



**Ministry of Finance/ Accountant General  
Government Debt Management Unit**

# Annual Report 2006-2007





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# Section A

## Introduction

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## Section A – Introduction

We are pleased to present the fifth and sixth annual reports of the Government Debt Management Unit in the Accountant General Division. This report refers to the years 2006 and 2007, during which a comprehensive reform in the government bond market was completed and implemented.

2006 was an additional year of continued positive trends in the Israeli economy, in the domestic capital market, and in the government-bond market, despite and in contrast to the severe political and defense-related events that occurred in Israel during the year.

There was no inflation in 2006, further to the trend of the preceding years; the consumer price index decreased by 0.1%. The Bank of Israel interest rate remained unchanged at 4.5%; the shekel appreciated from NIS 4.60 per dollar at the beginning of the year to NIS 4.22 per dollar by the end of the year; and the government ended the year with a far smaller deficit than expected, at about 1% of GDP, despite the unexpected expenses caused by the Second Lebanon War.

The boom continued in the capital market as well, for the fourth consecutive year. The TA-100 stock index rose by 11%; trading volumes grew, both in shares and in bonds; and foreign investors' involvement strengthened, in shares, as foreign investments reached a record level of USD 14.3 billion, as well as in bonds, as described below.

The effect of the three major reforms initiated by the Finance Ministry in previous years became more strongly apparent in 2006:

**Tax reform** – An additional stage of the taxation reform, started in 2003, was implemented. The equalization of taxation of investments in Israel and overseas and a certain increase in taxation rates at the beginning of the year did not cause shocks to the capital market, as some had feared.


**Pension reform** – As a result of the pension reform, in which the issuance of nontradable bonds to pension funds ceased almost entirely, about NIS 1 billion received by pension funds for the redemption of nontradable bonds are injected into the tradable capital market each month.

**Capital-market reform** – The sale of the majority of mutual and provident funds by banks to insurance companies and foreign investors was agreed upon and/or completed, as required by the recommendations of the Bachar Committee, which were published and approved in 2005.

2007 too was a very good year for the Israeli economy, for the local capital market, and for the government-bond market. The year can be roughly divided into two parts:

1. The first half of the year was marked by small amounts of funding (just NIS 5.7 billion issued in the tradable domestic segment during this period), reduction of the Bank of Israel interest rate, a significant decrease of the yield curve, and narrowing of spreads between Israeli and American government bonds.
2. The second half of the year fell under the shadow of the subprime crisis and its ramifications, and was marked by rising yields, increased volatility, widening spreads, rising inflation, an increase of the Bank of Israel interest rate, and growth in issuances in the tradable domestic segment.

Inflation in Israel in 2007, as in many countries, was above the upper limit of the target range (the CPI rose by 3.4%). The Bank of Israel interest rate was lowered by 0.25% during the year, to 4.25%. The shekel appreciated from NIS 4.21 per dollar at the beginning of the year to NIS 3.85 per dollar by the end of the year. The government ended the year with a far smaller deficit than expected (about 0% of GDP), mainly due to the impressive growth in state revenues.



The boom continued for the fifth consecutive year in the capital market as well. The TA-100 stock index rose by 25%; trading volumes grew, both in shares and in bonds; and foreign investors' activity strengthened greatly, in shares as well as in bonds, as described below.

Another notable key theme in 2007 was the meteoric growth of the corporate-bond market, which drew new offerings at a volume of NIS 80 billion. The majority of the issues were performed during the first half of the year, when the low interest rates and the small volume of government funding enabled large (as well as small) companies to compete over investors, as an attractive option, though sometimes with underpriced risk. The expanding spreads in the second half of the year, the global liquidity crisis, the increased rate of government funding, and the increase in yields led to substantial deceleration of funding in the corporate segment.

2006 and 2007 were highly significant years in the area of government debt, as processes begun a decade ago matured and the comprehensive bond-market reform known as the "market-making reform" was put into practice. Within the reform:

- Eight foreign banks, seven local banks, and four TASE-member investment houses (19 in total) were appointed as Primary Dealers.
- A new bond-issuance system was launched, based on the international Bloomberg system, as well as a new trading system based on the international MTS system.
- A government-bond lending facility was established, serving Primary Dealers.
- The consolidation of all government-debt management functions under one roof was completed, with the transfer of responsibility for the issuance and management of government debt from the Bank of Israel to the Ministry of Finance, under the Debt Management Unit in the Accountant General Division. A computerized debt-management system was developed for that purpose, based on the government-wide Merkava system. This organizational change has made it possible to streamline and improve government-debt management and tighten the essential connection between front-office and back-office functions.
- New types of bonds were launched: Government Bond (Unlinked), replacing Shahar bonds, and Government Bond (Linked), replacing Galil bonds.
- New bonds with very long durations were launched: a 20-year unlinked bond and a 30-year linked bond.

Several positive trends were already apparent, in relation to the expectations and objectives set for the reform, in the early months following its application during the last quarter of 2006:


- **Liquidity** – One of the main objectives of the reform was to introduce liquidity into the government-bond market. In fact, as a result of the reform, turnovers increased by hundreds of percent, reaching a daily record level of more than NIS 12 billion on certain days in the first half of 2007. The average daily turnover in 2007 was more than NIS 3 billion, versus the overall daily trading volume of about NIS 1 billion on average in the bond market prior to the reform.
- **Reduced concentration in the primary and secondary markets** – In the first months of the reform, foreign banks' share of activity already reached 36 percent in both the primary market (issues) and the secondary market (trading) – in contrast to the situation before the reform, when a small number of local players concentrated 90 percent of primary-market activity.
- **Involvement of foreign banks and investors in the local bond market, in NIS** – In the first quarter of the reform, foreign investors – including entirely new investors who arrived in the wake of the foreign market makers – invested almost NIS 10 billion

in purchases of government bonds in the local market. Prior to the reform, foreign holdings in government bonds accounted for less than 1% of tradable bonds (less than NIS 2.5 billion), far lower than the prevalent rate in bond markets overseas and than the level in the Israeli equity market.

- **Extension of the yield curve** – The high demand for government bonds subsequent to the reform made it possible to extend the term to maturity of linked bonds by 50% (from 20 to 30 years), and the term to maturity of unlinked bonds by 100% (from 10 to 20 years), without paying a premium different from the customary level paid worldwide to investors for the risk involved in holding longer bonds.
- **Development and improvement of capabilities of local market makers** – As part of the preparations for the reform, Israeli market makers, banks, and brokers have developed dealing rooms in bonds and NIS interest rates, which were almost nonexistent prior to the reform. These preparations included organizational changes, the implementation of new technological systems, and improved risk-management capabilities.
- **Increased competitiveness of issues** – The increased competitiveness of issues, following the entry of large international entities and the system of commitments of Primary Dealers, has led to more competitive prices being set in most offerings on the primary market, in contrast to the situation prior to the reform. This change obviously generates savings for the government.
- **Reduced funding costs** – The increased competition in the primary market and the greater tradability and liquidity in the secondary market, along with the expansion of the investor base, have all led to reduced funding costs for the government.
- **New trading arenas** – In addition to the TASE, which has retained its status as the dominant arena for trading in government bonds, some trading volume has moved to MTS, while some is executed over the counter (OTC). The first half of the year was marked by growing turnovers on MTS; however, trading volumes in this system decreased in the second half.
- **Regulation** – As part of the preparations for the reform, a number of regulatory restrictions were lifted for banks and institutional players, in order to allow them to operate more efficiently in the new environment. In addition, new legislation was enacted to allow mutual funds to trade directly with Primary Dealers starting in January 2008.

**In addition to the reform, other achievements in the area of government debt were attained in 2006 and 2007:**

- **A sharp decrease in the ratio of government debt to GDP** – This ratio, which is the most important indicator of the state's burden of government debt, decreased by 9% in 2006, reaching 85% by the end of the year. An additional 6% decrease in 2007 brought the government debt to GDP ratio to 79%.
- **Reduction of nominal debt** – In 2006, for the first time since 2000, government debt decreased in absolute terms (from NIS 553 billion to NIS 538 billion), rather than just relative to the GDP. This resulted from negative net funding – i.e., a surplus of redemptions over funding – of NIS 7.1 billion (1.1% of GDP) in 2006. This trend continued in 2007 as well, with the debt falling to NIS 524 billion, following negative net funding of NIS 11 billion, mainly due to an increase in state tax revenues and high proceeds of privatization, as well as the continued weakening of the dollar against the shekel.
- **Increase in tradable debt and decrease in nontradable debt** – The tradable component of domestic debt grew to 64% of domestic debt in 2006, while the nontradable component narrowed to 36% of domestic debt. An additional improvement occurred in 2007, as the tradable component reached 65% of domestic debt and the nontradable component decreased to 35%.

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- **Substantial increase in activity and holdings of pension funds in the tradable market** – Following the continued implementation of the pension-fund reform, these funds increased their holdings of tradable government bonds to 9% of the tradable market, compared with less than 1% prior to the implementation of the reform.
  - **Renewed issuance of short-term unlinked bonds** – Unlinked bonds with a term to maturity of two years were issued for the first time in several years in 2006. This trend strengthened in 2007, with the issuance of short-term government bonds with a term to maturity of a few months.
  - **Redemption of large series** – In 2006 and 2007, unlinked series with volumes of NIS 10-20 billion each matured without causing exceptional shocks or surplus supplies.
  - **Continued multi-year trend of decreasing number and growing volume of tradable bonds** – At the end of 2006, 52 bonds with an average volume of NIS 4.5 billion per series were traded; at the end of 2007, 46 bonds were traded, with an average volume of NIS 5.5 billion per series.
  - **Financial Assets Law** – A new law was enacted regularizing trade in repo contracts, swaps, derivatives, and additional financial instruments with a future component. The law regularizes the legal infrastructure allowing financial institutions in Israel to use prevalent international agreements, such as ISDA and ISMA agreements.
  - **Launch of new tools and instruments** – As part of the efforts to improve the efficiency of the government's cash-flow management and increase the effectiveness of debt-management policy, the Unit has started to operate swap auctions and issue short-term government bonds:
    1. Swap auctions – Starting in August 2007, swap auctions of substantial volume have been held each month (except in December). The swap auctions allow smoothing of the government's financing needs, streamlining of cash-flow management, and the exchange of nontradable series for new series ("on the run"). The use of swap auctions is expected to continue in the coming years as well, as a complement to issuance. In 2008, the Unit plans to begin operating reverse auctions in which the government buys government bonds for cash.
    2. Issuance of short-term bonds – Short-term bonds were issued for the first time in 2007, and are mainly used as a cash flow management tool. In cooperation with the Bank of Israel, which issues short-term notes (Makams), it was agreed that short-term government bonds would be issued for periods of 2-4 months. These bonds were issued at a volume of NIS 4.4 billion in 2007.
  - **Development of repo market** – During the year, a collaborative effort of the various regulators, the Tel Aviv Stock Exchange, and the banking system was initiated for the development of the repo market in Israel. This joint endeavor should mature in 2008. The government has signed its first framework agreement (GMRA) with a foreign market maker for repo transactions, and is expected to sign agreements with additional operators during 2008.

#### **Developments in external debt:**

- **Global offering** – In 2006, a global offering with a period of ten years, at a volume of USD 1 billion, was performed at a relatively low spread of 98 basis points (0.98%) over U.S. government bonds and 45 basis points over the LIBOR interest rate. In view of the crisis in the international markets, the euro offering planned for the early second half of 2007 was not performed. This offering will likely be carried out in 2008, provided that market conditions allow the government to issue the bonds with attractive spreads.
- **Innovative offering in Brazilian currency** – In 2006, an innovative private placement was performed at a volume of USD 0.5 billion, denominated in Brazilian real. The offering

was integrated with currency hedge contracts to create an exceptionally low NIS interest rate for the government, below the cost of funding in NIS for the government in Israel.

- **Israel's rating outlook upgraded** – After the three leading international rating agencies released positive reviews of the Israeli economy and raised Israel's rating outlook from Stable to Positive in 2006, the rating agency S&P upgraded Israel's rating to A in late 2007, while maintaining its Positive outlook. The other agencies are expected to reach decisions regarding Israel's credit rating in early 2008<sup>2</sup>.
- **No bonds issued with U.S. government guarantees** – In 2006 and 2007, as in 2005, the government did not need to use the guarantees provided by the U.S. government in 2003. The guarantees were extended until the end of 2011, allowing Israel to raise an additional USD 3.8 billion with full backing of the U.S. government for both principal repayments and interest payments.
- **Execution of swap transactions** – A strategy of diversification of foreign-currency risks in government debt was initiated in 2007. In order to increase diversification, dollar-denominated debt was converted into euro-denominated debt in three swap transactions, at a total amount of USD 750 million.

This report covers all activity performed by the Debt Unit in 2006-2007 and provides a detailed description of the debt position. Section B reviews the government's cash-flow policy, and its issues on the primary market in terms of both quantity and funding costs; this section also contains a review of Israel's credit rating. Section C details developments in the secondary market, turnovers, and yield curves on the TASE. Section D presents details of the existing debt position in various breakdowns, and addresses the various risk indices of the debt. Section E presents a summary of the market-making reform.

Ami Landau



Deputy Accountant General

Adi Shachaf



Head of Government Dept

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1 In early 2008, the rating agency Fitch upgraded Israel's credit rating to A and Moody's to A1.





# **Section B**

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## **Issues on the Primary Market**





# Section B – Issues on the Primary Market

## Cash-Flow Management

In 2007, the government upgraded its cash-flow management using two new tools: a short-term bond, and buybacks of debt through switch auctions.

In the second half of the year, the government issued two series of Short-Term Government Bonds, at a total amount of NIS 4.4 billion. The short-term bonds, at a term to maturity of 2-4 months, enable the Ministry of Finance to achieve greater flexibility in managing the government's cash flow, by bridging relatively brief time periods in which a surplus of usages over resources is anticipated. Whereas until now the government had no choice but to handle such situations through long-term funding, which is relatively expensive, the launch of the new bonds has made it possible to raise capital for short periods, significantly reducing the government's funding costs.

The new bonds are non-interest-bearing and are issued at zero coupon. In general, other characteristics of the bonds are identical to those of the regular Government Bond, with the exception of the maturity date, which in contrast to the regular Government Bond does not necessarily fall on the last day of the month in which the bond is redeemed; and the date of record for entitlement, which falls three days before the maturity date (versus ten days in the Government Bond).

In August, the government began to perform buybacks through switch auctions. In these auctions, the government buys bonds before their maturity date, and concurrently issues new bonds, which are transferred to the sellers of the bonds in return for the bonds sold to the government.

The switch auctions allow smoothing the government's financing needs. The government's financing needs are not equally distributed over the year, but tend to be concentrated in certain months and days. Traditionally, the government deficit is primarily focused in December; the maturity of any bond or other type of loan generally occurs on a single day, and may reach a volume of NIS 15-20 billion or more. Due to cost and risk considerations, the government does not fund such a large scale within short time periods; thus, high, localized financing needs are currently met through increased funding over a prolonged period prior to the required date, in order to accumulate money in advance of the planned expenditure. Buybacks allow series' maturities to be smoothed over a long period, averting the need to accumulate large funds near the original maturity date.

In addition, buybacks allow funding policy to be separated from debt policy – an issuance policy can be applied in a way that serves the various debt-management objectives, such as the issuance of large series for fixed periods (benchmarks), building up unlinked yield curves, and increasing series' tradability and liquidity, without the obligation to carry such series in the debt inventory until their original maturity date.

## Funding in the Tradable Domestic Market

Table B-1 shows that tradable domestic funding totaled NIS 31.2 billion in 2007 (of which, a total of NIS 2.2 billion in surplus allocations), versus funding of NIS 29.9 billion in this segment in 2006. Tradable domestic funding through unlinked bonds totaled NIS 23.7 billion

in 2007 (of which, NIS 22.6 billion were at fixed coupon and NIS 1.1 billion were at floating rates). Funding through fixed-coupon CPI-linked bonds totaled NIS 7.5 billion.

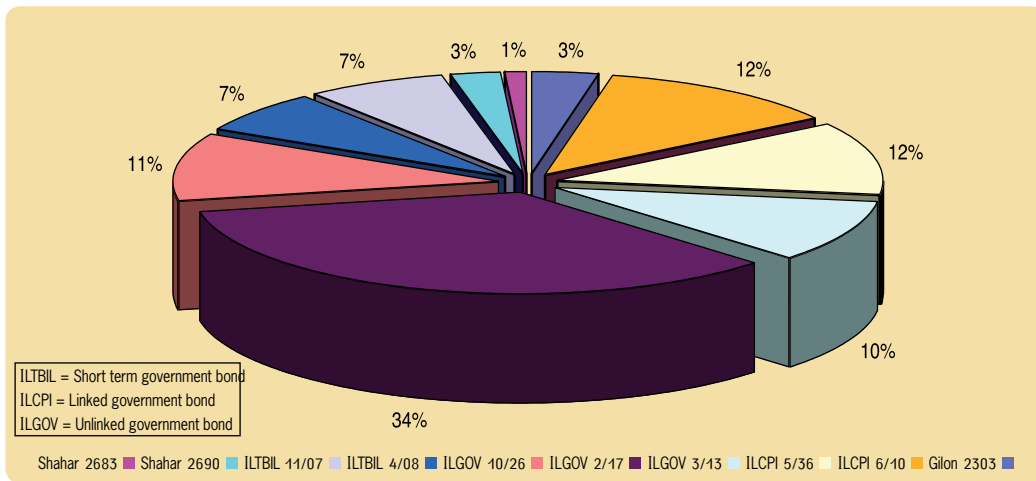
**Table B-1**  
**Principal funding and redemptions in the tradable bond market, 2007**

Linkage segment	Principal funding		Principal redemptions		Interest payments		Net funding In NIS total
	In NIS millions	In % of total	In NIS millions	In % of total	In NIS millions	In % of total	
Shahar	1,083	3.4	15,190	55.0	6,778	49.1	(14,107)
Unlinked Government Bond (ILGOV)	17,167	54.9	-	-	294	2.13	17,167
New Gilon	1,131	3.6	-	-	2,155	15.62	1,131
<b>Total unlinked</b>	<b>19,381</b>	<b>62.0</b>	<b>15,190</b>	<b>55.0</b>	<b>9,227</b>	<b>66.9</b>	<b>4,191</b>
Galil	-	-	10,248	37.0	4,436	32.1	(10,248)
Linked Government Bond (ILCPI)	7,499	24.0	-	37.0	115	0.8	7,499
<b>Total CPI-linked*</b>	<b>7,499</b>	<b>24.0</b>	<b>10,248</b>		<b>4,553</b>	<b>33.0</b>	<b>(2,749)</b>
Gilboa	-	-	-	-	17	0.1	-
<b>Total foreign-currency-linked</b>	<b>-</b>	<b>-</b>	<b>-</b>		<b>17</b>	<b>0.1</b>	<b>-</b>
Short-Term Government Bond (ILTBIL)	4,343	13.9	2,209	8.0			
<b>Total short-term government bonds</b>	<b>4,343</b>	<b>13.9</b>	<b>2,209</b>	<b>8.0</b>			<b>2,134</b>
<b>Total</b>	<b>31,223</b>	<b>100.0</b>	<b>27,647</b>	<b>100.0</b>	<b>13,795</b>	<b>100.0</b>	<b>3,576</b>

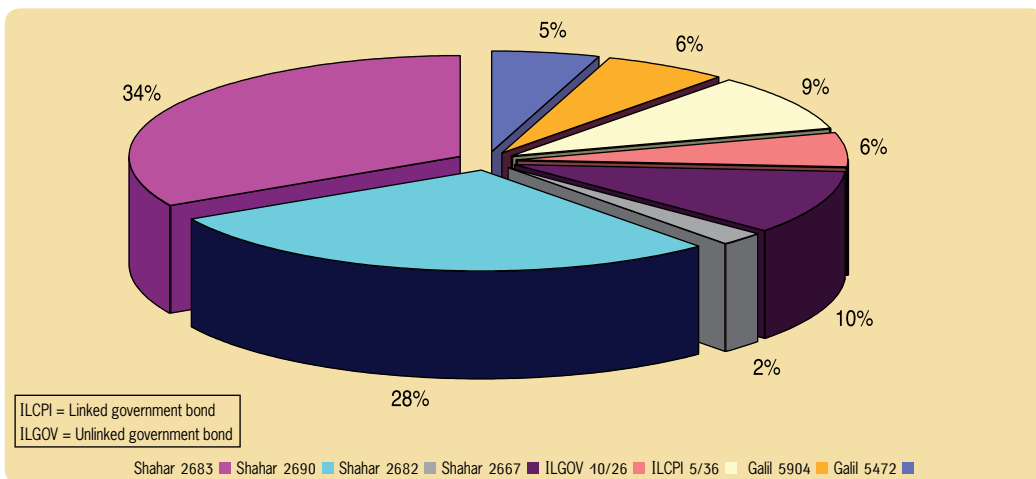
\* The amount of principal redemptions and interest payments in CPI-linked bonds includes the linkage component.

A trend towards a focus on a limited number of bonds can be identified in Diagrams 1 and 2, with an emphasis on greater quantities issued of benchmark bonds (linked and unlinked) at the various terms to maturity. Within this trend, the focus in 2006 was mainly on two bonds: Shahar 2690 and Shahar 2683, which together comprised over 60% of total funding that year. In 2007, about 80% of total funding focused on benchmark bonds; 35% of total funding in 2007 was based on ILGOV 2/17 (an unlinked ten-year bond that replaced Shahar 2683 during the year as the benchmark bond for that term to maturity). Also issued during 2007 were a three-year linked bond (ILCPI 6/10) and a five-year unlinked bond (ILGOV 3/13). In addition, short-term unlinked bonds for a period of four months were issued for the first time, as a bridging tool for short-term cash-flow management. These funding principles are expected to be maintained in 2008, subject to macro-economic conditions and to the various parameters influencing funding mix decisions.

**Diagram B-1**  
**Distribution of funding by bond, 2007\***



**Diagram B-2**  
**Distribution of funding by bond, 2006\***

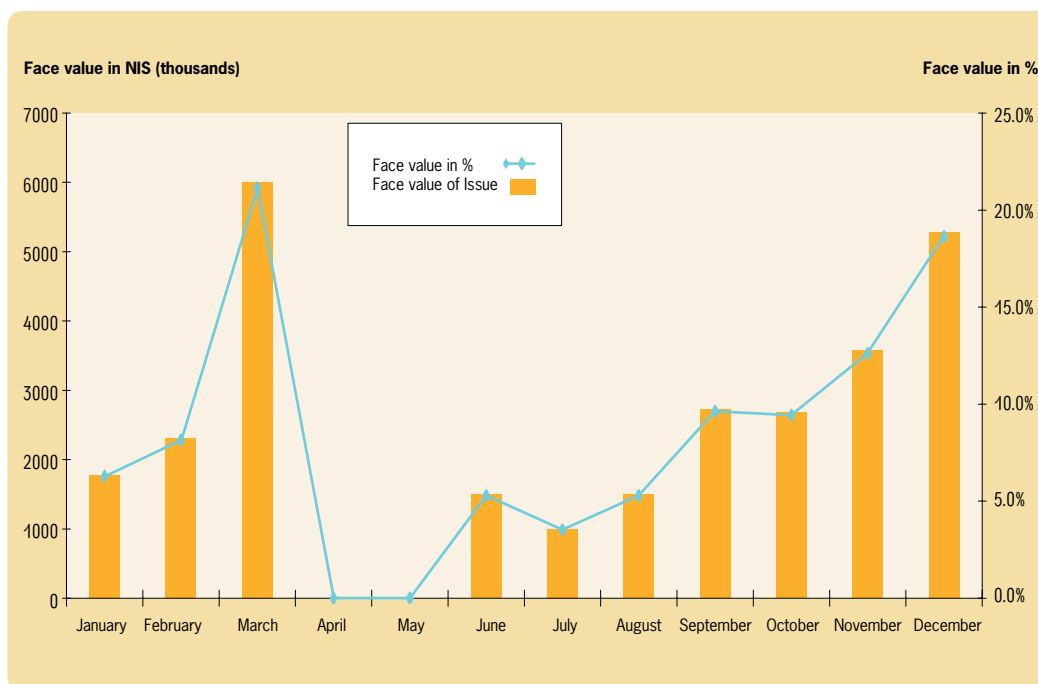


\* Excluding surplus allocations.

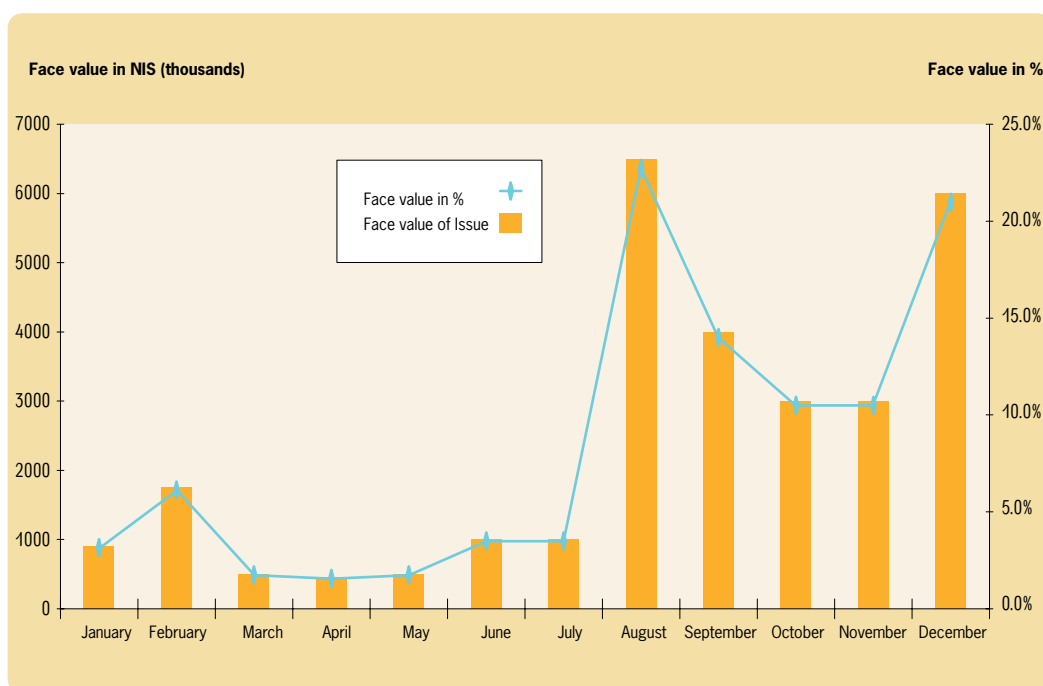
A comparison of Diagram B-3 and Diagram B-4 indicates that 82% of total annual funding was performed in the second half of 2007, whereas in 2006 funding was distributed more evenly over the year. The main reason for the massive funding in the second half of 2007 was the considerable surplus in the state budget in the first half. However, the Unit did carry out low-volume issues in the first months of 2007, for the following reasons:

1. The need to maintain a regular presence as a significant player in the primary market.
2. Providing a reference point and receiving current feedback from the market.
3. Providing minimal liquidity for benchmark bonds and increasing their volume.

**Diagram B-3**  
**Distribution of funding of annual tradable domestic debt, 2006\***



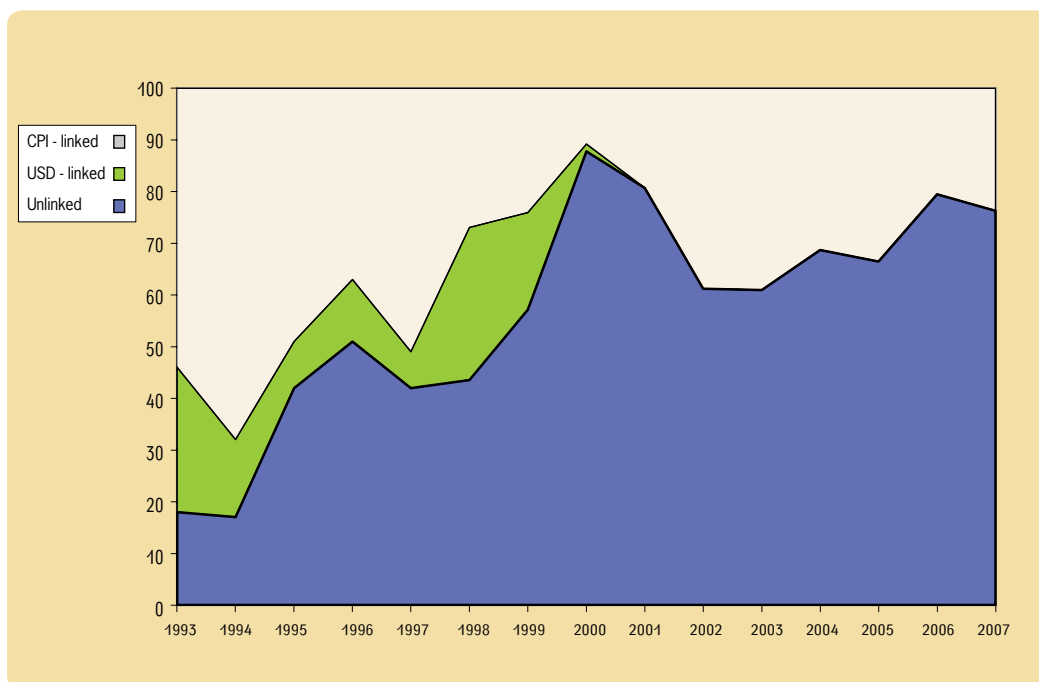
**Diagram B-4**  
**Distribution of funding of annual tradable domestic debt, 2007\***



\* Excluding surplus allocations.

Fixed-coupon unlinked bonds comprised 76% of total tradable funding in 2007, versus 79% in 2006. Despite the slight decrease in issues in the unlinked segment, note that the trend towards reduction of the weight of linked debt did not change.

**Diagram B-5**  
**Distribution of tradable domestic funding by segment, 1993-2007\***



\* Excluding surplus allocations.

## Switch Auctions

The switch-auction mechanism began to operate in the second half of 2007. In switch auctions, the Unit buys bonds about to mature, with an emphasis on bonds with a large issued face value and non-liquid bonds. In return, the Unit issues benchmark bonds to the market. In 2007, the Unit focused on the issuance of four main bonds in switch auctions, with the aim of building up these series, which constitute benchmarks, and reducing the number of series. Switch auctions are conducted using the Bloomberg auction system, a preexisting, readily available system that is familiar to participants.

Table B-2 shows switch-auction data, divided into purchased and issued bonds. A total of NIS 7.3 billion (face value) was issued; a total of NIS 6.2 billion (face value) was purchased by the government.

**Table B-2**  
**Details of switch auctions, 2007**

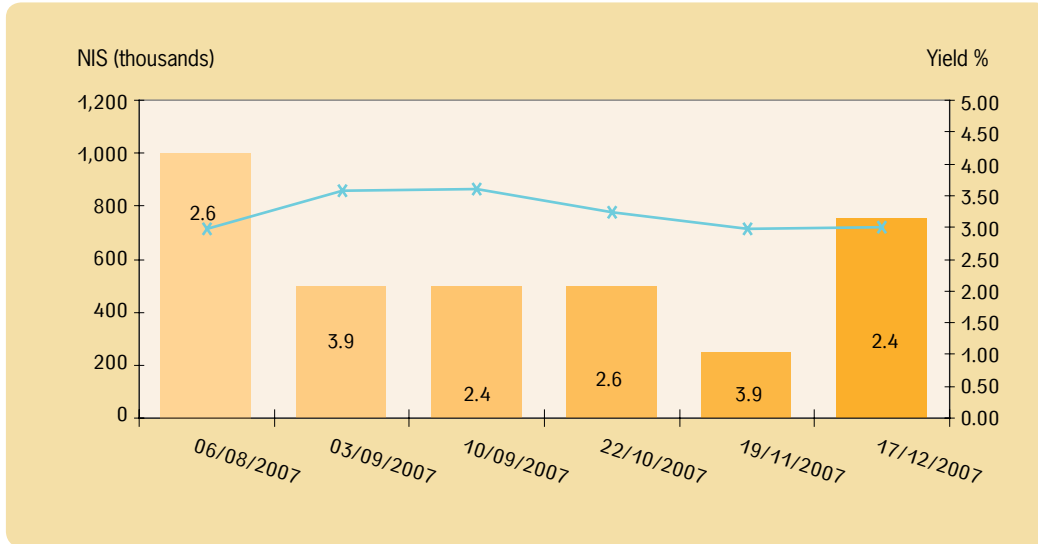
Date	Bond purchased		Bond issued				Total issues
	Name	Quantity	Government Bond 5.5 02/2017	Government Bond 6.25 10/2026	Linked Government Bond 2.5 06/2010	Linked Government Bond 4.0 05/2036	
Aug. 14, 2007	Galil 5501	847,964	263,000	0	681,810	0	944,810
Aug. 21, 2007	Shahar 2690	515,801	150,000	0	157,460	229,600	537,060
Sep. 4, 2007	Galil 5501	3,328,291	1,500,000	197,500	1,977,145	64,080	3,738,725
Sep. 10, 2007	Gilon 2315	0	0	0	0	0	0
Sep. 17, 2007	Shahar 2690	140,434	0	0	0	140,000	140,000
Sep. 24, 2007	Galil 5901	27,863	51,040	0	43,020	0	94,060
Sep. 24, 2007	Galil 5706	1,608	4,240	0	190	0	4,430
Sep. 24, 2007	Galil 5705	7,893	0	0	22,620	0	22,620
Sep. 24, 2007	Galil 5704	27,898	9,500	0	49,030	21,440	79,970
Sep. 24, 2007	Galil 5426	125,418	16,000	0	103,010	78,000	197,010
Sep. 24, 2007	Galil 5425	93,965	10,000	0	71,405	63,700	145,105
Sep. 24, 2007	Galil 5422	58,039	17,000	0	63,370	16,000	96,370
Sep. 24, 2007	Galil 5421	91,737	24,000	0	72,710	53,000	149,710
Sep. 24, 2007	Galil 5419	15,967	0	0	29,990	0	29,990
Sep. 24, 2007	Galil 5418	12,224	0	0	6,550	16,000	22,550
Sep. 24, 2007	Galil 5417	23,476	4,230	0	37,770	3,250	45,250
Sep. 24, 2007	Galil 5416	5,898	0	0	0	11,000	11,000
Sep. 24, 2007	Galil 5415	31,600	0	0	31,250	31,600	62,850
Sep. 24, 2007	Galil 4703	72,163	0	0	98,880	0	98,880
Oct. 29, 2007	Shahar 2690	346,747	230,000	118,260	0	0	348,260
Nov. 5, 2007	Shahar 2690	79,908	50,000	0	0	28,900	78,900
Nov. 5, 2007	Galil 4703	323,248	105,193	35,000	271,540	25,000	436,733
Total swap auctions		6,178,142	2,434,203	350,760	3,717,750	781,570	7,284,283

Diagram B-6 contains a collection of graphs that provide information about quantities issued, yields, and coverage ratios of benchmark and other bonds in each auction carried out during the year. As shown, for several of the bonds issued during the year the quantity of auctions carried out was not significant. This can make it difficult to analyze trends and draw conclusions.

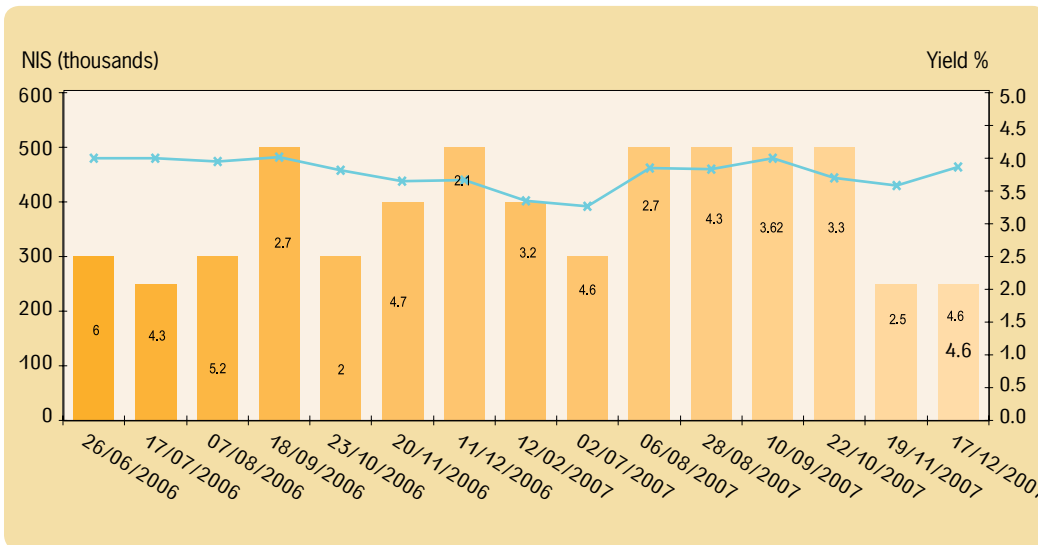
**Diagram B-6**  
**Summary of data on tradable bonds issued, by auction, 2006-2007**

Q.Issue (F.V)   Average yield gross  Cover ratio X.X

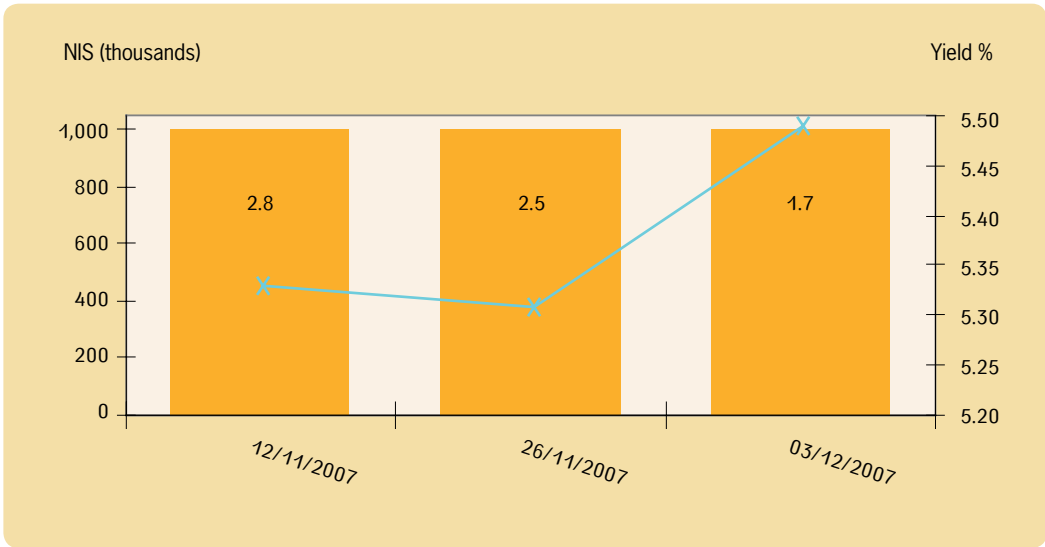
**Linked Government Bond 6/10**



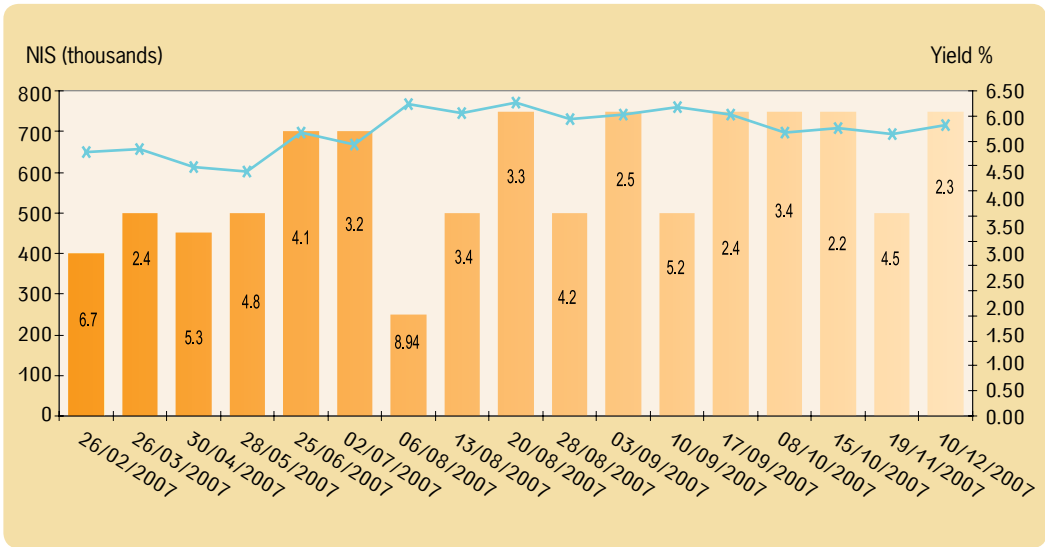
**Linked Government Bond 5/36**



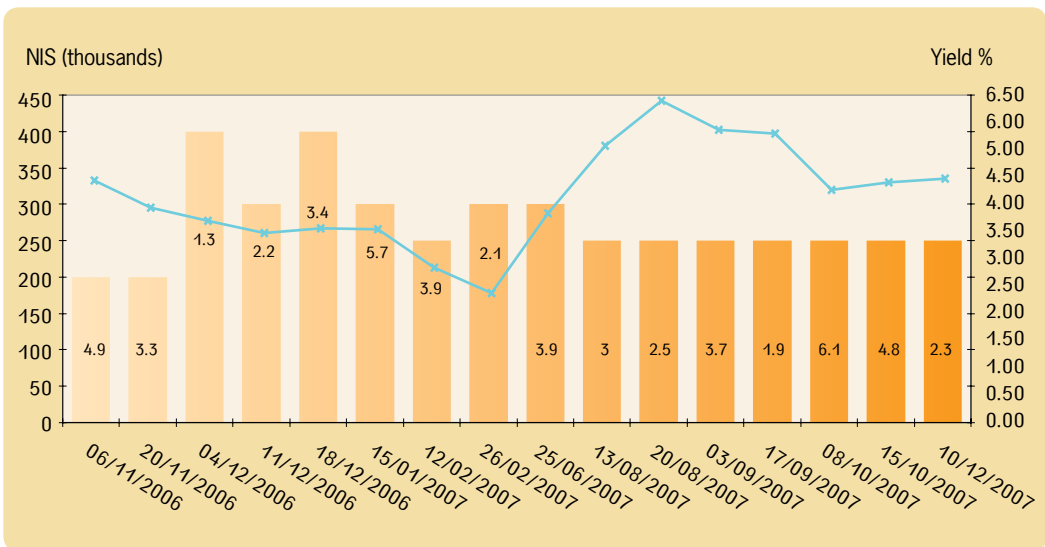
### Unlinked Government Bond 03/13



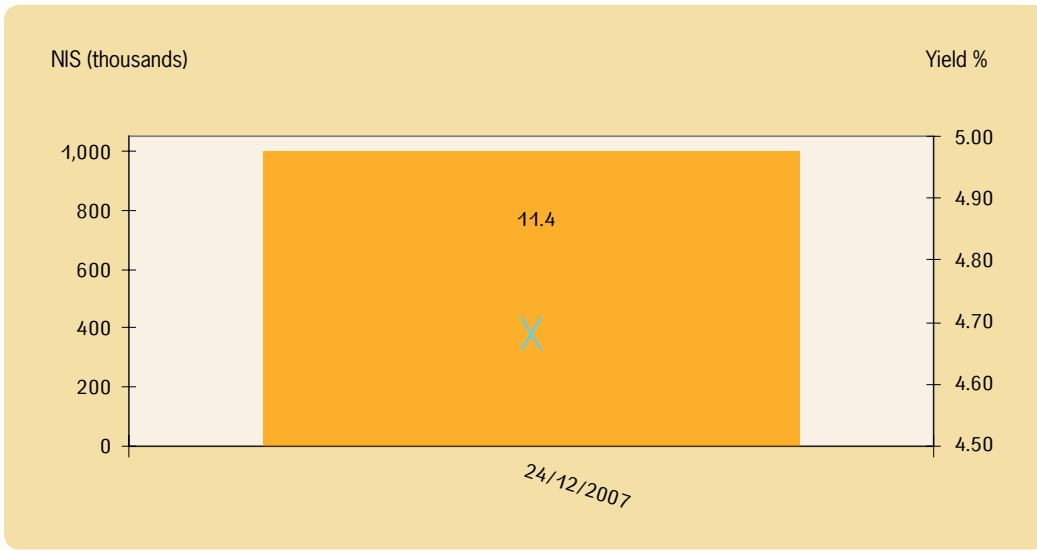
### Unlinked Government Bond 2/17



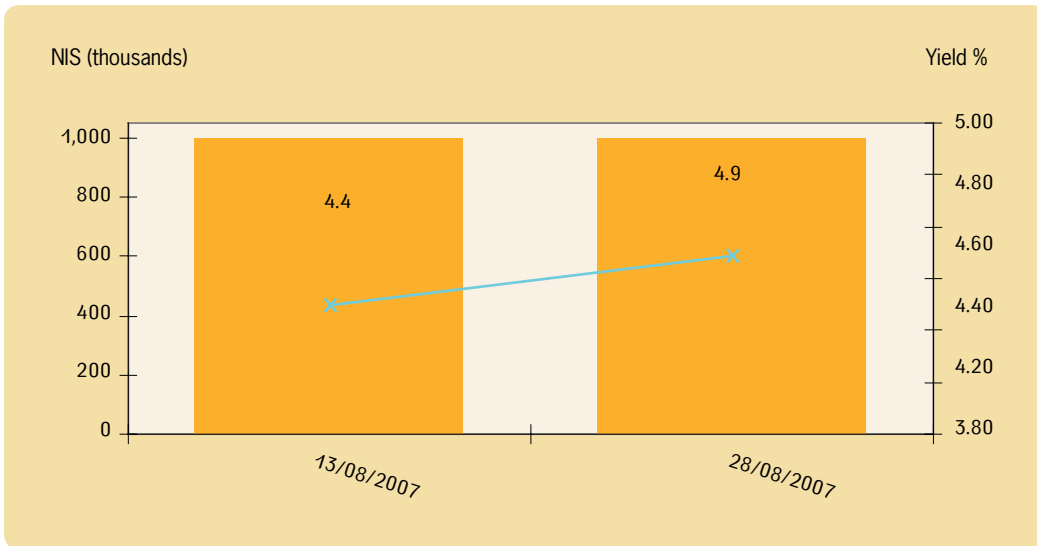
### Unlinked Government Bond 10/26



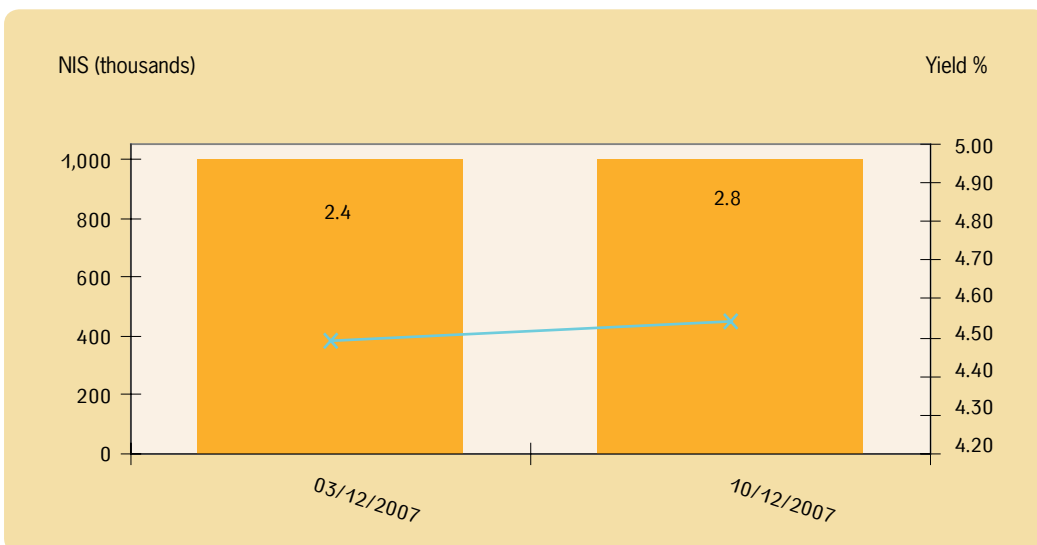
### Gilon 2303



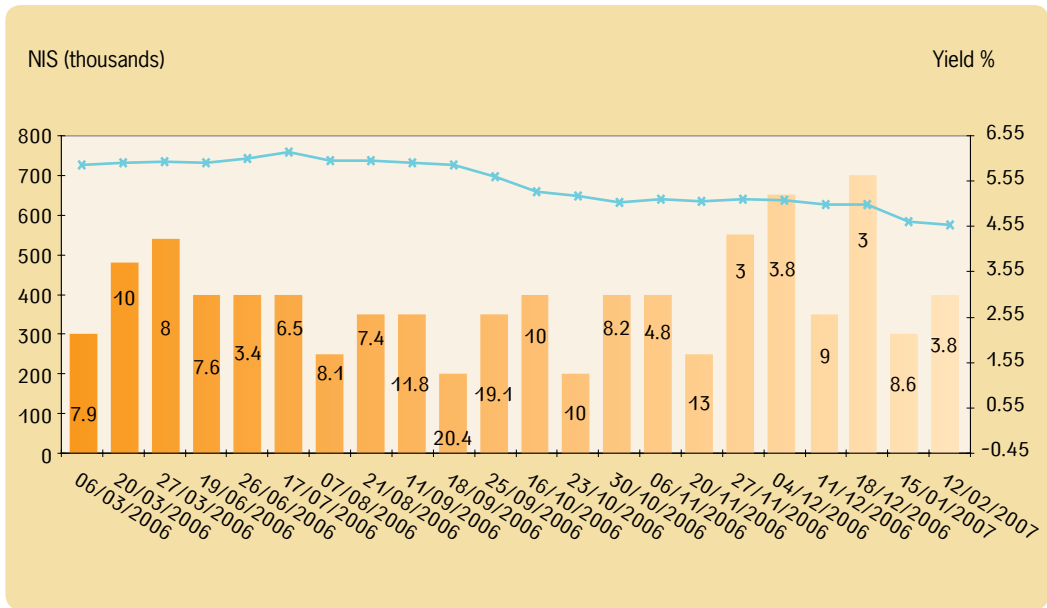
### Short Term Government Bond 11/07



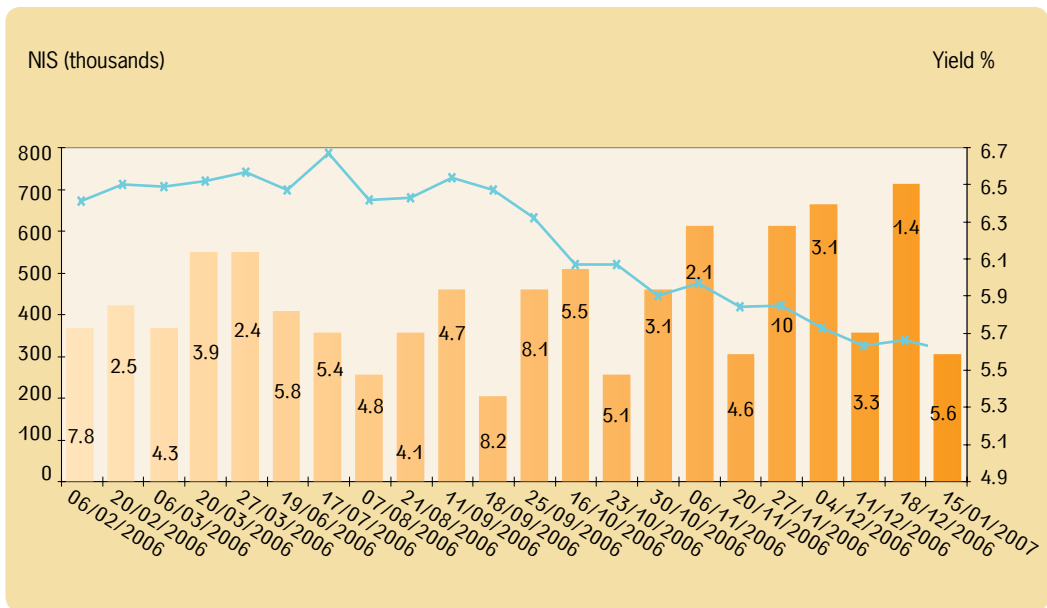
### Short Term Government Bond 04/08



### Shahar 2690



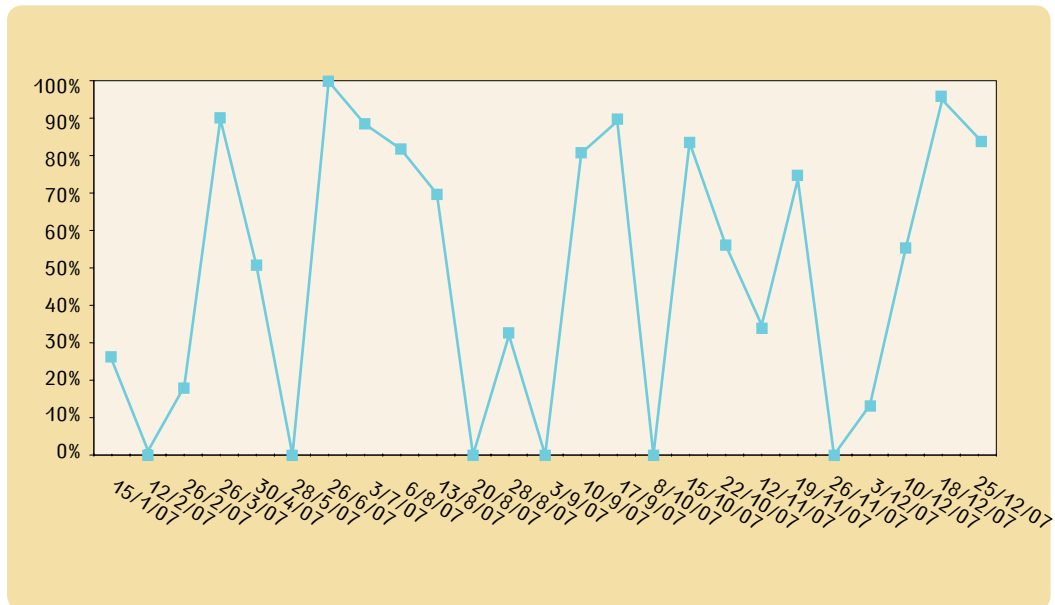
### Shahar 2683



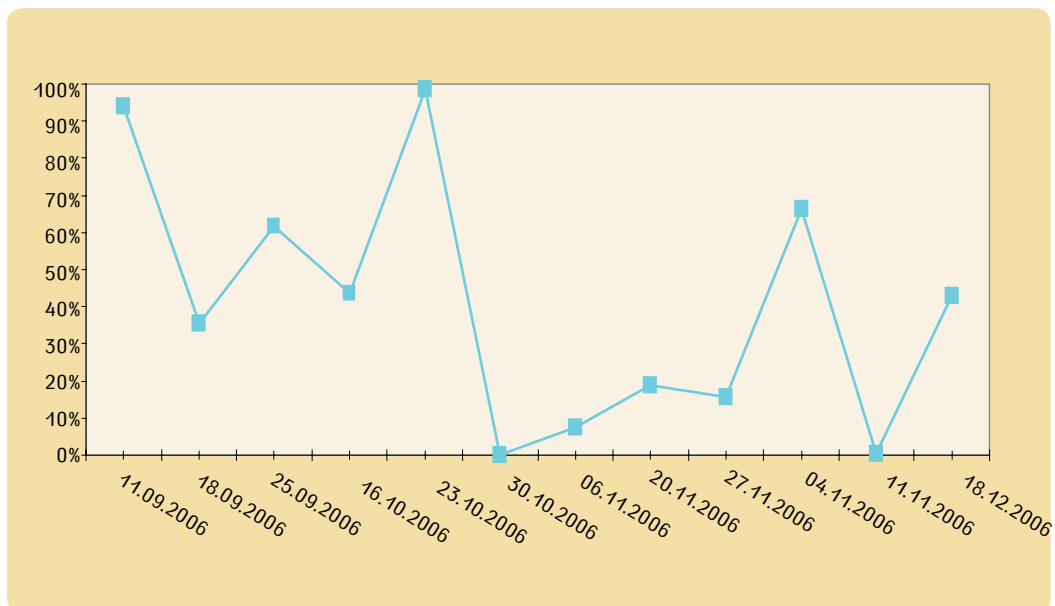
### Green Shoe (over-allotment option)

A Green shoe option allows for a noncompetitive auction in which a Primary Dealer who has won a competitive auction may buy an additional amount of up to 15% of the quantity he has won, at the average price of the competitive auction. The following two diagrams describe the utilization rate of the option granted to market makers to buy additional allocations beyond the auction.

**Diagram B-7**  
**Green Shoe purchases by auction (in %), 2007**



**Diagram B-8**  
**Green Shoe purchases by auction (in %), 2006**



High volatility can be seen in market makers' purchases in green shoe option auctions, especially in 2007: of 25 green shoe options in 2007, the additional quantity was purchased in full only in one auction, while in six other auctions no additional quantities were purchased. The annual average purchase in the green shoe options was 49% in 2007, versus 40% in 2006.

The main reason for purchase/non-purchase in green shoe option auctions is the price of the relevant bonds on the TASE at the date nearest the closing of the green shoe option: if the market price is higher than the average price established in the auction, there is a high probability that market makers will purchase the additional quantity in the green shoe options, and vice versa.

## International Involvement in the Market

One of the key objectives of the capital-market reform was to encourage international banks to become Primary Dealers, with the aim of reducing the high concentration in the economy, increasing competition, lowering funding costs, and increasing liquidity and trading volumes in the government-bond market.

International banks began operating as Primary Dealers in September 2006, at the launch of the reform and the inception of the commitment of the Primary Dealers to purchase government bonds. As shown in the following diagrams, the entry of international banks had a positive effect on the distribution of concentration in the bond market. A steady trend can be identified in Table B-3 in terms of the market share of local and international market makers in the primary market: two thirds and one third, respectively. This distribution indicates significant penetration of international market makers from the beginning of the reform, as well as their continuing confidence in the government-bond market.

**Table B-3**  
**Comparison of distribution of purchases in the primary market:**  
**Local vs. foreign Primary Dealers, 2006-2007\***

	2006	2007
Local	65.6%	65.1%
Foreign	34.4%	34.9%

\* Excluding surplus allocations.

Table B-4 shows the preferences of international versus local buyers in terms of the types of government bonds purchased. A clear preference of international buyers for three bonds is apparent: ILGOV 2/17 and ILGOV 3/13, due to all international buyers' understandable desire to adhere to the most tradable bonds, thereby reducing liquidity risk to a minimum; and ILCPI 5/36.<sup>2</sup>

**Table B-4**  
**Distribution of purchases in the primary market:**  
**Local versus foreign buyers, by bond, 2007\***

Bond	Foreign		Local	
	NIS millions	%	NIS millions	%
Gilon 2303	0	0%	1000	100%
ILCPI 6/10	881	25%	2,597	75%
ILCPI 5/36	2,079	61%	1,323	39%
ILGOV 3/13	1,305	44%	1,648	56%
ILGOV 2/17	4,543	45%	5,543	55%
ILGOV 10/26	674	22%	2,409	78%
ILTBIL 04/08	0	0%	1,967	100%
ILTBIL 11/07	558	28%	1,419	72%
Shahar 2690	519	70%	226	30%
Shahar 2683	0	0%	337	100%

\* Excluding surplus allocations.

<sup>2</sup> There is no way to know for certain which part of the purchases were for internal customers.

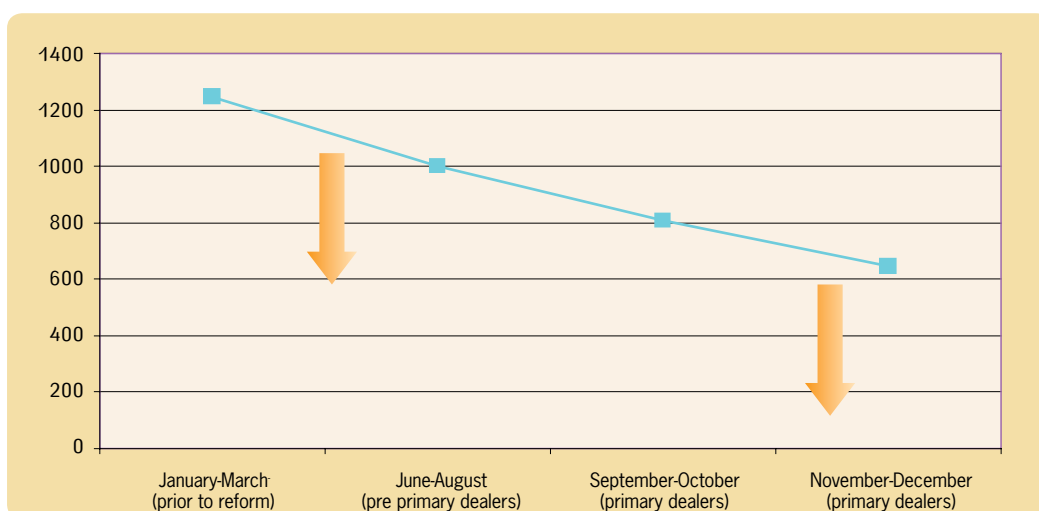
## Bond-Market Concentration

The Herfindahl index measures the degree of concentration in a given market. This index was examined in four periods:

1. 1-3/2006: Prior to the beginning of the reform.
2. 6-8/2006: Start of the reform, without quoting and purchasing commitments.
3. 9-12/2006: Formal launch of the reform and start of purchasing commitment on the Bloomberg system (primary market) and quoting commitment on the MTS system (secondary market).
4. 1-12/2007.

A clear downward trend in the Herfindahl index can be seen in the diagram, indicating decreasing concentration in the market (increasing diversification). This trend is the result of the entry of additional parties. While in January-March 2006 the index reflects the activity of 7-8 major entities, by September-December 2006 the index reflects the activity of 12 entities, i.e. an improvement of about 50% in the diversification of economic activity.

**Diagram B-9**  
**Periodic Herfindahl index, 2006**



The increase in concentration in the first half of 2007 is accounted for by the small number of offerings during this period (approximately one offering per month) and the relatively low quantities issued. As the rate of offerings and the quantities issued grew in the second half of 2007, the index fell rapidly, reaching the level of late 2006.

**Diagram B-10**  
**Periodic Herfindahl index, 2006-2007**

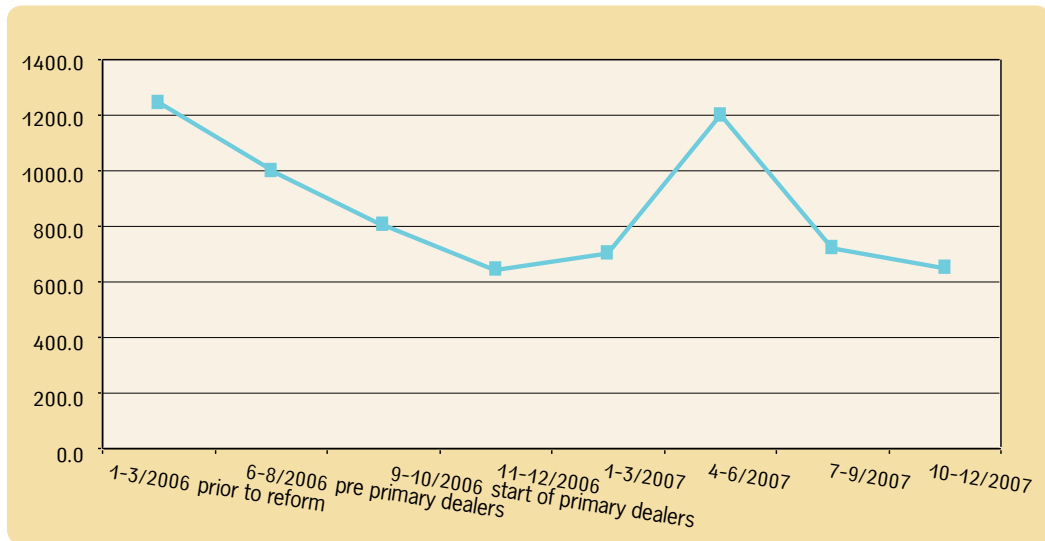


Table B-5 indicates that, in line with the Unit's policy of reducing the number of series issued, approximately 85% of total annual funding focused on benchmark bonds; the ten-year benchmark bond (UGB 2/17, which replaced Shahar 2683) drew 35% of total issuances.

**Table B-5**  
**Distribution of funding on a monthly level by terms to maturity, 2007**  
**(NIS millions, face value)\***

Years to maturity	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1	300	400											700
3								1,116	1,028	565	254	1,983	4,946
5											2,059	1,000	3,059
10	300	415	571	450	535	805	800	2,066	2,171	1,598	575	750	11,036
20	335	554				350		534	541	539		275	3,128
30		402					341	1,102	575	528	250	293	3,491
Total	935	1,771	571	450	535	1,155	1,141	4,818	4,315	3,230	3,138	4,301	26,360

\* Including surplus allocations.

## Funding in the Nontradable Domestic Market

Nontradable domestic funding totaled NIS 4.5 billion in 2007. This funding includes the following components: bonds designated for pension funds (Arad), bonds designated for insurance companies (Chetz), and various loans – emissions with a specified amortization schedule and deposits with no known settlement date.

In 2007, nontradable Arad bonds in the amount of NIS 1 billion were issued to pension funds, and nontradable Miron bonds were not issued at all, following the implementation of the reform in pension funds. In the coming years, only new, relatively small funds with high growth rates will be able to purchase nontradable bonds, as such purchases will be contingent upon the weight of nontradable bonds in the fund's asset portfolio not exceeding 30%. The amount of net funding in 2007 in nontradable bonds for pension funds was negative, at NIS -6.1 billion.

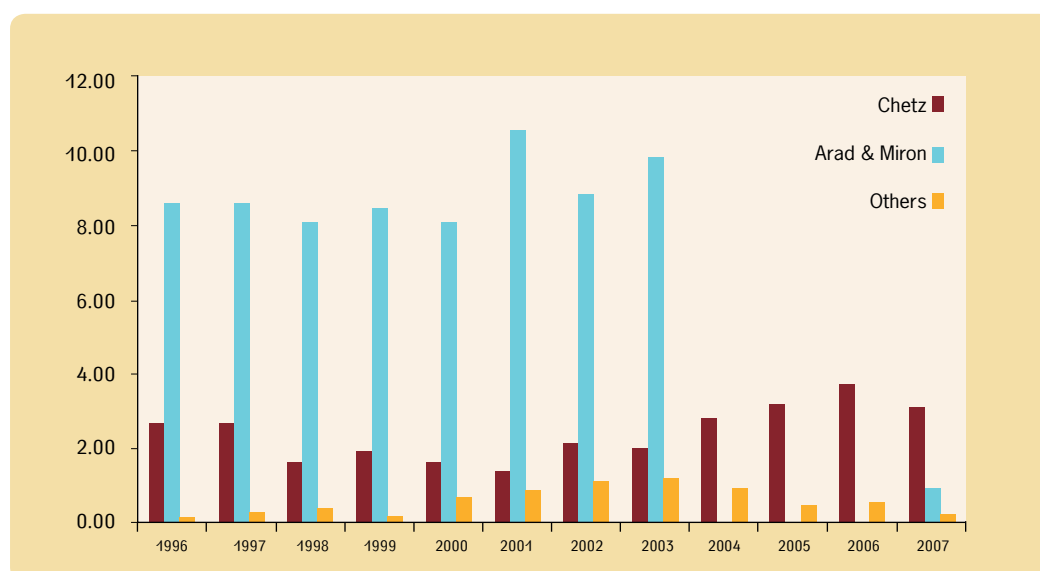
The volume of issues of CPI-linked Chetz bonds to insurance companies decreased by 16% this year, to NIS 3.2 billion. The amount of net funding in nontradable bonds for insurance companies was NIS 283 million in 2007. Funding through emissions administered by the Accountant General Division decreased by 6% this year, to NIS 301 million. Total net funding in this segment was negative in the amount of NIS 308 million.

**Table B-6**  
**Funding and redemptions in nontradable debt, 2007**

Funding segment	Principal funding		Principal redemptions		Net funding NIS millions
	NIS millions	% of total	NIS millions	% of total	
Arad & Miron	1,015	22	7,048	67	(6,033)
Chetz	3,202	71	2,919	27	283
Miscellaneous loans	301	7	609	6	(308)
Total	4,518	100	10,576	100.0	(6,058)

Note: The amount of principal redemptions includes the components of principal and linkage on principal.

**Diagram B-11**  
**Composition of nontradable funding, 1995-2007**



## Funding in Foreign Currency

### Sovereign Public Issues

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Policy established by the Accountant General stipulates that the government will carry out a sovereign public issue at least once every two years in each market (global and euro). The issuance of debt in foreign currency serves several strategic goals, notably the creation of a benchmark for the Israeli economy in international markets, in order to pave the road to funding overseas for the business sector; creation and solidification of an additional funding source to finance the government deficit; expansion of Israel's investor base; and today's foremost goal, building and preserving Israel's ability to supply its foreign-currency needs at minimal cost, independently – without relying on the American guarantee program.

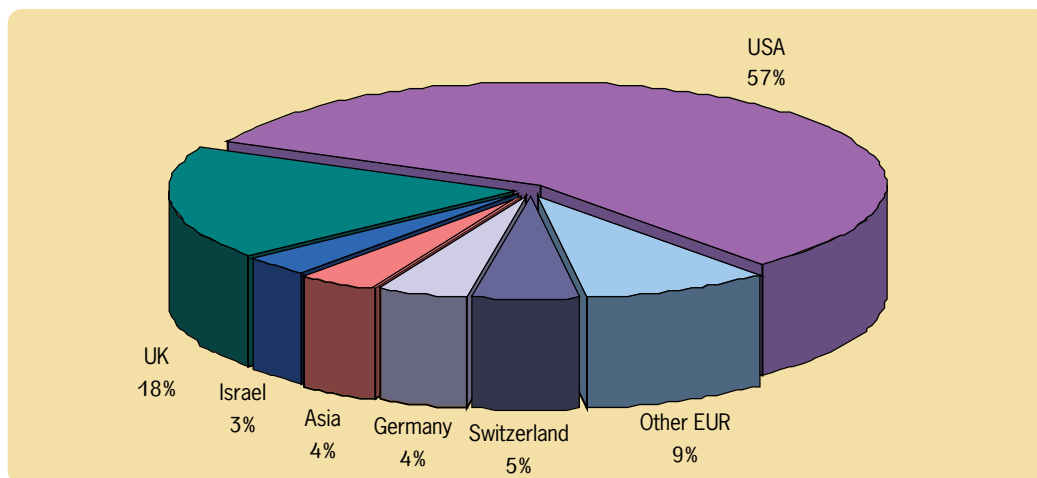
In November 2006, the Israeli government issued ten-year bonds on the global market at a volume of USD 1 billion, at a yield spread of 98 basis points (0.98%) over the corresponding U.S. government bond, which is equivalent to a spread of 45 basis points over the swap curve. This was the largest sovereign offering ever performed by the Israeli government in the international financial markets in general, and in the global market in particular. The issue marked Israel's return to the dollar-based market after an absence of almost three years; the last such issue was performed in February 2004. The spread established was the lowest achieved by the Israeli government for comparable issues in recent years. The offering was led by the investment houses Deutsche Bank and Morgan Stanley, who were granted the mandate for the issue at the beginning of the year.

The timing of the issue was chosen due to the decrease in the U.S. government interest rate, which serves as the reference rate, and due to the stability in spreads of Israeli government bonds traded in the secondary markets, despite the geopolitical events. Additional factors reinforcing the decision to embark on the offering at the chosen timing were indications of brisk demand from investors for bonds of countries in Israel's peer group. On the other hand, the absence of competing supplies from those countries. The offering demonstrated the robustness of the Israeli economy in spite of the security-related events, as well as foreign investors' confidence in the economy.

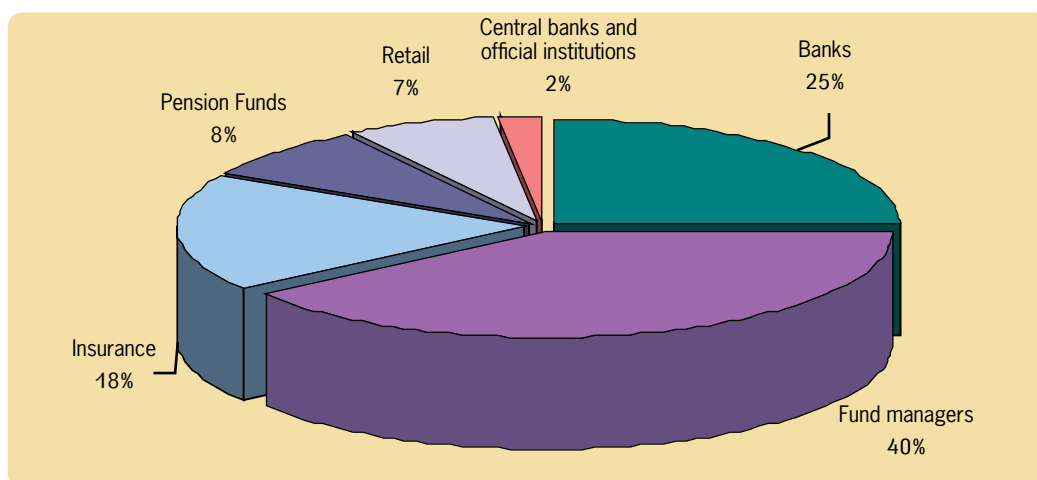
The issue was performed despite the fact that the government's financing needs were significantly lower than expected, due to high privatization revenues and a below-target government deficit. The decision to move ahead with the offering, notwithstanding the available alternatives for funding in the domestic market or within the guarantee program, strengthened the message that Israel's economy is stable, and that Israel issues bonds on the global markets with the aim of establishing its presence in the international financial markets and creating funding opportunities for local companies and banks. The starting point for the pricing of the bond was the level of spreads in the secondary market for recent issues by Israel, as well as Israel's risk price (CDS). The offering was initiated with an expectation of a spread of 105 basis points over U.S. government ten-year treasury bonds. This expectation was based on the underwriters' estimates of investors' demand, taking into consideration the commonly accepted new-issue premium. As noted, the issue actually closed at a spread 7 basis points lower than originally planned.

The bond drew exceptional demand, with the order book reaching USD 1.6 billion within several hours and over USD 5.4 billion by closing. Demand came from some 200 investors in 17 countries, many of whom were new investors not listed in the order books of previous issues. The final allocation of the bond among many investors of different types and among a variety of countries (see graphs below) contributed to improving the bond's tradability and marketing the Israeli economy to a new audience of investors.

**Diagram B-12**  
**Distribution of allocation of dollar-denominated bond issued in 2006 among investors, by geographical breakdown**



**Diagram B-13**  
**Distribution of allocation of dollar-denominated bond issued in 2006 among investors, by type**




Public issues in foreign currency for benchmark purposes were not performed in 2007, due to the high volatility in underlying interest rates and spreads, along with the low liquidity in the international markets.

Lower-than-planned financing needs allowed the majority of financing to be concentrated in the domestic market.

### **Tradable Private Placement**

In December 2006, the Debt Management Unit raised USD 500 million, denominated in Brazilian real, in a private placement for one year, within the EMTN shelf program. The issue also included a swap component, through which the government converted the liability from foreign currency into NIS, so that in total the government raised NIS 2.161 billion for a period of one year. The interest rate for the bond was very low: the issue closed at a yield to maturity in NIS 0.3% lower than the Makam yield for a similar duration, and 0.45% lower than the yield of the fixed-coupon government bond (Shahar) maturing in February 2008.



This private placement contributed to a significant reduction in funding costs and to a decrease of interest payments in the budget, all without increasing the exposure of government debt to exchange-rate risk. The issue demonstrates the financing flexibility obtained by funding through private placements.

### **Public Issues Backed by U.S. Government Guarantees**

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In April 2003, the U.S. Congress approved a grant of guarantees to the Israeli government for the purpose of funding abroad, in the amount of USD 9 billion (face value), for three years. Bonds issued by the Israeli government and backed by U.S. government guarantees enjoy a credit rating similar to that of the U.S. government (AAA); in fact, the bonds are sold at a yield that is only slightly higher than the yield of U.S. government bonds. In 2005, the program was extended until 2008, and in 2006 it was extended until 2011. Within the program, the U.S. government provides a full guarantee for principal and interest payments of bonds issued by Israel through the program. Israel issued bonds with a face value of USD 4.1 billion through the program in 2003-2004. The Israeli government has not used the guarantee program since November 2004. As of the end of 2007, there were USD 3.8 billion remaining to be utilized within the program.

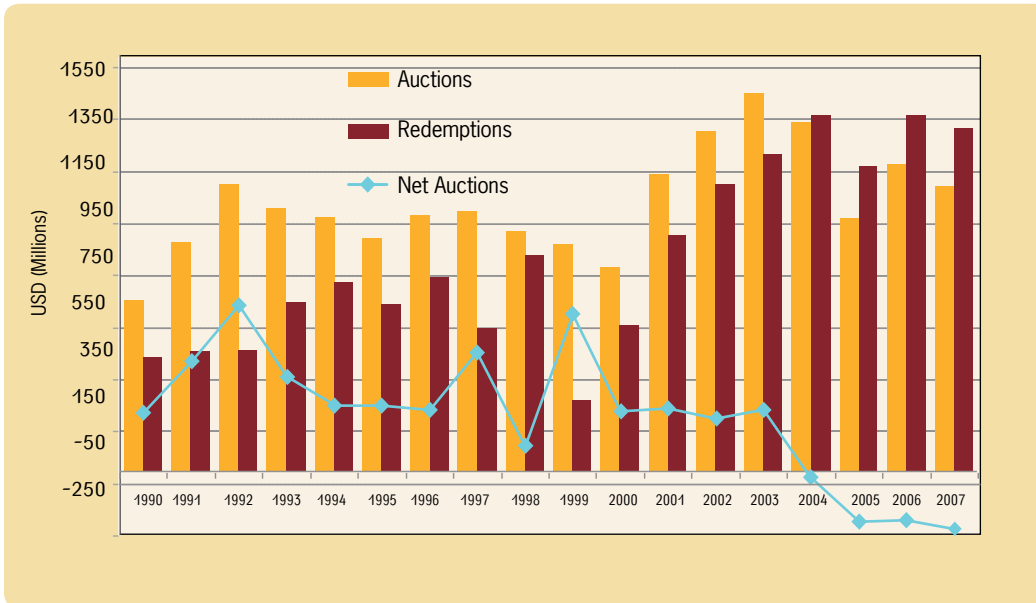
### **Funding by the Israel Bonds Organizations**

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The Israel Bonds Organization raised USD 1,180 million in 2006. This amount was 18% higher than the annual funding target of USD 1 billion, and represents an increase of 20% in the Organization's sales volume compared to 2005, mainly as a result of increased sales in August to October. Total net funding through the Israel Bonds Organization in 2006 stood at a negative USD 190 million, similar to 2005.

In 2007, the Israel Bonds Organization raised USD 1,095 million. This amount was 9.5% higher than the annual funding target of USD 1 billion; however, the Organization's sales volume decreased by 9% compared to 2006, significantly influenced by the Second Lebanon War. In addition, spreads in sales of the bonds to the public narrowed substantially. Total net funding through the Israel Bonds Organization in 2007 stood at a negative USD 224 million, similar to 2006.

**Diagram B-14**  
**Sales and redemption volumes of the Israel Bonds Organization, 1990-2007**  
**Source: Government Debt Unit, Accountant General Division; Bank of Israel**



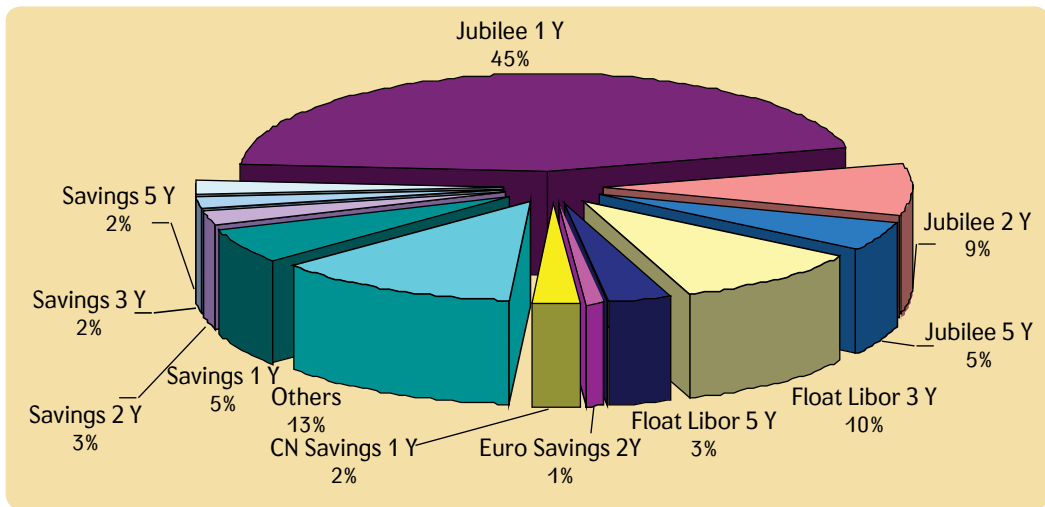
In 2007, the Israel Bonds Organization continued the reform started in 2006 with regard to the bonds it offers for sale. The reform was mainly evident in two areas:

- 1) **Shorter terms to maturity** of the bonds offered, in particular through the sale of new instruments with terms to maturity of up to two years.
- 2) **Increased frequency of interest-rate fixing** in the Organization's funding instruments and an update of pricing methodology, allowing a reduction of the spread at which the bonds are sold.

In 2007, 82% of the Organization's funding was performed using fixed-coupon instruments, while the remaining 18% were at floating rates. This is similar to the distribution of sales in 2006 (84% fixed coupon, 16% floating rate).

**Funding instruments** – Sales of five-year and ten-year Jubilee bonds comprised “only” 15% of total sales in 2007, versus 20% in 2006, 39% in 2005, and 54% in 2004. The more significant sales were in the shorter instruments. For example, one-year Jubilee bonds accounted for 45% of total sales. The reduction in sales of zero-coupon bonds continued in 2007.

**Diagram B-15**  
**Distribution of Israel Bonds Organization sales, by funding instrument, 2007**

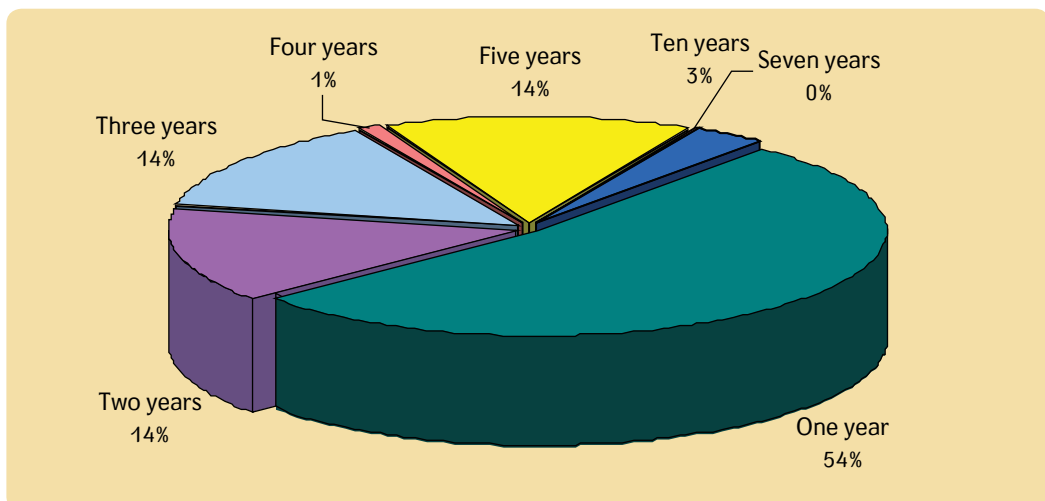


**Currency distribution** – The decisive majority of the Organization’s instruments are still sold in dollars (92%). Despite the relative weakness of the dollar in 2007, the proportion of sales in other currencies did not increase: instruments in Canadian dollars comprised only 5.8% of sales for the year, similar to 2006. Euro-denominated instruments comprised a relatively low 1.6%, although new instruments in this currency were launched in 2006.

**Distribution of instruments by term to maturity** – In 2007, the average term to maturity of bonds sold by the Israel Bonds Organization again decreased significantly, from 4.1 in 2006 to 2.3 in 2007 (versus 7.3 in 2005).

One-year bonds were issued and marketed with great success in 2007. These bonds alone accounted for more than half of all sales (52%). Concurrently, demand was also noted for instruments with terms to maturity of two years, which sold at a strong rate of 14%. Sales of instruments with terms to maturity of five years comprised 14% of the Organization’s total sales, versus a high rate of 23% in 2006. In general, sales of shorter instruments (up to three years) seem to have significantly cut into sales of longer instruments (five and ten years). Reducing the duration will enable the reduction of the proportional part of the foreign debt out of the total debt, as long as the amount of the issues stays stable.

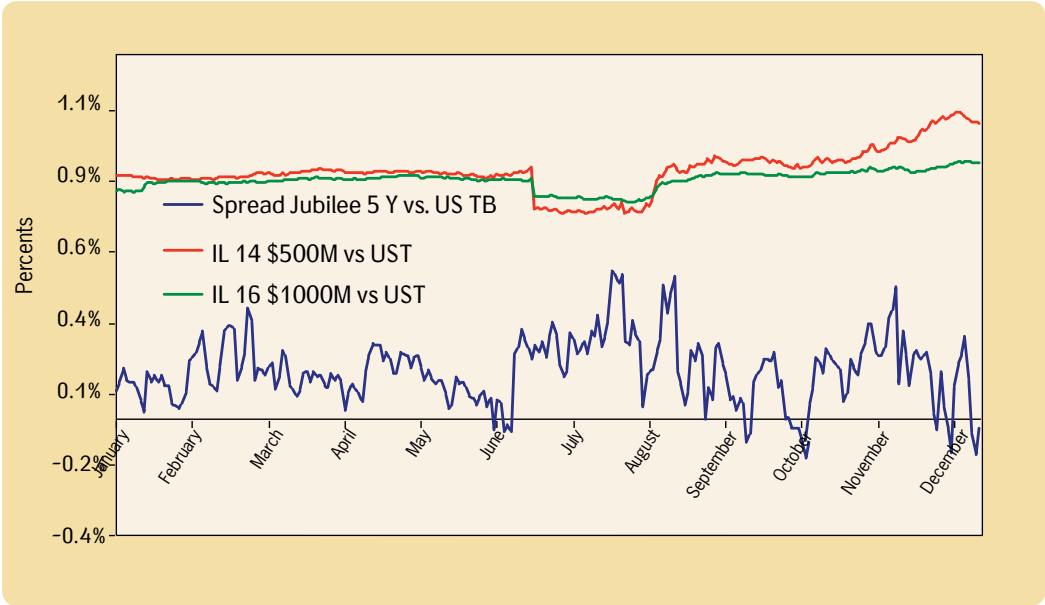
**Diagram B-16**  
**Distribution of sales of the Israel Bonds Organization by range, 2007**



**Development of spreads** – The average interest spread in the Israeli government’s funding through the Israel Bonds Organization in 2007 was 17 basis points over the U.S. government interest rate (factoring in all instruments). This represents a decrease in relative funding costs compared to 2006, when the average spread paid by the government was 36 basis points over U.S. government bonds. The narrowing of funding spreads is congruent with the growing use of instruments with terms to maturity of one or two years, where a significantly lower risk premium is required compared to instruments with a medium to long term to maturity.

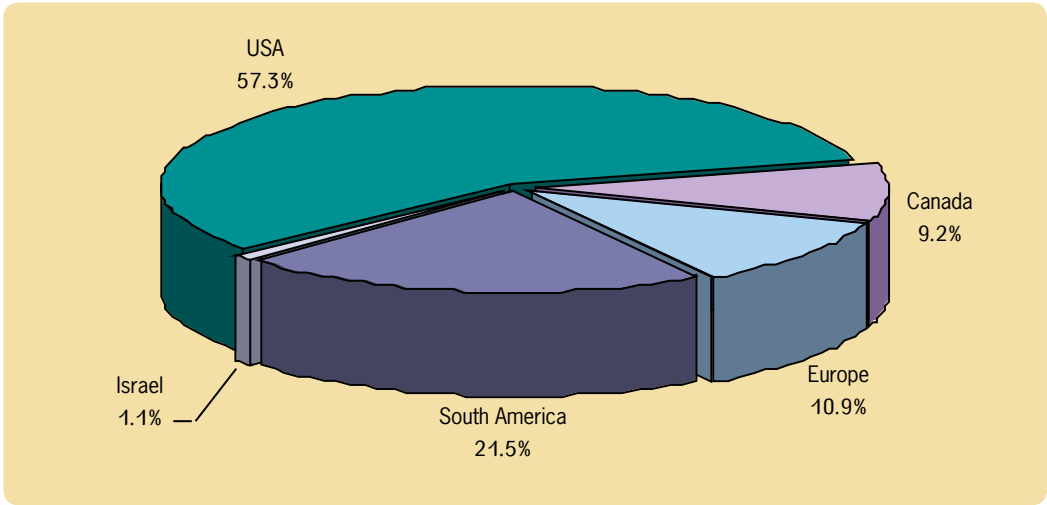
In terms of absolute interest, the average annual interest for Israel’s funding through the Organization reached 5.28% in 2007, up 16 basis points from 2006, when the Organization’s funding had an average annual interest rate of 5.12%. The increase in funding costs despite the narrowing of spreads resulted from the substantial increase in U.S. government interest rates and in LIBOR rates in the first half of 2007.

**Diagram B-17**  
**Development of spreads of five-year Jubilee bonds versus spreads of sovereign issues, 2007**



**Geographical distribution** – Sales in the United States continued to be dominant in 2007, at 57%, versus 59% in the previous year. Sales in Europe maintained the same share as in 2006, at just 11%. 21% of bonds were sold in Latin America, versus 19% in 2006; 9% of sales were in Canada, similar to the previous year. The Israel Bonds Organization sold just USD 12.5 million of bonds in Israel in 2007 (1.1% of total sales), in line with its policy of avoiding sales in Israel.

**Diagram B-18**  
**Geographical distribution of sales of the Israel Bonds Organization, 2007**



# The State of Israel's Credit Rating

## General

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Credit ratings are used by investors (mainly institutional investors) as a tool to assess the risk inherent in their investments. Most institutional investors invest for medium to long periods, and expect a return that reflects the risk level of the entity to which they lend their money. Credit rating (in conjunction with other factors) provides an indication of the risk level of their investment.

In determining a country's credit rating, rating agencies examine numerous parameters, which can be divided into several categories: political risk, fiscal stability, fiscal flexibility, monetary stability, and external stability. On each parameter, the country in question is compared to countries with similar ratings – its "peer group." Israel's peer group mainly consists of medium-sized economies, most of which are peripheral European countries: Poland, Hungary, Greece, Cyprus, the Czech Republic, Estonia, Latvia, Lithuania, and Slovakia. Other countries in Israel's peer group are Chile, Hong Kong, South Africa, Korea, and Malaysia.

In the past, governments' credit ratings also served as a "ceiling" for the credit rating of local companies; in other words, local entities in a particular country could not obtain a higher credit rating than their government. In recent years, some rating agencies have started to separately rate the "country ceiling," which denotes the highest potential credit rating attainable by local entities within the country. In many cases, particularly against the background of globalization processes, the country ceiling is higher than the government's credit rating, so that the government's rating does not represent a barrier to local entities. Never the less, the government's credit rating clearly has an influence on and is highly correlated with local credit ratings, and is of great importance for the economy as a whole.

## The Credit Rating of the State of Israel in 2006-2007

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The Israeli government's rating outlook was upgraded from Stable to Positive by the rating agencies Moody's and Fitch in 2006. S&P joined these agencies with a rating-outlook upgrade in early 2007. In November 2007, S&P upgraded Israel's external credit rating to A. In February 2008, Fitch upgraded Israel's external credit rating to A and in April 2008 Moody's upgraded Israel's external credit rating to A1.

All three major international credit-rating agencies, Moody's, S&P, and Fitch, published highly positive reports on the Israeli economy in 2006 and 2007 and the beginning of 2008, in which they praised the economic policy, budgetary restraint, and structural reforms led by the Ministry of Finance. The rating agencies responded favorably to the robustness and maturity demonstrated by the Israeli economy, and to its impressive growth in recent years. They were also impressed by the downward trend in the burden of government debt and the improvement in the balance of payments. Despite the significant improvement in public debt, the size of the debt is still a weakness, as it remains high. In relative terms, compared to other countries in the peer group. The rating upgrades by the three rating agencies, along with the favorable reports released by the agencies, constitute an official acknowledgment that Israel is on a positive trend, supporting a future upgrade of its credit rating.

The rating ceiling established for Israel by all of the agencies is higher than the government's rating, reflecting the Israeli economy's high degree of openness to the world, the government's economic policy of non-intervention, and the private sector's resilience in the face of external shocks.

## Highlights of the reports released by the three agencies:

### Moody's Investors Service – A1:

In May 2006, after the establishment of the new government, Moody's changed Israel's rating outlook from Stable to Positive with regard to debt in foreign and local currency. According to the agency, this move was made in light of the resilience demonstrated by Israeli society as well as its economic and political policy makers, in view of the many challenges surmounted in recent years.

The change of Israel's outlook to Positive has a favorable effect on Israel's foreign-currency ceiling, on Israeli government bonds denominated in foreign currency (those not backed by U.S. government guarantees), on ceilings for Israel's bank deposits in foreign currency, and on government bonds in the domestic market. The ceiling for Israel's bank deposits in local currency (Aa2) and the domestic credit-rating ceiling (Aa1) retained a Stable outlook, and are not affected by the rating-outlook change described above. Note that the domestic credit-rating ceiling is the highest possible credit rating for borrowers and loans in local currency within the country.

In its announcement, Moody's noted its finding that Israel is showing significant growth in per-capita GDP (based on PPP – purchasing power parity) and moving towards a GDP level usually more associated with developed economies than with developing economies. In addition, the ratio of government debt to GDP and of government debt to revenues has trended downward since 2004, and Israeli institutions have demonstrated great resilience in the face of considerable external and internal shocks. Together with the exceptional financing sources, over time these factors could lead to a decrease in credit risk.

Moody's concluded by saying it would monitor the new government's ability to continue to lower the important indicators of the debt-to-GDP ratio and debt-to-revenue ratio. The agency will also continue to monitor the negative impact of geopolitical risk factors on Israel's credit rating.

Moody's did not change its credit ratings or outlooks for Israel following the war in Lebanon in the summer of 2006. In March 2007, Moody's issued its annual report on Israel. The report mainly concerns the affirmation of the rating established for Israel. The rating ceiling in foreign currency is Aa1, based on the government's rating of A2. In the report, Moody's notes that it estimates the probability of default on debt by Israel as very low.

The Positive outlook for the foreign-currency credit rating reflects Israel's proven economic ability to withstand severe shocks. In the opinion of the agency, the Israeli economy's resilience is supported by an understanding by Israel's political system and establishment of the need for far-reaching measures under extreme circumstances. Beyond political risk, the only factor weighing down Israel's credit rating is the debt burden. Fiscal discipline has worked to reduce broad public debt in recent years. This reduction has improved budgetary flexibility and greatly reduced the probability of default. The public debt management policy, along with a stable, deep investor base, provides a strong counterweight to the broad public debt. The Positive outlook reflects the successful implementation of structural reforms, the reduced dependence on foreign tourism (which is highly sensitive to the security situation), and the improved confidence in the business sector.

Moody's analysts visited Israel in March 2008. In April 2008 Moody's published its annual report upgrading Israel's rating to A1 and the forecast changed to stable.

### Fitch Ratings – A:

When the war in Lebanon broke out in July 2006, Fitch announced that although the recent escalation in violence would impair confidence in Israel in the near term, the economy had

a strong starting point that, together with a firm policy framework, should limit the negative economic consequences. Accordingly, the agency left Israel's credit rating and Stable outlook unchanged.

Some six months later, in December 2006, Fitch upgraded Israel's long-term foreign-currency credit-rating outlook from Stable to Positive. Fitch also affirmed Israel's other current credit ratings. The agency's annual report on Israel and its announcement of the rating-outlook upgrade state that the Positive outlook reflects Israel's improved dynamics and resilience, as a result of the reforms of recent years, which were expressed in the limited economic impact of the war in Lebanon and the subsequent strong recovery. Furthermore, the improved policy framework allowed Israel to cope with the change of government and the political difficulties in the wake of the war. The agency noted that indicators of external solvency in foreign currency have also improved considerably, due to Israel's increased strength as a net external creditor, while internal and external investments reflect Israel's growing integration into the global economy. Israel's ratio of public debt has decreased, and is expected to fall below the previous low point of 2000.

The agency noted that the Israeli economy grew by 6% in the first half of 2006. Although GDP decreased in the third quarter, due to disruptions caused by the war and by the loss of tourism, it recovered well in the fourth quarter. Investments in equipment and machinery increased at an encouraging rate, though investments in the construction sector lagged behind. Meanwhile, the surplus in the current account would grow to more than 4% of GDP in 2006, with net external assets expected to reach 24% of GDP. Israel's standing as a net external debtor and its high per-capita income exceed those of many higher-rated countries. The financial markets met the war calmly; the NIS was up by 5% against the U.S. dollar compared to mid-July, and interest rates had been lowered again to below U.S. levels. Foreign direct investments, both incoming and outgoing, were at peak levels.


Fitch believes that Israel needs greater fiscal maneuvering room compared to its peer group, given the vulnerability of public-debt dynamics to unexpected security-related developments. In addition, after the real expenditure limit was raised to 1.7% in 2007, from 1%, the expense would now rise further due to the war, and the deficit ceiling for 2007 would remain 3%, instead of falling to 2%. Greater fiscal flexibility could be obtained more rapidly by setting more ambitious fiscal goals, especially in view of the impressive growth data at the present time. In comparable international terms, a deficit ceiling of 3% of GDP translates into a broad government deficit of 5% of GDP. Fitch expects improvement in the debt ratio in the next two years, provided that the government adheres to the foundations of the 2007 budget, and GDP growth remains above 3%. In the agency's opinion, 2006 demonstrated that Israel's debt dynamics have improved, and it is now stronger still, even in the face of quite extreme security-related challenges.

Fitch visited Israel in January 2008. In February 2008, the agency announced an upgrade of Israel's rating to A and changed its outlook to Stable.

### **Standard and Poor's – A:**

In July 2006, following the war, the rating agency Standard and Poor's affirmed Israel's credit ratings and stated that these ratings reflected the improved ability of the public-sector financial position and the Israeli economy to withstand geopolitical shocks, after a three-year period of fiscal improvements and strong economic growth. The agency further noted that a solid external position, sufficient financing flexibility, and special diplomatic and financial support from the United States provide support for the credit rating.

In February 2007, the agency changed Israel's rating outlook from Stable to Positive. Its announcement stated that the rating update reflected the improved resilience of the economy and of the public-sector financial position in Israel in the face of geopolitical shocks,



after a three-year period of fiscal restraint and strong economic growth. The agency added that it assumed the geopolitical context would remain problematic, but that it would be possible to curb any potential deterioration.

In November 2007, the agency upgraded Israel's credit ratings to A/A-1, Positive Outlook in foreign currency and AA-/A-1+ in local currency. Its announcement stated that the credit-rating upgrade reflects the improved robustness of public financing and of the economy as a whole in the face of geopolitical risks, after four years of stability, during which the Israeli economy demonstrated better-than-expected achievements in the areas of fiscal discipline, the accrual of assets abroad, and steady economic growth. The ratings are also supported by the thriving Israeli economy and the strong commitment of the political echelon to long-term fiscal discipline. However, the economy is weighed down by the burden of public debt, which is higher than in peer-group countries, and by geopolitical risks. The announcement further noted that the Israeli economy continued to expand in 2007, with the GDP growth rate mainly supported by exports and by the increase in private consumption. The rapid recovery from the war in Lebanon in August 2006 demonstrates the Israeli economy's ability to withstand significant external shocks. Foreign-currency liquidity also remained strong, supported by the surplus in the current account, which is estimated at 3.6% of GDP. However, economic expansion is expected to be impaired, due to the anticipated slowdown in global trade in 2008. Real GDP growth is expected to reach a solid 3.5-4%, due to the continual demand for knowledge-intensive Israeli products and services. The current account is expected to show a small surplus in the medium term.

The announcement stated that fiscal discipline was tightened in 2007; as a result, the estimated government deficit of 0.6% of GDP was far lower than the 2.9% target set in the budget. In addition, broad government debt continued trending down, from 102% of GDP in 2003 to 82% of GDP at the end of 2007. Note that this rate of debt is still more than double the median in the group of countries rated A (34% of GDP), which impedes the budgetary flexibility that Israel needs more than its peer countries in order to bear costs arising from unexpected security-related developments. However, unlike other peer countries, Israel has more-flexible funding capabilities due to the guarantee program from the United States, a key ally of Israel. In this context, the agency noted that the main risk to Israel's credit rating continues to originate in the security situation, which may deteriorate if Iran continues to develop nuclear weapons. An additional risk is that any military confrontation may entangle Israel.

The Positive outlook for Israel's foreign-currency rating reflects expectations that the continued reduction of debt will remain a top policy priority. In this context, the 2008 budget is expected to be approved by Knesset with no significant loosening of budgetary discipline. The geopolitical environment is expected to remain difficult, but Israel's economy and public financing will be able to absorb most reasonable scenarios of deterioration.

**Table B-7**  
**Israel's credit rating by the three rating agencies**

Rating agency		Rating of debt denominated in local currency	Rating of debt denominated in foreign currency	Outlook	Recent updates
Moody's	Long-term	A1	A1	Stable	Rating in April 2008.
	Short-term	-	P1		
Standard & Poor's	Long-term	AA-	A	Positive	Outlook upgraded from Stable in February 2007  General rating upgraded in full in November 2007, with Positive outlook maintained.
	Short-term	A-1+	A-1		
Fitch*	Long-term	A+	A	Stable	Outlook upgraded from Stable in December 2006. General rating upgraded in February 2008.
	Short-term	-	F1		

\* Current rating as April, 2008.





# Section C

## Trading Data





## Section C - Trading Data

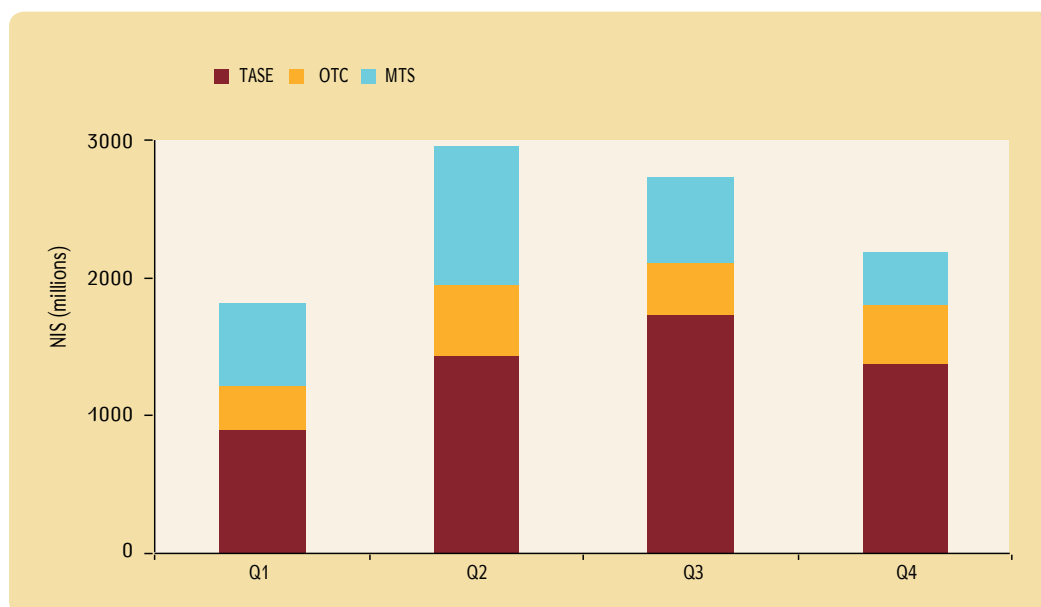
During 2007, following the bond-market reform, the market underwent numerous changes, reflected in a sharp increase in turnovers; new entities (mainly foreign) operating in the market on a daily basis; and three exchanges: Tel Aviv stock exchange (TASE), MTS and OTC.

### Average Daily Turnover of Fixed-Coupon Unlinked Bonds

As shown, turnovers rose sharply in the second quarter, due to the bond-market reform gaining traction, as well as very good market conditions.

Conversely, the decrease in turnovers in the last quarter of the year resulted from the crisis in the markets.

**Diagram C-1**  
**Average daily turnover of fixed-coupon unlinked bonds, 2007**



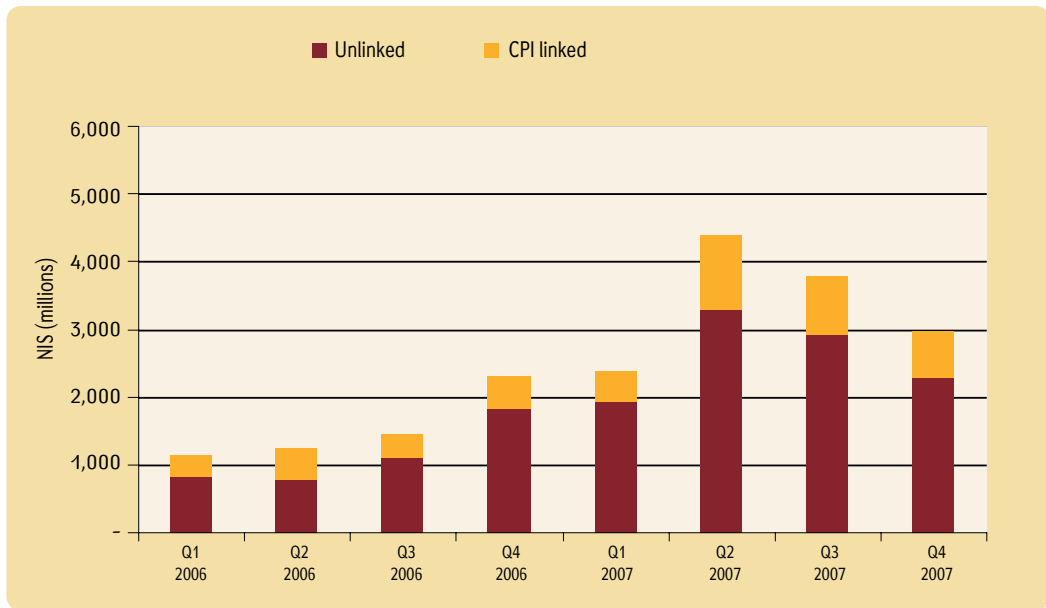
### Average Daily Turnover of Tradable Bonds

As shown, the majority of trading is in fixed-coupon unlinked bonds. Over the course of the year, the ratio between the segments was maintained:

Unlinked segment – 77% of trading.

Linked segment – 23% of trading.

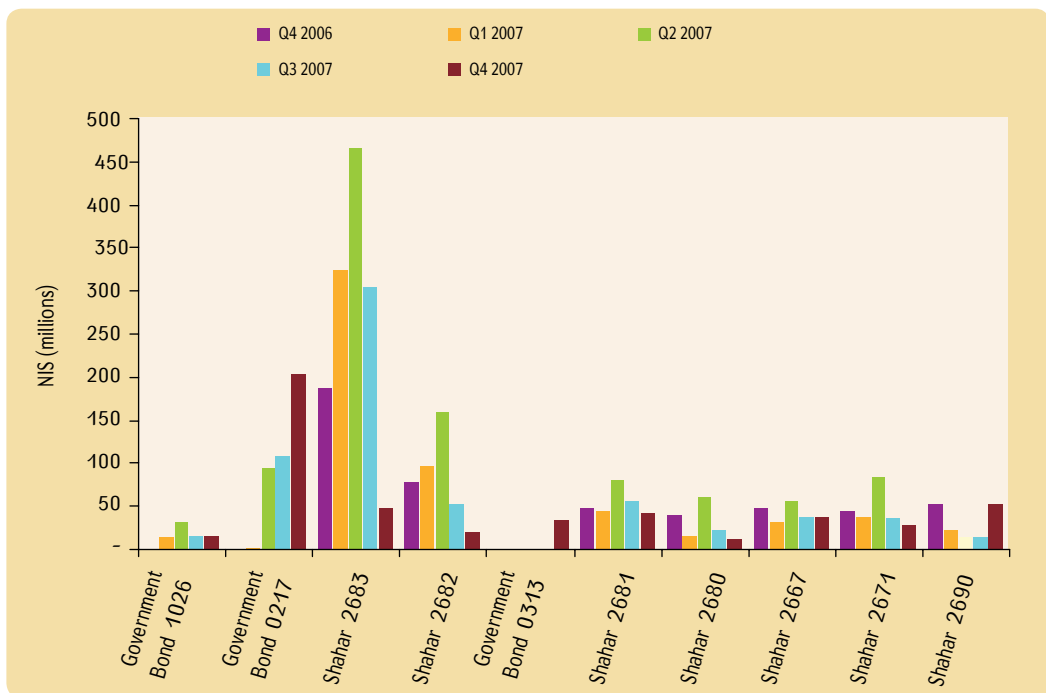
**Diagram C-2**  
Average daily turnover of tradable bonds



**Average Daily Turnover on MTS System by Bond Type**

As shown, the bond with the highest trading volume in the first three quarters of the year was Shahar 2683, which served as the ten-year benchmark. Starting in the fourth quarter, the most tradable security was 0217, which replaced Shahar 2683 as the ten-year benchmark.

**Diagram C-3**  
Average daily turnover on MTS system by bond type



## Share of Activity on MTS: Local versus Foreign Market Makers

**Table C-1**  
Share of activity on MTS: local vs. foreign market makers, 2006-2007

	2006	2007
Local	65.80%	62.12%
Foreign	34.20%	37.88%

As shown, the volume of activity of foreign market makers in relation to local market makers' activity remained stable in 2007, as compared to 2006. About one-third of trading was carried out by foreign market makers, while two-thirds were performed by local market makers.

## Unlinked Yield-to-Maturity Curve

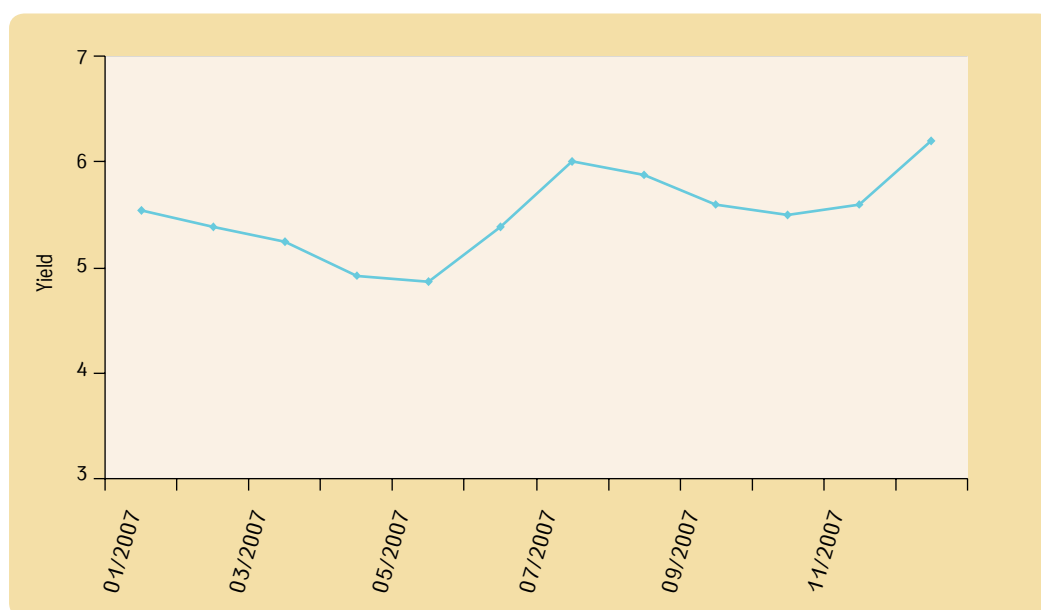
The year can be divided into several periods:

**First period** – From January to May the market was highly positive, with decreasing yields; as an example, ten-year bonds went from 5.5% at the end of January to 4.9% by the end of May.

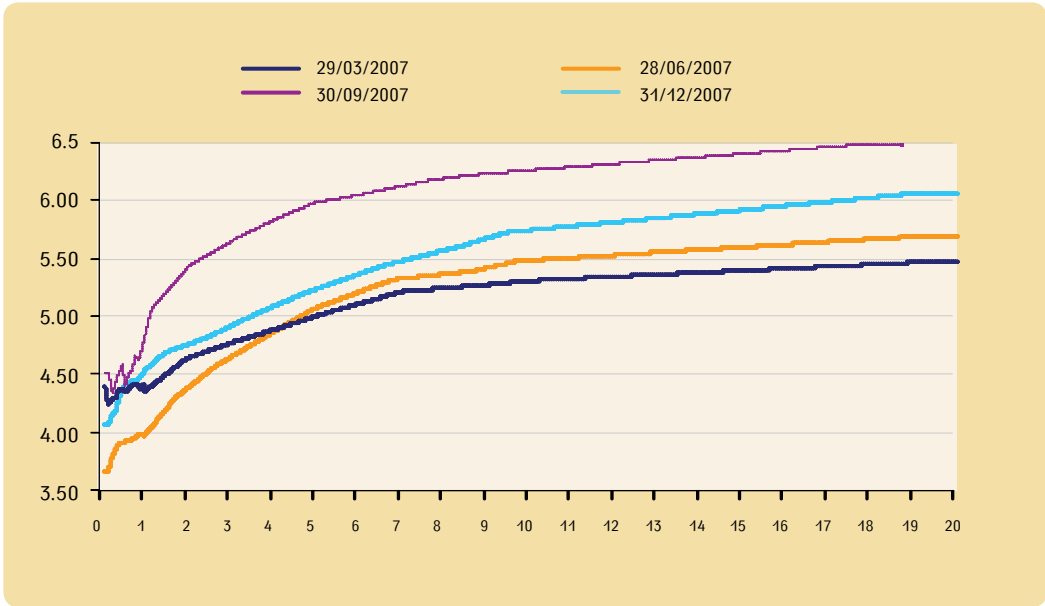
**Second period** – The first crisis of the year in the markets occurred in June, and was reflected in a sharp increase in yields; for example, the yield of ten-year bonds rose from 4.9% at the end of May to 6% at the end of July.

**Third period** – The second crisis in the markets took place in December, with a sharp increase in yields; for example, the yield of ten-year bonds rose from 5.6% at the end of November to 6.2% at the end of December.

**Diagram C-4**  
Yield curve of ten-year bonds



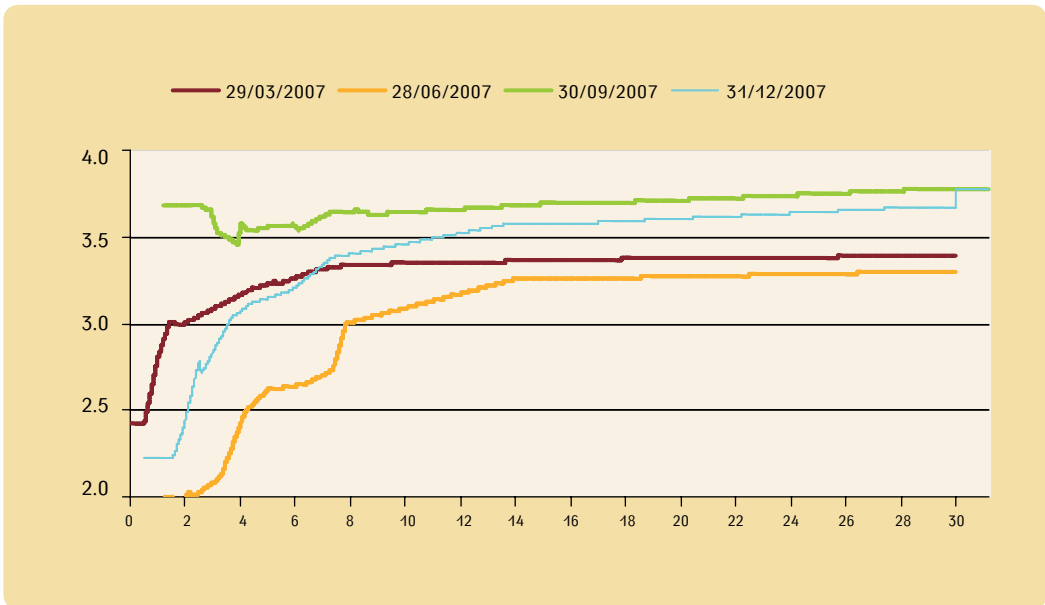
**Diagram C-5**  
**Unlinked yield-to-maturity curve**



**Linked Yield-to-Maturity Curve**

As shown, the second half of the year was marked by a sharp increase in yields in the medium and long-term range, as a result of the crises in the markets.

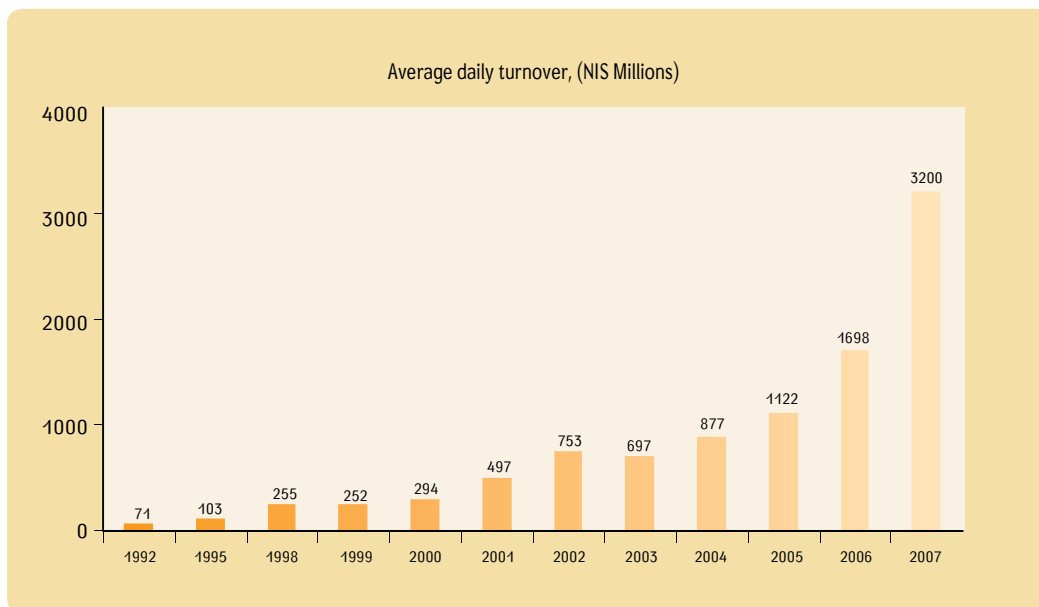
**Diagram C-6**  
**Linked yield-to-maturity curve**



## Average Daily Turnover in Historical Perspective

Turnovers have been rising steeply in recent years. The increase was sharpest in 2007, and was largely accounted for by the reform in the bond market.

**Diagram C-7**  
**Average daily turnover, historical perspective**



## Average Volume of Bond Lending Facility

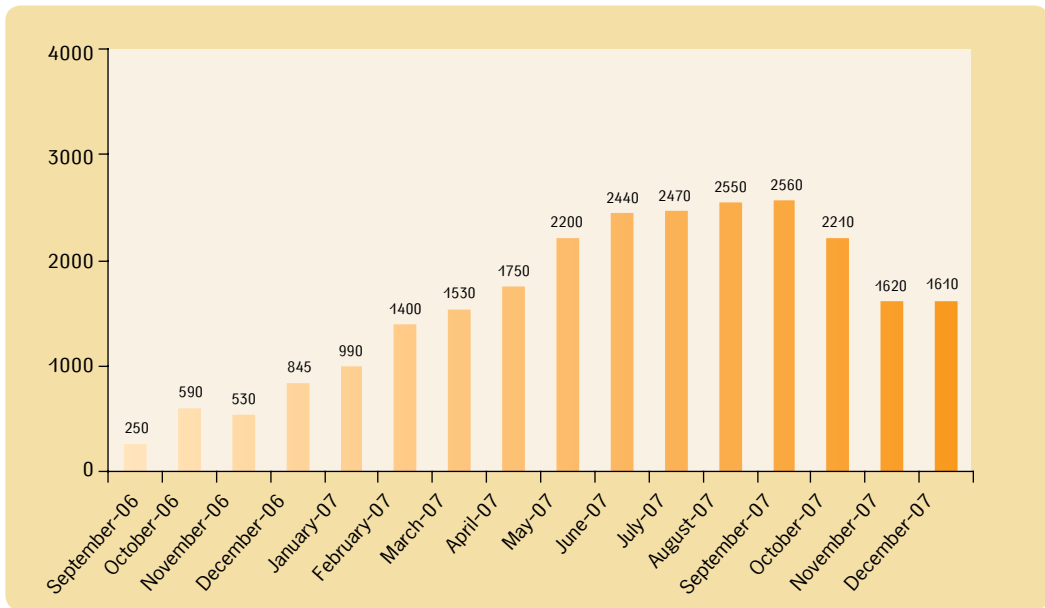
As part of the capital-market reform, the Ministry of Finance in cooperation with the TASE Clearing House, established a bond lending facility allowing Primary Dealers to borrow Shahar bonds, Unlinked Government Bonds, Galil bonds, and Linked Government Bonds<sup>3</sup>. Primary Dealers who wish to borrow bonds, within the current limit of NIS 500 million per Primary Dealer, contact the TASE Clearing House to borrow the bonds, and transfer funds to the Clearing House in return, for which they receive interest. Operation of the bond lending facility began in September 2006.

As shown, the bond lending volumes trended up in the first half of 2007. This was due to the fact that as the reform in government-bond markets progressed, more market makers began using the bond lending facility.

The distribution of bond lending was approximately 80% in the unlinked segment and 20% in the linked segment. The securities most borrowed were Shahar 2683 and Unlinked Government Bond 0217.

<sup>3</sup> Since 2008, the Gilon bond and floating-rate government bond have been available to lend.

**Diagram C-8**  
**Average volume of bond lending facility**





# Section D

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**Government Debt in 2006  
and 2007**



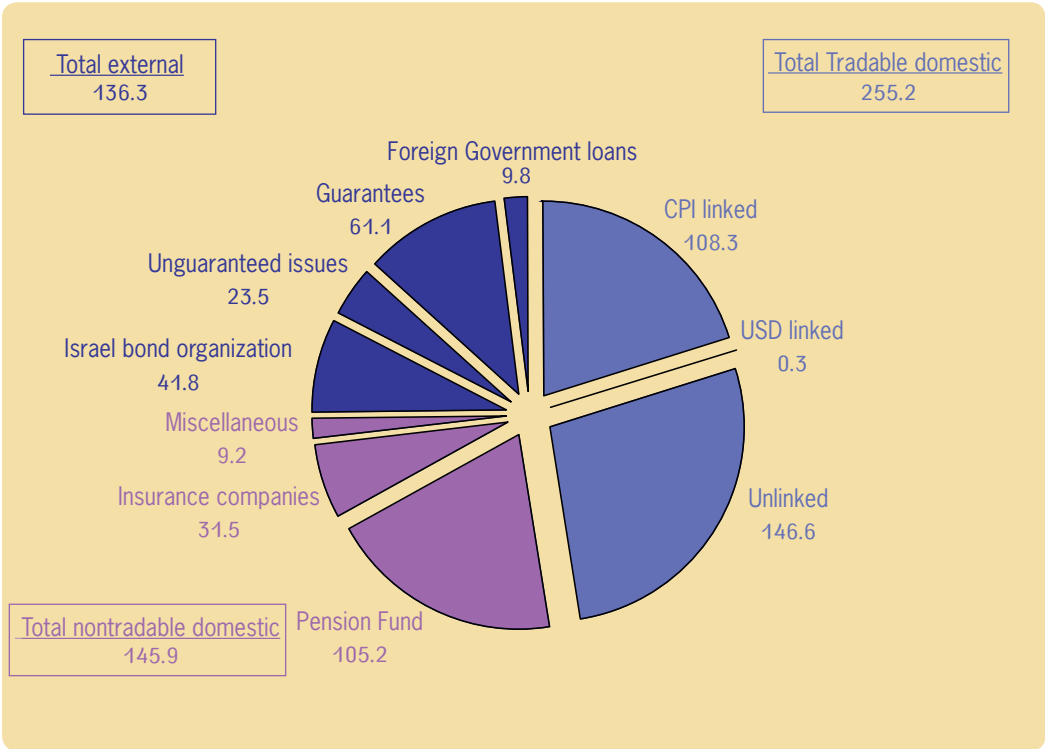


# Section D – Government Debt in 2006 and 2007

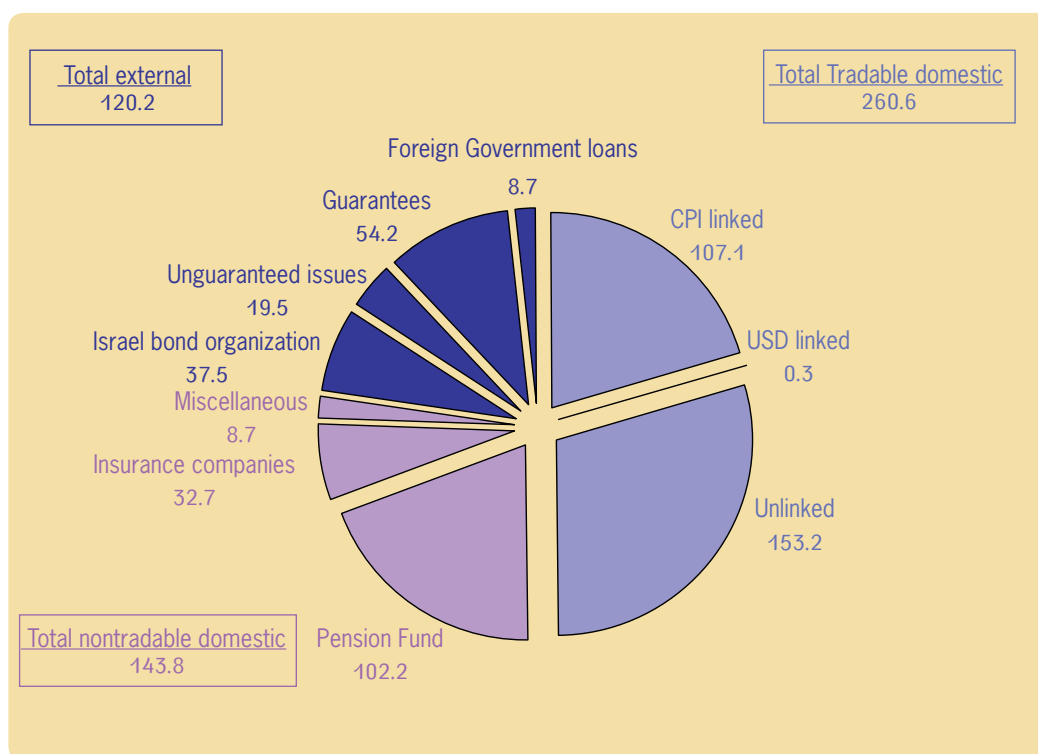
## Overall Debt and Debt-to-GDP Ratio

Total government debt decreased by 2.6% in 2007, from NIS 538 billion at the end of 2006 to NIS 524 billion at the end of 2007. This was the second consecutive nominal reduction in government debt, following a continual increase in debt volumes in 2001-2005. Domestic debt increased from NIS 401 billion in 2006 to NIS 404 billion in 2007 (an increase of 0.8%), while external debt decreased from NIS 137 billion in 2006 to NIS 120 billion at the end of 2007 (a decrease of 12%).

**Diagram D-1:  
Structure of government debt at the end of 2006 (NIS billions)**



**Diagram D-2:  
Structure of government debt at the end of 2007 (NIS billions)**



The debt-to-GDP ratio fell sharply in 2007, for the third consecutive year. This ratio is 79% by the end of 2007<sup>4</sup>, versus 85% in 2006 and 94% in 2005. The debt-to-GDP ratio is one of the most important variables in determining a country's financial stability and credit rating. Continued growth of the Israeli economy along with a responsible fiscal policy will ensure the continued reduction of the debt-to-GDP ratio and reinforce the economy's financial stability and consequent credit rating.

**Table D-1  
Change in composition of government debt, 2006-2007**

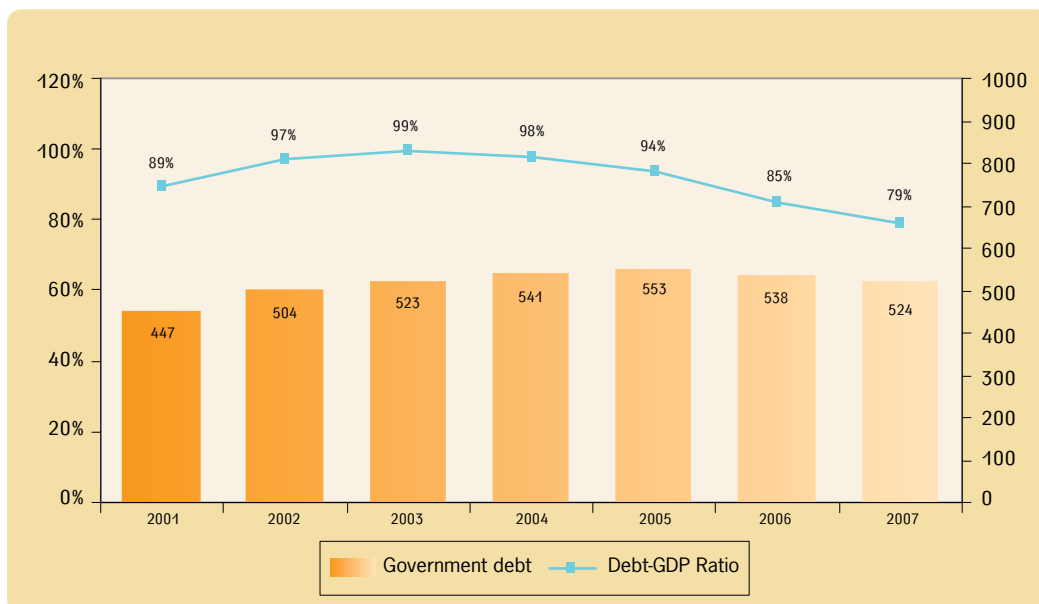
	2005 to 2006 NIS billions	2006 to 2007 NIS billions
Government debt (opening balance)	553	538
Net issues	-7	-11
Effect of change in exchange rates and CPI	-10	-4
Change in accrued interest	+2	+1
Government debt (closing balance)	538	524
GDP in current prices	633	665
Debt-to-GDP ratio	85%	79%

Despite the consistent decrease in the debt-to-GDP ratio, the proportion of government debt in Israel remains among the highest in the Western world; principal and interest payments for the debt are a heavy burden on the state budget and on the Israeli economy

<sup>4</sup> According to GDP data, based on CBS national accounting data published on March 17, 2008, GDP in 2007 stood at approximately NIS 665 billion.

in general. Interest expenses for government debt totaled NIS 34.5 billion in 2007, versus NIS 35.0 billion in 2006, a decrease of 1.4%.

**Diagram D-3**  
**Debt-to-GDP ratio and government debt volume, 2001-2007 (NIS billions)**



**Table D-2**  
**Broad government debt as a percentage of GDP in various countries**

Country	Total debt as a percentage of GDP (%)
Ireland	29
Korea	30
Czech Republic	35
Slovakia	39
United Kingdom	47
Poland	55
United States	62
Germany	66
Portugal	72
France	72
Hungary	74
OECD countries, average	77
<b>Israel</b>	<b>81</b>
Belgium	87
Greece	104
Italy	117
Japan	180

\*Broad government debt includes the debt of additional government agencies, such as local authorities.

\*\* Source: OECD Economic Outlook No. 82, Bank of Israel.

## Length of Debt

Average time to maturity is the central indication for determining the length of debt. The average time of total government debt is 6.5 years as of the end of 2007, similar to 2006. The increase in the length of tradable domestic debt, from 5.5 to 5.9 years, mainly resulted from positive net funding (a surplus of funding over redemptions) and a focus on funding for long benchmark periods. By contrast, the length of nontradable domestic debt decreased, from 6.8 to 6.5 years, as a result of the small volume of issues of nontradable bonds to pension funds, which are characterized by long original terms to maturity; the length of external debt also decreased, from 8.0 to 7.8 years, due to the small number of issues and short-term funding by the Israel Bonds Organization.

Another indication for the debt length is duration<sup>5</sup>. The duration of bonds is calculated based on the terms of all payments which the bond pays over its lifetime, weighted by the capitalized payment. As shown in Table D-3 below, there was no significant change in the total duration of government debt in 2007; however, opposite trends can be seen in domestic debt versus external debt, similar to those of the average term to maturity.

**Table D-3**  
**ATM and Duration of government debt, 2001-2007 (in years)\***

	Average time to maturity							Duration	
	2001	2002	2003	2004	2005	2006	2007	2006	2007
Domestic debt	6.5	6.6	6.6	6.2	6.1	6.0	6.1	4.6	4.7
Of which: Tradable	5.1	5.4	5.5	5.3	5.4	5.5	5.9	3.9	4.3
Nontradable	8.5	8.3	8.2	7.7	7.3	6.8	6.5	5.7	5.4
External debt	6.8	6.5	8.0	8.6	8.4	8.0	7.8	6.1	5.9
Total government debt	6.6	6.6	6.9	6.8	6.7	6.5	6.5	5.0	5.0

\* Data as of the end of the calendar year.

## Domestic Debt

The balance of domestic debt (tradable and nontradable) stood at NIS 404 billion at the end of 2007. Tradable debt grew by 2.1%, to NIS 261 billion, or 65% of total domestic debt, as part of the gradual increase in its share of total domestic debt in recent years. Nontradable debt decreased by 1.6% in 2007 and totaled NIS 144 billion at year end, comprising 35% of total domestic debt. The consistent increase in the proportion of tradable debt resulted, among other causes, from the significant decrease in the volume of issues of nontradable bonds for pension funds. Note that the volume of issues of these bonds rose gradually in 2007, as the rate of nontradable bonds out of total assets at some pension funds fell below 30%, the threshold for permission to purchase these bonds according to the terms of the pension-market reform. The increase in the volume of issues of these bonds is expected to continue in the coming years.

**Table D-4**  
**Distribution of domestic debt into tradable and nontradable debt, 2001-2007 (%)**

Type of debt	2001	2002	2003	2004	2005	2006	2007
Tradable debt	55	58	59	61	62	64	65
Nontradable debt	45	42	41	39	38	36	35

5 Modified Duration

## Tradable Domestic Debt

In line with the long-term trend, the proportion of unlinked debt out of total tradable domestic debt rose to 59% in 2007, from 57% in 2006. The increase in the unlinked component of tradable domestic debt resulted from new funding focusing on unlinked bonds and from redemptions of significant volumes of CPI-linked series during 2007. The proportion of dollar-denominated debt remained negligible; bonds in the amount of just NIS 300 million remained at the end of 2007.

**Table D-5**  
**Distribution of tradable debt by linkage type, 1995-2007 (%)**

Tradable debt	1995	2001	2002	2003	2004	2005	2006	2007
CPI-linked	81.3	52.8	49.7	46.8	44.8	41.9	42.4	41.1
USD-linked	9.8	8.8	7.3	2.5	0.1	0.1	0.1	0.1
Unlinked	8.8	38.4	43	50.7	55.1	58	57.5	58.8

### Distribution of Tradable Government Bond Holdings

An examination of the distribution of tradable government bond holdings indicates no dramatic change in the proportion of foreign investors' holdings in 2007. These holdings comprised 3.8% of the total inventory of tradable government bonds at the end of the year, versus 4.7% in 2006. Note, however, that the proportion of foreign investors' holdings has increased substantially in the last three years. Significant developments occurred in the proportion of direct holdings by the public, which stood at 24.1% at the end of the year, versus 19.5% in the previous year.

Looking at long-term trends, the increase in the proportion of holdings of pension funds, which started in 2004, has continued. As a result of the reform in pension funds, the volume of issues of nontradable bonds to these funds fell drastically, so that the funds redirected their investments to the capital market. This led to an increase in the funds' share of holdings, from 2% in 2003 to 10.6% in 2006. This trend continued in 2007, and the rate of pension funds' holdings reached 11.0%. Note that in contrast to forecasts, purchases of government bonds have not focused on CPI-linked bonds alone since the beginning of the reform, but have included unlinked bonds as well.

Another segment whose share of bond holdings increased is mutual funds, which held 14.2% of total tradable government bonds in 2007, compared with 12.4% in 2006. The trend of decreasing holdings of provident funds and insurance companies continued in 2007. Provident-fund holdings stood at 18.4% at the end of 2007, versus 24.1% in 2006. As compared to 2001, provident funds' weight fell by more than half. Insurance companies' share of holdings reached 8.9%, versus 9.7% in the previous year. The rate of holdings of banks did not change significantly, standing at 18.6% at the end of 2007, versus 17.8% in 2006. The Bank of Israel's share of tradable bond holdings was 1.1% at the end of 2007, down slightly from 2006, when the central bank's holding rate was 1.2%.

**Table D-6**  
**Distribution of holders of tradable government bonds, 2001-2007 (NIS billions, %)**

Year	Total registered capital (NIS billions)	Public	Mutual funds	Provident and study funds	Pension funds	Banks funds	Insurance companies*investors	Foreign investors	Bank of Israel
2001	181	12.4	15.4	40.4	1	15.8	11.1	0.1	3.7
2002	197.1	16.2	10.1	36.5	2.2	19.2	12.1	0.7	3
2003	229.6	17.3	14.1	34.5	2	16.5	12.8	0.4	2.4
2004	252.9	19.4	11.1	31.6	5	17.9	12.5	0.6	1.9
2005	261.4	16.7	15.9	28	9.8	17	10.1	1.3	1.3
2006	265.1	19.5	12.4	24.1	10.6	17.8	9.7	4.7	1.2
2007	269.4	24.1	14.2	18.4	11.0	18.6	8.9	3.8	1.1

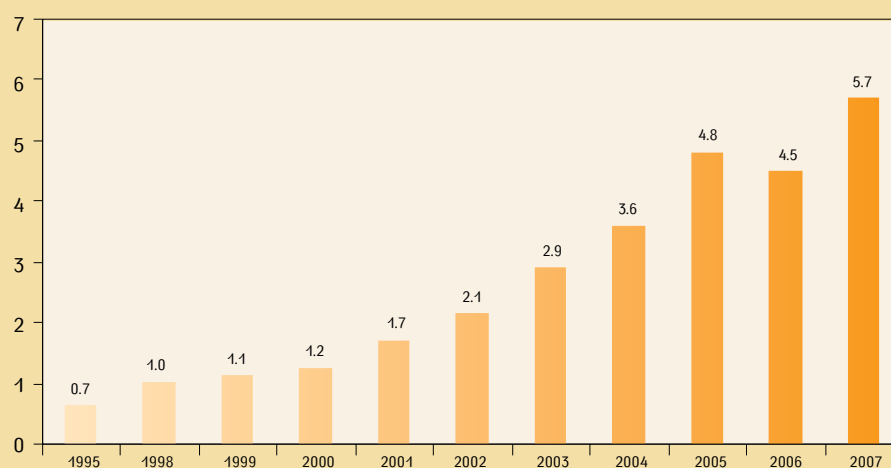
\* Includes holdings of life-insurance and general-insurance companies, and proprietary investments.

Source: Bank of Israel

### Number and size of series

As part of the effort to increase tradability and liquidity in the domestic bond market, the Ministry of Finance is reducing the number of government-bond series while increasing their volume. The policy of issuing large series continued in 2007, as the average series size rose to NIS 5.5 billion, due to the redemption of small series as well as large issues. This trend is expected to continue in the coming years as well.

**Diagram D-4**  
**Average series size, 1995-2007 (NIS billions)**

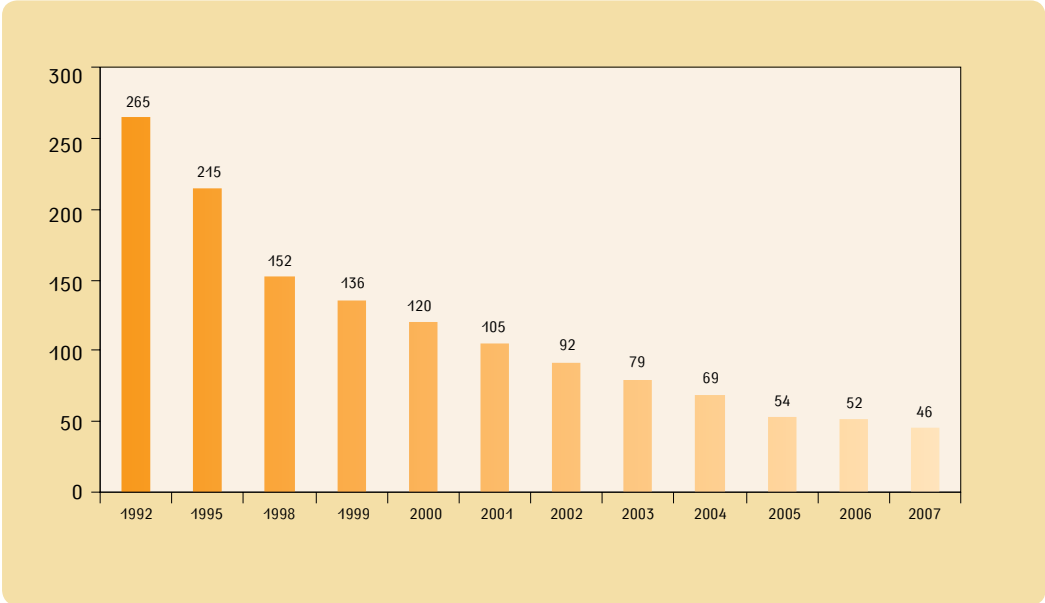


The Debt Management Unit issued four new series in 2006. The series Shahr 2690 (maturing in 2008) and Shahr 2683 (maturing in 2016) were issued at the beginning of the year. Two long-term series were issued in the second half of the year, within the new regulations under the State Loan Law: a twenty-year government bond (unlinked, fixed

coupon) and a thirty-year government bond (linked, fixed coupon). Five new series were issued in 2007. Five-year and ten-year government bonds, three-year linked government bonds, and two short-term government bonds with a term of four months were issued within the new regulations.

Six bond series matured in 2006, including a Shahar series with a volume of NIS 15 billion. Eleven series matured in 2007, including a Shahar series with a volume of NIS 16 billion. As a result of the above, the decrease in the number of traded series continued, reaching 46 at the end of 2007. The Unit intends to maintain a low number of issued series in the coming years as well, so as to continue the downward trend in the number of traded series.

**Diagram D-5**  
**Number of tradable government bond series, 1992-2007**



## Nontradable Domestic Debt

The trend of decreasing volumes of nontradable domestic debt continued in recent years. This debt reached NIS 144 billion at the end of 2007, versus NIS 145 billion at the end of 2006.

The inventory of debt in respect of nontradable bonds issued to pension funds (Arad and Miron bonds) stood at NIS 102 billion at the end of 2007, reflecting a 3% decrease from the balance of debt at the end of 2006. The downward trend of the volume of debt in respect of nontradable bonds for pension funds is expected to continue in the coming years, in light of the reform in pensions, in which the volume of new bond issues to these funds was significantly reduced. However, the volume of issues to pension funds already increased in 2007; the increase is expected to grow in the coming years.

The inventory of debt in respect of nontradable bonds held by insurance companies (Chetz bonds) grew by 4% in 2007, to NIS 33 billion at year end.

In accordance with the policy of the Accountant General, the balance of emissions managed by the Accountant General and compulsory loans managed by the Bank of Israel decreased by NIS 0.3 billion during the year, reaching a total of NIS 8.9 billion, a 3% decrease compared to 2006.

**Table D-7**  
**Distribution of nontradable debt by type, 2001-2007**

	2001	2002	2003	2004	2005	2006	2007
Total (in NIS billions)	148	161	161	156	153	145	144
Pension (Arad & Miron)	104	116	119	115	112	105	102
Insurance (Chetz)	28	30	30	30	31	31	33
Miscellaneous(1)	16	15	12	11	10	9	9

(1) Includes compulsory loans managed by the Bank of Israel, and deposits and emissions managed by the Ministry of Finance.

## Debt in Foreign Currency

At the end of 2006, the government's foreign-currency debt stood at NIS 136.3 billion (approximately USD 32.4 billion), comprising 25% of total government debt. Government debt in foreign currency totaled NIS 120.0 billion (USD 31.1 billion)<sup>6</sup> at the end of 2007, or 23% of total government debt<sup>7</sup>.

The State of Israel's debt in foreign currency is divided into the following types:

1. Bonds backed by U.S. government guarantees, with a total balance of NIS 54.2 billion (USD 14 billion) at the end of 2007.
2. Tradable bonds issued in world markets without guarantees (sovereign issues), with a balance of NIS 19.5 billion (USD 5.3 billion) at the end of 2007.
3. Bonds issued by the Israel Bonds Organization, with a total balance of NIS 37.5 billion (USD 9.6 billion) at the end of 2007.
4. Loans from foreign governments and other loans, with a balance of NIS 8.7 billion (USD 2.3 billion) at the end of 2007.

### Sovereign Issues (Tradable)

In 1995-2007, the Israeli government carried out eleven sovereign issues in the United States, Europe, Japan, and the global market. The last sovereign issue was performed in 2006 on the global market, at a volume of USD 1 billion. Table D-8 lists the details of sovereign tradable issues performed abroad in recent years.

**Table D-8**  
**Public sovereign issues in global financial markets, 1995-2007<sup>(1)</sup>**

Year	Market	Amount in millions in original currency	Yield (percent)	Term to maturity (years)	Interest to investors (percent) – coupon	Benchmark interest (BM) <sup>(2)</sup> – government bonds	Spread from BM at issue date (bp) <sup>(3)</sup>	Spread over SWAP curve in relevant currency on issue date (bp) <sup>(3)</sup>
1995 <sup>(4)</sup>	Yankee	250\$	6.491	10	6.375	USA	76	38
1996 <sup>(4)</sup>	European	200\$	6.469	5	6.375	USA	50	25
1997 <sup>(4)</sup>	Samurai	20,000¥	3.017	10	3.0	Japan	48	25
1998	Yankee	250\$	7.313	30	7.25	USA	225	162
1999 <sup>(4)</sup>	European	400€	4.91	7	4.75	France	97	65
2000	Global	500\$	7.820	10	7.75	USA	144	40
2002	European	400€	5.983	7	5.875	Germany	122	100
2003	Global	750\$	4.731	10	4.625	USA	153	120
2004	Global	500\$	5.2	10	5.125	USA	115	75
2005	European	750€	3.78	10	3.75	Germany	64	53
2006	Global	1,000\$	5.58	10	5.5	USA	98	45

(1) All issues are of fixed-coupon bearing bonds.

(2) Benchmark – a bond used as the criterion for yield comparisons.

(3) Basis point (bp) – one hundredth of one percent.

(4) Matured.

6 Based on the representative exchange rate of 3.846 on Dec. 31, 2007.

7 Foreign-currency debt data represent the government's total liabilities in foreign currency, excluding swap transactions. External debt data, which are published separately by the Bank of Israel, in accordance with IMF standards, represent the government's total liabilities to non-residents in both foreign and local currency.

## Issues Backed by U.S. Government Guarantees (Tradable)

Table D-9 shows the inventory of bonds issued with U.S. government guarantees within the second guarantee program. These bonds were issued during 2003-2004. As noted in Section B, the Israeli government did not issue new bonds of this type in 2005-2007. The amount currently available for issuance within the guarantee program is USD 3.8 billion.

**Table D-9**  
**Issues backed by U.S. government guarantees, 2003-2007(1)**

Issue date	Amount in USD millions	Period (years)	Interest to investors (percent) – coupon	Underwriter	Yield (price)	Spread from 30-year US government bond on issue date (basis points)	Commission from face value to US AID for guarantee
September 2003	450\$	30	5.5	Barclays Capital	5.5790% (98.8557)	38	8.27%
September 2003	1150\$	20	5.5	Merrill Lynch	5.5299% (99.6409)	33	7.00%
December 2003	750\$	20	5.5	Lehman Brothers	5.5199% (99.7608)	36	4.96%
April 2004	1000\$	20	5.5	Lehman Brothers	5.5331% (99.6025)	31	5.10%
October 2004	750\$	20	5.125	Merrill Lynch	5.159% (99.5789)	29	3.90%

(1) All issues are of fixed-coupon bearing bonds.

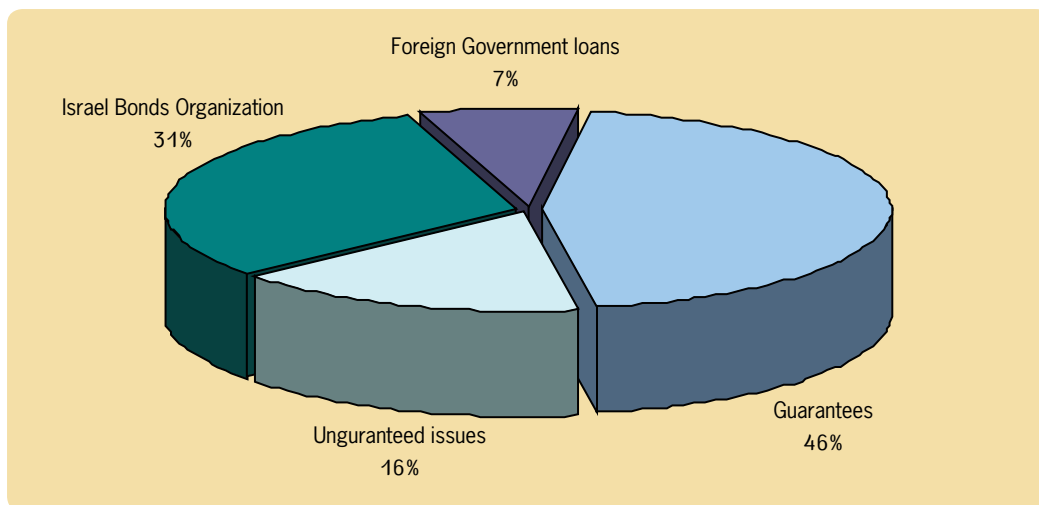
## Nontradable Debt

The nontradable part of the debt is mainly composed of nontradable bonds issued over the years to individuals, companies, and institutional entities through the Israel Bonds Organization (State of Israel Bonds). The debt arising from Israel Bonds Organization securities stood at a total of NIS 37.5 billion (USD 9.6 billion) at the end of 2007. The remainder of nontradable debt in foreign currency stems from bonds issued to foreign governments, international institutions, foreign banks, and binational funds, with a total balance of NIS 8.7 billion (USD 2.3 billion) at the end of 2007.

## Main features of foreign-currency debt:

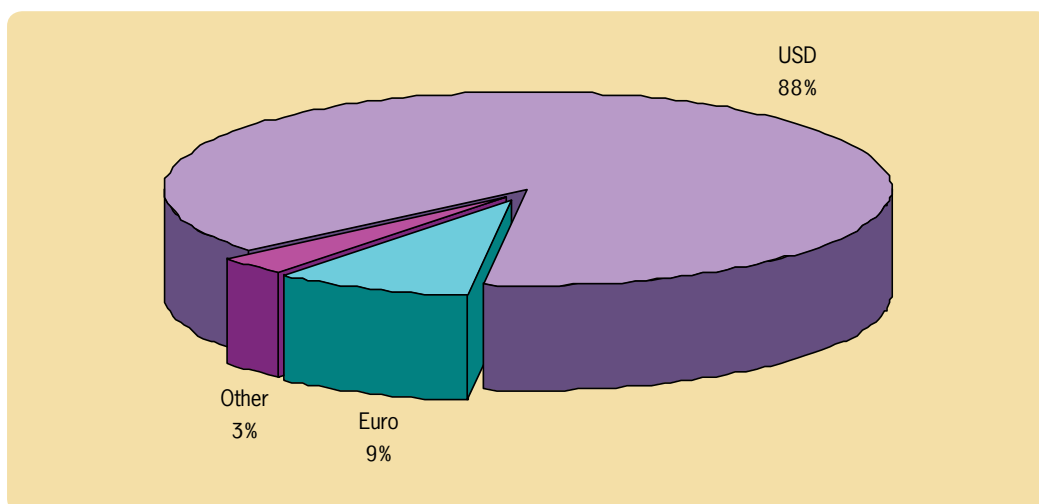
**High rate of bonds with preferred terms** – At the end of 2007, securities of the Israel Bonds Organization and issues backed by U.S. government guarantees comprised 76% of total foreign-currency debt. These bonds benefit from better financing terms in funding on international markets. Securities issued by the Israel Bonds Organization are nontradable; their sensitivity to shocks in the international capital markets is therefore low. These bonds constituted 31% of total foreign-currency debt at the end of 2007. Bonds backed by U.S. government guarantees enjoy preferred terms (low interest rates), because they are assigned the credit rating of the U.S. government (AAA/Aaa), which is higher than the Israeli government's credit rating. At the end of 2007, these bonds comprised 45% of total foreign-currency debt (see Diagram B-5).

**Diagram D-6**  
**Composition of debt in foreign currency by source of debt, as of Dec. 31, 2007**



**High rate of dollar-denominated and fixed-coupon debt** – The Accountant General Division has developed a benchmark model for financial-risk management, aimed at filling the gap formed by the government’s management of financial liabilities (government debt) without considering financial assets (foreign-currency reserves, which are administered exclusively by the Bank of Israel). The main finding of the model is that the government’s current debt portfolio has an excessively high rate of liabilities denominated in dollars and of fixed-coupon liabilities. Accordingly, the conclusion is that the government should perform swap transactions to help change the mix of its liability portfolio in the desired direction. As of the end of 2007, 88% of foreign-currency debt is denominated in dollars; 9% is denominated in euros; and the remainder is in other currencies<sup>8</sup>. Furthermore, 94% of the debt is at fixed coupon, while just 6% is at floating rates.

**Diagram D-7**  
**Composition of foreign-currency debt by currency, as of Dec. 31, 2007**



<sup>8</sup> These figures do not include swap transactions.



## Swap Transactions

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Swap transactions are financial transactions executed with banks, in which monetary flows are exchanged for an agreed-upon period. The swap transactions relevant for hedging the government's risks are interest-rate swaps and currency swaps. In transactions of the first type, the government can exchange fixed-coupon liabilities for floating-rate liabilities; in transactions of the second type, the government can exchange foreign-currency debt denominated in a particular currency for debt denominated in another currency.

Currency swaps allow the currency exposure base of the debt to be changed without impairing the achievement of the objective of issuing bonds abroad – creating an Israeli benchmark. As an example of a currency swap, dollar-denominated debt may be exchanged for euro-denominated debt, which is essentially equivalent to eliminating dollar exposure while taking on euro exposure in return. When debts are exchanged between different foreign currencies, by definition, the debt still bears currency risk and remains exposed to possible fluctuations in exchange rates. Accordingly, the appropriate solution for reducing Israel's exposure to currency fluctuations is to perform swap transactions from foreign currency to the NIS, Israel's domestic currency.

Moreover, given that one-quarter of Israel's debt is in foreign currency, Israel is actually exposed to exchange-rate fluctuations to a highly significant degree. The clear conclusion is that in order to reduce the currency risk inherent in holding external debt, the State of Israel should exchange foreign-currency liabilities for liabilities in NIS; due to the dominance of dollar-denominated debt, the top priority is to exchange dollar-denominated debt for NIS-denominated debt.

In 2006 the Israel government exchanged USD 250 millions to EURO exposure. And in 2007 another USD 500 millions where exchange to EURO exposure.



# Section E

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## Market-Maker Reform





## Section E – Market-Maker Reform

Over recent years, the Ministry of Finance has implemented an extensive array of reforms aimed at streamlining public expenditures and increasing competition in the economy. However, the reforms have hitherto applied only to some 80 percent of the state budget. A sizable and significant segment of approximately NIS 35 billion in interest expenses has remained without thorough treatment. Against this background, the importance of implementing the Primary Dealers reform has progressively increased. This reform has been adopted in many countries worldwide, and studies show that it has led to significant reductions in government funding costs; decreases in long-term interest rates; increased competition, transparency, and financial stability; and active participation of foreign investors in domestic markets.

In January 2005, the Knesset plenum unanimously passed Amendment 14 to the State Loans Law. The amendment, initiated by the Debt Management Unit in the Accountant General Division, constitutes the basis for a comprehensive reform in the bond market, which has been implemented as of 2006. The bond-market reform is the product of extensive work that began in 2001 with the establishment of an inter-agency committee to examine market making in Israel. The committee conducted in-depth discussions of the implementation of market making in government bonds, among other topics. Preparations for application of the reform were completed in the second half of 2005 and the first half of 2006. Bonds were issued through the Bloomberg system for the first time in June of 2006. Ten weeks later, in early September, market makers began quoting bid and ask prices using the MTS system, the government-bond lending facility became operational, and the clearing method was changed. Several years of work by the Unit as well as many participants in Israel and abroad was thereby realized and brought to fruition.

As part of the comprehensive reform in government bonds, five new systems became operational in 2006:

1. An auction system (Bloomberg);
2. A trading system (MTS);
3. A bond management system – receipts, payments, and databases (Merkava);
4. A bond lending (repo) facility;

Further, the clearing method of government bonds was changed.

### The Primary Market

#### The Primary Market Following the Reform

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Prior to the amendment of the law, all decisions concerning funding were made at the Ministry of Finance, while the actual issuance of bonds was performed by the Monetary Department at the Bank of Israel. Pursuant to the amendment, tradable-bond issues as well as nontradable-bond issues to pension funds have been carried out by the Ministry of Finance since June 2006.

During the initial period of the reform's implementation, issues of CPI-linked bonds and some 20 percent of the quantity sold of unlinked fixed-coupon bonds continued in a manner similar to that prior to implementation of the reform. Thus, these auctions were open to Primary Dealers, banks, TASE members, and other entities confirmed by the Accountant General. Approximately 80 percent of unlinked fixed-coupon bonds were sold in separate auctions to Primary Dealers.

### **Box E-1: Primary Dealers**

Primary dealers are large, stable financial institutions that commit to quote bid and ask prices for large series of government bonds, using the international trading system MTS, for several hours daily, at predetermined spreads. This activity has brought about a significant increase in turnovers of government bonds, reduced the liquidity premium for bond holders, attracted investors to the government-bond market, and reduced the government's funding costs. Primary Dealers commit to a minimum volume of activity in government-bond auctions (a volume of bond purchases over the year). In return, they enjoy access to designated bond auctions. Further, Primary Dealers enjoy the option of an additional allocation, at the average price of the auction, on the day following the auction, at a predetermined volume; access to the bond lending facility established by the Ministry of Finance; and exclusive access to the new designated trading system, MTS.

## **New International Auction System**

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With the transfer of issuance to the Government Debt Management Unit in the Accountant General Division, the existing auction system has been replaced by a bond-auction system from the international company Bloomberg. This issuance system is simple to operate, highly reliable, and functions very successfully in several countries, including Belgium, Ireland, and South Africa. The system enables market makers to participate in government auctions from abroad as well, in a simple and transparent manner. At the same time, as the system's terminals were already available prior to the reform at most of the entities that participate or are likely to participate directly in government bond auctions, the transition does not involve an added expense on their part. Furthermore, as Bloomberg is the world's leading analytical system, used by professional traders throughout the world for bond pricing, it is highly important that traders are now able to price all Israeli government bonds using the system.

Towards the end of the month preceding the month of the auction, an announcement is published stating the auction date and the series and quantities offered for sale. On the day of the auction, participants submit the requested quantity of each bond at each price through their terminals. Participants are permitted to change their bids without restriction until the deadline for bid submission. The last bid submitted by each participant by the deadline is binding.

Auctions are conducted using a graded ("discriminatory") auction model: immediately after the deadline for submitting bids, the auction closes to further bids and the system allocates bonds based on the prices offered, from the highest price to the lowest price, until all the bonds on offer are sold. The closing price is the price obtained at the point at which the full offered quantity is sold. All participants who offer a price higher than the closing price receive all the bonds they requested, and each bidder pays the prices bid in the auction. In case of surplus demand at the closing price, a pro-rata allocation of the remaining bonds is carried out, according to the quantity requested by each participant at that price. At the end of the auction, each participant receives details of its winning bids as well as general data about the results of the auction, such as the quantity sold, average price, closing price, etc. A summary of the auction results is also released to the public, on the website of the Debt Management Unit in the Accountant General Division and through the Bloomberg system.

An additional allocation procedure for Primary Dealers is carried out during the 24 hours following the closing of the auction, in which auction winners can purchase up to an

additional 15-18 percent of the amount (in face value) they purchased in the auction, at the auction's average price. This procedure is aimed at providing participants with an incentive to offer more aggressive prices in the ordinary designated auctions, thereby reducing the government's funding costs. The additional allocation is also carried out using the Bloomberg system, via a designated module.

Another improvement offered to auction participants is the possibility of paying for the bonds acquired in the auction through the TASE Clearing House, which collects the funds from the offering and transfers them in aggregate to the Finance Ministry. Virtually all auction participants have elected to take advantage of this option, in order to achieve greater efficiency.

## **Foreigner's Involvement in the Market**

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One of the key objectives of the capital-market reform was to encourage the entry of foreign banks as Primary Dealers, in order to lower the high level of concentration in the economy, increase competition, reduce funding costs, and increase liquidity in the government-bond market. Foreign banks began to operate as Primary Dealers in September 2006, at the launch of the reform and the inception of Primary Dealers' commitment to purchase government bonds. As demonstrated in Section B, the foreign banks' entry had a positive effect on the distribution of concentration in the bond market, and total acquisitions by foreign banks reached 35%. This high figure reflects their extensive involvement in the primary market, compared to the situation prior to the reform, when six local entities purchased more than 85% of issues. This figure also accounts for the downward trend of the Herfindahl index.

## The Secondary Market

### The Secondary Market Following the Reform

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Until the enactment of the reform, trading in government bonds was chiefly carried out on the Tel Aviv Stock Exchange. Investors submitted buy and sell orders through TASE members, and transactions were cleared by the TASE Clearing House.

Following implementation of the reform, bond trading is not only several times broader in volume, but also more diverse in terms of the various trading arenas. In other words, from a situation in which a single trading arena, the TASE, drew close to 100% of trading prior to the reform, within less than a year we have reached a point where a significant amount of trading is conducted through the MTS system or on the OTC market; the concentration of trading has thus decreased considerably.

Upon the launch of the Primary Dealers system, a new trading arena also began operating – the Inter-Dealer System, in which Primary Dealers operate and are obligated to provide quotes on a regular basis. The system selected for trading among Primary Dealers is by EuroMTS, the leading European developer of inter-dealer trading infrastructures for government bonds. This system is in use in most European Union countries, including Italy, Germany, France, Spain, and others. The system also allows two-way trading; i.e., Israeli traders and investors can purchase bonds abroad via the same system. As with the Bloomberg system, the use of a well-known international company whose trading system is installed at many financial institutions worldwide lowers costs, facilitates activity by overseas participants, and allows increased international exposure for Israeli government bonds.

### Trading on the Primary Dealers' MTS System

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Trading on the MTS system commenced in September 2006. Securities traded on the system were Shahar bonds and Government Bonds. Linked Galil bonds were also added to the system at a later date; however, trading in these bonds has been quite sparse so far, likely due to the fact that it is conducted on a voluntary basis, without the quoting commitments that apply to the unlinked bonds. Trading on the MTS system is conducted in parallel to trading on the TASE, on Monday through Thursday only. Nineteen<sup>9</sup> Primary Dealers participate, of which eight are international banks and eleven are Israeli banks and non-bank TASE members. Primary Dealers are obligated to provide quotes on the MTS trading system, within several requirements established by the Ministry of Finance, including the following:

- A. The net number of hours daily for which Primary Dealers must quote;
- B. Limit on order size;
- C. Spread between ask quote and bid quote according to the bond's term to maturity.

These criteria ensure sufficient liquidity in the market, at any given moment, to allow each market maker to buy or sell substantial quantities of bonds. One of the great advantages of the reform is the entry of eight leading, major international entities in the financial field into daily activity in the Israeli market. As shown, trading by these foreign entities accounts for a significant share of trading on MTS.

The reform also led to a change in the pattern of activity of Israeli banks. Whereas until the reform these banks served solely as mediators for the execution of transactions, without holding market positions, after becoming Primary Dealers they have also taken on

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<sup>9</sup> From the beginning of 2008, there are seventeen Primary Dealers.

positions in the market, in addition to their role as mediators; in other words, they take and manage risks, as is the common practice at banks around the world. This development has led to increased tradability and liquidity in the government-bond market.

## **Bond Trading on the TASE**

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Turnovers on the TASE have grown by 100% or more following the implementation of the reform. The TASE remains an important arena for trading between Primary Dealers and investors in general, and the increase in trading activity on the Primary Dealers' system makes it easier for market operators to price bonds, and reduces uncertainty. As noted, this assessment is supported by evidence from other countries – trading volumes have increased considerably in markets in which primary dealers were introduced.

## **Clearing**

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Transactions in government bonds carried out on the TASE or on the new MTS system are cleared by the TASE Clearing House, which serves as a central counterparty; i.e., if one of the parties does not uphold its obligations, the TASE Clearing House completes the transaction instead. In another type of transaction, known as over-the-counter (OTC) transactions, the TASE Clearing House is not a central counterparty, so that the responsibility for executing the transaction rests with the parties to the transaction.

As part of the bond-market reform, the TASE Clearing House has decided, in conjunction with the Finance Ministry, to continue to improve the stability of its clearing houses by adopting the important principle of Delivery Versus Payment (DVP), which refers to the simultaneous transfer of money and securities. Until now, securities were transferred on the day on which the transaction was performed, whereas payment for the security was only transferred or received by the clearing house on the following day. This created a risk for the clearing house that does not occur when the DVP principle is applied. In the first stage, the change applied only to trading in government bonds; in the future, it will be expanded to all other securities as well.

## **Bond lending Facility for Primary Dealers**


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Within the reform, Primary Dealers are obligated to quote bid and ask prices of bonds continuously, over time. This exposes them to risk at times of insufficient liquidity in the market, due to the fact that there is no liquid repo market in Israel where market makers can borrow bonds when necessary<sup>10</sup>.

Because there is no active repo market in Israel as yet, a decision was made to establish a bond lending facility for Primary Dealers, in order to assist them in complying with their quoting commitments. The facility was established jointly by the Ministry of Finance and the TASE Clearing House, which operates it based on rules determined by the Ministry. A Primary Dealer needing a bond can contact the TASE Clearing House and borrow the bond from the bond lending facility, up to a limit, which currently stands at NIS 500 million per Primary Dealer; in exchange, the Primary Dealer transfers cash, for which it receives interest. It is hoped that the existence of the facility for the use of Primary Dealers will serve as an incentive to the development of an active repo market, concurrently with the removal of the economic and legal barriers which have delayed this development in the

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<sup>10</sup> Repo market – a repo transaction is a transaction in which bonds are transferred from party A to party B, while in return, party B gives cash to party A, with a commitment by party B to return the bonds to party A at some later date; the bonds constitute collateral. These transactions may be executed for any period of time, although they generally are short term.



past. The bond lending facility became operational in September 2006, parallel to the start of operation of the MTS system. The facility currently allows Primary Dealers to borrow Shahar, Government, Galil, and Linked Government Bonds. The Primary Dealers are required to return the bonds no later than one year prior to the bonds' maturity date.

Concurrently, the Debt Management Unit in the Accountant General Division, together with the Ministry of Justice, the Bank of Israel, the Capital Market Division, and the Israel Securities Authority, has worked to promote the legislation of the Law of Special Transactions in Securities, dealing with repo transactions, which will allow the development of this essential market in Israel, as well as with the status of other transactions (spot transactions, futures transactions, and derivative transactions) in the inter-bank market, which require the possibility of netting between opposite transactions. Among other matters, the law defines the legal status of the asset, and clarifies the issue of its ownership in the event that one of the parties enters a process of liquidation or bankruptcy during the transaction. A liquid repo market will assist in the development of a non-bank credit market, thereby lowering financing costs for the business sector. This law was passed, and took effect at the beginning of 2006.

## Changes in State Loan Regulations

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As part of the reform in the bond market, the Government Debt Management Unit in the Accountant General Division worked to standardize issued bonds and to simplify the bond structure to the extent possible, as is common practice worldwide. Within this process, State Loan Regulations that refer to series issued in the past were amended, and regulations were instituted for new series to be issued starting in 2006. It should be emphasized that the change in the loan regulations does not impair the terms of the previously existing bonds and causes no damage to the holders of such bonds.

The following are the main changes to the regulations:


1. **Change in the names of bonds** – Bond names (such as Shahar, New Gilon, and Galil) will be replaced with names that indicate the bond's qualities: linkage and coupon type, interest rate, and maturity date, as is common practice elsewhere in the world. For example: "CPI-Linked Government Bond, 4%, May 2036."
2. **Early redemption** – Following the amendment to the law, which provides authorization to offer the public early redemption, the new regulations allow the same. It should be emphasized that this does not refer to unilateral redemption by the government, but to the government's ability to offer an option of early redemption to bond holders, based on debt-management considerations and in order to reduce funding costs.
3. **Cancellation of items related to taxation of bonds** – In the old bonds, the regulations referred to the taxation of interest payments to bond holders. The entire issue of interest taxation is currently regulated under Income Tax regulations; thus there is no need to address the matter in these regulations.
4. **Change in definition of the date of record for entitlement (the ex-date)** – In the past, the date of record for entitlement was defined as between 5 and 30 days before the date of the interest payment or bond redemption. In practice, the period has been shortened to approximately 10 days. Therefore, in the new version, the date of record is defined as the end of the 20th day of the month in which the interest or principal is paid.
5. **Possibility of bond issues between the ex-date and the date of payment** – In the past, according to some regulations, it was not possible to issue new bonds during the period between the ex-date and the date of payment. There is no such restriction under the new regulations.
6. **Definition of the sale of bonds as defined in Amendment No. 14 to the law** – Bonds are sold to Primary Dealers and the general public, or to market makers

only. Sales to the general public are performed through banking corporations, TASE members, and additional entities approved by the Accountant General Division in the Ministry of Finance.

7. **Failure to pay interest and/or principal on time** – The old regulations made no reference to the possibility that for technical reasons, interest and/or principal payments might not be made on time. An item regulating this matter was therefore included in the new regulations.
8. **Possibility of issuance for an original period other than a round number of years** – Dynamic, efficient management of government debt occasionally requires the issuance of series for original periods that are not whole years; however, the old regulations did not allow this. The new regulations are formulated such that it is possible to issue bonds for original periods other than whole years.
9. **Cancellation of loan-certificate issuance** – In light of the amendment to the law, which includes cancellation of the physical issuance of loan certificates (as was the practice in the past), formats of loan certificates (the first addendum to the existing regulations) were removed from the new regulations, as were references thereto.
10. **Change in the underlying asset of floating-rate bonds** – The underlying asset for floating-rate government bonds, based on which the periodic interest rate is determined, has been changed from the existing underlying asset for New Gilon bonds, and will now be the Makam series with the term to maturity closest to one year, i.e. the longest series. In New Gilon bonds, the underlying asset is the average yield of Makam series with terms to maturity of three months to one year. This change will simplify the pricing of new bonds and facilitate risk hedging for capital-market operators, as they will be looking at a specific bond, rather than an average of yields, which is difficult to hedge.
11. **Simplification of the procedure for determining interest rates in linked bonds** – The existing mechanism for determining the interest rate in Galil bonds is cumbersome, and has not achieved the goal of issuing the bonds at a price closest to 100 ("par"); a mechanism was therefore established that is identical to the practice for fixed-coupon (Shahar) bonds, in which the interest rate is determined by the Ministry of Finance.
12. **Full, two-way linkage for CPI-linked bonds** – Linkage in Galil bonds is partial, as it compensates the holder for the increase in the consumer price index since the series was first issued, whereas no linkage is carried out when the CPI decreases. This makes the bond's pricing difficult in certain cases, creates distortions, and unnecessarily increases the government's interest payments. Under the new regulations, CPI-linked bonds therefore have full two-way linkage. In other words, if the CPI falls below the payment base during the interest period, the actual payment will be lower than the nominal interest rate of the bond.
13. **Shortening of the first interest period** – Until now, the first interest period started at the beginning of the month in which the bond was first issued, even if the first issue was carried out at the end of the month. In the new bonds, the first interest period starts on the exact date at which the bond is sold for the first time.

The following are the main changes to the regulations for the old bonds:

1. **Adjustment of sections specifying the procedure for sales** – Amendment 14 to the law states that bonds will be sold to Primary Dealers and to the general public. Sales to the general public will be carried out through banking corporations, TASE members, and additional entities to be approved by the Accountant General Division at the Ministry of Finance. Accordingly, amendments were made to Section 5 of the State Loan Regulations (Shahar Series) and of the State Loan Regulations (New Gilon Series), as well as Section 3 of the State Loan Regulations (Galil Series). In addition, Section 13 of the State Loan Regulations (Shahar Series) and of the State Loan Regulations (New Gilon Series) was cancelled, as well as Section 14 of the State Loan Regulations (Galil Series).

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2. **Early redemption** – Subsequent to the amendment to the law, which provides authorization to offer early redemption to the public, this possibility was grounded in the regulations. It should be emphasized that this does not refer to unilateral redemption by the government, but to the government's ability to offer early redemption to bond holders, based on debt-management considerations and in order to reduce funding costs.

## **Transfer of the Domestic Debt Administration from the Bank of Israel to the Ministry of Finance**

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Following the amendment to the State Loan Law, responsibility for the operation of all aspects of domestic government debt that were previously handled by the Bank of Israel was transferred to the Government Debt Management Unit in the Accountant General Division.

For this purpose, the Debt Management Unit established three new operational units during 2005: the Issuance Unit, the Trading Supervision Unit, and the Back-Office Unit. These units have replaced the State Loan Administration at the Bank of Israel. The transfer of the administration was implemented in June 2006.

### **Issuance Unit**

The unit is responsible for the management of tradable bond auctions for entities authorized to participate in the issues, and to the general public through such entities. Auctions are conducted via the international Bloomberg system. The unit is also responsible for determining whether Primary Dealers meet their obligations, maintaining routine contacts with all entities involved in the issuance process, and publishing rankings of Primary Dealers according to their activity in the primary market.

### **Back-Office Unit**

The unit's activity encompasses issues of nontradable government bonds (performed directly with pension funds entitled to purchase nontradable bonds), and handling of receipts and payments for tradable and nontradable government bonds. To perform its duties, the unit interfaces with officials in the Ministry of Finance, the TASE, and the Bank of Israel. The unit responds to all contacts from the public, in Israel and abroad, on all subjects related to government bonds.

### **Trading Supervision Unit**

The unit supervises the activity of the various market makers on the MTS system, according to the commitments established. The unit established the bond-lending facility for market makers, jointly with the TASE, and is responsible for borrowing activity and for the collateral required of market makers. The system is operated by the TASE Clearing House. In addition, the unit publishes rankings of Primary Dealers according to their activity on the MTS system. Each Primary Dealer is notified of its rank on a monthly level; rankings are released to the public quarterly.

### **Personnel**

The unit increased its manpower in 2005-2006 and currently has 13 professional employees.

### **Publications**

Each year, the unit publishes a comprehensive report in Hebrew and in English. The unit also publishes tradable government-bond issuance data on its website and on the Bloomberg system. The website provides additional data regarding tradable and nontradable government

bonds (issues, redemptions and turnovers), as well as information regarding the bond lending facility and the new trading arena MTS-Israel.

### Computerization


An innovative, comprehensive computerized system has been developed for the administration's work, based on SAP software. The system was developed by the IT Department at the Accountant General Division, as part of the Merkava project, in which ERP (enterprise resource planning) is being implemented in all government ministries and in additional government agencies.

The transfer of the Domestic Debt Administration from the Bank of Israel to the Ministry of Finance completes the important process of concentrating all debt-management activities, which until a few years ago were divided among four different bodies, under one roof. This process allows for significant savings in manpower and more efficient management, control, and planning of government debt.

## Benefits of the Reform

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- **Increased turnovers** – Despite an increase of over 1,000 percent in turnovers over the last decade, the government-bond market prior to the reform was still far from maximizing its potential. Immediately upon implementation of the reform, turnovers began to grow rapidly in the three main trading arenas – MTS, the TASE, and OTC. In 2007, the volume of trading in government bonds reached an average of NIS 3.2 billion daily.
- **Decrease in funding costs for the government and for the private sector** – The reform was designed to increase competition in the primary market and tradability in the secondary market. The greater tradability of bonds reduces the liquidity premium required by investors, leading to lower funding costs for the government.
- **Globalization and upgrading of the financial markets** – The introduction of foreign financial entities and the transition to issuance and trading via international electronic systems has deepened the integration of the domestic bond market, and of the capital market in general, with the international markets. This has been reflected both in the number and power of players in the market, and in the speed and strength of the effect of capital markets overseas on developments in the local capital market.
- **Reduced concentration** – The entry of large international financial entities and new systems into the primary and secondary markets has decreased the concentration in the government-bond market in particular and in the capital market in general. The decrease in concentration is evident in several ways:
  1. Small entities ahead of large ones – As shown in Appendix E, the quarterly ranking of Primary Dealers indicates that the activity of Primary Dealers in the primary and secondary markets is not correlated with their size in the Israeli market; this reflects a decrease in concentration.
  2. Addition of trading arenas – Prior to the reform, the absolute majority of trading took place on the TASE. Following the reform, a new trading arena was added (MTS), and OTC trading grew significantly.
  3. Herfindahl index – The decrease in concentration is also apparent when measured using the Herfindahl index. Diagram B-9 shows that the reform has led to a decrease in concentration, from an average of eight banks to an average of twelve banks – a 50% increase.
- **A trigger for expansion of the activity of foreign banks and institutional investors in the Israeli capital market** – International financial entities that become Primary Dealers can be expected not to engage only in activity in the government-bond



market, but to operate in other sectors of the capital market as well. Thus, the reform in the government-bond market is a complementary measure in line with other actions taken by the Ministry of Finance to enhance the sophistication of the Israeli capital market.

- **Broader base of investors in government bonds** – With the equalization of taxation on capital gains and interest payments for foreign and domestic investments, local investors (private and institutional) have started to redirect investments from the domestic government-bond market to foreign capital markets. This trend has caused the Israeli economy to become a net creditor for the first time in its history; in other words, the total financial assets in foreign currency of Israeli residents are greater than the financial assets of non-residents in Israel. The Unit identified this trend several years ago, and consequently decided that the investor base should be widened and the activity of foreign entities on the domestic government-bond market should be expanded. The entry of globally deployed financial entities undertaking a commitment to continuous activity in the Israeli capital market facilitates the distribution of Israeli government bonds to institutional and private investors abroad, to whom access was limited, thereby widening the circle of investors in government bonds. In fact, since the beginning of the reform, institutional and banking entities that previously had no access to or involvement in the Israeli capital market have tended to invest in government bonds.
- **Adoption of international standards** – The reform includes the adoption of international standards of trading and clearing.
- **Development of new financial instruments** – The activity of knowledgeable, experienced Primary Dealers aids the development of financial instruments in the Israeli capital market, such as swap contracts, repos, bond futures, commercial paper, credit derivatives, etc.
- **Risk management** – The commitments of the Primary Dealers will lead to the development of local banks' risk-management capabilities in the area of securities, in line with their preparations for improved credit-risk management, as required under the Basel II regulations.



# Appendices

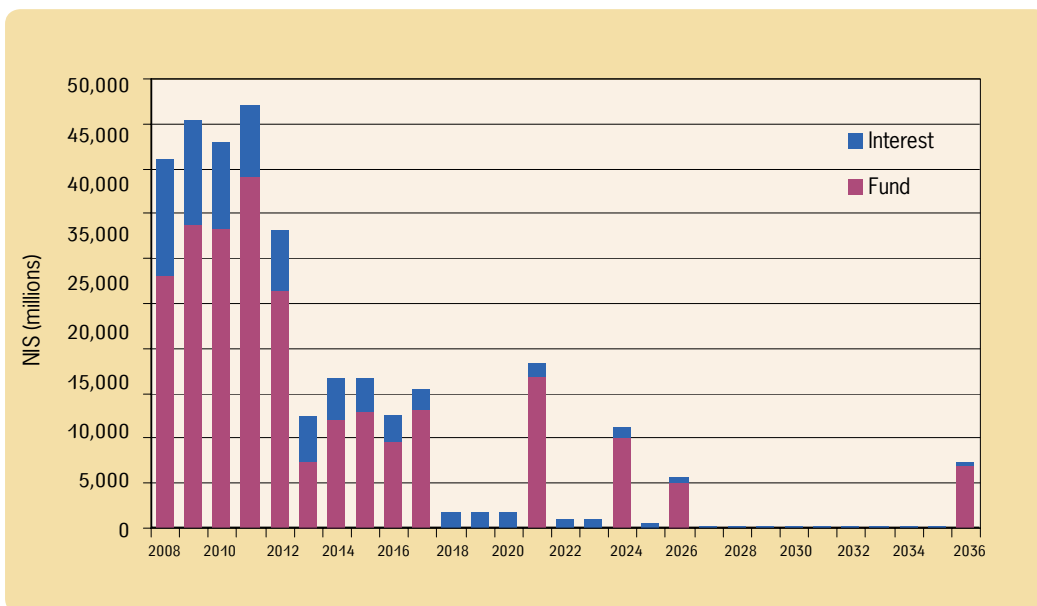




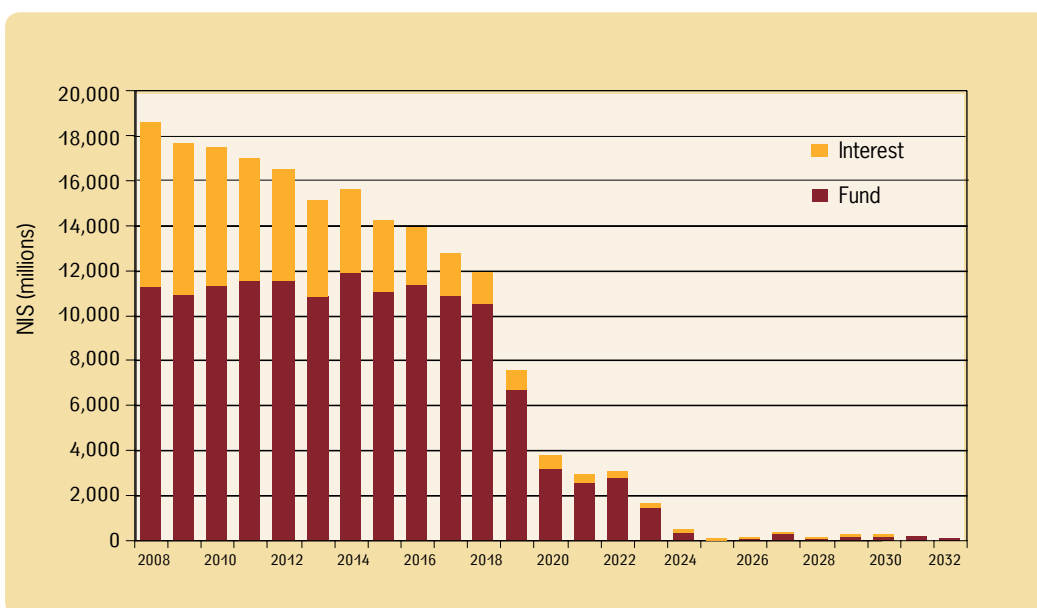
# Appendices

## Appendix A – Forecast of Principal Redemptions and Interest Payments

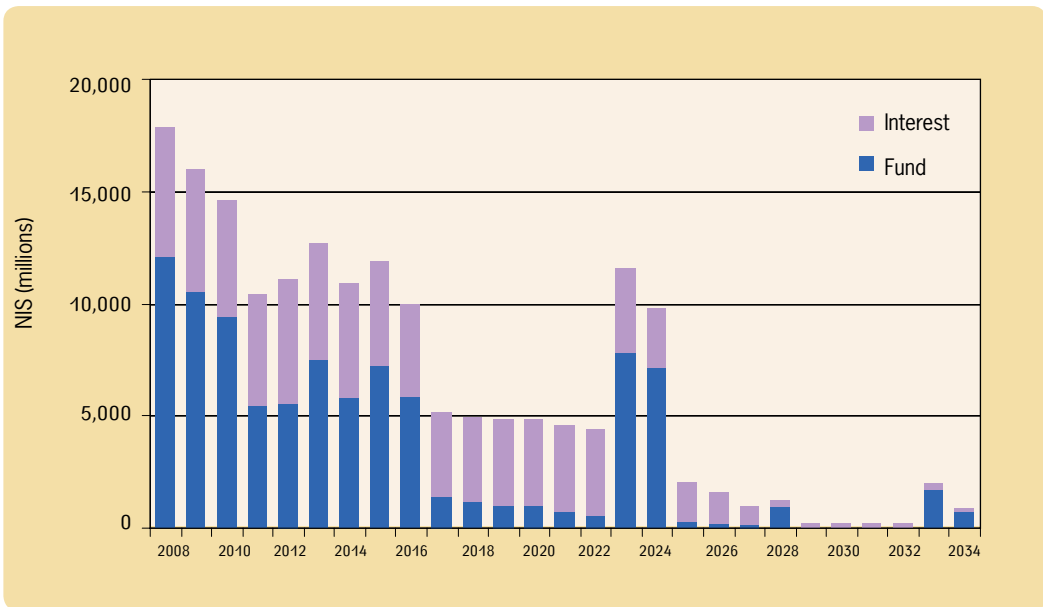
**Diagram A-1**  
Principal redemptions and interest payments on tradable domestic debt, 2008-2036



**Diagram A-2**  
Principal redemptions and interest payments on nontradable bonds in the domestic market, 2008-2032



**Diagram A-3**  
**Principal redemptions and interest payments on external debt, 2008-2034**



## Appendix B – Features of Tradable Bonds in the Domestic Market

Bond	First issue date	Interest	Interest payment
CPI-linked			
Galil*	Dec. 31, 1984	Fixed – based on average yields of fixed-coupon CPI-linked bonds, according to the term to maturity of the series or 1% (whichever is higher).	Once annually.
Linked Government Bond	Jun. 26, 2006	Fixed – as determined by the Ministry of Finance.	Once annually.
Dollar-linked			
Gilboa**	Oct. 24, 1988	Floating – based on six-month LIBOR interest rate.	Once every six months.
Unlinked			
New Gilon	Apr. 28, 1999	Floating – based on Makam yields for a period of 3-12 months.	Once every three months.
Floating-Rate Government Bond	Jan. 8, 2008	Floating – based on Makam yields for a period of 12 months.	Once every three months.
Shahar*	Aug. 24, 1995	Fixed – as determined by the Ministry of Finance.	Once annually.
Government Bond	Nov. 6, 2006	Fixed – as determined by the Ministry of Finance.	Once annually.
Short-Term Government Bond	Dec. 6, 2007	Fixed – as determined by the Ministry of Finance.	Once annually.

\* This bond is no longer issued.

\*\* This bond is no longer issued. One very small series remains in circulation.

## Appendix C – Features of Bonds Issued by the Israel Bonds Organization

Bond type	Interest formula	Interest payment	Repayment period (years)	Minimum purchase
Fixed Coupon				
Jubilee 1 Year	TB1y + spread	Every six months	1	USD 25,000 (and in multiples of USD 5,000)
Jubilee 2 Years(1)	TB2y + spread	Every six months	2	USD 25,000 (and in multiples of USD 5,000)
Jubilee 3 Years	TB3y + spread	Every six months	3	USD 25,000 (and in multiples of USD 5,000)
Jubilee 5 Years	TB5y + spread	Every six months	5	USD 25,000 (and in multiples of USD 5,000)
Jubilee 7 Years(1)	TB7y + spread	Every six months	7	USD 25,000 (and in multiples of USD 5,000)
Jubilee 10 Years	TB10y + spread	Every six months	10	USD 25,000 (and in multiples of USD 5,000)
1-Year Savings Bond	Strip1y + spread	End of period	2	USD 2,500
2-Year Savings Bond(1)	Strip2y + spread	End of period	2	USD 2,500
3-Year Savings Bond	Strip3y + spread	End of period	3	USD 2,500
Mazel Tov 5-Year Bond	Strip5y + spread	End of period	5	USD 100
10-Year Savings Bond	Strip10y + spread	End of period	10	USD 2,500
Mazel Tov 10-Year Bond	Strip10y + spread	End of period	10	USD 100
Canadian Jubilee 1 Year	Canadian TB1y + spread	Every six months	1	CAD 25,000 (and in multiples of CAD 5,000)
Canadian Jubilee 2 Years <sup>(1)</sup>	Canadian TB2y + spread	Every six months	2	CAD 25,000 (and in multiples of CAD 5,000)
Canadian Jubilee 3 Years	Canadian TB5y + spread	Every six months	5	CAD 25,000 (and in multiples of CAD 5,000)
Canadian Jubilee 5 Years	Canadian TB5y + spread	Every six months	5	CAD 25,000 (and in multiples of CAD 5,000)
1-Year Canadian Savings Bond	Canadian Strip1y + spread	End of period	1	CAD 2,500
2-Year Canadian Savings Bond(1)	Canadian Strip2y + spread	End of period	2	CAD 2,500
10-Year Canadian Savings Bond	Canadian Strip10y + spread	End of period	10	CAD 2,500
5-Year Canadian Mazel Tov	Canadian Strip5y + spread	End of period	5	CAD 100
10-Year Canadian Savings Bond	Canadian Strip2y + spread	End of period	10	CAD 2,500
2-Year Euro Savings Bond	German Strip + spread	End of period	2	EUR 5,000
10-Year Euro Savings Bond	German Strip + spread	End of period	10	EUR 5,000
Floating Rate				
3-Year Libor Floating Rate Bond	Libor + spread	Every six months	3	USD 100,000 (and in multiples of USD 25,000)
4-Year Libor Floating Rate Bond	Libor + spread	Every six months	4	USD 100,000 (and in multiples of USD 25,000)

Bond type	Interest formula	Interest payment	Repayment period (years)	Minimum purchase
10-Year Libor Floating Rate Bond	Libor + spread	Every six months	10	USD 100,000 (and in multiples of USD 25,000)
1 Year Euro Floating Rate Bond	Euribor + spread	Every six months	1	EUR 5,000
2 Year Euro Floating Rate Bond	Euribor + spread	Every six months	2	EUR 5,000
7 Year Euro Floating Rate Bond	Euribor + spread	Every six months	7	EUR 5,000

(1) Sales of these bonds ceased in 2007.

## Appendix D – Primary Dealer Rankings, 2007

Rankings listed from highest purchases/activity volume to lowest purchases/activity volume:

Primary market (issues on the Bloomberg system)		Secondary market (trading on the MTS system)	
1.	Deutsche Bank	1.	Discount Bank
2.	Bank Leumi	2.	Bank Leumi
3.	Poalim Sahar	3.	Bank Hapoalim
4.	Migdal Stock Exchange Services	4.	Deutsche Bank
5.	Morgan Stanley	5.	Standard Bank
6.	Union Bank	6.	UBS
7.	Bank Hapoalim	7.	Migdal Stock Exchange Services
8.	Clal Finance	8.	Citibank
9.	First International Bank of Israel	9.	Mizrahi Bank
10.	Mizrahi Bank	10.	U-Bank
11.	Goldman Sachs	11.	Poalim Sahar
12.	Excellence Nessuah	12.	Clal Finance
13.	Discount Bank	13.	Union Bank
14.	U-Bank	14.	Excellence Nessuah
15.	Citibank	15.	First International Bank of Israel
16.	Lehman Bank	16.	Goldman Sachs
17.	UBS	17.	Morgan Stanley
18.	Merrill Lynch	18.	Lehman Bank
19.	Standard Bank	19.	Merrill Lynch

Ranking in the secondary market is based on weighted calculation of the following five parameters:

1. Total trading volume: total trading volume of each Primary Dealer on the MTS system – 40%.
2. Trading volume, filler only: trading volume initiated by each Primary Dealer by quoting a price and quantity on the system and waiting for a “hit” from another party to create a transaction – 25%.
3. Time: the number of hours per day in which each Primary Dealer quotes bid and ask prices, while meeting quoting commitments – 5%.
4. Volume: average daily quote size, while meeting commitments – 10%.
5. Average spread weighted by duration: average bid-ask spread for each bond, taking the duration of the bond into account, such that the longer the duration, the higher the score assigned for a smaller spread – 20%.

## Appendix E – Personnel of the Government Debt Management Unit

Name	Position	Telephone No.	E-mail
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## Appendix F – Structure of the Debt Management Unit's Website

The website of the Government Debt Management Unit presents extensive, varied information to the public regarding debt management. The following table lists the types of information presented on the website.

Government Debt Management Unit	Domestic Debt	External Debt
Domestic Debt Management Department	General	General
External Debt and Foreign Currency Transactions Department	Features of domestic debt	Features of external debt
Risk Management Department	Interest rates	Funding principles
	Features of tradable bonds	Funding sources
<b>Government Debt</b>	Secondary market	Israel Bonds Organization
Structure of government debt	Turnovers	Public offerings
Total debt and debt as a percentage of GDP	Bond-market reform	Issues backed by U.S. guarantees
<b>Risk Management</b>	General	Private placements
	Contractual engagement documents	Bank consortium
General	Bond lending facility	Shelf plans for issues
About the department	Market-maker rankings	Israel Bonds Organization
Risks in government debt	Swap auctions	General
Models	Funding	Funding summary
Benchmark model	Auction procedures	Previous issues
Issuance model	Tradable funding forecast	Issues on world markets
Estimated debt payments	Funding data table	Issues backed by U.S. guarantees
Estimated interest-rate curves	Issuance and redemption queries	
<b>Publications</b>	Issuance questionnaire	<b>Credit Ratings</b>
Annual report	Nontradable bonds	What are credit ratings?
Prospectuses of the State of Israel	Features of nontradable bonds	Definition of credit rating
Presentations	Nontradable bond issuance procedure	Considerations of rating agencies
Additional publications		Israel's credit rating



