Chapter 1
Main Developments

1. THE ECONOMY, INFLATION AND MONETARY POLICY

a. Introduction

The relative stability in the exchange rate and prices during the previous three years was disturbed in 2002. The consumer price index rose by 6.5 percent, far above the targeted range of inflation for the year of 2 to 3 percent. The exchange rate of the shekel against the dollar rose by 9.8 percent,[1] and the volatility of the exchange rate increased considerably. Concurrently, the slowdown in activity prevailing in the economy for the past three years intensified: Business sector GDP and business sector employment fell by 3.1 percent and 1.2 percent respectively, while the unemployment rate rose to 10.3 percent. Government borrowing increased greatly in 2002, and the government debt expanded by 9.0 percent of GDP.

The supply of sources for credit from abroad decreased, against the background of the uncertain security situation, the continued slump in domestic activity and the continued worldwide economic slowdown. The reduced supply coupled with the large increase in government borrowing pushed up the cost of raising capital for the public sector and private sector appreciably. This was reflected by a large and consistent rise in real interest rates.

The unexpected 2 percentage point cut in the interest rate at the end of 2001 (see below) and the fiscal expansion during the first half of 2002 (in contrast to the government decision) led to increased uncertainty and to instability in the financial markets. This was apparent *inter alia* from the large fluctuations in the exchange rate and share prices, the large and consistent increase in nominal and real interest rates and from other indicators (see Chapter 2).

The exceptional rise in the exchange rate and in prices occurred in the first half of the year. Due to this situation and in order to adhere to the long-term inflation target, the Bank of Israel raised the monetary interest rate by 5.3 percentage points during the first half of the year, from 3.8 percent at the end of December 2001 to 9.1 percent in July 2002. Most of the rise in the interest rate (a cumulative increase of 4.5 percentage

[1] December 2002 average compared with December 2001 average.

points) was made in the interest rate that was set for the months June and July. These monetary measures, along with the government's decision to adjust the State budget, stopped the upsurge in the exchange rate and prices. During the second half of the year, prices rose by only 0.4 percent in annual terms, although the large fluctuations in the price index continued. However, nominal and real interest rates for all terms remained high throughout the second half of the year, as did the uncertainty and instability in the financial markets.

b. The upsurge in inflation and its containment

At the end of December 2001, the Bank of Israel reduced the monetary interest rate by 2 percentage points, from 5.8 percent to 3.8 percent. This was against the background of the government's decision to revert to fiscal discipline, and the government and the Bank of Israel's joint decision concerning structural changes in the financial markets. (See the Monetary Department's volume in the Bank of Israel's Annual Report for 2001.) This joint decision was based on the assumption that a resumption of fiscal discipline would have the effect of diverting resources from the public sector to private sector activity, would create the conditions for a real depreciation (at a time of continued recession in domestic demand) and a reduction in real interest rates at all maturities, and would make it possible to achieve the objective of price stability at a lower real (and nominal) interest rate and at a higher level of non-financial activity.

The unexpected 2 percentage point cut in the interest rate during the last week of 2001 led to an immediate rise in the exchange rate and in the prices of bonds and shares. The rise in share prices ceased at the beginning of January. Thereafter, share prices fell until the end of the year. Bond prices began to fall from February onwards. However, the exchange rate continued to rise until June, although its development during the first half of the year was not uniform, and can be divided into three main periods: (1) a continued rise until February 10, prior to the Bank of Israel's announcement of its commitment to achieving price stability and the explanation to the public of the risks involved in converting shekel investments to foreign currency investments; (2) stabilization at an average level of below NIS 4.70 to the dollar, with large fluctuations around this level from February 11 until the beginning of April; (3) a continued rise from the beginning of April and until the interest rate hike on June 11 (see below).

Although the sharp adjustment in the interest rate was expected to lead to a one-off change in the exchange rate, the rate cut was followed by a continual rise in the exchange rate, to an extent greater than it warranted. Prior to the announcement of the interest rate cut, the exchange rate was NIS 4.26 to the dollar. Following the announcement, the exchange rate rose consistently throughout the entire month of January and on February 10, prior to the central bank's announcement of its commitment to achieving price stability, reached NIS 4.67 to the dollar (a depreciation of nearly 10 percent). Concurrently, inflation expectations for a year and two years rose, though remaining

within the targeted range of inflation. The rise in inflation expectations was also halted on February 10 and subsequently, during March, these expectations stabilized at a level lower than that recorded in January and February.

Following the interest rate cut at the end of December 2001, long-term nominal and real interest rates both fell temporarily. Subsequently however, concurrent with the upturn in the exchange rate and inflation expectations, the interest rates began to rise despite the continued reduction in the monetary interest rate in real terms.[2] These developments, together with other indicators from the capital market (as detailed below and in Chapter 2), were indicative of greatly increased uncertainty in the financial markets and of the public's reduced belief in policy-makers' ability and/or intention to maintain the objective of price stability. Against this background, the Bank of Israel raised the interest rate for March by 0.6 percentage points. This increase helped to stop the rise in the exchange rate and to reduce inflation expectations during March.

From April and until the end of June, a consistent deterioration was apparent in all the relevant indicators of price stability and financial stability. In particular, the exchange rate continued to rise (to the accompaniment of increased fluctuations around this trend), as did inflation expectations for the coming years (see below for the reasons for this). In May, the Bank of Israel increased the monetary interest rate by 0.2 percentage points, but without achieving the desired effect, and in June raised the interest rate twice, by a cumulative 2.5 percentage points, to 7.1 percent. Although this increase halted the rise in the exchange rate, the level of the exchange rate remained high (at around NIS 4.98 to the dollar), and inflation expectations for all terms also remained far above the upper limit of the inflation target. In order to bring prices back within the targeted range of inflation and stabilize the financial markets, the monetary interest rate was raised by another 2.0 percentage points from July (to a rate of 9.1 percent). As a result of this increase and the cumulative 4.5 percentage point increase in the interest rate for June and July, the exchange rate and inflation expectations began to fall gradually. This trend continued in July and August. Subsequently, the exchange rate remained volatile, but its average level (NIS 4.72 to the dollar) was much lower than the record level of June 2002. During September and October, the inflation expectations derived from the capital market rose slightly, and in October expectations for a year ahead reached approximately 4 percent (one percentage point above the upper limit of the inflation target). In November and December, inflation expectations for a year ahead fell to within the targeted range, although expectations for terms of over two years remained much higher than the upper limit of the targeted range. From August 2002 until the end of the year, the Bank of Israel left the interest rate at 9.1 percent, due to the assessment that this rate would be adequate to restore price stability[3] (see details in Chapter 2).

[2] The monetary interest rate minus inflation expectations.
[3] Despite continued major fluctuations in the exchange rate and in bond prices.

c. Reasons for the upsurge in inflation

The reduction in the interest rate in December 2001 from 5.8 percent to 3.8 percent was as stated unexpected, and relatively large. It is reasonable to assume that such a measure might lead to a rise in the exchange rate and prices. But in view of the continued recession and three previous years of price stability and in particular, the government's decision to revert to fiscal discipline, it was also reasonable to assume that the upturn in the exchange rate and prices deriving from the cut in the interest rate would be a passing phenomenon, which would be followed by a resumption of price stability. The question therefore needs to be asked why the economy instead, began to enter an inflationary spiral, along with the threat of a deterioration in financial stability.

It is possible that the relatively large adjustment in the interest rate and the very fact that it was unexpected were perceived by the public as detracting from the credibility of monetary policy, with the result that the sensitivity of the exchange rate and prices to domestic and external shocks increased.[4] However, as we will describe below, these factors alone were not enough to explain the process. Apparently, the process derived mainly from the substantial growth in government borrowing, and from the government's attitude towards the State budget and the Bank of Israel Law. These led to a lack of credibility among the public regarding the government's desire and/or ability to adhere to its decisions regarding the State budget and its commitment to aspiring to price stability. This lack of credibility was reflected by a large rise in uncertainty and the emergence of considerable pressure for an increase in real interest rates for all terms. The Bank of Israel's interest rate cannot remain detached for long from the structure of real interest rates, whose main determinants are beyond the central bank's control.

With respect to the element of surprise in the interest rate cut, it is generally assumed that a policy of large and unexpected adjustments in the interest rate could lead to financial instability. For this reason, the Bank of Israel has practiced a policy of gradual adjustment of the interest rate both in periods when inflation expectations were above the targeted range and in periods when these expectations were below the target.[5] The unexpected interest rate cut in December 2001 was an exception. This cut was made as part of a comprehensive program, of a type that is not implemented frequently. It is therefore reasonable to assume that the interest rate cut was not in itself intended to create expectations that monetary policy would henceforth be directed at dramatic changes in the interest rate. In other words, the surprise in itself should not have undermined financial stability. However, the rapid depreciation that immediately followed the interest rate cut and continued during January and at the beginning of

[4] One indication of such a possibility is that the depreciation in January and the first half of February was much larger than that which could be derived from the two percentage point cut in the interest rate. Another indication is that the interest rate cut was followed by a large increase in the implied volatility of dollar options, which remained high during the entire year.

[5] An exception was the unexpected interest rate cut in August 1998, and the dramatic increase in the interest rate in October 1998, when the economy was in the midst of a crisis.

February, as well as the rise in the measure of uncertainty that occurred immediately after the rate cut, indicate that the cut itself might have exerted an effect from another aspect, the credibility aspect. As a result of this decision, the public may have regarded the Bank of Israel as backtracking from its commitment to price stability.

As to the extent of the change: Before the rate cut, when the interest rate was at a level of 5.8 percent, price stability prevailed and inflation expectations were below the middle of the targeted range and falling. This means that the conditions in the economy as reflected at the time in prices and capital market data were conducive to a certain reduction in the interest rate. Although the required level of the interest rate may have been higher than 3.8 percent, such a deviation from the required rate,[6] if it continues over time, could lead to a gradual rise in inflation expectations and the exchange rate. In such a case, a moderate increase in the interest rate should bring inflation back to the targeted range. The upsurge in inflation that actually occurred derived from the emergence of a very large gap between the actual and the required monetary interest rate.

The real interest rate is determined by forces of supply and demand. The demand side consists of demand by the private sector (households and businesses) and the government. The continued recession in real activity was reflected *inter alia* by a fall in the private sector's demand for credit, which in itself has the effect of reducing the interest rate. However, the government's demand for credit increased greatly and the public expected it to continue growing. Overall, considerable pressure for a rise in the interest rate was created on the demand side. Two factors operate on the supply side: the components of the private sector's supply (financial savings) that are directed at the local market, which appear to have contracted during the year, due especially to the recession in economic activity and increased uncertainty; and the supply from abroad, which decreased considerably. These two factors also had the effect of increasing the interest rate. In 2002 therefore, major pressure for a rise in the interest rate was generated on both the demand side and the supply side. As regards supply from abroad, this decreased for objective reasons (the worldwide economic situation, which led to fears of bankruptcies and a reduction in credit lines) and for domestic reasons — government borrowing and Operation Defensive Shield (see below). When the government debt increases, suppliers of credit become more apprehensive, and demand a higher interest rate. One aspect of this development was the reduction, or expectation of a reduction, in the country's credit rating,[7] which also spurred an upturn in the interest rate.

The interest rate cut at the end of December 2001 was only one element in a more extensive program, whose main component was the adjustment of the budget deficit to a target of 3 percent of GDP in 2002[8] and subsequently, a gradual reduction to one percent of GDP in 2005. It was also decided to restore the gradual downtrend in the government debt (in GDP terms). However, government borrowing actually increased

[6] The reference is to a potential deviation between the actual interest rate and the required interest rate, which as stated is estimated at less than two percentage points.
[7] One of the rating companies reduced the rating on Israel's domestic government debt in 2002.
[8] After the targeted deficit for 2002 was raised from 1.5 to 2.4 percent of GDP when the original budget was compiled in August 2001.

greatly during the initial months of the year. It also transpired that this failed to expedite the budget adjustments that had been prescribed: The deficit planned in the budget that was submitted in October 2001 amounted to NIS 11.1 billion, but in December 2001 the planned deficit was raised to NIS 13.8 billion (this budget was approved in February 2002). During January and February 2002, net domestic borrowing totaled NIS 10.2 billion. Although the pace of borrowing slowed in March, bond issues in April totaled NIS 4.2 billion, and altogether, up to and including April, government borrowing reached NIS 14.6 billion, which was more than the planned deficit for the entire year. Excessive government borrowing on such a large scale creates pressure for an immediate rise in the interest rate, as well as expectations of a further increase in the budget deficit (as actually happened; see below). As a result, the uncertainty in the markets increased and the demand for foreign currency surged.

Excessive borrowing on a scale as large as that recorded in the first months of the year was as stated indicative of the government's continued efforts to adjust the budget and the budget deficit targets to changing conditions. Such an adjustment was indeed made at the end of May 2002. In April, the Finance Ministry drafted an assessment that it submitted to the government,[9] which claimed that without remedial measures, the budget deficit for the year 2002 would reach 5.5 percent of GDP, and the forecast deficit for 2003 would be between 6.5 and 7 percent of GDP as compared to targeted deficits of 3 and 2 percent of GDP respectively, which were stipulated in the budget plan approved in February. These assessments revealed a loss of government control over the State budget, and increased the instability in the financial markets. Subsequently, in May 2002, an additional adjustment to the 2002 budget was made as stated: the targeted deficit for 2002 was raised to 3.9 percent of GDP, and the planned deficits for the coming years were raised as well. In shekel terms, the planned deficit in the amended budget reached NIS 19.3 billion.

The excessive borrowing during the first months of the year was accompanied by government measures and other developments that aggravated the uncertainty in the markets. One such measure was the draft amendment to the Bank of Israel Law that was submitted to the Knesset in March. The preparation of the amendment was concealed from the public and the Bank of Israel, and was submitted for the government's approval in a hurried manner, deviating from the normal procedure in which draft laws such as these are sent for the perusal and comments of those involved in the relevant matter several weeks in advance. The draft legislation presented the central bank with a large number of clashing, and in some cases highly elusive objectives. Other elements of the draft legislation implied an end to the central bank's independence in operating monetary policy instruments.[10] Due to the manner in which the draft bill was presented and its content, the public gained the impression that the government was backtracking from its commitment to price stability.

[9] *Economic Policy for the Years 2003-2004* (April 2002), Ministry of Finance.
[10] For further details, see Bank of Israel, *Inflation Report for the First Half of 2002*, No. 10, July 2002. Later in the year, the government halted the process of enacting this law.

Other developments that increased the uncertainty in the markets were: (1) the deterioration in the security situation with the growing wave of terror attacks at the end of March, which led to Operation Defensive Shield; (2) the recommendations (for extensive tax reform) of the Rabinowitz Committee, which required budgetary sources for their implementation; (3) laws initiated by individual members of the Knesset, involving significant budget outlays, that the government had decided to abolish but had not actually abolished.

All the previously mentioned factors greatly increased the level of uncertainty in the financial markets (as detailed in Chapter 2) and eroded the public's credibility in the government's ability and intention to create the conditions for price stability. As a result, the demand for foreign currency surged again, inflation expectations increased, and long-term real and nominal interest rates rose. Concurrently, government borrowing grew continually and with it the pressure for a rise in the interest rate.

During the whole of 2002, domestic borrowing totaled NIS 24.3 billion, compared with planned borrowing of NIS 14 billion in the budget that was approved in February 2002 and NIS 11 billion in the budget that was submitted in October 2001. In GDP terms, the budget deficit amounted to 4.0 percent of GDP, while the government debt grew from 95 percent of GDP at the end of 2001 to 104 percent of GDP at the end of 2002. This development was reflected by a large increase in long-term real interest rates. For example, the real yield-to-maturity on 20-year CPI-indexed government bonds rose from 4.0 percent at the end of 2001 to 5.6 percent at the end of 2002.

d. The exchange rate, inflation, fiscal policy and the real interest rate

The large depreciation of the exchange rate during the first half of the year (15.5 percent against the dollar and 17.8 percent against the currency basket)[11] led to a 6.5 percent price increase during the year, most of which — 6.3 percent — was recorded in the first half of 2002. From June until December, the exchange rate of the shekel against the dollar fell by 5 percent due to the substantial rise in the Bank of Israel's interest rate in June. The fall in the exchange rate had the effect of moderating the increase in prices during the second half of the year, and this increase amounted to 0.2 percent.

During the years 1999 to 2001, exchange rate movements were relatively stable, as compared with the past and with fluctuations in worldwide exchange rates, and were devoid of a clear upward or downward trend. This last feature conforms to a situation in which local inflation is similar to worldwide inflation. During those years, the increase in prices was indeed moderate and even slightly below the targeted increase. This stability, despite shocks from home and abroad, largely resulted from fiscal and monetary policy. On the fiscal side, low budget deficits were maintained during the years 1997 to 2000, and were reflected by a decrease in the ratio of the government debt to GDP. On the monetary side, during the years 1999 to 2001 a policy of moderate and gradual interest rate adjustments conforming to the development of the gap between forecast

[11] June 2002 average compared with December 2001 average.

inflation and the inflation target was adopted. Such a policy contributes to stability in the exchange rate, prices and inflation expectations. In turn, stability tends to moderate fluctuations in non-financial activity.

The exceptional rise in the exchange rate and prices during 2002, and the drastic increase in the interest rate that was required in order to halt the inflationary spiral that developed in the second quarter of the year, showed that the stability achieved during the previous three years was not necessarily sustainable. An essential condition for financial stability is exchange rate and price stability, while essential conditions for the latter are a government policy directed at a fiscal balance and a monetary policy aimed at achieving and maintaining price stability by means of a gradual adjustment of the monetary interest rate. The monetary interest rate (in nominal and real terms) that is required to achieve price stability is derived *inter alia* from the size of government borrowing, and from the extent of the government's credibility concerning its commitment to permit the attainment of price stability.

The element of surprise in the interest rate reduction in December 2001 appears to have increased the sensitivity of the exchange rate and prices to external and domestic shocks. But in itself the element of surprise did not have a major influence on the monetary interest rate that is eventually required to maintain price stability. As previously mentioned, the main causes of the inflationary process during the first half of the year were the government's conduct with respect to the budget, the government's large-scale borrowing, and the government's attempt to abolish the central bank's independence. The higher the level of government borrowing and the lower the credibility in the government's intention of achieving a fiscal balance, the greater will be the pressure for a rise in all interest rates in the economy. At the same time, the nominal (and real) interest rate required to stabilize prices will also increase. It should be realized that forgoing the target of price stability will not have the effect of reducing real interest rates in the economy. Forgoing this objective will in fact subsequently lead to an inflationary spiral, a loss of financial stability, and to a much larger increase in real interest rates.

e. Flexible inflation targeting

The increase in prices during 2002 amounted to 6.5 percent, far above the government's targeted level of inflation of 2 to 3 percent for that year. The exceptional increase in prices occurred entirely in the first half of the year while in the second half, the price increase was halted as a result of the large rise in the interest rate for the months of June and July, and the government's decision to adjust the State budget. By mid-year, if not earlier in fact, inflation for the calendar year of 2002 was expected to exceed its targeted level. We will now attempt to explain why, when it became clear that inflation for the calendar year would exceed its targeted level, the Bank of Israel acquiesced in the face of this deviation and merely sought to bring back inflation to within its targeted range from the second half of the year.

First of all, it is important to explain what monetary policy is capable of achieving and what it is incapable of achieving, and within what terms of time.

In the long run, monetary policy is capable of affecting only nominal variables such as prices and the exchange rate. Over time, monetary policy is unable to influence real variables such as GDP, employment, the real interest rate and the real exchange rate. (However, the stabilization of prices has the effect of stabilizing the exchange rate, and the stabilization of both these variables contributes greatly to reducing uncertainty and to moderating the fluctuations in real variables). Attempts to increase real activity and employment or reduce the real interest rate by means of monetary expansions will end up spurring inflation, which will impair the efficient allocation of resources and the division of income and assets in the economy. For these reasons, many countries in the world have stipulated that the principal function of the central bank is to pursue price stability.

Yet the central bank's ability to stabilize prices (or their rate of increase) at every point in time is limited. This is due *inter alia* to the following reasons:

1. An interest rate adjustment affects prices with a lag. This lag is not fixed and varies according to the circumstances.
2. Prices and the exchange rate are affected by other factors apart from monetary policy, for example, fiscal policy and other domestic and external shocks.
3. At any point in time, the information on the present situation of the economy is partial and the future development of the economy is clouded in considerable uncertainty.

Since the ability to control inflation at any point in time is limited, and the interest rate affects inflation with a lag, monetary policy-makers act in a forward-looking manner, that is, they attempt to adjust the interest rate to forecast developments, and not to developments that occurred in the past (although past developments may constitute an important element in the assessment of future developments).

Like other central banks that have adopted an inflation target regime, the Bank of Israel makes a regular assessment of future developments by using all relevant information on the current situation and the expected situation of the economy. Derived from this is the estimated path of the future course of the interest rate that conforms to the attainment of the inflation target for the coming one-to-two years. According to this course, the interest rate is adjusted as necessary in the appropriate direction. Whenever additional information is obtained, a re-assessment is made of the course of the interest rate, and a further step is taken along the updated path of the interest rate on the basis of this re-assessment. Naturally, actual inflation could deviate from the targeted range that was set. Since monetary policy operates in a world of uncertainty, such deviations cannot be avoided. However a forward-looking policy minimizes these deviations over time.

Accordingly, acquiescence in the face of a temporary deviation from the inflation target in a given calendar year does not necessarily constitute backtracking from the policy of maintaining a constant effort at achieving price stability. The interest rate hike in June 2002 was intended to halt the upsurge in inflation and to restore price stability from that month onwards, that is, to achieve the inflation target for the coming

year and two years, rather than remedy the past deviation. An attempt to remedy the deviation in the past would have implied that inflation during the second half of 2002 would have had to be much lower than the target. This could have actually led to a downward deviation from the inflation target for 2003 and thereafter.

Another consideration for the retroactive acquiescence with a temporary deviation from the inflation target in a particular calendar year is the desire to avoid, as far as possible, frequent changes in the interest rate in opposite directions.[12] Changes such as these could lead to unnecessary fluctuations in the exchange rate and prices, and undermine financial stability. The principal manifestation of this consideration is the phenomenon known in economic literature as 'interest rate smoothing,' which essentially consists of a gradual adjustment of the interest rate. However, alongside the advantage of this approach — the maintenance of financial stability — there is also a disadvantage: Since the re-convergence of inflation to the targeted range is gradual, the inflation rate can exceed the targeted level for a certain period, which could impair credibility. Eventually, the resulting conflict between the maintenance of financial stability and the risk to credibility might necessitate a drastic adjustment in the interest rate. The ability to manage a flexible policy is largely dependent on the credibility that is achieved with time.

Credibility therefore plays a key role in moderating short-term fluctuations in nominal and real variables and in the achievement of financial stability. The decline in inflation since the mid-1990s and the relative stability in the exchange rate and prices during the years 1999 to 2001 evidently contributed to credibility. These developments, which occurred despite numerous domestic and external shocks, especially in 2001, can be attributed to the competent management of monetary and fiscal policy (which was reflected *inter alia* by a decrease in the government debt). But the government's behavior regarding the budget and the Bank of Israel Law against the background of the monetary expansion at the end of 2001, as detailed above, badly harmed this credibility in 2002. Government adherence to the budget deficit targets and to a reduction in the government debt is an important element also in establishing credibility, which favors a flexible approach to price stability.

2. DEVELOPMENTS IN THE CAPITAL MARKET

a. Summary of developments in the capital market during 2002

Yields on Treasury bills and government bonds rose in 2002 after gradually falling during 2001, while the decrease in share prices that began in 2002 continued. As yields rose, the slopes of the yield curves became positive following the negative slopes

[12] An attempt to remedy the deviation of the first half of the year would have necessitated a further large rise in the interest rate. Subsequently, in order to adhere to the inflation target for 2003, a large cut in the interest rate would have been necessary. Clearly, such a policy could lead to instability in the financial and non-financial markets.

recorded in 2001. The government borrowed heavily, netting nearly twice as much as in 2001 and 20 times more than in 2000. This was concurrent with the shortening of the term-to-maturity of government bond issues, a growth in the proportion to total issues of CPI-indexed bonds and a decrease in the proportion of unindexed bonds, in contrast to the trends of recent years.

The exchange rate depreciated considerably during the year and the level of uncertainty regarding the exchange rate rose appreciably. This was apparent from the indicators obtained from the shekel-dollar options that the Bank of Israel sells and from the shekel-dollar options that are traded on the Tel Aviv Stock Exchange. The probabilities of exchange rate changes of various magnitudes was reflected by a rise in premiums and the implied volatility of options.

Other indicators also revealed the increased uncertainty in the capital market during 2002: Inflation expectations measured from the differential between nominal yields and real yields for the term of a year as well as for long terms of up to ten years rose, the differential between inflation expectations for a year derived from the capital market and private analysts' average inflation forecasts for the same period increased, and the distribution of analysts' forecasts expanded.

Another indicator of the uncertainty prevailing in the capital markets and the economy as a whole during 2002 was the development of the public's financial asset portfolio: The proportion of unindexed shekel assets in the portfolio remain static after rising consistently since the beginning of the 1990s, while the proportion of CPI-indexed assets increased for the first time for a decade. The proportion of short-term assets also increased, for the first time since the mid-1990s.

Despite the numerous elements of uncertainty that affected developments in the capital market during 2002, the markets managed to function well and investors engaged in a diverse range of activities. The proper functioning of the capital markets and the bond and treasury bill markets in particular during 2002 is clearly evident from the impressive growth in turnover in the course of the entire year: average daily turnover in Treasury bills and bonds during 2002 increased by one and a half times compared with 2001. Although the largest increase in turnover during 2002, by a factor of 2.5 times compared with 2001, was recorded in Galil CPI-indexed bonds, Shahar unindexed bonds remained the most highly-traded bonds, and accounted for 40 percent of turnover in the bond market. Nevertheless and as stated, the government chose to substantially reduce the proportion of these bonds among its total issues during 2002.

Another striking example of the smooth functioning of the bond market in 2002 was the development of the Shahar bond market during the third quarter of the year: Prices of these bonds fell heavily due to sales by the mutual funds and the provident funds, while turnover in them remained high, and the banks and the non-financial private sector acted as stabilizers. The latter reacted to the rapid drop in prices in order to purchase these bonds. Accordingly, the rapid drop in prices at the time, like the fall in prices among the majority of bonds during the year, reflected investors' demand for an incremental yield in view of the increased uncertainty in the economy, and was not dictated by market failures or by investors taking only one side of the market.

b. Main trends in the capital market during 2002

As with developments in the area of inflation and monetary policy during 2002, developments in the bond market during 2002 can be divided into two principal periods: the first half and the second half of the year.

During the first half of the year, developments in the capital market were affected by the one-time 2 percentage point cut in the Bank of Israel's interest rate at the end of 2001, and by the continued lax state of fiscal discipline, which raised doubts as to the government's commitment to adhering to a multi-year declining path for the budget deficit. This took place against the background of a deterioration in the security situation and fears that the Bank of Israel's independence would be curtailed by the government's legislative initiative (which was later shelved).

Developments during the second half of the year were influenced by the Bank of Israel's interest rate hikes and the continued uncertainty regarding the State budget for 2003 onwards. Adding to these factors was the lowering of the credit rating of a number of large banks and the subsequent reduction in the government's internal debt rating by the international rating companies, the tense security situation in the region and the election campaign for the Knesset.

Yields in the capital market did not fall during the first half of the year, despite the 2 percentage point reduction in the Bank of Israel's interest rate. Quite the contrary in fact, for yields-to-maturity on government bonds of different types and terms and on Treasury bills actually rose concurrent with the decline in share prices. The rise in yields was not immediate, and neither was it uniform in its extent: Yields fell slightly at the beginning of the year, but began to rise rapidly as early as March. The slopes of the yield curves, which were positive at the end of 2001, became steeper, in an apparent reflection of expectations of an even sharper rise in yields, and that the risk premium demanded as a result of the uncertainty in the economy would increase as well. The timing of these developments was far from random. Large-scale government borrowing was recorded already in the first quarter of the year, and the budget deficit targets were raised repeatedly. Credibility in the government's commitment to adhering to the budget framework therefore decreased. In addition, credibility concerning the Bank of Israel's resolve to maintain a course of gradual reductions in the interest rate while maintaining price stability also decreased to some extent. Yields-to-maturity on Shahar unindexed bonds reached 10 percent in December 2002 compared with 6 percent in December 2001, while yields on Galil CPI-indexed bonds reached 4.5 to 5.5 percent compared with 4 percent at the end of 2001. This was despite the continued recession, the decrease in investment and consumption, and the upsurge in unemployment.

Other indicators relating to the capital market, including the foreign currency market, showed a considerable increase in the level of uncertainty in the economy, including a rise in inflation expectations: The inflation expectations derived from the differential between nominal yields and real yields for the term of a year rose from 2 percent at the end of 2001 to 5 percent in June 2002, while inflation expectations for long terms of up to 10 years increased slightly, from 2 to 3 percent. An increased differential was also

recorded between inflation expectations for a year and private analysts' average forecasts for inflation for the same period. This gap reflects the uncertainty inherent in inflation expectations data. At the same time, the distribution of analysts' forecasts expanded, providing another indicator of the uncertainty regarding the future development of inflation. The same trend in uncertainty was revealed by the increase in the actual implied volatility of the exchange rate of the shekel against the dollar, from a monthly level of 5 percent during the second half of 2001 to 10 percent in the first half of 2002. The uncertainty in the foreign currency market was also apparent from the information derived from the shekel-dollar options that the Bank of Israel sells and the shekel-dollar options that are traded on the stock exchange. A notable increase was recorded in the implied volatility observed at the Bank of Israel's tenders for the sale of put and call options, from 5 percent in 2001 to an average of 9 percent in 2002. The probability of a depreciation of the shekel against the dollar for the term of six months as derived from these options increased greatly, from 3 percent during 2001 to 15 percent in June 2002. The shekel-dollar options traded on the stock exchange reflected an increase in the level of uncertainty in the foreign currency market during the first half of the year compared with the beginning of the year, to a particularly high level in June. These developments were accompanied by a continuing depreciation of the shekel against the dollar, by a cumulative rate of over 8% during the first half of year. Another indicator of the uncertainty prevailing at the time in the capital markets and in the economy as a whole was the development of the public's financial asset portfolio: The growth in the proportion of unindexed assets in the portfolio, which began at the beginning of the 1990s, ceased during the first half of the year, and this proportion remained at a level of 31 percent, similar to that in 2001. Concurrently, for the first time for a decade, the public increased the proportion of CPI-indexed assets in the portfolio, and for the first time since the mid-1990s, increased the proportion of short-term assets.

In the second half of the year, shortly after the Bank of Israel's interest rate hikes in mid-2002, the situation changed: Inflation expectations fell back to within the long-term targeted range of inflation, and the exchange rate of the shekel against the dollar remained practically unchanged. However, the level of yields and uncertainty in the capital markets, including the foreign currency market, remained high and similar to those prevailing during the first half of year. As an example, yields-to-maturity on Treasury bills and government bonds were 5 percent higher than at the end of 2001. The considerable uncertainty in the foreign currency market was evident from the monthly implied volatility of the exchange rate, which remained high at 9 percent. The probability of a depreciation of the shekel against the dollar by over 10 percent during the coming six months and the implied volatility of Bank of Israel options remained at the levels that they reached during the first half of the year. The high level of uncertainty in the economy was also reflected by the yield differentials between Israel Government bonds traded in the USA and the yields of US government bonds for the same terms, and by international rating companies' reduction of the credit rating of a number of large banks and the government's domestic debt rating towards the end of the year.

c. Developments in government borrowing during 2002

The public's behavior in the capital markets, in the climate of uncertainty that prevailed in 2002 (especially the move away from unindexed government assets and towards shorter maturities) was reinforced by the government's behavior in the market. The government changed the composition of its bond issues during the second half of the year, reducing its issues of unindexed bonds and shortening the term-to-maturity of all the bonds that it issued during the year. The proportion of government borrowing via Shahar unindexed bonds, which had increased continually from a third of total government bond issues in the mid-1990s to half during the years 2000 and 2001, fell back down to only a third of total issues in 2002. The proportion of borrowing via Galil CPI-indexed bonds rose to 40 percent of total issues, similar to the proportion of these bonds in the mid-1990s, after the proportion had fallen to a tenth of total issues in 2000. In the second half of the year, the government stopped issuing long-term 10-year Shahar bonds[13] and 20-year Galil bonds,[14] and issued bonds for considerably shorter terms: Shahar bonds for 3.5 years[15] and Galil bonds for five years.[16] This was in contrast to the policy that had been practiced until then, of issuing bonds for medium and long terms that would serve as benchmarks for the capital market. As a result, the average term-to-maturity of issues of Shahar bonds was reduced from 7 years in 2001 to only 5 years at the end of 2002, and the average term-to-maturity of Galil bonds was reduced from 14 to only 8 years. When taking this action, the government decided to cope with the problem of the increased cost of borrowing not by reverting to a framework of fiscal discipline as necessary, but by changing the composition of its bond issues, even at the price of deviating from a policy that was aimed at enhancing the development of the bond market, and which until then had shown considerable signs of success. The continuation of a policy such as that adopted during the period under review leads to the shortening of the term-to-maturity of the government debt as well, which will undermine the international capital markets' assessment of the government's ability to repay the debt and will harm its financial status. This is in view of the very large (net) issues of tradable debt instruments in 2002 — 60% more than that derived from the budget plan for the year; the failure to adhere to the deficit target in 2001 and the frequent adjustments to the deficit target for 2002 onwards; and the rise in the debt-GDP ratio for the second consecutive year, to 104 percent, in contrast to the multi-year downtrend in this ratio from 160 percent in the mid-1980s to below 100 percent in 2000.

It is essential for the debt to be managed in a manner that is completely transparent and that demonstrates a commitment to a relatively long-term borrowing program, which is published in advance and that establishes consistent benchmarks for medium and long-term interest rates. Such a policy, together with the promotion of the reforms

[13] These issues were stopped between October 2002 and February 2003.
[14] Were not issued in October 2002.
[15] Issues of these bonds began in November 2002.
[16] Issues of these bonds began in October 2002.

that are necessary in the capital market and the implementation of a fiscal policy that conforms to international norms, will strengthen the capital markets' immunity in the face of shocks, given the numerous elements of uncertainty active in the Israeli economy and in the local capital market in particular.

d. Structural changes in the capital market during 2002

Although no progress was made with the reforms that are essential in the capital market during 2002, a number of important structural changes were implemented in the market in the course of the year:

- The removal of the Treasury bill ceiling, permitting the Bank of Israel to sell Treasury bills to the public exclusively on the basis of its own considerations, without being subject to any quantitative restrictions. The change enables the Bank of Israel to base the management of monetary policy on Treasury bills, which are a marketable asset, instead of on deposits from the banks at the Bank of Israel, and has gradually begun to do this. In this manner, monetary policy is managed with the entire public, and not merely with the banks. The change does much to improve the pass-through from monetary policy to the system of interest rates in the economy, and will contribute to the development of non-banking financial intermediation that competes with the banking system.
- A further change in the regulations governing long-term institutional investors, principally the provident funds and the insurance companies. The change is mainly conceptual: from now on, institutional investors are permitted to invest as they see fit with the exception of investments that are expressly forbidden. Under the new regulations, most of the numerous quantitative restrictions applying to investments were removed, stability-oriented norms for risk management were established, and the institutional investors have been charged with most of the responsibility for managing their investment portfolios. Although similar regulations were prescribed regarding the assets of the pension funds that are invested in the capital market, most of these funds' assets are still held in the form of earmarked bonds and within the framework of agreements with the Histradrut's Labor Federation.
- The abolition from 2003 of the remaining restriction on long-term institutional investors' investments in assets abroad. This was the last step in the liberalization of the foreign currency market that began in the mid-1980s, and that was largely completed in 1998.
- The income tax reform that went into effect in 2003, whereby investment assets in the capital market have become liable to tax for the first time.

In addition, the committee on market making that was established by the Securities Authority in cooperation with the Bank of Israel, the Ministry of Finance and the Stock Exchange formulated its recommendations regarding the building of a framework for market-makers' activity in the Israeli capital market. Regulations were defined for the rights and obligations of market-makers in bonds and Treasury bills, in shares and in derivative assets. These regulations were based on experience from abroad, which

indicated the significant contribution of market-makers to liquidity in the markets in which they operate.

e. Implications of the income tax reform for taxation of the capital market

The income tax reform is intended to rationalize the tax structure that has been practiced in Israel until now, in view of the fact that income from capital was hardly taxed at all while income from work has been taxed at very high rates, by international standards. With respect to the taxation of income from capital, the tax reform has abolished most of the discriminatory elements that existed until now, and has reduced the taxation differentials that existed between different financial assets. The reform was therefore a positive and essential measure for the capital market in particular, and for the tax system in Israel as a whole.

It is important for the tax structure in the capital market to be based on a simple and uniform structure for all assets. Even if it is closer to the optimal tax structure, a relatively complex tax structure could result in tax considerations affecting investors' decisions regarding the structure of their financial asset portfolio. Under a simple and neutral tax structure by contrast, investors' considerations are limited to considerations relating to return, risk and liquidity alone. Moreover, it is important for the taxation structure to be similar to that practiced in worldwide capital markets, in line with the process of globalization in the Israeli economy.

Due to the previously mentioned factors, certain elements of discrimination between different assets and different investors are still embedded in the tax structure in the capital market following the implementation of the reform. These elements derive partly from the structure of the reform itself, as determined by the committee that was charged with drafting the reform, and partly from the gradual implementation of the reform. In the latter case, the discriminatory elements are only temporary, although their impact is apparent in the capital market. It should be noted that the tax structure prescribed in the reform resulted *inter alia* from operational conditions, in order to make the reform fully effective. The changes necessary in the reform must therefore be made after a pre-defined period has elapsed.

- Different rates of tax were determined for similar financial assets: for example different rates of tax on income from tradable shares and from non-tradable shares, and different rates of tax on income from tradable derivative financial assets and income from non-tradable derivative financial assets.
- Under the reform, tax was imposed on real income from indexed financial assets[17] — indexed to the consumer price index or to the exchange rate — and a different tax was imposed on nominal income from unindexed financial assets. Although this derived from operational considerations that were intended to ease the implementation of the reform with respect to these assets, the resulting situation has created a tax preference towards indexed or unindexed financial assets that depends on different investors'

[17] For this purpose, the reform relates to shares as an indexed asset.

inflation expectations. Accordingly, after a pre-defined period, especially when price stability becomes consolidated in the Israeli economy, it will be of paramount importance to determine a nominal and uniform rate of tax (at a relatively low rate) on income from all financial assets. A change such as this will end tax preferences, equalize the tax structure from income on capital in Israel with that practiced in the developed economies, and help to reduce the indexation mechanisms in the economy.

- A different approach was adopted to the taxation of income from interest – against which interest expenses or other expenses cannot be offset – and to the taxation of capital gains from the increased value of assets, against which capital losses can be offset. This creates a tax preference for bonds that pay interest at a relatively low rate, compared with bonds that pay interest at a higher rate. The solution here would be to tax all income from bonds (the yield-to-maturity) by adopting a uniform approach to the opportunity for offset against capital losses. As is known, the interest income and capital income from a bond are the two components of its yield-to-maturity.
- The tax authorities have yet to determine the manner in which tax will be charged on the *disaggio* with respect to bonds that are issued at different prices, such as government bonds and Treasury bills that are issued at graded tenders and/or at a number of tenders. This leads to uncertainty in the markets regarding the taxation of these assets, in addition to the general uncertainty prevailing in the markets and in the economy as a whole. Moreover, a tax discrimination still exists between these assets and corporate bonds that are mostly issued at a uniform price. This is because tax was imposed on the *disaggio* even before the reform, but was not charged with respect to Treasury bills and government bonds, in the absence of a practical solution for doing this. The *disaggio* constitutes the main income from Treasury bills (which are zero-coupon bonds), and in certain cases part of the income from bonds.
- Different tax statuses were created between similar financial investors. In addition to the different tax status that existed before the reform between individuals, firms and the provident funds (which remain exempt from tax), new tax statuses were created with respect to the mutual funds. The latter were split into three types from the aspect of tax status: 'liable' funds, 'exempt' funds and 'mixed' funds. This division may create different forms of mutual fund specialization that are based not on their managers' investment criteria, but on the tax status. It should be noted that the funds will not be permitted to change their tax status during their lifetime. Only the funds defined as 'liable' that in 2003 invest primarily in assets to which the reform does not apply will be given a one-time opportunity to change their tax status at the end of 2003.
- The gradual pace at which the reform is being implemented — for operational reasons — is temporarily creating a tax preference between similar securities markets. For example, the reform with respect to the treasury bill market will only be implemented at the beginning of 2004,[18] while the provisions of the reform that applied to other financial assets[19] already went into effect at the beginning of 2003. In the first half of

[18] Treasury bill series issued in 2003 that will be redeemed in 2004 will be taxable with respect to the period commencing on January 1, 2004.
[19] Financial assets that were issued from May 2000.

2003 at least, tax will be imposed on turnover in the equity market and the market for derivative assets that are traded on the stock exchange, while income from other financial assets — from interest and capital — were taxed from the very beginning of 2003.

A clear example of the implications of the different tax statuses that were determined for the mutual funds and the postponement of the tax reform's implementation with respect to the treasury bill market is the development of this market at the end of 2002, when the tax statuses of the funds were elucidated. Towards the end of 2002, 'liable' mutual funds specializing in assets to which the reform would not apply in 2003, principally Treasury bills, were marketed on a very large scale. As previously mentioned, funds of this type will have the opportunity of changing their tax status towards the beginning of 2004. This has generated a massive demand for Treasury bills which, with the encouragement of the fund managers' marketing efforts, continued even after yields fell to relatively low levels as a result of this high level of demand. The process was reflected by a decline in the treasury bill yield curve and in its negative slope because in view of the situation, the public displayed a particular preference for longer-term Treasury bills. It should be noted that this tax preference will diminish with respect to Treasury bills issued in 2003. But it can be assumed that tax considerations will continue to affect this market throughout 2003.

f. Reforms required in the capital market

As stated, during 2002 no efforts were made at promoting the reforms that are necessary in the capital and money markets in order *inter alia* to develop non-banking financial intermediation and the capital market as vital measures for encouraging sustained economic growth and for strengthening financial stability. As previously mentioned, due to the relatively low level of development of the Israeli capital market, international financial institutions still define the Israeli economy as an emerging economy, and not as a developed economy.

These are changes that must be promoted:

- Speeding up the securitization of the government debt, by stopping the issue of earmarked bonds to new members of the pension funds, on the basis of the principles determined in the successful reform that was implemented at the beginning of the previous decade with respect to the insurance companies.
- Abolition of the banks' ownership and control of the provident funds and the mutual funds, which inevitably involves a very considerable potential for conflicts of interest.
- Stopping the issue of Gilon floating-interest rate government bonds, whose cost to the government is relatively high, apparently due to the low level of tradability resulting from their complex pricing.
- A speeding up of the privatization process in the economy which apart from the increased efficiency for the private sector inherent in the process, will reduce borrowing costs for the government and firms, and will contribute to the efficiency of the capital market.

Table 1.1
Principal Indicators of Inflation, Monetary Policy, and the Money and Capital Markets, 1997–2002

(percent)

	1997	1998	1999	2000	2001	2002
Inflation						
Inflation target	7–10	7–10	4.0	3–4	2.5–3.5	2–3
Actual inflation[a]	7.0	8.6	1.3	0.0	1.4	6.5
Inflation expectations for a year	9.1	6.3	5.1	2.4	1.9	3.3
Yields						
Nominal interest rate on Bank of Israel tenders[b]	14.7	12.6	13.0	9.8	7.1	7.3
Nominal yield for 5 years[c]		11.2	11.2	8.6	7.1	9.1
Nominal yield for 10 years[c]					7.4	10.9
Real yield to maturity on 5-year bonds[c]	3.9	5.1	5.5	5.8	5.0	4.8
Real yield to maturity on 10-year bonds[c]	4.0	4.9	5.1	5.4	5.0	5.0
Real yield to maturity on 20-year bonds[c]					4.6	5.4
Depreciation						
Against the currency basket[d]	3.7	20.6	–2.5	–6.3	3.7	14.2
Against the dollar[d]	7.9	18.2	0.4	–2.7	4.8	9.8
Against the D mark/euro[e]	–5.9	25.9	–13.3	–13.7	4.2	25.5
Asset prices						
Overall rate of return on shares (nominal)	37.5	3.6	59.4	6.9	–15.4	–8.6
Apartment prices[f]	7.0	7.6	0.7	–8.2	–2.2	4.5
Monetary aggregates (nominal rates of change)[d]						
Narrow monetary base (M1)	13.8	11.7	14.3	7.5	15.4	4.9
Total credit (C3)	19.2	18.6	12.6	10.1	8.5	9.4
The public's financial asset portfolio						
Nominal growth[g]	24.5	13.2	24.9	7.4	7.3	1.3
Weighting of unindexed assets[h]	24.0	25.0	24.9	28.7	31.3	31.3
Weighting of CPI-indexed assets[h]	48.1	46.4	38.8	36.4	35.5	38.2
Weighting of foreign-currency-indexed assets[h]	9.0	10.3	10.0	10.2	11.8	14.8
Weighting of shares[h]	19.0	18.2	26.3	24.8	21.4	15.7
Actual budget deficit (percentage of GDP)						
Domestic deficit, excluding credit	3.0	2.8	2.8	0.5	3.8	4.0
Total deficit, excluding credit	3.3	3.3	2.5	0.7	4.5	4.0
Additional data						
Bal. of payments, current account deficit ($b)[i]	4.0	1.3	2.0	1.1	2.3	2.1
Unemployment rate	7.6	8.6	9.0	8.8	9.3	10.3
GDP growth rate[j]	3.3	3.0	2.6	7.4	–0.9	–1.0

[a] Consumer price index during the year.

[b] Effective rate.

[c] Gross (relative) annual average yield for the terms in question.

[d] December average compared with the same for previous year.

[e] December average compared with the same for the previous year (from 2000, compared with euro).

[f] According to Apartment Prices Survey.

[g] Year-end compared with end of previous year.

[h] Year-end data.

[i] New definition. The difference between the new and the old definition of the balance of payments is that under the old definition, capital transfers (principally immigrants' transfers) were deducted from the remainder of the deficit, while under the new definition these transfers are classified in the capital account and are not deducted from the current deficit.

[j] Year-on-year annual average.

SOURCE: Monetary Department, Bank of Israel.

- Promoting the development of a Repo market, which will encourage the emergence of market-makers as recommended by the committee that was established in this respect.
- A reform of the pension funds that will lead to a new arrangement, whereby new members' money will no longer be invested in earmarked bonds, and will be placed in tradable government assets and private assets, in accordance with stability-oriented investment regulations similar to those that are currently practiced with respect to the funds' other investments. These pension funds will thereby become a major form of long-term saving, contributing greatly to the development of the bond market and of the capital market as a whole. The change will also make it easier to manage the government debt in a more efficient manner. All these factors will reduce the cost of finance for the government and the private sector, and will facilitate the development of the mortgage market. Competition should be permitted in the pension fund industry by allowing every member to select his preferred channel of pension saving, without reference to his place of work.