The interaction between fiscal and monetary policy in Israel

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1. Introduction

For more than a decade there has been a worldwide trend to increase central bank independence and to sharpen the focus of monetary policy as a means of achieving price and financial stability.

Ever since the seminal work of Sargent and Wallace (1981) it has been recognised, however, that granting legal independence to a central bank is not sufficient to keep monetary policy effective on a sustained basis. Recently Woodford (1994, 2001), Canzoneri et al (2002) and others emphasised that for monetary policy to be effective it should not be dominated by fiscal policy. Alternatively, in addition to granting legal independence to the central bank, the fiscal policy regime must be such that it does not allow changes in the price level to become the mechanism through which the condition for government solvency is satisfied. In other words the framework of fiscal policy should result in a monetary dominant regime.

This paper discusses the interaction between fiscal and monetary policy in Israel as it pertains to the issues of fiscal versus monetary dominance. Section 2 describes the main features and some of the problems of the legal and institutional framework in Israel. Section 3 shows how one of the monetary models of the Bank of Israel (BOI) used in the monthly monetary policy deliberations incorporates the influence that fiscal policy may have on the BOI's key interest rate. Section 4 uses Israel's recent experience to show the adverse effects on the price level and financial stability when fears of fiscal dominance grow. It also points out the important role that financial markets play in sending warning signals to the fiscal authorities to avoid fiscal dominance. Section 5 concludes.

2. The legal and institutional framework

The legal and institutional framework in Israel affects the interaction between monetary and fiscal policy in several ways. First, Section 45 of the Bank of Israel Law prohibits the extension of central bank credit to the government. Second, the Budget Deficit Reduction Law of 1992 requires the government's overall budget deficit, as a percentage of GDP, to decline year by year.[1] Third, the Governor of the BOI is by law the economic adviser to the government. He participates in the government's budget deliberations and also expresses his opinion in public. In addition to discussing government expenditure, tax issues and the size and sustainability of the deficit and public debt, the Governor also discusses the composition of government expenditure, as well as a broad range of other economic issues. Fourth, the BOI is by law the fiscal agent of the government, and the Treasury has to consult with the BOI regarding debt management issues.

At first glance, this setup seems sufficient to prevent fiscal dominance and to enable an effective long-term monetary policy. In practice, however, the situation is more problematic. The main problem is that the Deficit Reduction Law has no legal "teeth" and has been breached many times. The deficit targets were often revised upwards and the date by which the deficit was supposed to be eliminated was pushed further and further into the future (Graphs 1 and 2).

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[1] An exception to the above is the possibility of the government issuing bonds to the BOI and using the proceeds to purchase foreign exchange in a situation where the government's foreign exchange expenditure exceeds its foreign exchange revenue. The terms of this loan must be agreed by the Governor of the BOI; so far no such loan has ever been made.

Graph 1

Budget deficit[1]

In percentages to GDP
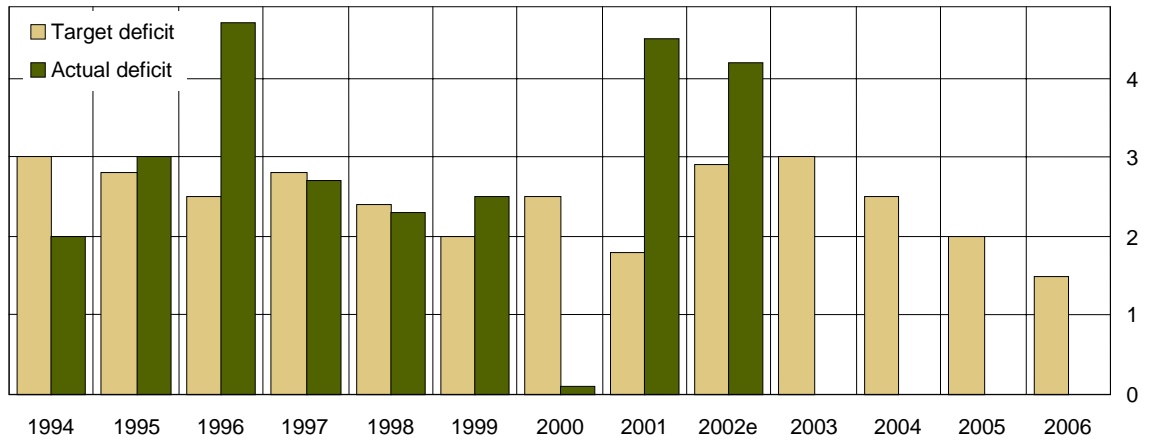
[1] Until 1996, domestic budget deficit ceiling; in and after 1997 overall deficit including Bank of Israel profit, by law; since 2001 overall budget deficit.

Graph 2

Target deficit updates

In percentages of GDP
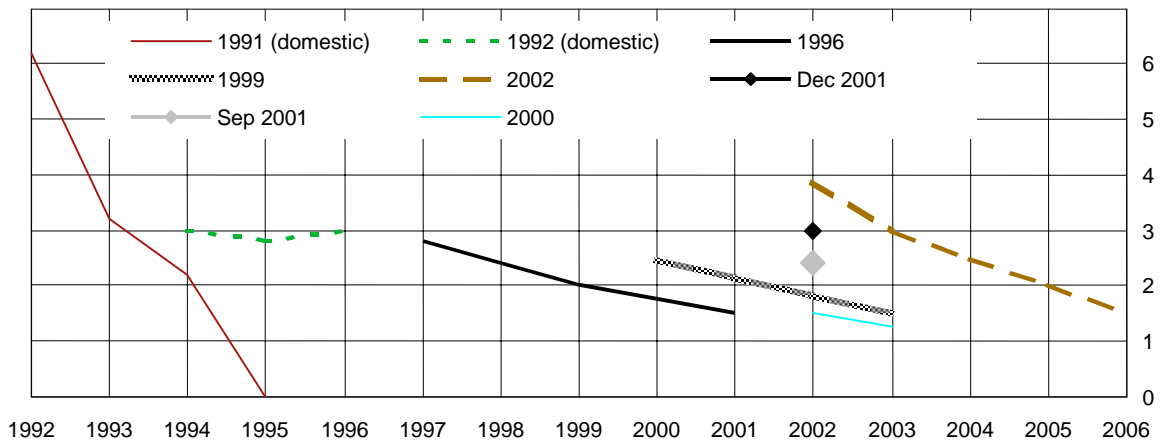
In spite of the many problems in implementing the Deficit Reduction Law, the institutional framework described above did nevertheless serve as a deterrent against abandoning fiscal prudence. Thus, throughout the 1990s there was a steady decline in the debt/GDP ratio, albeit from very high levels by international standards (Graph 3). The average maturity of the government's debt - about 6.8 years - also indicated no immediate danger of approaching fiscal dominance. Against this background, monetary policy within an inflation targeting framework proved effective enough to reduce inflation and inflation expectations from a level of 15-20% per year at the beginning of the 1990s to the current 1-3% a year defined as price stability.

Graph 3

**Gross government debt**

As a percentage of GDP
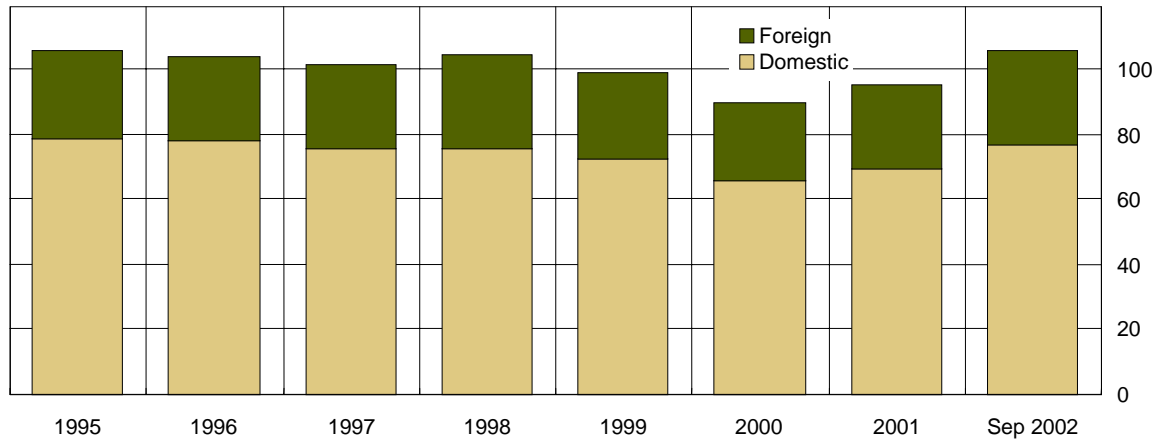
Since the end of 2000, economic conditions in Israel have deteriorated markedly due to the worldwide slowdown in economic activity, tumbling share prices, especially in the United States, and the further deterioration in the security and political situation in Israel. These factors adversely affected GDP growth, which declined from 6% in 2000 to –0.9% in 2001 and in 2002. These negative developments have clearly increased the vulnerability of Israel's financial system.

In spite of the difficult situation the financial system has shown remarkable resilience, evident in:

- a stable foreign exchange market characterised by orderly trade and low volatility (lower line in Graph 4);

- inflation expectations for various horizons (derived from regular and CPI-indexed bonds for various maturities) well within the 1-3% range (Graph 5);

- a low probability of a large depreciation of the shekel, derived from the BOI shekel/dollar options (Graph 6);

- declining short- and long-term interest rates (Graph 7).
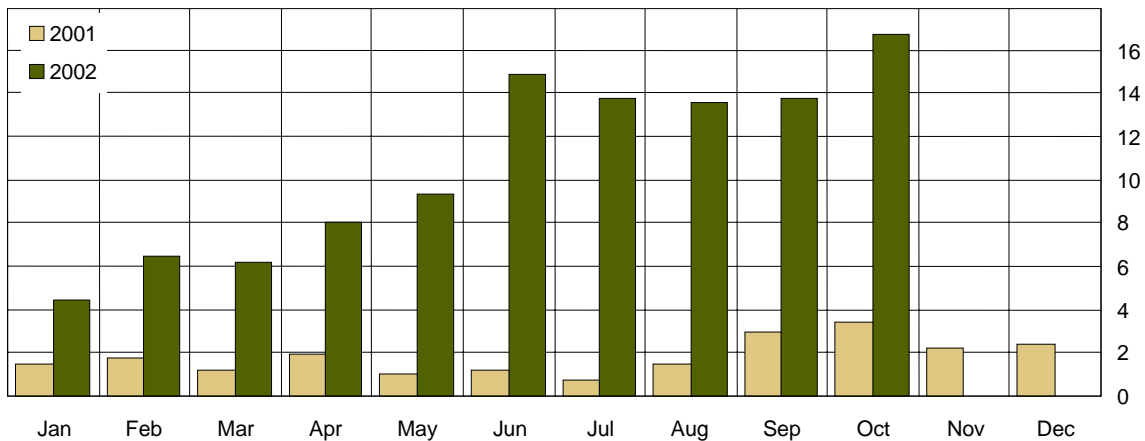
Graph 4

Exchange rate new shekels per US dollar

Monthly averages
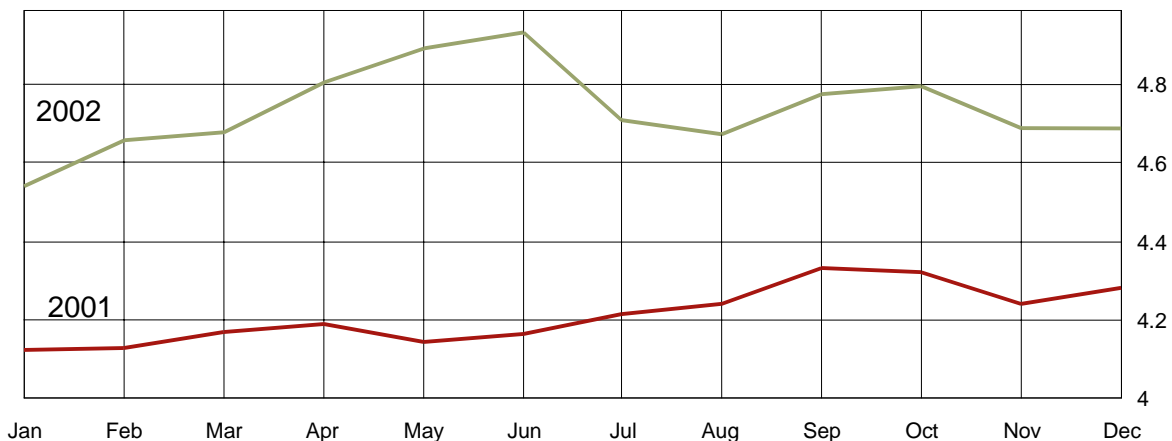
Graph 5
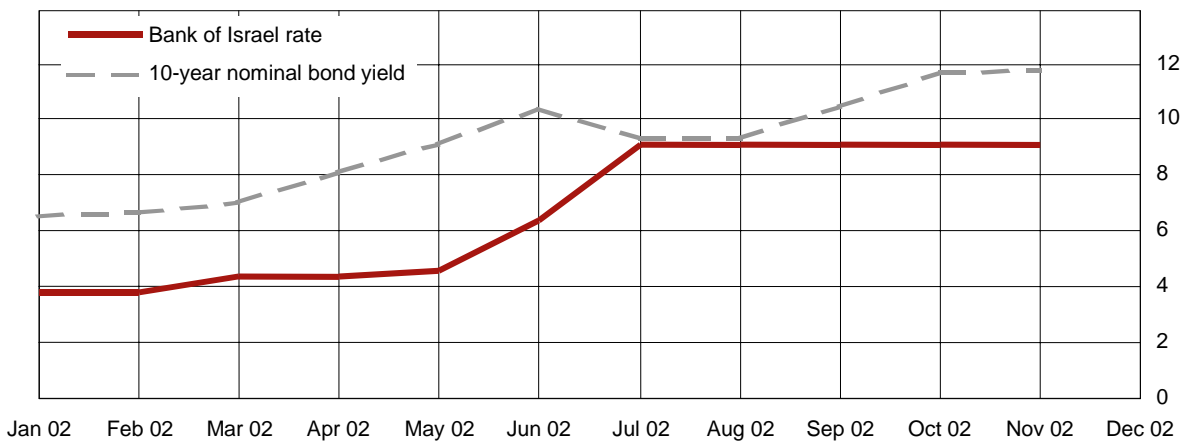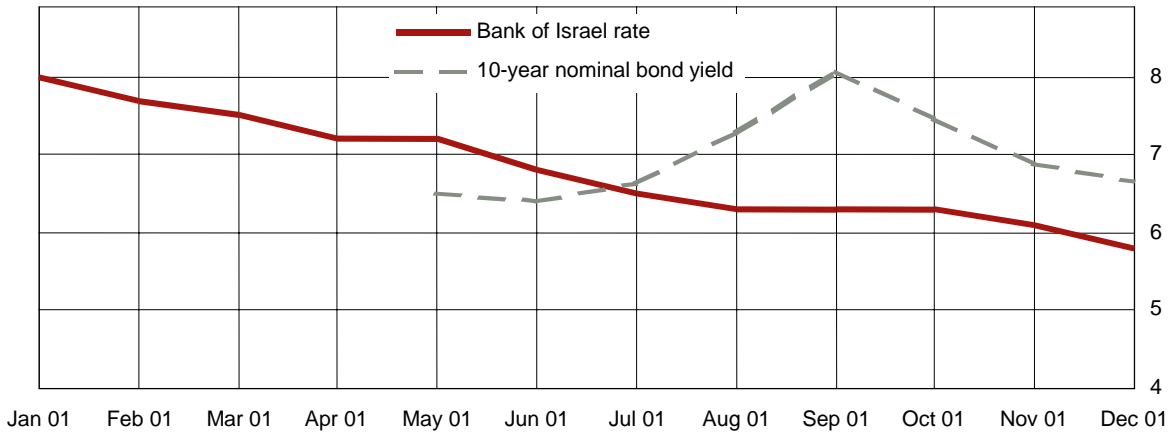
Capital market inflation expectations

In percentages
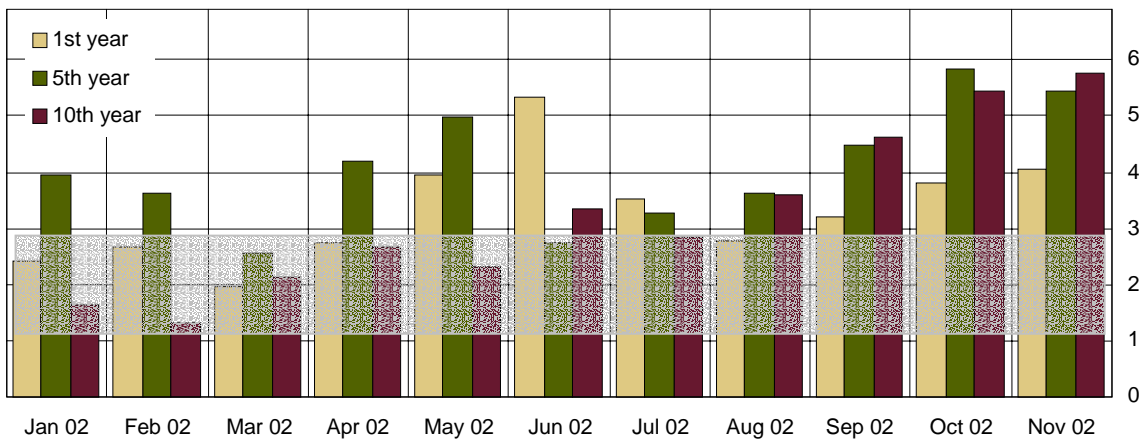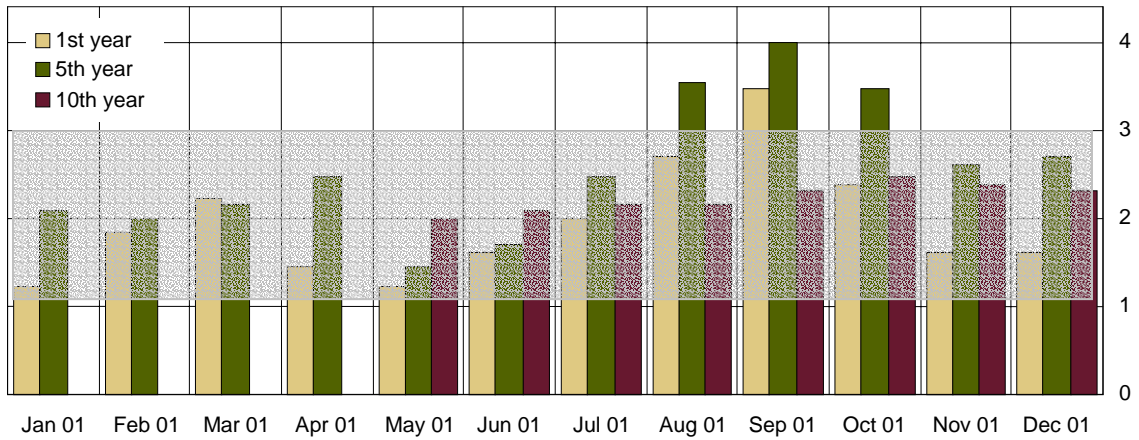
Graph 6

Probability of depreciation[1] **of more than 10% in six months**

Monthly average, in percentages

[1] Shekel/US dollar exchange rate.

Graph 7

Nominal interest rates

In percentages

These impressive results, against a very difficult background, were possible because fiscal and monetary policy were focused on reducing the deficit and government debt and on maintaining price stability respectively, and were so perceived by the public. In other words, the public saw little danger of fiscal policy becoming dominant. Matters changed drastically for the worse towards the end of 2001 and the situation deteriorated even further in 2002 (see Section 4).

3. How fiscal policy enters the monthly monetary policy deliberations

The interaction between fiscal and monetary policy in Israel can be also examined from the perspective of the various models that the BOI uses in its monthly monetary policy deliberations. One of these models (Elkayam (2001)) is a small, forward-looking neo-Keynesian model, à la Clarida et al (1999), with one twist. Instead of the standard output gap in the inflation equation there appears an interest gap (see the Appendix for an outline of the basic equations of the model). This gap is the

difference between the current real rate and a proxy of the natural rate of interest. The current real rate is measured as the difference between the BOI's key rate (lagged) and expected inflation. The proxy for the natural rate is the real yield on 10-year government bonds traded regularly on the Tel Aviv Stock Exchange.[2] As the model is forward-looking, each month it generates a whole path for the BOI's key rate as well as other endogenous variables. The end point of this path, viewed from the present, is the steady state nominal key rate consistent with price stability whose real rate component is equal to the natural rate. That means 2% plus the real yield on 10-year government bonds.[3] The end point (as well as the entire path) is revised each month depending on the changes in the 10-year real yield. One of the factors affecting the changes in this yield is the unexpected change in the financing needs of the government. As this clearly depends very much on the course of the fiscal policy pursued by the government, this approach enables fiscal policy issues to be incorporated into the monthly monetary policy discussions.[4]

4.   The adverse effects of 2002

During 2001 it became apparent that the deficit target would be exceeded to a very significant degree. This was mostly due to a large shortfall of tax receipts resulting from the rapid deterioration in economic activity. At the end of 2001 the macro policy challenge was to restore public confidence in fiscal prudence and at the same time take steps to alleviate the worsening economic conditions. The course chosen was a publicly agreed change of the policy mix by the government and BOI. The agreement aimed at:

(a)   Reassuring the public that the government was determined to take the necessary steps to deal with its deteriorating fiscal position. The concrete step was an announced deficit target of 2.4% for 2002 and 1.0% for 2003 (originally the target was 1.5% for 2002 but it become clear that it would not be met because of shortfalls in taxes resulting from the recession). It was feared at the time that without immediate corrective measures the deficit in 2002 might reach 6 or 7% of GDP.

(b)   A change in the macro policy mix - tighter fiscal policy and looser monetary policy. The idea was to bring down both short- and long-term interest rates to stimulate economic activity without adversely affecting the price level and financial stability.

It soon became apparent, however, that because of political difficulties the government was not able to keep its part of the agreement. The result was a sharp reaction of the financial markets:

•   the exchange rate shot up and became more volatile (upper line in Graph 4);

•   the whole term structure of inflation expectations moved way above the inflation target range of 1-3% (Graph 5);

•   the probability of a large deprecation of the shekel increased markedly (Graph 6);

•   the level of interest rates at all maturities moved, well above the inflation target range (Graph 7).

These conditions led the government to shorten considerably the maturity of its new bond issues to the public. Whereas in 2001 10-year fixed rate nominal bonds comprised 10% of all government bonds

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[2]   The key rate in the model reacts to the difference between expected inflation and the target, as well as to the lagged key rate.

[3]   2% is the midpoint of the inflation target range of 1-3%, which was declared by the government as the standing target for price stability.

[4]   The long-term real yield is only a proxy of the natural rate and may of course be affected by the BOI's key rate. Thus, judgment is added in using the real yield as a proxy for the natural rate.

issued in that year, their issue was virtually stopped in 2002 and the typical maturity of the nominal bonds was five years.[5]

Continuing to shorten the horizon of the government debt, under the circumstances described above, may easily be interpreted by domestic and international investors as moving in the direction of fiscal dominance.

The BOI reacted to these developments with several hikes of its key rate: after two increases in the interest rate, by 1 and 1.5 percentage points, in June 2002 the key rate in early 2003 was 8.9%. In addition the very negative reaction of the financial markets forced the government to pass the 2003 budget with another upward revision of the deficit to 3% of GDP. But even this deficit target met many difficulties in parliament. In fact the budget was a main reason for calling an early election. It was finally approved by a large majority as the Knesset's last act before dissolving itself.

5.   Concluding remarks

In order to maintain price level and financial stability it is necessary to avoid fiscal dominance. The evidence from Israel shows that it is not enough to have an institutional and legal framework which guarantees the central bank's independence. What is required in addition is a framework which guarantees fiscal prudence in the medium term. It is important to ensure that the growth of government debt is contained and that the maturity of the debt does not become shorter so as to leave monetary policy entirely ineffective. The evidence from Israel also suggests that well developed financial markets, as a means of sending messages to policymakers, are important in trying to avoid fiscal dominance. In this regard, the institutional and legal setup and the government bond markets reinforce each other.

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[5]   The government also issues CPI-indexed bonds with terms of up to 20 years and a variable rate nominal bond of up to 10 years. The maturity profile of all bonds issued in 2002 was shorter than that in 2001.

Appendix

(1)   The inflation equation:

$$dp = \beta_0 + \beta_1(de + dpim) + \beta_2 Edp + \beta_3(i - Edp - r) + lags$$

(2)   The exchange rate devaluation equation:

$$de = dp - dpex + \gamma_1(\Delta i - \Delta id) + lags$$

(3)   The monetary policy reaction function:

$$i = \delta_1[r + dpT + \delta_2(Edp - dpT)] + [1 - \delta_1]i_{t-1}$$

(4)   The inflation expectations equation:

$$Edp = E_t(dp(+4) \mid I(t))$$

or

$$Edp = \phi_1 dp + \phi_2 Edp(-1) \,,$$

where:

dp	- the rate of change of the CPI;
de	- the rate of change of the shekel/ US dollar exchange rate;
dpim	- the rate of change of the import price (abroad, in dollar terms);
Edp	- expected inflation for the following four quarters;
i	- the nominal interest rate set by the BOI;
r	- the real yield to maturity on indexed 10-year bonds;
dpT	- the inflation target for the following four quarters;
dpex	- the rate of change of the price of exports (in dollar terms);
id	- the Libid US dollar interest rate;
I(t)	- the information known up to time *t*;
dp(+4)	- expected inflation for the next four quarters.

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