9. STRESS TESTS

Macroeconomic stress test of the banking system based on uniform scenario, 2014–15

a. General

The Banking Supervision Department has been carrying out macroeconomic stress tests based on a uniform scenario on the banking system since 2012. The banking corporations are required to estimate the results of the scenario through various methodologies that they develop, while at the same time, the Banking Supervision Department conducts its own test on the same scenarios, applying a uniform methodology for all the banks.

The stress tests contribute to an understanding of risks facing the banking system in general and each bank on its own, and are an accepted international standard based on the Basel Committee's recommendations. The characteristics of the stress test scenarios are set each year after analyzing the potential risks faced by the banking system and their development over the recent period, assessing the probability of the scenario occurring, studying the lessons learned from previous crises, and compiling the insights gleaned from stress tests conducted previously in Israel and abroad. The stress test scenario should be severe but plausible, and should reflect the main risks to which the banking system is exposed at the current time.

Beginning with the previous year, the Banking Supervision Department integrates the uniform stress test as a complementary element to the Supervisory Review and Evaluation Processes (SREP), and its integration includes both quantitative and qualitative aspects. In parallel, the banking corporations[61] are required to integrate it into their internal capital adequacy assessment processes (ICAAP). This is intended to utilize the testing process as an aid for evaluating the banking system's resilience, to ensure the existence of sufficient capital levels, to test the banks' capital planning, to set capital requirements, and to take other measures as necessary—in accordance with best practices customary around the world. In addition, this process allows an examination of the banks' ability to conduct a uniform stress test based on statistical models and other methodologies, and supports the understanding of focal points of risk in the banking corporations while strengthening the supervisory dialogue with them.

The characteristics of the scenario and the results of the test conducted by the Banking Supervision Department are presented below.

b. The scenarios

The test was based on two scenarios—a base scenario and a stress scenario. The stress scenario featured a high level of severity, and its parameters are calibrated to stress the main risk factors in the Israeli and global economy and in the banking system. The scenario horizon is 13 quarters, and the starting point is September 30, 2014.

[61] The five banking groups (Leumi, Hapoalim, Discount, Mizrahi-Tefahot and First International) and two independent banks (Union Bank and Bank of Jerusalem).

The base scenario: The values of the variables in this scenario are based on the Bank of Israel's macroeconomic models, international institutions' projections of global developments, and other assessments regarding economic developments—all as of the date on which the scenarios were formulated (September 2014).

The stress scenario: The macroeconomic stress scenario includes a severe domestic shock as a result of a deterioration in Israel's geopolitical situation, alongside a global shock resulting from a serious slowdown in the European economy and a certain slowdown in the US economy. The two shocks lead to a severe decline in domestic economic activity in Israel, which is also reflected in a sharp decline in private consumption, and a serious negative impact on the labor market and on the housing and real estate market. The low global interest rate environment, alongside the sharp decline in demand, lead to monetary accommodation adopted through a reduction in the interest rate to near zero. Alongside the decline in real economic activity, there is also a sharp decline in financial and real asset prices, against the background of the underpricing of risk in the bond market and high housing prices. (Figure 1.38) presents the development of the macroeconomic variables in each of the scenarios, and Table 1.27 presents an international comparison relating to the variables of the scenarios conducted in other advanced economies.

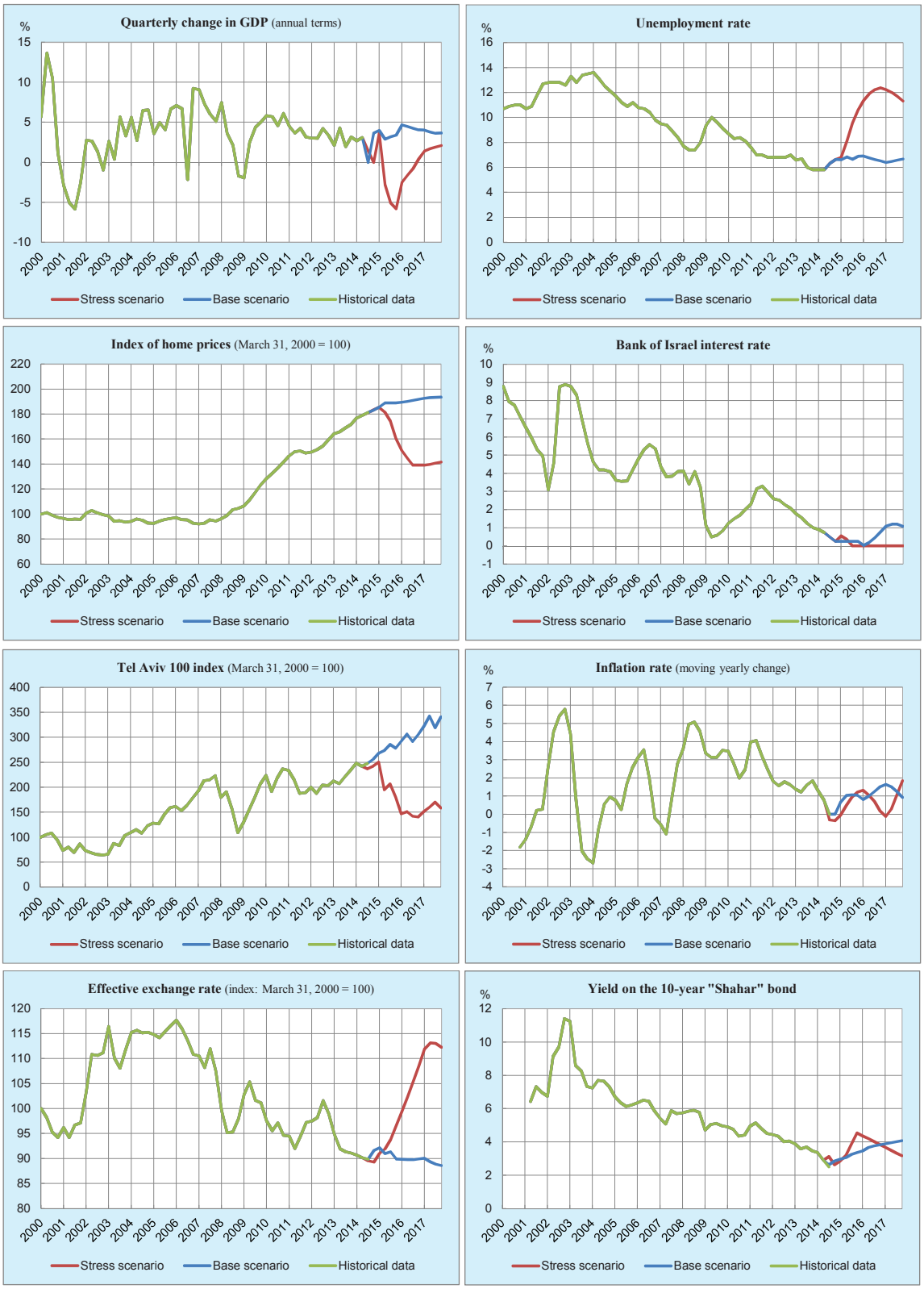
c. The methodology and assumptions

The banking Supervision Department conducted the uniform stress test for 2014–15 based on assumptions accepted worldwide, including: during the course of the scenario there is no change in asset balances or composition; the banks do not raise additional capital; and there is no accounting for the possible responses by the banks to the development of the crisis.

In order to carry out the stress test, the Banking Supervision Department estimated the effect of the scenario on the main sections in the income statement and balance sheet, and on Common Equity Tier 1 capital. In order to estimate the credit risk and its main focal points, the Banking Supervision Department used a range of models and methodologies which it developed for that purpose: satellite models that connect macroeconomic variables and credit losses, and models based on data at the borrower level. In addition to credit risk, the Banking Supervision Departments estimated market risks—the effects on the bond and stock portfolios.

It should be noted that the uniform stress test does not include an analysis of the scenario's effect on liquidity risk and on operational risk. It also does not include related indirect consequences, such as withdrawals of deposits by nonresidents, lowered credit ratings for banks, and a negative impact on investor confidence. The test focuses on the scenario's direct effect on the credit portfolio, the securities portfolio, and banks' profitability.

Figure 1.38
Historical Macroeconomic Data and Development of Scenarios, 2000–17



SOURCE: Historic data—Based on Central Bureau of Statistics and Tel Aviv Stock Exchange. Base and stress scenario data—Bank of Israel.

Table 1.27

Comparison of main macroeconomic variables in a stress test[a], Israel and selected economies

(percent)

	Israel		US			Europe		UK	
Main macroeconomic variables	**Starting point**	**Stress scenario**	**Starting point**	**Stress scenario**	**Severe stress scenario**	**Starting point**	**Stress scenario**	**Starting point**	**Stres scenari**
GDP - Maximum contraction in the stress scenario		**4.6**		**0.5**	**4.6**		**2.1**		**3.9**
Unemployment rate - Maximum level in the stress scenario	6.3	**12.4**	6.1	**8.0**	**10.1**	10.7	**13.5**	7.2	**11.8**
Monetary interest rate[b] - Maximum level in the stress scenario	0.5	**0.0**	0.0	**5.3**	**0.1**	-	-	0.5	**4.2**
Inflation - Maximum/minimum quarterly level in the stress scenario (in annual terms)	0.6	**3.0**	1.1	**4.0**	**2.0**			2.1	**6.6**
Depreciation of the currency[c]		**24**		**-4**	**-13**				**29**
Long-term yields - Maximum/minimum level in the stress scenario	2.6	**4.6**	2.5	**5.8**	**0.9**			2.9	**5.8**
Stock index - Maximum change of the leading index in each country		**-44**		**-28**	**-58**		**-20**		**-28**
Home prices - Maximum change during the stress scenario		**-25**		**-14**	**-26**		**-12**		**-35**

[a] Duration of the scenario: Israel - 13 quarters; US - 9 quarters; UK and Europe - 3 years.

[b] Data regarding the ECB's monetary interest rate were not published in the stress scenario carried out in Europe.

[c] In Israel - the nominal effective exchange rate, including the yen, pound sterling, US dolllar and euro (the currencies of Israel's main trading partners); In the US - the dollar/euro exchange rate; In the UK - the effective exchange rate vis-à-vis a basket of currencies. Depreciation (+), Appreciation (-).

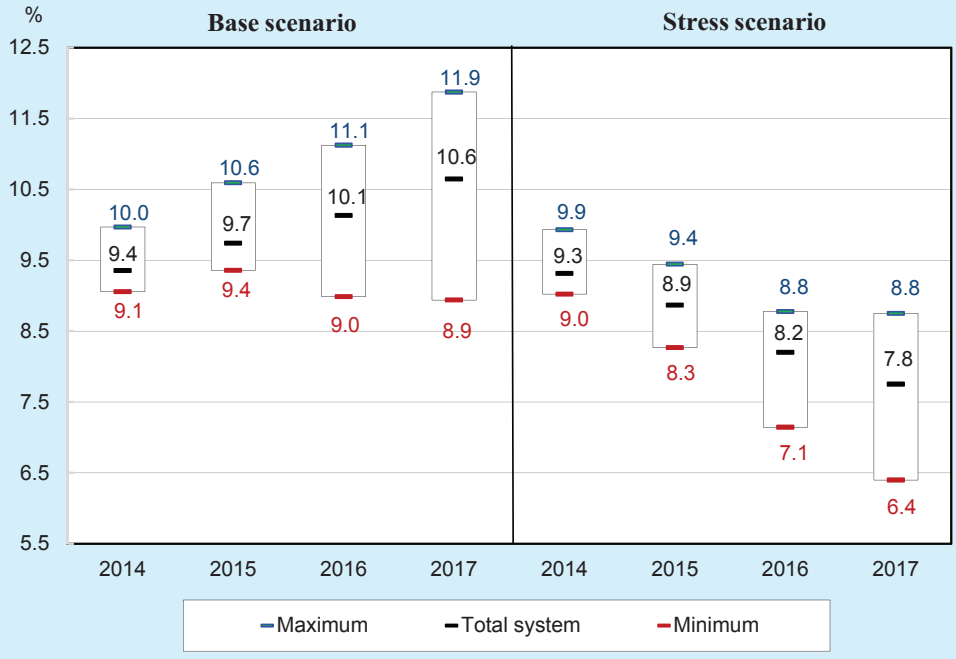
SOURCE: Israel - Bank of Israel; US - Federal Reserve; UK - Bank of England; Europe - European Banking Authority.

d. The findings

The results of the stress test indicate that a realization of the adverse domestic macroeconomic scenario combined with a global shock would have a significant impact on the banking system, but no risk to stability is expected. The recession will make it difficult for business and private borrowers to meet their commitments, and the banks will record large losses in the credit portfolio.

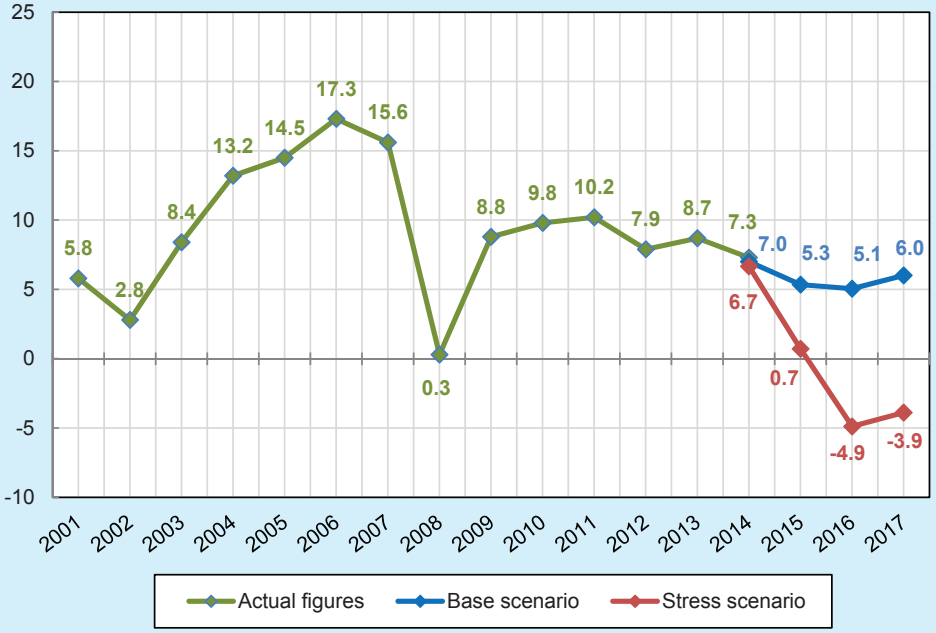
The negative impact to the profitability of the banking system could be serious and prolonged: A cumulative loss of more than NIS 7 billion, and return on equity of 0.7 percent in 2015, of -4.9 percent in 2016, and of -3.9 percent in 2017. The Common Equity Tier 1 capital ratio of the banking system will be negatively affected, and declined from 9.4 percent in September 2014 (the beginning of the scenario) to 7.8 percent at the end of 2017 (the end of the scenario). The Common Equity Tier 1 capital ratio of the banks will range from 6.4 percent to 8.8 percent—levels that show that the capital buffers are sufficient to absorb serious macroeconomic shocks to the Israeli and global economy. However, it should be remembered that the results present a direct impact to the banking system, and do not take into account indirect and feedback effects (Figure 1.39 and Figure 1.40).

Figure 1.39
Development of Common Equity Tier 1 Ratio, Total System, December 2014 to December 2017



SOURCE: Banking Supervision Department calculations.

Figure 1.40
Development of the Return on Equity, the Total System, 2001–17



SOURCE: Banking Supervision Department calculations.

The most significant negative impact on bank profitability, as noted, derives from credit losses. During the three years of the adverse scenario occurring, banks would post credit losses of about NIS 41 billion (before tax), an annual average loss of 1.5 percent. About 40 percent of the credit losses, NIS 16.5 billion, derives from credit to the construction and real estate industry, and from housing credit. (More on the results of the stress test in the housing credit portfolio appears in Section 4.) Part of the credit losses comes with a lag (in the second and third years), and is liable to increase the severity of the crisis and to lead to an additional negative impact. With regard to the securities portfolio, the declines in value over the course of the scenario total about NIS 3 billion. This loss is not high relative to the credit losses, a result of the fact that the Bank of Israel interest rate declines during the scenario and long-term bond yields increase at a relatively moderate rate.