# Approaching a decade of no foreign exchange intervention - lessons from Israel[1]

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## I. Introduction

Since June 1997, the Bank of Israel (BOI), has not intervened in the Israeli foreign exchange market.[3] The non-intervention policy followed a long period of heavy BOI intervention; first as matter of choice and later because it had to defend the lower (appreciating) edge of the official crawling exchange rate band.

The purpose of this paper is to explain the reasons for the non-intervention policy and in particular to discuss how this policy

a) improved the effectiveness of monetary policy;

b) contributed to the enhancement of financial stability;

c) increased the disciplining force of financial markets on policy makers.

The paper is organised as follows: section II provides a brief description of the relevant history and the institutional setup. Section III discusses how the non-intervention policy enhanced the credibility of the inflation targeting framework, thereby increasing the effectiveness of monetary policy. Section IV describes how, as a result of non-intervention, the foreign exchange market has developed and learned to cope with foreign exchange uncertainty, thus increasing the resilience of Israel's financial system. Section V discusses how the non-intervention policy (and the policy of promoting the development of financial markers) led to greater discipline being imposed by financial markets on policy makers. Section VI describes conditions under which foreign exchange intervention might be useful. Section VII offers a conclusion.

## II. History and the institutional setup

Throughout its existence Israel had a long history of foreign exchange intervention, which at different times was carried out for different purposes. From the mid-1980s to about the mid-1990s stabilising the exchange rate by foreign exchange intervention was used first to reduce inflation from a three-digit level and then to keep it within or close to a range of 15-20% a year.

Initially the exchange rate was pegged to the US dollar and then to a basket of currencies. Later a horizontal band was introduced, replaced subsequently by an upward sloping band (which widened through time) to reflect the difference between inflation in Israel and inflation abroad. Then, as a result of the realisation that Israel had no choice but to join the worldwide trend of reducing inflation to its current low level, an inflation targeting framework was introduced in 1992, but its full implications becoming apparent only in 1994.

In that year, the BOI began use the short-term interest rate as its main tool to achieve the inflation target. Foreign exchange intervention nevertheless continued with the aim of keeping the exchange rate at the publicly declared mid-point of the crawling band. The attempt to use the interest rate to

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[1] I am indebted to the participants of 2004 BIS Deputy Governors meetings and in particular to David Archer for useful and thoughtful comments.

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[3] There were a few days in January 1998 when the BOI purchased US$ 492 million to prevent the new shekel from crossing the lower (appreciating) edge of the exchange rate band (ie, to prevent further appreciation of the new shekel).

achieve the inflation target and at the same time use foreign exchange intervention to prevent the exchange rate moving too far away from the mid-point of the band led to a long period of large capital imports which the BOI sterilised at increasing costs and to growing public criticism.

This development led the BOI to declare on 2 February 1996 that it would no longer intervene as long as the exchange rate was within the official band. The change of policy in did not stop the continued appreciation of the domestic currency, the new shekel, and eventually the exchange rate reached the lower (appreciating) edge of the band and remained there for more than six months. The massive foreign exchange purchases during the period February 1996 to June 1997 (more than US$8 billion) were again sterilised by the BOI. The main sterilisation instrument was interest-bearing deposits of commercial banks at the BOI. When these deposits, which grew very fast, became a major source of the commercial banks' profits it was realised that the sterilisation policy was not sustainable. Consequently, on 17 June 1997 the purchases stopped and the BOI has not intervened in the foreign exchange market since (Table 1). On that day, an asymmetric change in the slopes of the band was introduced; 6% for the upper limit and 4% for the lower limit. Two additional decreases in the slope of the lower limit took place; in August 1998 it was reduced to two percent and in December 2001 it was reduced to zero. The width of the band today is 82% and it is growing each year. The position of the BOI is that it should have been eliminated a long time ago, but so far the government has chosen not to do so. The band has not been a problem for monetary policy for some years now, but until it is removed it has the potential to become one again. It should be pointed out that the BOI cannot unilaterally discard the band altogether. The exchange rate band is part of the exchange rate regime, which by law can be changed only with the approval of the government (see more on this issue on page 11).

Table 1

**Changes in exchange rate band's width and foreign exchange intervention**

| | Width of ER band (percent) | Foreign exchange purchases | Distance of ER from lower limit (percent) |
|---|---|---|---|
| 1994–1997 H1 | 13 | $16 billion | 3 |
| 1997 H2–1999 | 37 | $0.4 billion | 8 |
| 2000-2004 | 60 | 0 | 14 |

## III. The effect of non-intervention policy on monetary policy

The non-intervention policy enhanced the effectiveness of monetary policy in several ways. First, it freed an important channel of the monetary transmission mechanism, namely the exchange rate. Thus, as Elkayam (2003) shows, the response of inflation to a 1% shock in the key rate is three times larger in the non-intervention policy period than previously. Second, the end of sterilisation operations in June 1997 contributed over time to a realisation that the danger of fiscal dominance was averted and that the Israeli regime looked more like a monetary-dominant one (Liviatan, 2003). During the heavy sterilisation period, monetary policy was in effect close to the dire consequence of facing a situation described by Sargent and Wallace (1981) as "unpleasant monetary arithmetic". Third, the credibility of the inflation targeting regime increased in the non-intervention policy period as compared to previous periods. Brenner and Sokoler (2001) show that in the non-intervention policy period the response of inflation expectations to changes in the key rate was in the expected direction and quite large, about 0.7% for every percentage point change of the key rate. Prior to that period changes in the key rate did not affect inflation expectations.

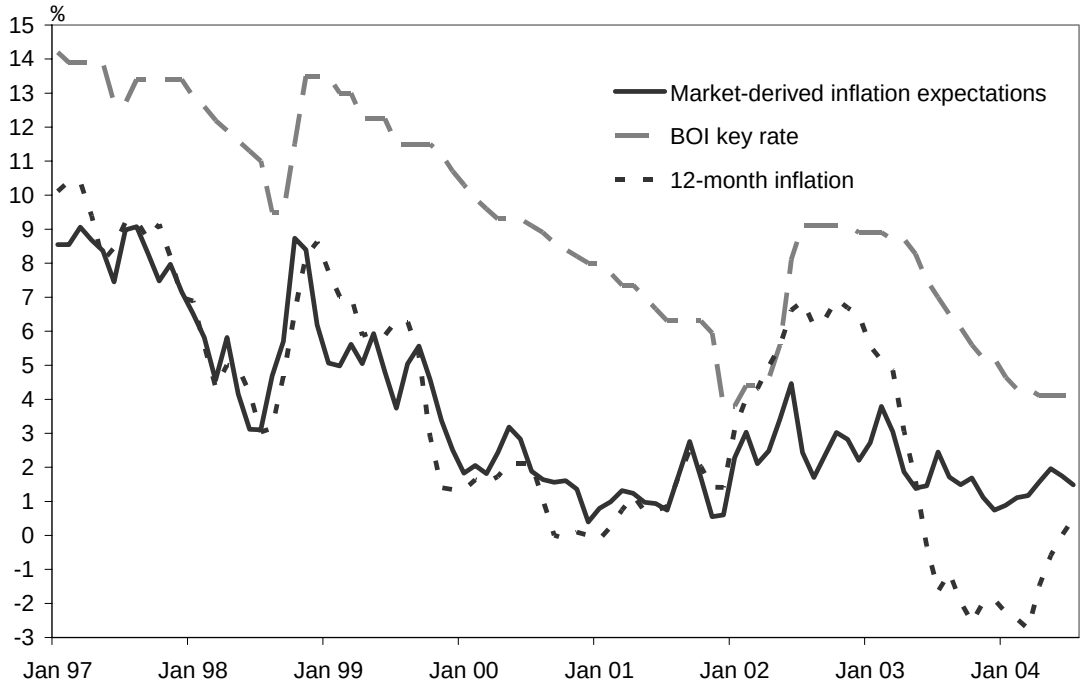
In short, the increased effectiveness of monetary policy, due in large part to the non-intervention policy, shortened the period in which heavy monetary restraint was necessary, first to reduce inflation and later to maintain price stability. This development in turn reduced the political pressure on the BOI

(see Cukierman, 2003), which placed the BOI in a better position to deal effectively with the numerous and various shocks which Israel's economy faces continuously.

It is no accident that the last stage of ending inflation, stabilising inflation expectations around 2% per year, and reducing the BOI key rate to western countries' levels, began shortly after foreign exchange intervention stopped.

Figure 1

**Inflation, inflation expectation and the key rate 1997-2004**




**Coping with foreign exchange risk**

Greater exchange rate flexibility and reduced direct foreign exchange intervention are normally associated with larger exchange rate variability. Some authors, eg, Eichengreen, Hausmann and Panizza (2003) argue that higher exchange rate volatility leads to higher costs of hedging foreign exchange risk, thus discouraging hedging and hence exacerbating the currency mismatch problem. Israel's experience runs contrary to this argument and supports the opposite view as in Goldstein and Turner (2004), Martinez and Werner (2001) and Bleakly and Cowan (2002). The evidence from Israel indicates that the incentive to hedge grows when there is no foreign exchange central bank intervention and the exchange rate is allowed to fluctuate.

The awareness of the Israeli business sector that coping with foreign exchange risk was its responsibility grew especially after the Russian - LTCM crisis of October-November 1998. During these two months the exchange rate depreciated by 11%, exposing the consequences of a large currency mismatch in the business sector. At that time there was heavy pressure on the BOI to sell foreign exchange reserves in order to stabilise the exchange rate and improve the balance sheet of the business sector. The central bank withstood the pressures and did not intervene. Since then, the business sector has understood that it takes a foreign exchange currency position at its own peril. In addition, the Supervisor of Banks required, as a prudential measure, the boards of directors of commercial banks to assess the foreign exchange exposure of their customers in order to avoid foreign exchange risk from turning into bank credit risk. As a result the currency mismatch was largely reversed as shown in Table 2.

Table 2

**Foreign exchange currency position of the business sector**

Private sector FX position – excess of FX liabilities over assets
(End of period, US$ billion)

| | Business sector | Household sector | Banking sector |
|---|---|---|---|
| 1997 | 16.7 | –10.7 | –1.6 |
| 1998 | 12.8 | –13.2 | –2 |
| 1999 | 10.9 | –14.1 | –0.6 |
| 2000 | 3.6 | –14.0 | –1.3 |
| 2001 | 6.7 | –16.7 | –0.4 |
| 2002 | 8.8 | –19.6 | –1.4 |
| 2003 | 6.7 | –22.0 | –1.5 |
| 2004-2 | 0.6 | –22.7 | –0.8 |

An interesting feature of the non-intervention policy period is the stability of the new shekel exchange rate. Since June 1997, the new shekel has been a very stable currency by international comparison. Of particular interest is the fact that the stability of the new shekel stands out even if one compares it to countries such as Australia, Canada, Sweden and the UK. These countries are inflation targeters that intervene from time to time to smooth out fluctuations in the exchange rate. Israel has had the lowest exchange-rate volatility, whether measured by historical volatility or by implied volatility derived from foreign exchange options premiums (Table 3).

Table 3

**Average of annual historical and implied volatilities**
**Various countries during 1997-2004**

| | Australia | Canada | Israel | Sweden | UK |
|---|---|---|---|---|---|
| Average historical volatility[1] | 10.8 | 6.0 | 6.1 | 10.6 | 7.8 |
| Average implied volatility[2] | 11.1 | 8.6 | 6.5 | 11.2 | 8.8 |

[1] Average standard deviation of log price change over 10-day period. [2] Average 1-month implied volatility, Feb 2003 - Aug 2004.

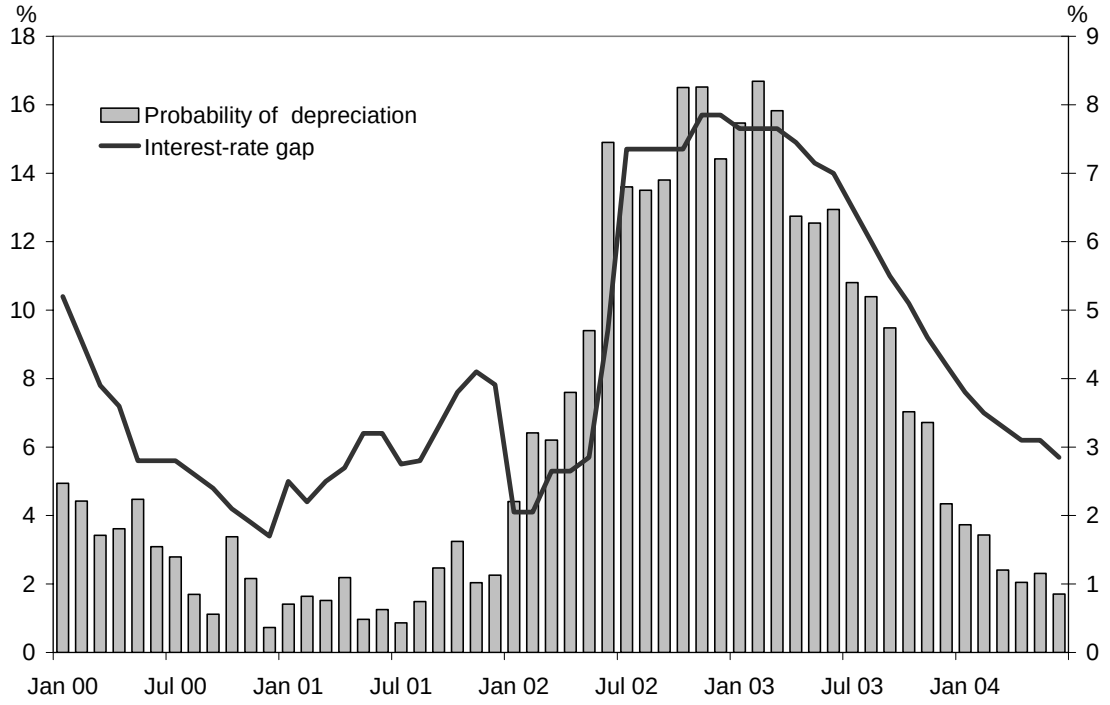
The impressive stability of Israel's exchange rate cannot be attributed to shallowness of the Israeli foreign exchange market, which, while certainly less deep than that of the UK and the other three countries in Table 3, is not a thin market. Since June 1997, daily average turnover grew from a level US$ 0.5 billion to US$ 1.6 billion; other indicators, such the bid-offer spread, also show that the foreign exchange market is maturing. We believe that the stability of the exchange rate is a result of decisions taken by many players (domestic and foreign) with different needs and heterogeneous expectations, who know from experience that they cannot rely on BOI intervention in the foreign exchange market. Under these conditions speculation tends to be a stabilising factor, thus enhancing financial stability. An indication of the stability of the foreign exchange market, which contributes to overall financial stability, is the probability of a large depreciation derived from BOI foreign exchange call options (Figure 2). Recently this probability has remained very low even when the gap between the BOI key rate and the federal funds rate narrowed considerably.

The most recent sharp increase in this probability occurred in the first quarter of 2002, following an unexpected 2% cut of the BOI interest rate as part of a package agreed with the government, which was not honored by all parties. According to the deal, the BOI announced a (very surprising) reduction of two percentage points in its key rate (from 5.8% to 3.8%) and the government pledged publicly to curb its growing deficit. When the deficit kept growing, and against a background of a deteriorating

security situation in April 2002, the probability of a 10% depreciation began to grow rapidly. It started to decline at the beginning of 2003 only after the key rate was raised sharply in several steps, reaching 9.1%, and the government cut transfer payments heavily, which indicated its determination to return to a policy of fiscal prudence. It is interesting, except for the episode just described, to note that throughout most of the period since 1997, the probability of 10% depreciation remained low in spite of many unfavourable shocks which the economy had to endure.

Figure 2

**Probability of depreciation and the gap between the BOI key rate and the federal funds rate**




## IV. non-intervention policy as a policy force

Flexible exchange rates tend to reveal unsound policies more quickly than fixed rates and thus exert discipline on policy makers. This point, which is made by Tornell and Velasco (2000) and others, is particularly relevant for Israel. For historical reasons, going back to the period of three-digit inflation in the 1980s, the price of housing in Israel is still linked to the US dollar (Figure 3). The housing component is more than 20% of the CPI. Thus, people who buy (sell) or rent houses, as well as exporters and importers are quite vulnerable to sharp fluctuations in the dollar exchange rate, and can therefore be viewed as lobby against large fluctuations of the exchange rate.

In particular they dislike those exchange rate fluctuations against which it is difficult or very expensive to insure. Those fluctuations are often the result of unsound macroeconomic policies and as a result have often caused reversals of these policies.

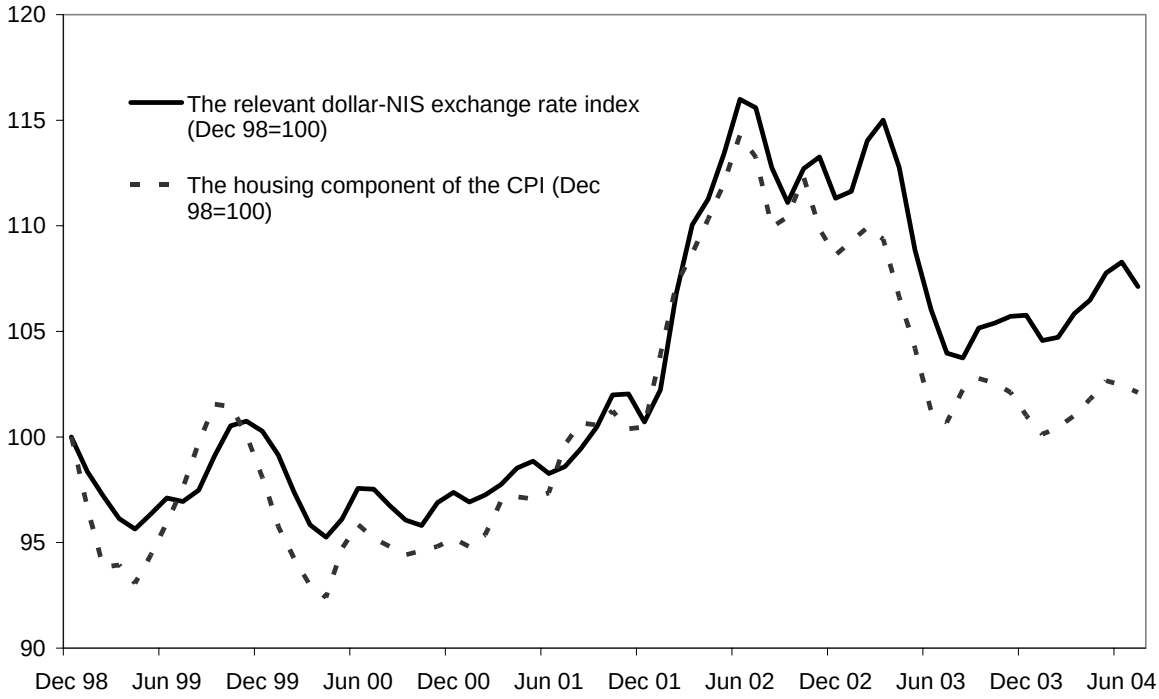
The events of the first half of 2002 serve as an illustration of how rapidly both fiscal and monetary steps can be reversed in response to pressures from the foreign exchange market and the bond market.

At the end of 2001, following a sharp deterioration in economic activity and the government's fiscal position, and in the face of a very bad security situation, the BOI and the government agreed on a package which included a reduction in the key rate from 5.8% to 3.8%; a public promise by the government to make the fiscal adjustments necessary to bring the deficit to the level planned earlier

(3% of GDP) notwithstanding the deep recession in economic activity; removing the last restrictions on capital outflows; reducing to zero the slope of the lower limit of the foreign exchange band; and removing the ceiling on what is in effect a central bank tradable note (makam), thus giving the BOI more operational independence.

Figure 3

**The NIS-dollar exchange rate index and the housing component of the CPI**




All the elements of the package were carried out, except the government's promise to keep the deficit at the targeted level.

The reduction in the key rate took place in December 2001. When it became clear that the government's deficit for 2002 was going to exceed the agreed limit by a large margin, financial markets reacted with a vengeance: the exchange rate depreciated by 17% within six months, foreign exchange volatility rose from 6.4% to 16% (the implied six months volatility derived from foreign exchange options), the yield on the one-year government bond (regular and CPI linked, the latter serving as benchmark for mortgage rates) rose from 6.5% to 11.7% and from 3.8% to 5.8%, respectively, within five months.

These market reactions had strong effects on both monetary and fiscal policies. The BOI increased its key rate from 3.8% to 9.1% within four months. The government announced a credible plan of general expenditure cuts and welfare expenditure reforms. Later, US government guarantees were received, but these were conditional on continued government fiscal prudence. I doubt very much whether the corrective measures would have been taken if the BOI had intervened in the foreign exchange market and not let the exchange rate respond, or if a long-term bond market and its role as a benchmark for mortgages did not exist.

## V. Conditions for foreign exchange intervention

Despite the fact that the BOI has not intervened in the foreign exchange market for a period approaching a decade, such intervention could not and should not be ruled out in the future. There are three main possible reasons for future foreign exchange intervention; monetary policy, malfunctioning of the foreign exchange market, foreign exchange reserve accumulation (decumulation).

Foreign exchange reserves are typically one of several assets on the central bank's balance sheet, and can in principle be used by the central bank to inject (withdraw) liquidity. In the context of an inflation targeting framework, where the main policy instrument is the short-term interest rate, buying (selling) foreign exchange reserves may be used by the central bank as a signaling device. In particular, foreign exchange intervention may signal to the market that the central bank considers movements in the exchange rate to be excessive in relation to what the central bank thinks are the fundamentals. In order for such intervention to be effective, the central bank must have established a high degree of credibility in carrying out its main task, which is maintaining price stability. Since non-sterilised foreign exchange intervention is appropriately viewed as a legitimate monetary operation, any attempt by the government to restrict movements of the exchange rate means that the Central Bank is not in full control of its balance sheet. This in turn means that it is not entirely free with respect to the use of monetary instruments. The BOI has been pressing to change the current BOI law from 1954 which, among other important changes, would discard the band.

Another reason for intervention is to deal with microstructure-type failures resulting in a collapse of liquidity of the foreign exchange market. In a sense, the central bank's foreign exchange operation in this situation plays the role of the provider of liquidity of the last resort to the market. Before intervening for this purpose it is important to determine the reason for such failures. For instance, there might be sudden jumps in the market-making activity of banks in the foreign exchange market.

Another reason for foreign exchange intervention might be the need to add to (deplete) foreign exchange reserves. If this is the reason for intervention, the factors that determine the optimal level of reserves should be made clear to the public. This has been recently done in Israel where the three main reasons for holding reserves were made public and include: a) the need to service the government's foreign debt; b) the option to intervene in the foreign exchange market for monetary policy purposes; c) the need to provide liquidity to banks in extreme situations.

In considering foreign exchange intervention it is important to keep in mind that attempts to work against the market are generally doomed to fail and that intervention should be transparent and not secretive as it used to be in the past. It is important that the strategy of intervention be clear at all times. This does mean that the detail of every intervention be made public in real time.

## VI. Conclusion

This paper has given the reasons why for a period approaching a decade the Bank of Israel did not intervene in the foreign exchange market. It has pointed out that the non-intervention policy enhanced, within an inflation targeting regime, the credibility and effectiveness of monetary policy. This policy also contributed a great deal to the internalisation of foreign exchange risk by the private sector, thus enhancing financial stability. Last but not least, letting the exchange rate be determined by market forces exerted market discipline on policy makers, thus increasing the chances that unsound policies will be reversed quickly.

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