Bank of Israel
Research Department

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Research Department 2012 and 2013 Staff Forecast

Abstract
This document presents the forecast of macroeconomic developments compiled by the Bank of Israel Research Department in March 2012. According to the staff forecast, the inflation rate over the next four quarters (ending in the first quarter of 2013) will be 2.6 percent. The Bank of Israel interest rate in the first quarter of 2013 is expected to be 2.5 percent (its current level). Gross domestic product (GDP) is expected to grow by 3.1 percent in 2012 and by 3.5 percent in 2013.

FORECAST

The Bank of Israel Research Department compiles a staff forecast of macroeconomic developments on a quarterly basis. The staff forecast is based on several models, various data sources, and assessments based on economists' judgment.[1] The Bank's Dynamic Stochastic General Equilibrium (DSGE) model developed in the Research Department—a structural model based on microeconomic foundations—plays a primary role in developing the macroeconomic forecast.[2] The model provides a framework for analyzing the factors which have an effect on the economy, and allows for combining data from various sources to reach an integrative macroeconomic forecast for real and nominal variables, with internal consistency and an "economic story". In addition to formulating, analyzing, and presenting the base forecast, the DSGE model is also used to examine alternative scenarios and to evaluate the risks to the baseline forecast.

a. The global environment

The assumptions about the global economy are primarily based on forecasts by investment houses and international entities (such as the IMF and OECD). Assessments of expected global growth remained similar to those on the date of the compilation of the previous macroeconomic forecast (in December 2011): slow global growth in 2012 and recovery in 2013, so that the OECD countries' imports will grow 2.5 percent in 2012 and 5.5 percent in 2013. At the same time, interest rates in advanced countries are expected to remain at their low level in the coming year.
A marked change in the global environment since the previous forecast was compiled is the increase in oil prices which has taken place since then, rising 14 percent (from $110 per barrel of Brent crude at the time of the formulation of the previous forecast to about $125 per barrel in recent weeks). In addition, other commodity prices

[1] An explanation of the staff forecast, and an overview of the models on which it is based, can be found in Inflation Report 31 for the second quarter of 2010, section 3-C.
[2] A Discussion Paper on the model is due to be published in the near future.

increased notably. In light of these trends, we estimate that worldwide inflation will be slightly above the rate we projected in the previous forecast.[3]

b. Real activity in Israel

Table 1: Economic Indicators
Research Department Staff Forecast for 2012 and 2013
(rates of change, percent, unless stated otherwise)

	Actual 2011	Bank of Israel forecast 2012	Bank of Israel forecast 2013
GDP	4.7	3.1	3.5
Civilian imports (excluding diamonds, ships, and aircraft)	8.9	0.7	4.6
Private consumption	3.6	2.1	2.8
Fixed capital formation	16.7	3.1	4.3
Public sector consumption (excluding defense imports)	3.5	1.5	3.1
Exports (excluding diamonds and start-ups)	3.8	3.0	5.9
Unemployment rate	5.7	5.8	5.7
Inflation rate[a]	2.5	2.6	2.2
Bank of Israel interest rate[b]	3.00	2.50	2.75

a) Average CPI reading in the final quarter of the year compared.
with the final quarter average in the previous year
b) Average for the final quarter of the year.
Source: Data - based on Central Bureau of Statistics; forecast - Bank of Israel .

GDP growth is forecast to be 3.1 percent in 2012. The forecast for 2012 was revised slightly upward from the December forecast of 2.8 percent, primarily due to positive indicators of Israel's economy which have been published recently (goods imports, expectations in the survey of business trends, and services exports). The slowdown of the growth rate of demand compared with its growth rate in 2011 is the result of the expected moderation in global activity, which has an effect on all components of demand (domestic demand and global demand for Israeli exports). The moderation of domestic demand is expected to be reflected as well in a notable slowdown in the rate of growth of **imports**, which is expected to increase by only 0.7 percent in 2012. The slowdown in growth of imports is due to several factors. First, similar to previous forecasts, we expect a marked moderation in growth of import-intensive demand components (investment in industries[4] and purchases of durable goods). Second, depreciation of the shekel in effective-exchange-rate terms in the second half of 2011 (and gradual transmission to prices) works to make imported goods more expensive in comparison with domestic items.

The moderation of the economy's pace of growth in 2012 reflects, as noted, a moderation of the growth rates of all components of demand. Exports (excluding diamonds and start-ups) are expected to increase only 3.0 percent in 2012, due to the direct effects of recession in Europe and moderate growth of world trade on demand

[3] According to an OECD forecast published in November, inflation in OECD countries in 2012 will be 1.7 percent. Since the publication of that report, oil and other commodity prices increased at a rate which is expected to contribute, in our assessment, (based on other OECD publications) about 0.3 percent to inflation in 2012.
[4] Part of the moderation in investments derives from the completion of the setup of Intel's facility which had a notable effect on the pace of growth of investment in recent quarters.

for exports. In contrast, the beginning of operation of Intel's new production lines is expected to make a positive contribution to exports. **Private consumption** is expected to increase at a moderate rate of 2.1 percent in 2012. The moderate growth rate of private consumption is derived primarily from an expected decline in durable goods purchases, after a marked increase in such purchases in 2011. Growth in **fixed capital formation** is expected to moderate in 2012 compared with 2011, and is expected to reach 3.1 percent, primarily due to a moderation in the pace of growth of investment in principal industries.[5]

The slowdown in the economy's pace of growth is expected to be reflected in an increase in the **unemployment rate**, from 5.4 percent in the fourth quarter of 2011, to 5.9 percent in the fourth quarter of 2012, alongside a modest increase in the rate of participation in the labor force.

c. Inflation and interest rate estimates

The staff forecast of the Bank of Israel Research Department is that the rate of inflation in the next four quarters will be 2.6 percent, above the midpoint of the target range of 1–3 percent. During the course of the coming year, inflation over the previous four quarters is expected to be within the target range. Figure 1 shows that the forecast for inflation in 2012 is higher than our forecast in December 2011 (2.1 percent in the period ending in the fourth quarter of 2012). The forecast for the path of inflation over the previous four quarters during 2012 is higher than our assessment in the previous quarter, primarily due to increased prices of energy and commodities around the world.

The forecast for the inflation rate to be above the midpoint of the target range reflects the combination of a number of economic forces—inflationary forces as well as forces acting to restrain inflation. Inflationary forces include **the prices of oil and other commodities world wide.** The prices of oil and other commodities increased markedly in the first quarter of 2012. In the forecast we assume that oil and commodity prices will remain at their high level in the coming year.

Regarding the **housing component (primarily rents)** of the CPI, we project that its rate of increase in the coming year is expected to moderate compared with last year, though it is still expected to increase at a pace above the midpoint of the target inflation range.

Another inflationary force is **the depreciation of the shekel, in terms of the nominal effective exchange rate**, that occurred in the second half of 2011 (a cumulative 6 percent), which is expected to impact import prices in 2012, through the gradual transmission from changes in the exchange rate to prices. Forces having an effect on the exchange rate in the coming year include the positive interest rate gaps between domestic interest rates and global interest rates (primarily in the US and Europe),

[5] As noted, the end of the construction of Intel's facility is expected to lead to a decline in investments (in the second and third quarters of 2012).

which support appreciation of the shekel. At the same time, the contraction of the surplus in the current account supports depreciation of the shekel, which is likely affected as well by some increase in the risk premium against the background of geopolitical developments. In light of the various factors, the forecast assumes a moderate depreciation of the shekel (about 0.3 percent in effective exchange rate terms) in the coming year.

Forces expected to constrain inflation include the real wage, and the expected slowdown in the pace of growth of demand. Despite the low unemployment rate reached in the fourth quarter of 2011 (5.4 percent), we do not project pressures for wage increases, due to the moderation in growth which is expected to increase, in our estimation, the unemployment rate to 5.9 percent by the end of 2012. As such, in our assessment, we do not expect significant inflationary pressures from domestic production costs.

The **Bank of Israel interest rate** is expected to remain at its current level in the coming year, and stand at 2.5 percent in the first quarter of 2013. Figure 2 shows that the forecast interest rate in one year from now is similar to the rate forecast in the previous quarter, but is slightly higher than it over the course of the coming year, due to the increase in the inflation forecast and the growth forecast. Although inflation is expected to be above the midpoint of the target range, we project that the interest rate will remain at its current level until the second half of 2013, due to the moderate growth expected in the coming year, and also due to our assessment that inflation will be led by essentially temporary factors (global prices of energy and commodities), and not by surplus demand which creates a continuing inflationary process. In the second half of 2013, with intensifying recovery in economic activity in Israel and world wide, the interest rate is expected to return to increases, and reach 2.75 percent at the end of the year.

Table 2 shows that **the Research Department's assessments of the inflation rate, interest rate, and growth are similar to those of private forecasters and to expectations derived from the capital markets.** The forecasters, on average, see an inflation rate of 2.5 percent, alongside stability in the interest rate in the coming year. Inflation forecasts derived from the capital markets are slightly higher, at 2.9 percent.[6] The forecasts of the inflation rate and interest rate are higher than those of December

[6] It is likely that the estimate derived from the capital markets is biased slightly upward, so that the "true" expectations are apparently slightly below 2.9 percent. Inflation expectations derived from the capital market are calculated based on the prices of CPI indexed and unindexed government bonds traded on the market. In order to calculate the expected inflation for 1 year, there is a need, in theory, for a 1-year CPI-indexed bond to exist, as well as an unindexed bond with the same term to maturity. Since for the most part, CPI-indexed bonds with exactly 1 year to maturity are not traded, the expectations estimate is based on bond series for terms as close as possible to 1 year. The attempt to derive the real rate of return for 1 year from bond series with maturities different than 1 year is liable to be open to various problems, specifically the lack of taking into account the fact that inflation on a monthly basis is affected by seasonal factors. The shortest series through which the above figures were calculated was for 1 year and three months, and includes, among others, the month of April which is seasonally high.

2011 (forecasters projected an inflation rate in 2012 of 2.2 percent, and an interest rate at the end of 2012 of 2.3 percent).

Table 2
Forecasts for inflation rate, interest rate, and GDP growth, 2012

(percent)

	Bank of Israel Research Department	Capital markets[a]	Private forecasters[b]
Inflation rate[c] (range of forecasts)	2.6	2.9	2.5 (2.1-3.0)
Interest rate[d] (range of forecasts)	2.5	2.6	2.6 (2.0-3.0)
GDP growth[e]	3.1		

a) Average for the month of March.

b) Inflation and interest rate forecasts are after the publication of the CPI reading for February.

d) Inflation rate over the coming 12 months.

e) Interest rate at the end of the first quarter of 2013. Capital markets forecast derived from Telbor rates.

f) Full year GDP in 2012 compared with GDP in 2011.

Source: Bank of Israel.

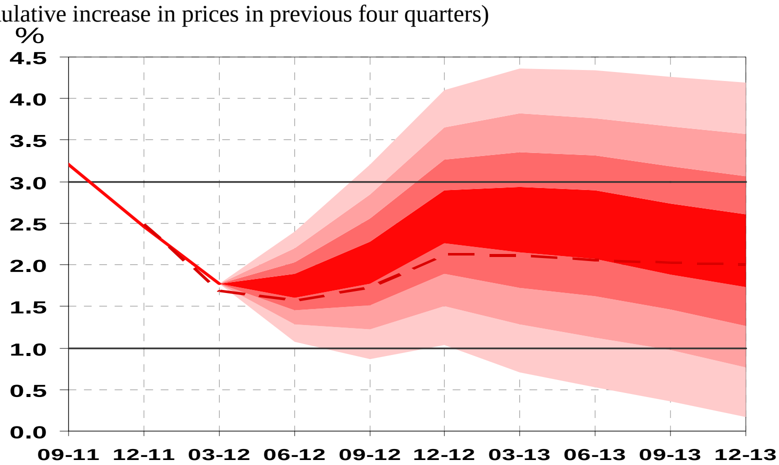
Balance of risks in the forecast: The baseline forecast is based on several assumptions. Those assumptions are listed below, as well as the various effects of alternative scenarios:

1. In the baseline forecast we forecast relative stability in the geopolitical situation in our region. To the extent that there is deterioration in the geopolitical situation, it is plausible that the deterioration will be reflected in higher oil prices, as well as in an increase in the economy's risk premium, which is liable to result in a depreciation of the shekel, a decline in asset prices, and a negative impact on domestic demand (for consumption and for investment). Thus, such deterioration is expected to bring higher inflation (due to higher energy prices and a depreciation) at the same time as moderation in activity (due both to the negative impact on domestic demand and increased import prices), so that the interest rate response depends on the strength of the above-mentioned forces, and is likely to increase to the extent that the influence of these factors on higher inflation is strong.
2. The assessments on which the forecast is based are that the global moderation, against the background of the debt crisis in Europe, will continue, though without an extreme scenario of a major financial crisis or sharp global recession. In particular, the recovery in the US is expected to continue. A deterioration of the debt crisis is a major risk factor to the real forecast, and should it occur, a slowdown in growth alongside a decline in inflation and the interest rate are expected.

In conclusion, it appears that the realization of any of the primary risks to the forecast would lead to some negative impact on growth, while in regard to inflation and the interest rate the direction of the effect of the risks is mixed, though it tends upward, in our assessment.

Figures 1 and 2 present fan charts around the inflation rate and interest rate forecasts (the broken line represents the baseline forecast of December 2011). The width of the fan distribution is derived from the estimated standard deviations of the shocks in the Research Department's DSGE model.

Figure 1
Actual Inflation and Fan Chart[a] of Expected Inflation,[b] 2012-2013
(cumulative increase in prices in previous four quarters)

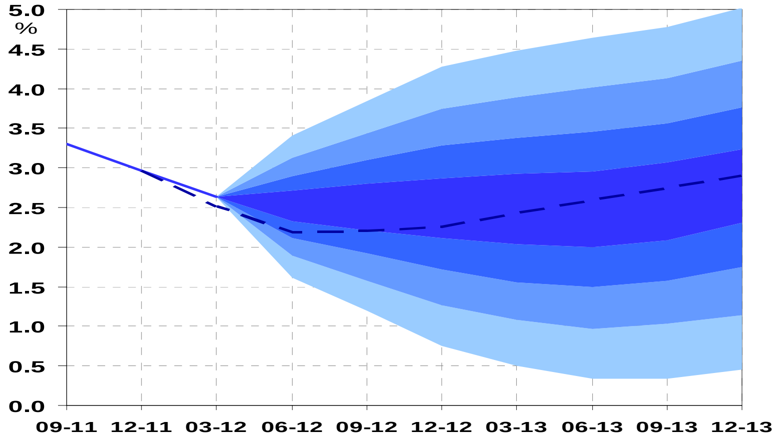


[a] The center of the fan charts is based on the Bank of Israel Research department assessment. The width of the chart is based on the department's medium-scale DSGE (dynamic stochastic general equilibrium) model. The full fan covers 66 percent of the distribution of expected inflation.

[b] The dotted line corresponds to the previous staff forecast (published in December).

Source: Bank of Israel.

Figure 2
Actual Bank of Israel Interest Rate and Fan Chart[a] of Expected Interest Rate,[b] 2012-2013



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