) and housing market forces acted in the same direction, leading to a rise in the housing price index. With the decline in non-financial activity, the cyclical factor (which acts with a lag) can be expected to become more moderate and thereafter actually lead to a fall in the index. However, the ratio of the population to the stock of apartments is expected to continue contributing to a rise in the index, and to an increasing extent.

3. Simple VAR model for housing prices

The dynamics of housing prices can also be examined by an analysis of the statistical relationships between key variables in the economy, which affect housing prices within the framework of a VAR model. Examples of the use of this method can be found world wide, including at central banks.[8]

Like other studies, we chose to examine the change in the real price of apartments[9] in a system that contains a small number of real and nominal variables. In the formulation presented here, we examine the development of the change in real prices of apartments together with the change in activity (in GDP), the level of the long-term real interest rate on 10-year government bonds, the change in share prices in the local market, the change in the real exchange rate (the change in the exchange rate of the shekel against the dollar divided by the consumer price index), and the change in the overall price index and the Bank of Israel interest rate. Inclusion of the Bank of Israel interest rate enables us to also examine the transmission mechanism from monetary policy

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[8] See for example the study of Sutton (2002) of the BIS, who examined the prices of apartments in developed economies. Another BIS paper, Tsatsaronis and Zhu (2004) examined apartment prices in numerous countries, and an ECB paper, Jarocinski and Smets (2008), discusses the relationship between monetary policy and home prices in the USA

[9] As measured in the Central Bureau of Statistics Apartment Prices Survey, deflated by the consumer price index—hereinafter "the price of apartments".

to housing prices, as was done in many of the previously mentioned studies.

The VAR system was estimated for a period from the last quarter of 1995 and until the third quarter of 2008 (a total of 52 quarterly observations.). Apart from the variables estimated via the system, we included as explanatory variables a number of exogenous variables.[10] The estimation included two lags, in accordance with the restrictions of the short sample available to us and taking into account the stability of the response function and the customary tests for determining the length of the lags.

An analysis of the development of the real price of apartments within this framework enables us to examine how it is affected by a shock in each of the remaining variables included in the system estimated (impulse response function).[11]

DLY–the change in the product log; DLRDOL—the change in the real exchange rate log; DLPRH—the change in the real apartment price log; DLCP—the change in the consumer price index; IBoI—the Bank of Israel interest rate; R10Y—the real yield-to-maturity on 10-year government bonds; DLRS—the change in the index of real share prices.

Figure 2.5 presents the reaction of apartment prices to each of the potential shocks (temporary unexpected changes). A positive shock in product is reflected in an insignificant decrease in real apartment prices after a year.

The real yield on foreign currency is of importance, because foreign currency is an alternative asset to housing. Moreover, in view of the practice prevailing for most of the period, of denominating apartment prices in dollars, exchange rate adjustments had a short-term effect on prices.[12] Accordingly,

it was found that a positive shock in the real exchange rate leads to an immediate increase in housing prices—reflecting the high degree of correlation prevailing for most of the sample period between exchange rate adjustments and the development of housing prices. It should be remembered that we included in the system an exogenous variable that adjusts the estimate in respect of the proportion of dollar-denominated contracts, which decreased. Still, most of the sample is for a period when the reaction of housing prices to the exchange rate was significant.
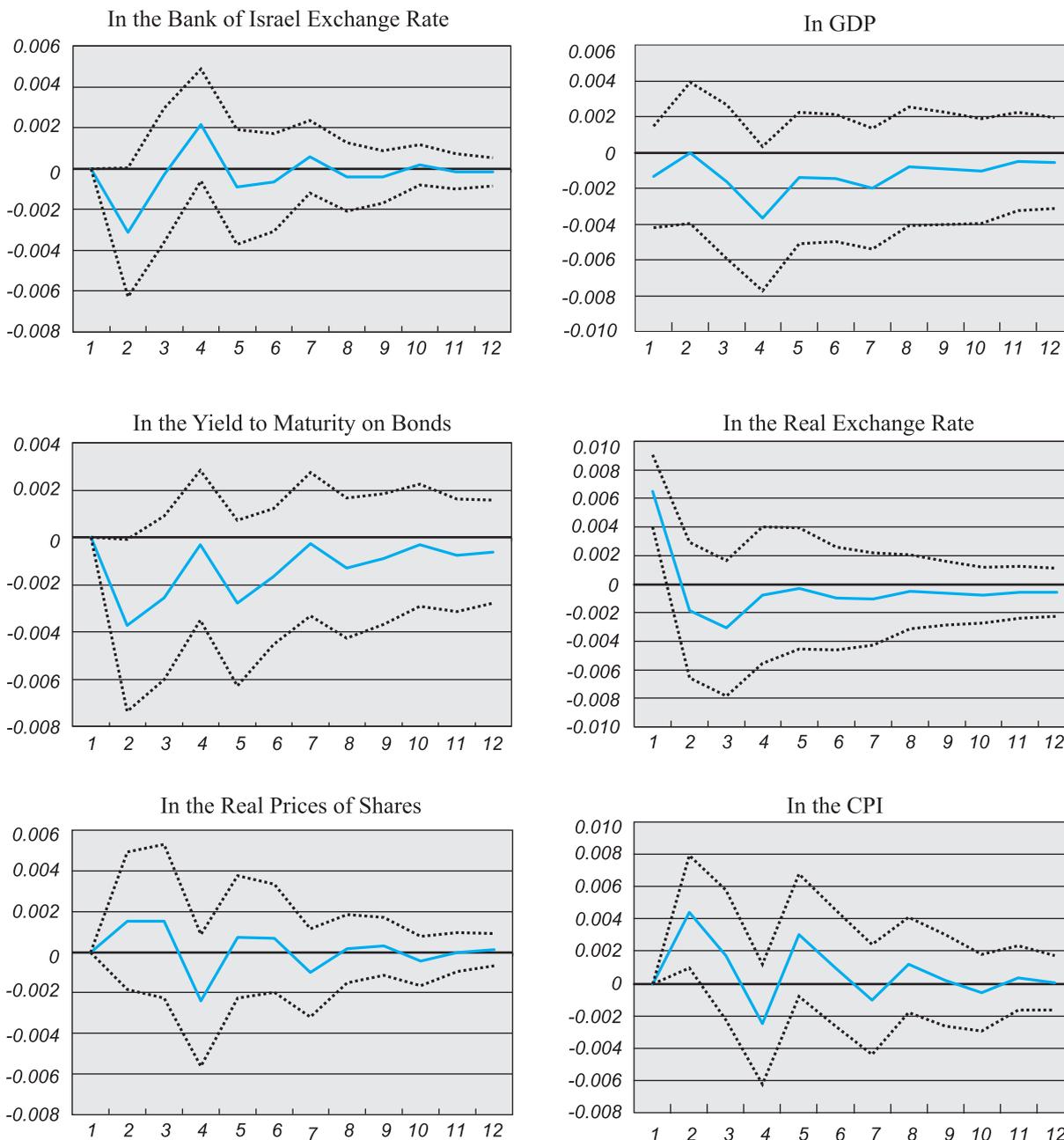
A rise in the general inflation rate has the effect of immediately increasing the real price of housing, although over time the change in the relative price is very small. High inflation is likely to increase demand for housing as an alternative asset-protection device. This applies mainly with respect to the beginning of estimation period, when the inflation environment was higher. A positive shock in the Bank of Israel interest rate reflects an immediate but insignificant decrease in apartment prices, which lessens over time. Since the Bank of Israel interest rate is a short-term interest rate, its effect is also short-term: An increase in the short-term interest rate is likely to defer demand for housing due to liquidity considerations, but does not impact demand in the longer-term. A rise in the real yield on long-term bonds, which implies an increase in the cost of long-term loans that are used for financing the purchase of an apartment, as well as a rise in alternative yields on apartments as an asset, is reflected by a decrease in housing prices in the short term, and this effect is maintained over the long term. This analysis also shows that a positive shock in share prices initially has a favorable (but not significant) effect on housing prices, but then actually leads to a decrease in these prices (the right-hand diagram in the second row). Since the rise in share prices increases the public's assets, it can be expected to contribute to an increase in apartment prices. On the other hand, when the equities market is buoyant, the purchase of an apartment becomes less attractive—an effect which we found to be stronger.

Short-term forecast:[13] According to the forecast obtained from this model, the rate of increase in (real) apartment prices will moderate in 2010. It should be noted that since the quantitative forecast obtained from the system is relatively sensitive to the specific formulation that was selected, it should be regarded only as a general assessment of expected directions of development.

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[10] An index of the level of the general security situation, which is based on incoming tourism to Israel, a level that mainly affects real activity, the rate of change in industrial production in the USA, which reflects the external effects of the business cycles, import prices (in dollars), which are likely to affect the consumer price index, the Fed interest rate, which affects the Bank of Israel interest rate, the proportion of dollar-denominated contracts, which adjusts the effect of the exchange rate on housing prices, and the ratio of average building starts and completions to the change in the population, a ratio that can be expected to increase prices in inverse proportion to its size. Apart from these, we included the inflation target in order to adjust the estimate in respect of the level of inflation, seasonal dummy variables and a dummy variable for the first half of 2002.

[11] For the sake of simplicity, we assume a Cholesky triangular decomposition. The order of the variables which we selected assumes that real activity is not affected simultaneously by any of the other variables (due to its being first in the order of estimation), and that share prices (the last in the order of estimation) are affected by all the variables simultaneously.

[12] A similar formulation appears in the Norges Bank study, Bjornland and Jacobson (2009). In the DNB study, Giuliodori (2004), the nominal level of the exchange rate in the VAR system appears.

[13] For the purpose of building the forecast, a future pattern for the exogenous variables should be assumed. The assumptions here match those used by the Research Division in other models, and in their absence, we have assumed a continuation of existing trends.

Figure 2.5

The Response Function of the Real Price of Apartments to Shocks[a]

In the Bank of Israel Exchange Rate

In GDP

In the Yield to Maturity on Bonds

In the Real Exchange Rate

In the Real Prices of Shares

In the CPI

[a] All the variables except for the Bank of Israel interest rate and the yield to maturity on bonds are in their log changes (Δ Log). The continuous lines show the response to a shock, and the dotted lines show the confidence interval around it (± 2 s.d.).

4. Summary

Two features of housing prices since the 1960s are notable: One is a trend of a continued increase in the real prices of housing (relative to the general index) from the 1960s until the end of the 1990s, a downtrend until mid-2008, and since then, a large increase (Figure 2.1). The other is a large decrease in the rate of housing price indexation to the dollar exchange rate since the end of 2007. (The decrease is described in a separate section in this part of the review.)

It was found that over time a relationship exists between housing prices, apartment rent and the real interest rate. The rate of change in apartment prices in the short term is affected by the deviation from the long-term relationship, by the concurrent price of rents, and by changes in the interest rate and housing market conditions, which are reflected by the stock of apartments relative to the population and by the number of building starts.

According to the difference equation that was estimated, the increase in the housing price index during recent years can be attributed to a cyclical factor (the decline in the unemployment rate) and to forces in the housing market (which are reflected by the ratio of the population to the stock of apartments and buildings starts), which acted in the same direction. The forecast for the near future is of a more moderate increase in the housing price index than occurred last year. Although housing market forces are expected to continue pushing up the index because of the latest recession, the cyclical factor, which acts with a lag, is expected to have the effect of reducing the index.

An analysis using a VAR system shows that a positive shock in the long-term interest rate is reflected by a decrease in the real price of apartments. A positive shock in activity actually contributes to a decrease in the real price, while a positive shock in share prices is reflected initially by an increase in housing prices and then by a decrease in these prices. A shock in the Bank of Israel interest rate is reflected by a small but not significant decrease in the real price of apartments.

The model estimated can be used to build a short-term forecast for the variables contained in it. According to the forecast, the (real) rate of increase in apartment prices will moderate in 2010, as also suggested by the difference equation.

Although the analysis that was presented improves the understanding of the development of housing prices, in order to fully understand the housing market and the construction industry as a whole, a more detailed structural model that will describe the forces acting in the market is necessary.

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Transmission from the dollar exchange rate to the housing component of the CPI

- During the last two years rental contracts have switched from quoting dollar prices to shekel prices. In the past, contracts quoting dollar prices accounted for approximately 90 percent of rental contracts; today the figure is 15 percent.
- As a result of the move to shekel contracts, the transmission from the shekel/dollar exchange rate to the housing component of the CPI has weakened: in the short term (up to one month) it declined from approximately 0.9 to 0.48, and in the long term (a year and above)—where in the past there was full transmission—it has now disappeared.
- Despite the decline in the transmission and the move to shekel contracts, the dollar is still the dominant factor behind short-term fluctuations in housing prices.

Changes in housing prices, as measured by the consumer price index, are correlated with fluctuations in the shekel/dollar exchange rate. This article examines the statistical relation between these variables and presents estimates of the coefficient of transmission from the shekel/dollar exchange rate to housing prices.[14]

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[14] The transmission coefficient measures the effect of dollar exchange rate fluctuations on housing prices. As an example, a transmission coefficient of 0.5 implies that a depreciation of one percent leads to an increase of approximately half a percent in housing prices.

1. What does the housing component of the CPI measure?

The consumer price index in Israel has ten consumption items and housing is of the largest of them, with a 21 percent weighting in the overall index. The housing component consists of three elements: housing services for owner-occupied housing (77 percent), rent (19.5 percent), and other housing expenditures (3.5 percent).

In the past, the prices of housing services for owner-occupied housing were measured by means of apartment prices. In view of the recommendations of a professional committee and the IMF, the measurement method was changed in a manner whereby it reflects the cost of housing services rather than the price of capital. Since 1999 this component has been measured by means of the rental prices quoted in new and renewed rental contracts, meaning the rent which the apartment owner could have received in return for the use of his apartment had he offered it for rental in any month. For this purpose, a sample of new or renewed rental contracts is examined each month. Since this sample is relatively small, the change in rent is calculated on a two-monthly basis, with a lag of two weeks.[15] The shekel cost of dollar-denominated contracts, which until recently accounted for a large proportion of contracts, was calculated for each period according to the dollar price and the exchange rate at the time.

For the purpose of rent calculation, a sample from the stock of contracts that were signed in the past and are still valid is used. Since most contracts are signed for the period of a year, the stock reflects mainly contracts that were signed during the last year. Because this sample is relatively large, the price measured is based on data for the current month alone with a lag of two weeks.[16]

As described above, the housing component of the CPI reflects, almost entirely, changes in rental prices. The only item that does not reflect rental prices is the "other housing expenditures" item—which expresses elements such as intermediation and insurance prices—but as stated, its weighting in the housing component is low at just 3.5 percent.

[15] For example: The change in price for January is calculated by dividing the prices in the period from November 16 to January 15 (the December–January index months) by the price from October 16 to December 15 (the November–December index months).

[16] As an example, the price for January reflects the price from December 16 to January 15 compared with the price from November 16 to December 15.

2. The housing component and the dollar

Because of the high inflation in the 1980s, sellers began to quote prices of products in the domestic market in dollars. In the housing market, this practice was maintained for years even after inflation had declined. As a result, exchange rate adjustments were reflected by similar-sized fluctuations in the shekel prices of housing, at least to the extent that the dollar-denominated price was rigid.
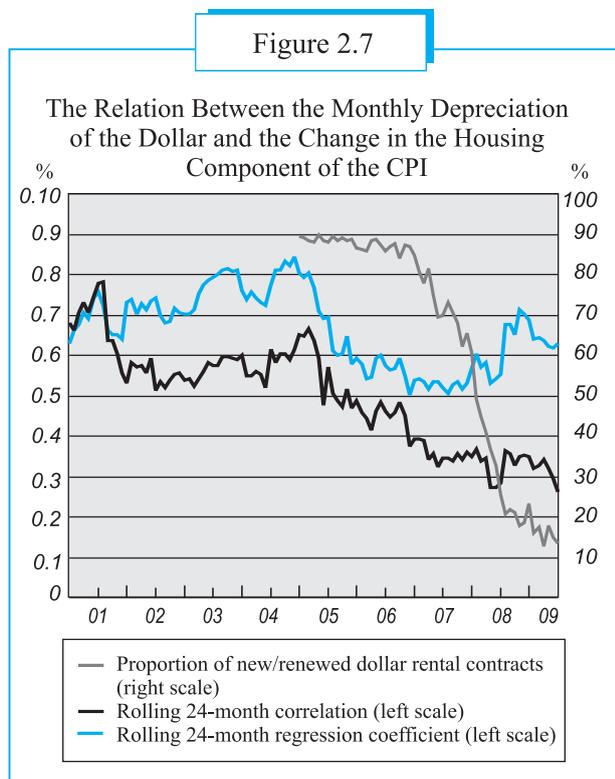
As the dollar weakened during the last two years the practice of quoting dollar prices ceased, and in new contacts the price was usually quoted in shekels. Until 2007, 90 percent of contracts gave the rental price in dollars, while this figure is now down to less than 15 percent. Figure 2.6 presents the development of housing prices in the CPI, dollar exchange rate adjustments, and the percentage of new contracts in which the rental price is quoted in dollars. The diagram clearly shows the close relationship between the dollar exchange rate and housing prices, and the weakening of this relationship with the move to shekel contracts.

Figure 2.6

The Rate of Change of the Shekel/Dollar Exchange Rate and the Housing Index in the Last 12 Months, and the Proportion of New/Renewed Dollar Rental Contracts

—— Housing index (left scale)
—— Proportion of new/renewed dollaR rental contracts (right scale)
—— Dollar (left scale)

The close relationship between the dollar exchange rate and housing prices should have come as a surprise even if all contracts were dollar-denominated. This is because the housing item is largely based on new or renewed rental contracts, in which the rent can usually be changed in

accordance with market conditions even if the contract is dollar-denominated. There would appear to be no reason for expecting a high correlation between housing prices and the dollar. The high correlations may derive from the rigidity of the dollar price. Such rigidity is particularly likely in renewed contracts for the purpose of exercising tenants' right to extend the contract, as is anchored in many rental contacts. In new contracts, dollar price rigidity is less likely.

Figure 2.7

The Relation Between the Monthly Depreciation of the Dollar and the Change in the Housing Component of the CPI

- Proportion of new/renewed dollar rental contracts (right scale)
- Rolling 24-month correlation (left scale)
- Rolling 24-month regression coefficient (left scale)

It can be assumed that the indexation of the prices of housing and other non-tradable goods to the dollar exchange rate leads to rigidity in their relative pricing compared with the prices of tradable goods, and thereby also leads to distortion in decisions regarding the production of the two types of goods and the use made of them. The practice of quoting domestic prices in dollars was an attempt to protect against inflation. The move to shekel prices prevents this distortion in relative prices, and reflects the credibility of monetary policy, of its resilience and ability to prevent inflation. For these two reasons, the move to shekel prices, including prices in the housing market, is a welcome development.

An examination of the data shows that the effect of the dollar exchange rate on the housing item has indeed decreased, as reflected by the continuing decline in the transmission coefficient. A simple way of measuring this is by means of a rolling regression in which the rate of monthly depreciation explains the fluctuations in the housing component. Figure

Table 2.2 Estimates of Coefficient of Transmission from the Exchange rate to the Housing Component		
Time period	Till 2006	From 2007
Immediate	0.52	0.20
One Month	0.90	0.48
Two months	0.92	0.39
One quarter	0.85	0.31
Half a year	0.84	0.14
One year	0.84	0.03-

2.7 presents the transmission coefficient derived from this estimate. The diagram clearly shows that the effect of the dollar on the housing component has declined steadily over time, and most notably with the move to shekel contracts. This result is consistent with a more cautious econometric analysis that relates to the method of measuring the elements of the housing component and to the possibility that the effect of the dollar is not only immediate, but also acts with lags. Estimates compiled by the Bank of Israel Research Department show that until the end of 2006, prior to the switch to shekel contracts, the transmission from the dollar to the housing component was rapid and full, while since 2007 it has declined, and in the long term has effectively disappeared. Particularly notable is that until 2006 a depreciation of one percent led to an immediate 0.5 percent increase in the housing component. After two months, such a depreciation led to a cumulative increase of over 0.9 percent and the transmission remained high in the long term (a year and above) as well. Since 2007 however, the immediate transmission has decreased from 0.5 to 0.23 and peaks at a level of 0.48 after only one month. Thereafter, it diminishes and in the long term the dollar hardly has any effect at all on the housing component. Estimates of the transmission coefficients for a term of up to a year are presented in Table 2.2.

Nevertheless and despite the move to shekel contracts, the data show that the dollar was, and surprisingly enough, remains the dominant factor in explaining short term fluctuations in the housing component. This can be seen from the correlation between the housing component and the shekel/dollar exchange rate. Figure 2.7 presents the development of the correlation between the monthly fluctuations in the housing component and the exchange rate over time. The diagram shows that the correlation was, and still is, high. Although it declined slightly in 2005 and 2006, that was in the period before the move to shekel contracts.

Since 2007 it has risen again and is currently at a similar level to that at the beginning of the sample, in 2001.[17]

The reaction of Israel's labor market to the recession: a comparison of the last two recessions

- Wages and labor input reacted swiftly to the current recession and declined, and even anticipated its onset to a slight extent. This contrasts with the delayed reaction of the nominal wage in the last recession, which started at the end of 2000.
- The difference in the speed of reaction is due mainly to the differences between the manner in which the two recessions developed: the current recession started gradually, following the global financial crisis, while the onset of the previous recession immediately followed the outbreak of the intifada in October 2000 and the bursting of the high-tech bubble.
- According to the Bank of Israel Companies Survey, the business sector anticipated the start of the current recession in the preceding quarter, when a large drop in growth had already occurred, and adjusted wages and labor input accordingly.
- Developments in the global economy concurrent with the gradual start of the current recession adversely affected export-oriented industries, especially high-tech industries. As a result, wages and employment in those industries suffered even before the economy entered a really tangible recession.

Since the beginning of the current decade Israel has experienced two recessions. The first started in the last quarter of 2000[18] (although we will call it the "2001 recession"), against the background of the global slowdown that developed in the wake of the crisis in the high-tech industries[19] and the outbreak of the El Aqsa intifada in October 2000, and continued until the last quarter of 2003. The second recession began in Israel in the last quarter of 2008, a year after it had officially started in the USA.[20]

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[17]   One of the reasons for the high correlation measured at the end of the sample may be that the measurement was based on data for 24 months back, in which the ratio of dollar contracts in the total number of observations was high.

[18]   See Rafi Melnick. "Business Cycles in Israel", Economics Quarterly, June 2002, 2449–219.

[19]   According to the NBER definition of business cycles, the recession in the USA began officially in the first quarter of 2001.

[20]   The timing of the start of the recession is defined here as the fourth quarter of 2008, when GDP first fell. Under an alternative definition however, based on decline in per capita GDP, the third quarter of 2008 would have marked the beginning of the recession.
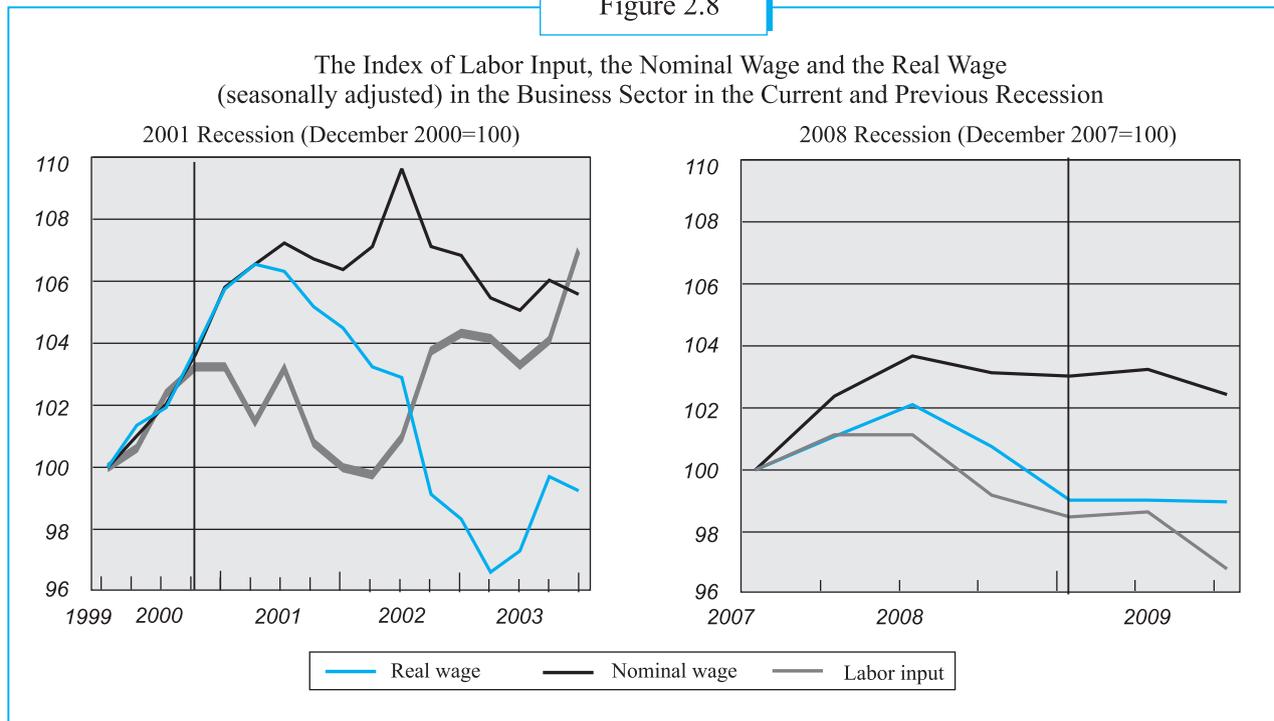
In both cases the labor market in the business sector reacted by reducing wages and labor input (measured via weekly labor hours). However, the two recessions differed in the manner in which they started; a difference that was reflected by the speed of the labor market's reaction. In this study, we will focus on an examination of the reaction of the labor market alone.

Figure 2.8 highlights the differences in the speed of the labor market reaction in the two recessions. As stated, the 2001 recession began in the last quarter of 2000. Three quarters later, at the end of the second quarter of 2001, the decline in business-sector product had amounted to 3.3 percent, while the nominal and real wage rose by 3.5 and 2.4 percent respectively in the same period. The labor input, which is measured by weekly work hours in the entire business sector, remained unchanged compared with its level prior to the recession. The real wage was the first to react to the recession, and fell during the second quarter of 2001. This decrease was accompanied by a rise in the price index, since the nominal wage continued to rise in that period. Only in the third quarter of that year did all indicators show a downward trend.

A similar analysis of the labor market reaction to the current recession shows different results to date: GDP expanded, albeit more slowly, until the third quarter of 2008 (inclusive) and subsequently fell during two consecutive quarters. But all labor market indicators began to fall as early as the third quarter of that year—a quarter before the beginning of the recession. By the end of the second quarter of 2009, the nominal wage had fallen by 1.2 percent, the real wage by 4.2 percent, and the labor input by 3 percent.

The main reason for the difference in the speed of the labor market's reaction to the two recessions lies in their differing characteristics: the recession of the end of 2000 derived as stated from two principal factors: the outbreak of the intifada in October 2000, and the global slowdown prevailing at the time because of the high-tech crisis, which was the leading cause of the recession that began in March 2001. These factors adversely affected GDP in the Israeli economy, bringing it into a surprisingly rapid recession, as can be seen from the development pattern of business-sector product (Figure 2.9). During the first three quarters of 2000, business-sector product rose by an average of 3.3 percent. In the fourth quarter, when the recession started, no growth at all was reported and immediately thereafter, negative growth began. In contrast, the recession that began at the end of 2008 developed gradually and had been expected to some extent. In the USA, the recession began back in 2007, leading to a moderate downturn in business-sector product growth in Israel throughout 2008. Accordingly and as will be presented below, it is reasonable to assume that the slow

Figure 2.8

The Index of Labor Input, the Nominal Wage and the Real Wage
(seasonally adjusted) in the Business Sector in the Current and Previous Recession

and to some extent anticipated entry into recession provided businesses with a period of time that enabled them to make the necessary adjustments in response. When the recession actually came and even slightly before it, the labor market level reacted as expected.

The business sector's expectations of the recession are apparent from the responses of companies participating in the Companies Survey with respect to their expectations regarding the development of economic activity in the next quarter. Figure 2.10 presents the weighted expectations of all business-sector industries regarding activity in the following quarter. Presented on the horizontal axis is the number of quarters before and after the quarter when the recession began, and the vertical axis presents the expectations for that quarter as reported by companies in the previous quarter. A positive value greater than 10 reflects expectations of an expansion, and a negative value reflects expectations of a contraction.

In the third quarter of 2001, one quarter before the start of the recession, companies expected an activity expansion in the following quarter. But in the third quarter of 2008, they did not expect an economic expansion. In that quarter, they therefore already reacted by reducing wages and/or employment. In addition, the values of the net balance of expectations in the months after the start of the recession in 2001, which were higher than the parallel values in 2008, reveal that apart from the element of surprise caused by
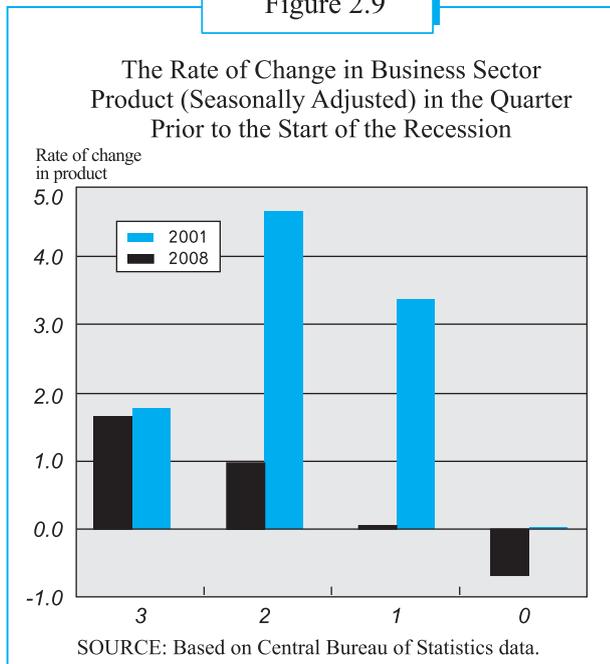
the start of the recession, its internalization was slower—a process that could explain the lag of over a quarter in the response of labor market indicators. Particularly notable from an analysis of expectations at the industry level is the moderation in expectations in the manufacturing industry from the beginning of 2008. During 2000 however, expectations in manufacturing were generally positive.

It can therefore be said that in contrast to the surprise caused by the onset of the 2001 recession, companies had been expecting the 2008 recession to some extent and as a result, made the necessary adjustments in the number of employees and their wages. Examples of this behavior are wage cuts that were agreed with employees in order to prevent their dismissal, a reduction in labor input by shortening the working week and batch employee vacation.

The different manner in which the two recessions developed is reflected by the reaction of the high-tech industries—industries that experienced severe shocks in both recessions. In the first recession, the number of employee posts in these industries increased throughout 2000 and decreased in the second quarter of 2001. This was two quarters after the onset of the recession in Israel and immediately after the start of the recession in the USA, which began with the bursting of the high-tech bubble.[21] The fluctuations in the average wage

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[21]   An examination of the number of the persons employed in place of employee posts (FTEs) shows a similar but more volatile trend.

Figure 2.9

The Rate of Change in Business Sector
Product (Seasonally Adjusted) in the Quarter
Prior to the Start of the Recession

SOURCE: Based on Central Bureau of Statistics data.

Figure 2.10

The Net Balance of Business Sector Expectations
of Activity in the Quarters Prior to the Recession,
2001 and 2008

in those industries during that period did not show any clear trend. In the second recession, the number of employee posts in the high-tech industries already began to fall in the third quarter of the year, one quarter before the start of the recession, and the average nominal wage fell at the same time.

Since the high-tech industries are export-oriented, the difference in their development to a large extent reflects economic background conditions, and especially the contraction of world trade and the sharp appreciation of the shekel, which preceded the 2008 recession and that were absent in the 2001 recession. These conditions adversely affected export-oriented industries during 2008 even before the start of the recession in Israel. Payroll reductions and wage cuts in these industries, which are notable for a high proportion of educated and highly-paid employees, had the effect of reducing the average wage in the economy. According to National Insurance Institute data,[22] 40 percent of the employees who were dismissed close to the start of the latest recession, between July 2008 and February 2009, were educated with 12 or more years of education, compared with 30 percent of all those dismissed between the beginning of the 2001 recession and until 2002, at the height of the recession period.
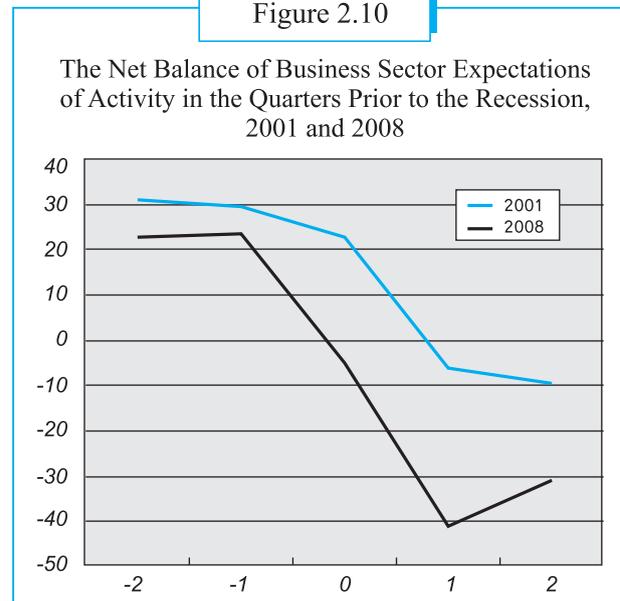
To conclude, the difference between the development of the 2001 recession and the latest recession appears to have been reflected by the differing rapidity at which wages and labor inputs reacted in the business sector: During 2008, even before the onset of a real recession, export-oriented industries suffered and the growth in business-sector product slowed as expectations regarding the economy's entry to recession increased. These expectations led to an adjustment of wages and labor inputs in the entire business sector. The 2001 recession by contrast came as a surprise, thereby explaining the delayed reaction by labor market indicators.

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[22]   From "Policy Recommendations for Enabling the Welfare Services to Cope with the Economic Situation", a document that was submitted to the Minister of Welfare and Social Services, July 2009.

Diary of Events January to April 2009

May 2009	3	The government confirms an increase in the budget for 2009–2010	The government confirms an increase of 1.7% a year in the two-year budget for 2009 and 2010. It also decided on the following budget deficits for the next few years (percent of GDP): 2011—3% 2012—2% 2013—1.5% From 2014—1%
	4	Launch of the government's Containment and Breakthrough economic plan	Among the main points of the plan are the transfer of land ownership from leasehold to private ownership and the reduction of bureaucratic procedures regarding changes to real estate. The transfer of ownership to leaseholders will enable them to make alterations to their property (e.g., adding to the structure) without having to obtain authorization from the Israel Lands Administration.
	5	The decline in economic activity was steeper than that in the recession in 2001	The Bank of Israel Companies Survey shows that economic activity fell in the 2009:Q1 more steeply than it did at the lowest point of the recession in 2001–03. The Survey shows that the main constraint to the expansion of activity is the demand constraint.
	6	The dollar LIBOR interest rate falls below 1% for the first time.	The 3-month LIBOR interest rate declines by 0.02 percentage points to 0.99%, against the background of signs of a thaw in the credit markets.
		Travel agents' business fell by 30% in January–April.	
	7	NIS 50 million transferred to the Gaza Strip	The Prime Minister directs that NIS 50 million be transferred in cash to banks in the Gaza Strip, so that salaries can be paid in the Palestinian Authority. The money is from tax revenues collected by Israel for the Authority.
		Government revenue declined by 16.1% since the beginning of 2009 year-on-year	Since the beginning of 2009 government revenue totaled NIS 56.6 billion, 16.1% below the amount in the same period in 2008.
	8	The ECB cuts its Repo interest rate by 25 basis points to 1%	
	15	The April CPI increases by 1%	The main increases were in the following components: fresh fruit, 5.8%; clothing and footwear, 3.5%; transportation, 3.3%; and housing and food, 0.5% each.
	17	Germany records the severest slowdown in the eurozone	The economy of the eurozone recorded its most severe contraction ever in the 2009:Q1: GDP of the 16 member countries dropped by 2.5% from its level in 2008:Q4. The Germany economy, the largest in Europe, recorded its steepest quarterly fall since 1970—3.8%.
	18	Israel's GDP declined by 3.6% in 2009:Q1	Israel's GDP declined by 3.6% in 2009:Q1, business sector revenue by 4.2%, and private consumption by 4.3% (Central Bureau of Statistics (CBS) data).

May 2009	25	The Bank of Israel leaves its key interest rate unchanged for June at 0.5%	
	27	The unemployment rate in 2009:Q1 was 7.6%	The Manpower Survey of the CBS shows that the unemployment rate jumped from 6.5% in 2008:Q4 to 7.6% in 2009:Q1
	27	Foreign investors in private funds to receive tax exemption	The Minister of Finance, Dr Yuval Steinmetz, exempts foreign investors from taxes on investments in private equity funds. This move will help make Israel more attractive to foreign investors.
	27	Prices of owner-occupied properties surged by 20% in the last few months	According to experts in the real estate industry, the increase was due to the shortage of new apartments, particularly in the central part of the country.
June	1	Compromise reached in the dispute between Danny Dankner and the Bank of Israel	Bank Hapoalim Chairman Danny Dankner announces his resignation, thus ending an unprecedented struggle against the Bank of Israel's demand for his dismissal.
	2	The Bank of Israel achieves a 5.9% return on the foreign currency reserves	The Bank's Market Operations Department publishes its 2008 Annual Report. The report shows that Israel's forex reserves increased from $14 billion during 2008 to $42.5 billion at the end of the year. The reserves are invested conservatively, in line with the Bank's reserves management policy, and thus were hardly affected by the financial crisis. The Bank also took steps to reduce the exposure of the reserves portfolio to the increasing financial risks: banking exposure was reduced to less than 1%, the rules relating to investments were tightened, and further limitations were introduced regarding assets in which investment was permitted.
	3	Report on progress in the Lights to Employment program	The Report contains the main recommendations of the team consisting of representatives from the Ministry of Finance, the Ministry of Industry, Trade and Labor and the National Insurance Institute, and states that in the 8 months since the Lights to Employment program started, the number of those employed via the program increased by 25%—37% are in full-time employment, and the average monthly income of participants in the program was NIS 2,500.
	4	Agreement reached on a reform of the employment of foreign workers in agriculture	Agreement was reached on the principles of a reform regarding the employment of foreign workers in agriculture—another stage in the activity of the committee appointed, headed by the Deputy Governor of the Bank of Israel, Prof. Zvi Eckstein, to increase the employment of Israelis and to reduce the number of foreign workers employed in agriculture. The plan is to encourage farmers to significantly reduce their dependence on manual labor by increased mechanization, thereby reducing the number of foreign workers. The process will be a gradual one, and will take five years.
		The government increased the export guarantees by NIS 5 billion	The Knesset Finance Committee authorized an increase in the government export guarantees by NIS 5 billion. This will help exporters to increase their sales and to deal with the risks inherent in exporting and in granting credit to their customers. The increase will be in effect until the end of 2010.

June 2009	7	The un-employment rate in the US reached 9.4 % in May, a 26-year high	The loss of jobs in the US labor market continued in May, albeit at a slower rate than in the last few months. The unemployment rate rose in May to 9.4%, a 26-year high, following the loss of 345,000 jobs (according to the US Department of Labor). The number of unemployed reached 14.5 million.
	9	The price of non-environmental-friendly vehicles (i.e., those that cause serious pollution) to rise by tens of thousands of shekel	The Minister of Finance and the Minister of Environmental Protection present the "Green Taxation" reform, which will increase the purchase tax on all new vehicles from 75% to 92% except for "hybrids," the tax on which stays at 40%, and electric vehicles, on which the tax will be only 10%. After the increase in the tax, a credit of up to NIS 15,000 will be granted, graduated according to the level of pollution caused by the vehicle.
	9	S&P lower Ireland's credit rating	S&P lowers Ireland's sovereign credit rating for the second time in three months, as a result of the cost of the country's rescue of banks. The rating was reduced from AA+ to AA, with a negative outlook.
	10	The Knesset Finance Committee authorizes the privatization of the Industrial development Bank	
	16	Citigroup and the International Finance Corporation (IFC) set up a fund to provide credit for exporters to help boost world trade	In the first case of cooperation between the US bank Citigroup and the IFC (a member of the World Bank Group, set up to foster the private sector in developing countries) jointly establish a $1.25 billion export-financing fund in an attempt to boost world trade.
	19	The Obama plan for the reform and supervision of the capital market is launched	US President Barak Obama presents the highlights of the reform of regulation of the US financial market. The program is meant to increase government intervention in the financial markets and the banking system significantly. The reform grants the Federal reserve broad powers and tools to exercise tighter supervision over banks and financial companies and to prevent them from undertaking risky steps that could impact on their financial robustness and on their investors. The plan also grants the government the power to nationalize or dissolve nonbank companies in difficulties, as it did in the case of the insurance company AIG.
	21	The EU to establish a supervisory body for financial risks	The EU approved a plan to establish an authority to supervise the eurozone's financial sector. The new body, the European Systemic Risk Council, will be headed by the President of the ECB. As a result of pressure from the UK, its role will be limited to an advisory one only.
	22	The Bank of Israel leaves its key interest rate unchanged for July at 0.5%	
	23	The Fed leaves its interest rate unchanged	The Federal Open Market Committee decides to persist with its current monetary policy, and announces that the economic slowdown in the US is moderating. The interest rate remains at 0–0.25%, its level since December.

July 2009	2	A state of emergency is proclaimed in California, due to a $27 billion deficit	An official state of emergency is proclaimed in California, due to an economic collapse and the State's inability to meet its liabilities. This follows a further postponement of the new budget beyond the legal time limit. With the proclamation, IOUs were sent to bond holders, indicating possible insolvency.
	3	Iceland signs an agreement whereby it will receive aid totaling $2.9 billion from Denmark, Finland, Norway and Sweden	Iceland, which almost reached bankruptcy in 2008, will receive aid totaling $2.9 billion from Denmark, Finland, Norway and Sweden, which it will use to boost its foreign reserves.
	6	The government approves the new Bank of Israel Law	The government approves the main points of the new Bank of Israel Law, after intermediation by Prime Minister Benjamin Netanyahu between the Minister of Finance Yuval Steinmetz and Bank of Israel Governor Stanley Fischer. The new law specifies that interest rate policy will not be the responsibility of the Governor alone, but of a Monetary Committee headed by the Governor, with three members from the Bank and three from outside the Bank. The Law defines the main objective of the Bank as the maintenance of price stability. The management of the forex reserve will no longer be the responsibility of the Bank alone, but will require the approval of the Minister of Finance. Supervision of Bank of Israel employees' salaries will remain under the authority of the Ministry of Finance, despite the Governor's request that this be the responsibility of the Bank's management.
	10	Farmers granted reductions in the drought surcharge	The Knesset Finance Committee decides that from January 2010 the domestic water quota not subject to the surcharge will be 7 cubic m. per capita per month in rural settlements, compared with 5 cubic m. in towns, an addition of 40%. In kibbutzim the quota will be 8 cubic m., 60% more than in towns. The reason for the increase is the larger area of private gardens in rural settlements than in towns.
	12	The Knesset Finance Committee approves the doubling of aid to working mothers by the Ministry of Finance	The new plan allocates an extra NIS 600 million a year for child care for working mothers with children under 5 years old. In 2009 and 2010 NIS 75 million will be allocated as an earned tax credit to working mothers. In 2010 NIS 50 million will be allocated to day care centers. From the next school year (September 2010) NIS 320 million will be allocated for day care centers, baby-minders and afternoon care centers. In 2012, NIS 280 million will be allocated as extra tax allowance points for working mothers who reach the tax threshold.

July 2009	15	For the first time in Israel, a 2-year budget is approved	The 2-year budget (for 2009 and 2010) was approved by the Knesset by 58 votes in favor and 36 against. The budget for 2009 is NIS 316 billion, and for 2010, NIS 325 billion. The budget incorporates various important structural reforms: • Steps to reduce the number of foreign workers, in order to cerate jobs for thousands of Israeli workers; • Reform of TV broadcasts that will cut the cost to TV owners and will improve program quality; • Introduction of a system of regulation to strengthen sport in Israel; • Increasing the supply of housing units by cutting bureaucratic procedures for the approval of "evacuation-reconstruction" projects. • Increasing competition between the health funds. • Encouraging the employment of women by increasing subsidies to day care centers.
	17	Unemployment reaches a record 8.4%.	The rate of unemployment increased in May to 8.4%, with 252,000 people out of work, compared with 179,000 in July–September 2008 (according to CBS data).
		Incoming tourism slumps by 20%	In the first half of 2009 1.2 million visitors arrived in Israel, a drop of 20% from the number in the first half of 2008, and an increase of 15% from the first half of 2007 (according to CBS and Ministry of Tourism data). Of the total, 133,500 were day visitors (a 35% reduction), and over a million were tourists (an 18% reduction).
	19	S&P affirms Israel's credit rating.	The international credit rating company S&P affirms Israel's A rating, and leaves Israel's outlook at "stable." In its announcement S&P stated that it views Israel's fiscal policy as temporary and cyclical: the high deficits of 6% in 2009 and 5.5% in 2010 targeted in the budget are cyclical, and are balanced by the improvement in Israel's liquidity in the global markets.
	22	The risk level in pension schemes will from 2011 be determined by age	The Capital Market, Insurance and Savings Division of the Ministry of Finance sent a circular to financial institutions, describing the new model for the financial savings industry. The model has five savings paths at different levels of risk, to which savers will be assigned automatically according to their age. A special path will be introduced for savers aged above 60, that will not include speculative securities.
	27	Israel's goods exports fall by 34% in dollar terms	In January–June 2009 Israel's goods exports were 34% lower, in dollar terms, than in January–June 2008, and totaled $ 21.8 billion.

July 2009	29	Israel's imports of consumer goods falls by 14%	The global recession is reflected by imports of consumer goods in 2009. Economic uncertainty, dismissals and the drop in consumers' income are reflected by reduced purchases, that lead to reduced imports. Data from the Economics and Tax Division of the Federation of Israeli Chambers of Commerce for the first half of 2009 show a drop of 14% in imports of consumer goods compared with the second half of 2008, a decline of $ 572 million to $ 3.6 billion. Some 40% of the reduction was due to the decline in imports of food and drinks.
August	3	The Bank of Israel to intervene in the foreign currency market in cases of abnormal fluctuations in the exchange rate	Henceforth the Bank of Israel will operate in the foreign currency market in situations in which there are unusual exchange rate movements that do not reflect fundamental economic conditions, or when disorderly conditions prevail in the foreign exchange market.
	9	Israel signs tax treaties with Estonia and Georgia	The signing of the tax treaty with Estonia is considered very important, as Estonia, Like Israel, is expected to join the OECD at the beginning of 2010. This is also a further step towards the completion of the process of signing tax agreements with the EU, as Estonia was one of the last EU countries with which Israel had nor yet signed a tax treaty. The new treaty with Georgia is important mainly because it makes it easier for Israeli companies active in real estate and infrastructures in Georgia to compete.
	16	The CPI increases by 1.1% in July	The July CPI increased in July by 1.1%, raising the inflation rate since the beginning of the year to 3.2%, above the target annual inflation rate of 1%–3%.
	17	Approval of the proposal to establish an economic court in Israel	The Minister of Justice Yaakov Ne'eman approves the memorandum of the law to establish an economic court in Israel. The memorandum is also supported by the President of the Supreme Court Dorit Beinisch, the Attorney General Menachem Mazuz, and the Director of the Courts Administration Moshe Gal. The bill will be tabled in the Knesset 's winter session.
	19	Intel recruited dozens of employees in the last quarter, and will continue to do so in the near future.	Intel–Israel continues to increase its workforce, and in the last quarter recruited dozens of new employees—students and engineers—to work in the company's development and production centers. Intel expects this trend to persist.
	20	Goods exports have increased by 11% in the last 3 months	Goods exports have increased by 11% in the last 3 months, following their fall of 15.9% in the previous three months. Israel's exports to the US rose at an annual rate of 25.1%.
	24	The Bank of Israel's interest rate was increased by a quarter of a percentage point for September, to 0.75%	

August 2009	27	Old-age and survivors' pensions increase from this month	Old-age and survivors' pensions increase from this month, as part of the gradual process of increasing them by 7.3 percent by 2011 in accordance with the Economic Arrangements Law (Supplementary to the Budget Law) 2009. A new supplement will also be paid to those pensioners aged 70–80 in receipt of old-age or survivors' pension and income support payments, and the supplement to those aged over 80 will be increased. The changes: NIS

	Old	New
Single, aged<80	1,268	1,306
Couple, aged<80	1,906	1,959
Single, aged≥80	1,345	1,383
Couple, aged≥80	1,983	2,036

	30	The Bank of Israel makes a statement about Africa–Israel	Further to reports about Africa–Israel's intentions to approach its creditors in order to come to an arrangement regarding its debts, the Supervision of Banks states as follows:

• Israel's banking system is stable, with high capital adequacy, and there is no concern regarding the system's stability or that of any specific bank due to the above situation.

• As part of the steps taken prior to the financial crisis in Israel and world wide, the effects of such scenarios on the economy as a whole and on the banking system were examined, and the conclusion was that the economy could cope with such a situation.

• The banking system also prepared itself for a situation in which a large borrower would come into difficulties. This preparation included, inter alia, classifications and provisions related to credit granted to specific borrowers, as reflected in the banks' financial statements.

• The Supervision of Banks is in constant contact with the banks, and continues to monitor developments closely.