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Statistical Bulletin—2015

Introduction

This is the second year in which the Bank of Israel is publishing the "Statistical Bulletin". The publication is intended to provide the public with easy and friendly access to the main data and aggregates regarding financial activity in Israel, with information and explanation of the data, definitions and calculations. The data and aggregates in this publication have been compiled and calculated by the Bank of Israel, mostly in the Information and Statistics Department, as part of the management of information and statistics on economic activity, and are used to achieve the goals and serve the roles of the Bank, in accordance with the Bank of Israel Law.

The first part surveys the main developments of four main issues in Israel's financial statistics in 2015: The public's financial assets portfolio, private sector debt, the economy's activity vis-à-vis abroad, and foreign exchange activity of the main sectors. The main developments are presented through graphs, which depict long term trends in the most important data, together with a short text description and a table of selected indicators and data in each topic.

The second section presents two papers on statistical methodology and explanations of the data processing method on the following issues: The credit market in Israel, and measuring monetary aggregates in Israel according to the international standard.

The publication can be accessed on the Bank of Israel website as well. For readers' ease, the online version has the main data compiled in separate files, and includes links to current data on the same issue found on the Bank's website.

Dr. Eyal Rozen

Director of the Information and Statistics Department

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Part One

Main developments in four main areas of financial statistics in Israel in 2015

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A. THE PUBLIC'S FINANCIAL ASSETS PORTFOLIO

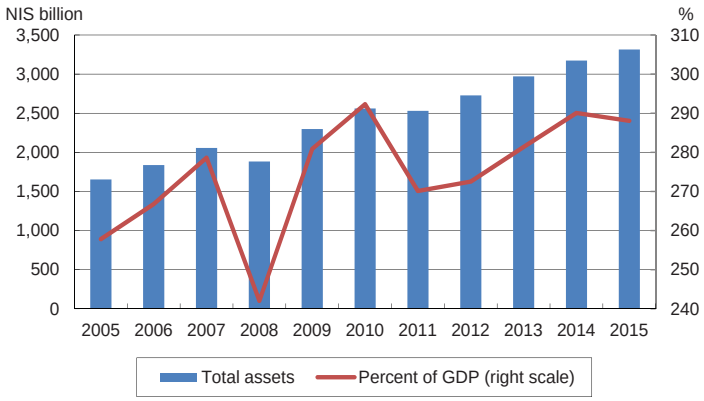
The increase in the balance of the public's[1] asset portfolio continued in 2015, continuing the marked upward trend since 2012. Despite this, the portfolio as a share of GDP declined during the year, for the first time since 2011. About half of the contribution to the increase in the portfolio in 2015 was derived from an increase in the cash and current account components.
The downward trend in the portion of the portfolio managed directly by the public (including mutual funds)[2] continued, in parallel an increase in the portion managed by institutional investors.
Against the background of the decline in the interest rate in the first quarter of 2015, and further to 2014, there was a high level of net redemptions from money market funds and from bond funds, which reduced the balance of assets managed by the mutual funds.
The balance of assets managed by institutional investors increased, but at a slower pace than the average in recent years. In addition, the increase in the proportion of holdings of foreign assets by some institutional investors as a share of total investment assets continued, at a more moderate pace than in recent years.

1. TOTAL ASSET PORTFOLIO

In 2015, the asset portfolio as a share of GDP declined, for the first time since 2011.

The asset portfolio as a share of GDP declined by about 2 percentage points. This decline was a result of a higher GDP growth rate (5.2 percent in current prices) than of the balance of the public's financial assets portfolio, which increased by NIS 142 billion (4.5 percent) in 2015, to about NIS 3.31 trillion.

Figure 1.1
The Public's Financial Assets Portfolio, 2005–15



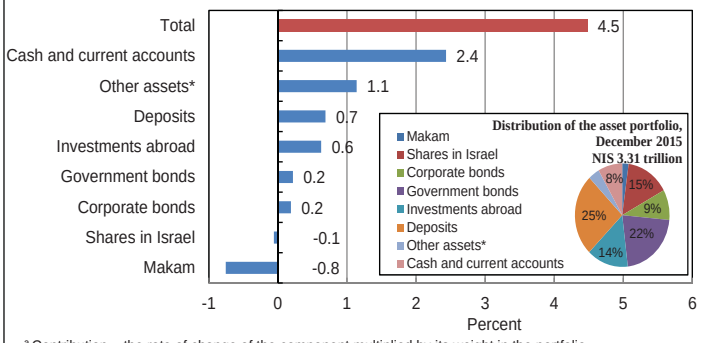
SOURCE: Bank of Israel and Central Bureau of Statistics.

[1] "The public" includes households and the business sector, and does not include the government, the Bank of Israel, nonresidents, commercial banks or mortgage banks.

[2] In this chapter, any reference to "directly by the public" includes data on mutual funds' holdings of financial assets.

About half of the contribution to the increase in the asset portfolio in 2015 was derived from an increase in the cash and current account component.

Figure 1.2
Contribution[a] of the Components to the Increase in the Asset Portfolio, 2015



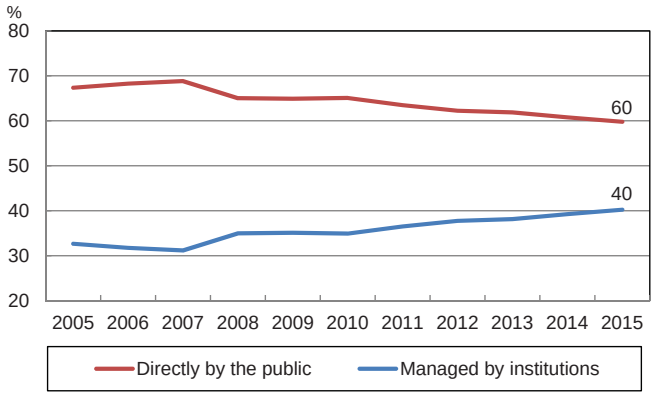
[a] Contribution = the rate of change of the component multiplied by its weight in the portfolio.
* Other assets includes loans, mortgage portfolios, mutual fund participatory notes, land rights, futures assets, and other structured assets.
SOURCE: Bank of Israel.

The cash and current account component, which constitutes only about 8 percent of the balance of the asset portfolio, increased by about 39 percent and contributed about 2.4 percent to the increase in the balance of the entire portfolio, while deposits, which constitute about 25 percent of the portfolio, and investments abroad, which constitute about 14 percent of the portfolio, contributed an average of about 0.7 percent. The increase in these components was partly offset by a decline in the makam component, which accounts for about 2 percent of the portfolio.

In 2015, the increase in the investment abroad component and in corporate bonds in Israel was derived mainly from net investments. Likewise, the decline in the shares in Israel component was derived mainly from net realizations.

In 2015, the downward trend in the portion of the portfolio managed directly by the public continued, in parallel an increase in the portion managed by institutional investors.

Figure 1.3
Distribution of the Asset Portfolio by Managing Entity, 2005–15

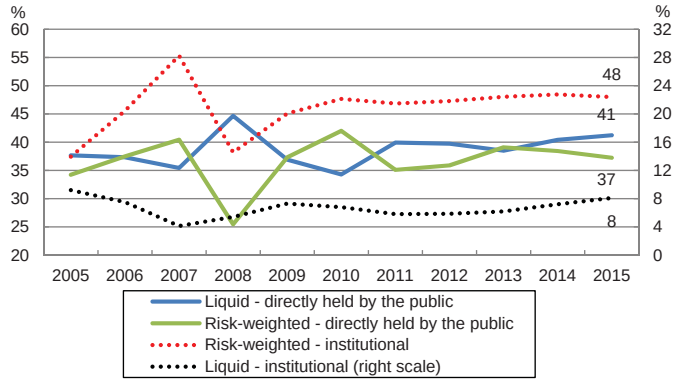


SOURCE: Bank of Israel.

The balance of assets managed directly by the public increased by about 3 percent in 2015, while the balance of assets managed by institutional investors increased by about 7 percent. As a result, the rate of assets managed directly by the public declined to about 60 percent (about NIS 2 trillion) in 2015. The rate of assets deposited with the banks was about one-third of the total asset portfolio at the end of the year, with this rate differing greatly between the portion managed directly by the public (48 percent) and that managed by institutional investors (7 percent).

In 2015, the ratio of liquid assets increased, while the ratio of risk assets declined, both in the portion managed directly by the public and in the portion managed by mutual funds.

Figure 1.4
Liquid and Risk-Weighted[a] Assets by Managing Entity, 2005–15



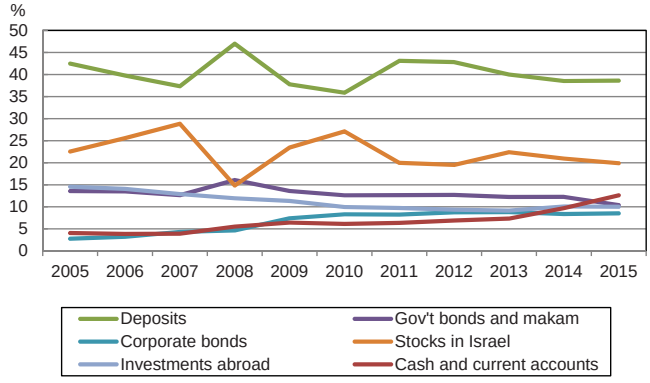
[a] See definitions in the Indicators table at the end of the chapter.
SOURCE: Bank of Israel.

In 2015, against the background of increasing uncertainty in the markets, there was an increase in the percentage of liquid assets held directly by the public, to about 41 percent, slightly higher than the percentage of risk assets, which declined to about 37 percent. In the portfolio managed by the institutional investors, the rate of risk assets declined slightly, but remained high (48 percent) relative to the rate of liquid assets, which remained very low despite the moderate increase in the past two years (8 percent). These differences in the risk and liquidity profile between portfolio types reflect structural differences (see the main terms at the end of this chapter).

2. THE PORTFOLIO MANAGED DIRECTLY BY THE PUBLIC

In 2015, the upward trend in the proportion of cash and current accounts held directly by the public continued, in parallel with a decline in the proportion of shares in Israel, government bonds and makam.

Figure 1.5
Composition of the Asset Portfolio Held Directly by the Public, 2005–15



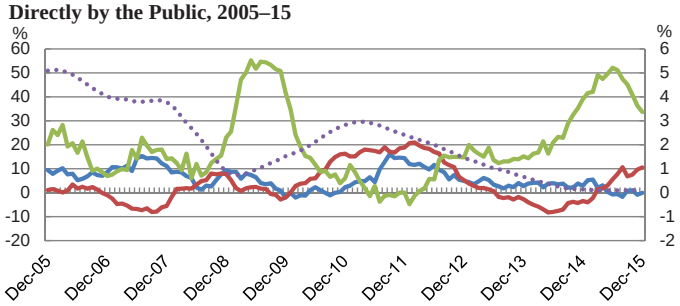
SOURCE: Bank of Israel.

During 2015, the proportion of the cash and current accounts component in the portfolio increased by about 2.9 percentage points, to about 12.6 percent, compared with just 7.3 percent at the end of 2013. In contrast, the proportion of government bonds and makam in the portfolio declined by about 1.9 percentage points, and the proportion of shares in Israel declined by about 1.1 percentage points. In essence, there was a decline in holdings of these components—a decline of NIS 31 billion (-13 percent) in government bonds and makam, and a decline of NIS 10 billion (-2.5 percent) in shares in Israel. The rest of the components—including deposits, which is the largest component in the portfolio (39 percent)—increased at a similar rate to the growth of the entire portfolio, and remained with a virtually unchanged proportion of the portfolio compared with the previous year.

The increase in the growth rate of cash and current accounts directly held by the public continued in 2015, against the background of the low interest rate.

The balance of cash and deposits increased by about 34 percent (about NIS 63 billion) during 2015, as the annual growth rate reached a peak of about 52 percent in the middle of the year. This was further to the accelerated upward trend since the end of 2011. There was also an increase of about NIS 22 billion (11 percent) in the balance of long-term deposits, in contrast to the decline in balances in the previous two years. In contrast, the balance of short-term deposits remained virtually unchanged in 2015.

Figure 1.6
Twelve-Month Moving Rate of Change in Cash and Deposits Held Directly by the Public, 2005–15



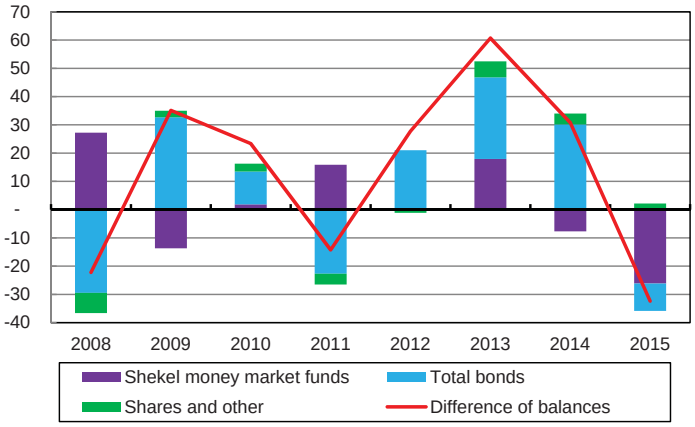
* Short-term - Deposits of up to one year. Long-term - Deposits of more than one year.
SOURCE: Bank of Israel.

Due to net withdrawals from funds in most areas of specialization, there was a decline in the balance of mutual funds, for the first time since 2011.

Against the background of the decline in the interest rate in the first quarter of 2015, there was a high level of net withdrawals from mutual funds (about NIS 26 billion), further to redemptions from them in 2014.

For the first time since 2011, there were net withdrawals (about NIS 9.7 billion) from bond funds, mainly government bonds, against the background of changes in the global bond market, which affected the domestic bond market.

Figure 1.7
Net Deposits In Mutual Funds by Specialization, 2008–15
(NIS billion)

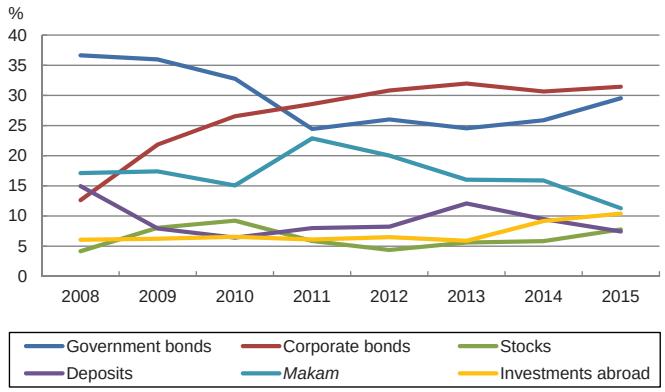


SOURCE: Bank of Israel.

Due to the withdrawals from the mutual funds, there was a change in the composition of assets held by the funds.

As a result of the high level of withdrawals from mutual funds, there was a decline in the balance of assets held by them, which focused mainly on makam (a decline of NIS 15.7 billion, 4.6 percentage points), deposits (a decline of NIS 7.8 billion, 2.1 percentage points), and corporate bonds (NIS 8.1 billion). The latter is the largest component among the funds' holdings. Therefore, despite the decline in its balance, its proportion of total mutual fund holdings increased by 2.9 percentage points.

Figure 1.8
Distribution of Assets In All Mutual Funds, 2008–15



SOURCE: Bank of Israel.

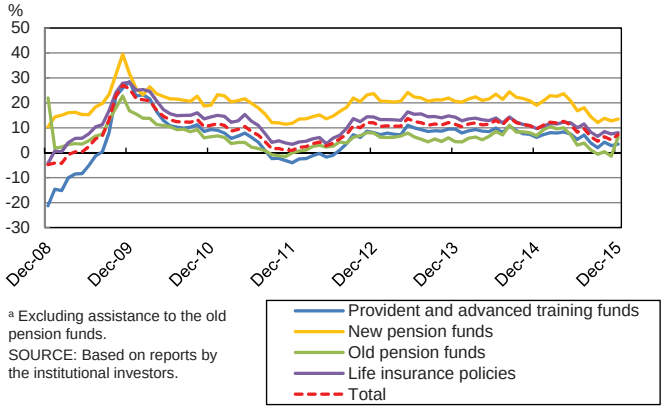
Since 2011, there has been a sharp decline in the proportion of makam in mutual fund holdings, and an increase in the proportion of government bonds and investments abroad.

3. THE PORTFOLIO MANAGED BY INSTITUTIONAL INVESTORS

In 2015, there was positive growth in assets managed by institutional investors, although lower than the average of previous years.

The total assets of all institutional investors increased by about NIS 82 billion (7 percent) in 2015, a slower pace than the average of the three previous years (about 11 percent). The most significant decline in the growth rate was in the new pension funds—13.5 percent compared with 21 percent on average over the three previous years.

Figure 1.9
Twelve-Month Moving Annual Rate of Growth of Institutional Investors' Assets[a], by Institutional Entity, 2008–15



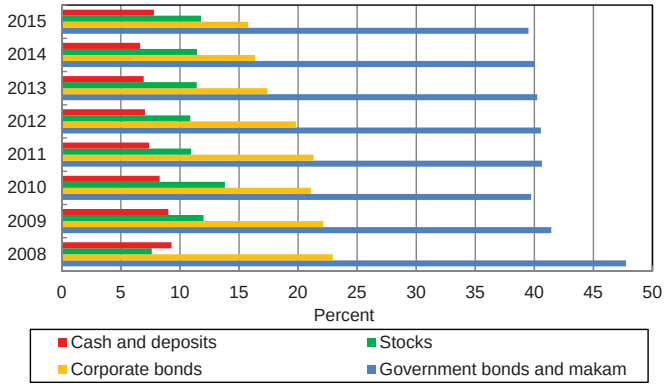
[a] Excluding assistance to the old pension funds.
SOURCE: Based on reports by the institutional investors.

In 2015, the downward trend in the proportion of institutional investors' holdings in corporate and government bonds, in Israel and abroad, continued.

In 2015, institutional investors' holdings in bonds (corporate, government and makam) as a share of total assets declined slightly, further to the downward trend that began in 2012, despite the increase in balances during the year.

In contrast, there was an increase in the proportion of cash and deposits, as a result of an increase of about 26 percent in balances, and of shares due to an increase of about 10 percent in balances.

Figure 1.10
Selected Instruments in Israel and Abroad As A Share of The Total Portfolio Managed by Institutional Investors[a], 2008–15

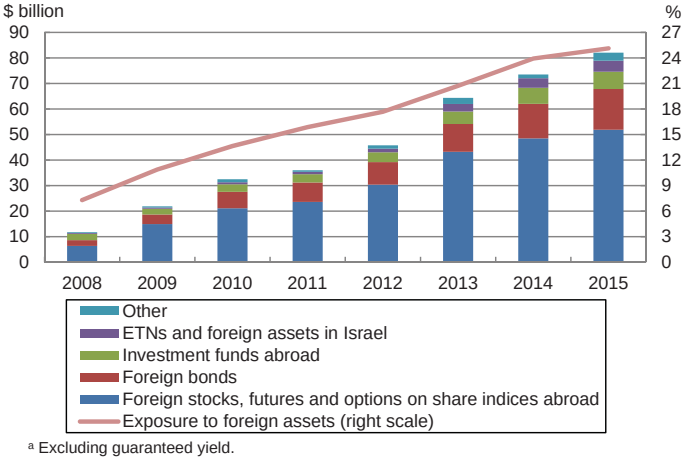


[a] Excluding assistance to the old pension funds.
SOURCE: Based on reports by the institutional investors.

In 2015, the growth in institutional investors' holdings of foreign assets[3] as a share of total investment assets.

The rate of institutional investors' holdings of foreign assets increased by about 1.2 percentage points during the year, to about 25 percent. The increase was derived from a higher growth rate in the balance of foreign assets than in total investment assets. Most of the increase in the balance of foreign assets resulted from an increase in the balance of futures and options contracts on foreign share indices (an increase of $3.7 billion, 33 percent), and in the balance of foreign bonds ($2.5 billion, 18 percent)—mainly as a result of net investments.

Figure 1.11
Balance of Foreign Assets Held by Institutional Investors[a], and its Share of Total Investment Assets, 2008–15



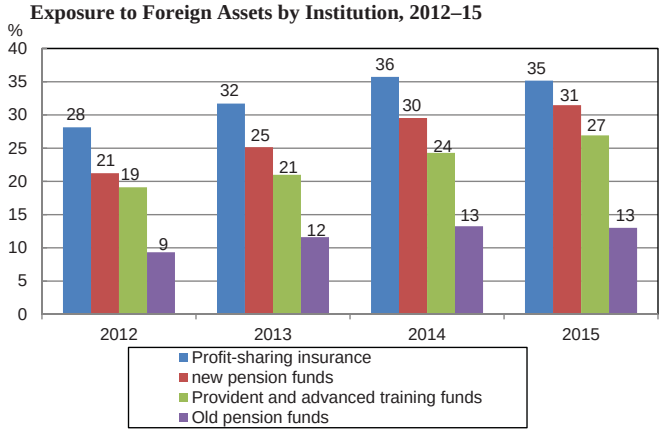
[a] Excluding guaranteed yield.
SOURCE: Based on reports by the institutional investors.

[3] Exposure to foreign assets—holdings of foreign assets traded abroad and of foreign assets issued in Israel, including ETNs that mimic foreign indices.

The upward trend in institutional investors' exposure to foreign assets continued in 2015 among the new pension funds and the provident and advanced training funds.

In contrast, the rate of exposure to foreign assets among insurance companies with profit sharing plans declined by 0.6 percentage points, and the rate of exposure among the old pension funds declined by 0.2 percentage points. Despite these declines, the rate of exposure to foreign assets among insurance companies with profit-sharing plans remains the highest of all institutional entities, at about 35 percent.

Figure 1.12
Exposure to Foreign Assets by Institution, 2012–15



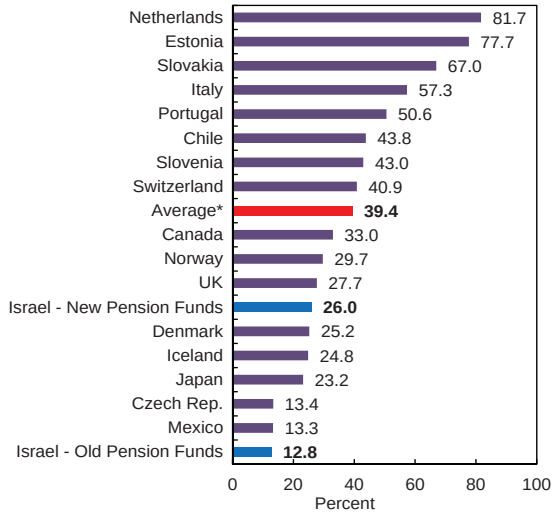
SOURCE: Based on reports by the institutional investors.

ZOOM IN

THE PENSION FUNDS—AN INTERNATIONAL COMPARISON[1]

The rate of investments abroad by the new pension funds in Israel is lower than the average among surveyed countries.

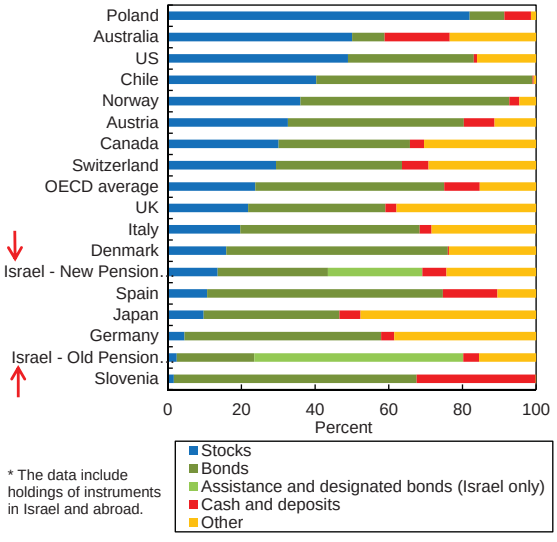
Figure 1.13
Investment abroad as a Share of Total Pension Fund Assets, Selected OECD Countries, 2014



* Average of the countries appearing in the figure.

The Rate of Investment in Shares by the New Pension Funds in Israel is Significantly Lower than Most Other OECD Countries.

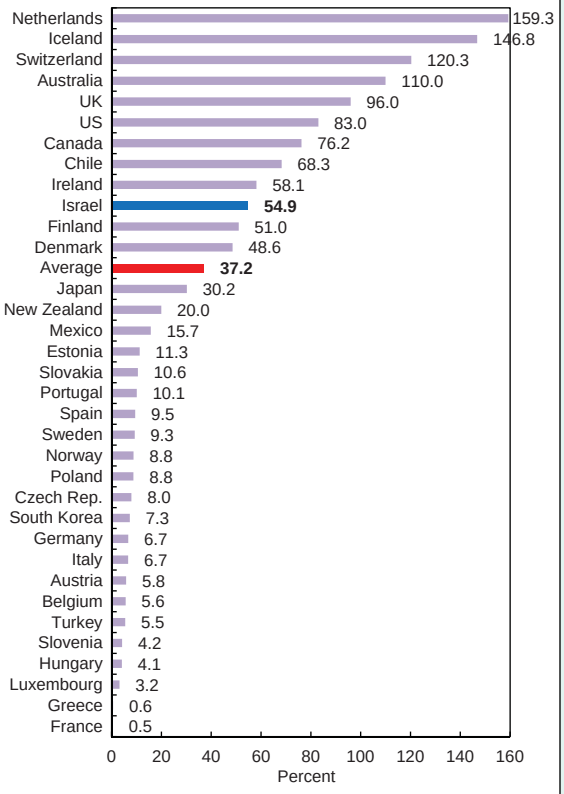
Figure 1.14
Composition of Pension Fund Assets, Selected OECD Countries, 2014



* The data include holdings of instruments in Israel and abroad.

The ratio of assets to GDP for the pension funds (old and new combined) in Israel* is higher than the simple average for the OECD countries.

Figure 1.15
The Ratio of Pension Fund Assets to GDP in the OECD Countries, 2014



* The data for Israel include pension fund (old and new) holdings of designated bonds and assistance to the old funds. See Figure 1.14.

[1] Differences in the data between the various countries reflect differences concerning the various pension arrangements in the various countries. In Israel, the data do not include defined-benefit pensions.

SOURCE: Based on OECD Global Pension Statistics.

Main indicators in the public's asset portfolio (percent)						
		2008	2010	2012	2014	2015
The public's asset portfolio						
Volume of the portfolio	Value of the public's asset portfolio (NIS billion)	1,882	2,561	2,728	3,173	3,315
	The asset portfolio as a percentage of GDP	259.6	292.3	272.5	290.1	288.0
Risks and liquidity	Tradable assets	42.3	54.2	50.9	52.8	50.5
	Risk assets[a]	30.4	44.3	40.2	41.7	41.6
	Assets abroad[b]	10.3	11.1	11.9	14.2	14.2
	Foreign exchange assets[c]	17.7	16.4	17.6	20.8	20.7
	Unindexed assets[d]	64.8	69.5	67.6	70.2	70.7
	Liquid assets[e]	29.0	22.3	24.7	24.6	24.6
The portfolio managed directly by the public and through mutual funds						
As a share of the total asset portfolio		65.0	65.1	62.2	60.8	59.8
Risks and liquidity	Tradable assets	35.6	48.0	40.9	41.6	38.8
	Risk assets[a]	25.5	42.0	35.9	38.4	37.3
	Assets abroad[b]	11.9	10.0	9.3	10.1	10.0
	Foreign exchange assets[c]	22.9	17.7	17.7	18.9	19.1
	Unindexed assets[d]	84.8	85.2	83.9	85.7	86.9
	Liquid assets[e]	44.7	34.3	39.7	40.4	41.2
The portfolio managed by institutional investors						
As a share of the total asset portfolio		35.0	34.9	37.8	39.2	40.2
Risks and liquidity	Tradable assets	42.5	53.1	53.4	54.3	52.6
	Risk assets[a]	38.2	47.7	47.3	48.5	48.0
	Assets abroad[f]	6.9	13.0	15.9	20.0	20.0
	Foreign exchange assets[g]	7.9	13.8	17.3	22.5	22.8
	Unindexed assets[d]	33.6	46.0	47.6	53.0	54.7
	Liquid assets[e]	5.4	6.8	5.9	7.2	8.1

[a] Total assets excluding government bonds, makam, deposits in Israel and abroad, and cash.

[b] Israelis' investments abroad, including investments by institutional investors abroad.

[c] Assets indexed to foreign currency + shares abroad.

[d] All assets excluding CPI-indexed assets.

[e] Cash, deposits of up to one year in Israel, and *makam*.

[f] Investment in deposits and Israeli securities abroad, excluding investment in ETNs traded in Israel on foreign indices. This definition differs from the exposure to foreign exchange and the exposure to foreign securities definitions

[g] Holdings of assets denominated in foreign currency and assets indexed to foreign currency, excluding shekel/forex assets.

SOURCE: Bank of Israel.

MAIN TERMS

The asset portfolio directly managed by the public—The stock of financial assets, including cash and deposits, tradable and nontradable securities, and index products, held directly by the public and by portfolio managers or mutual funds.
The asset portfolio managed by institutional investors on behalf of the public—The stock of financial assets held by the institutional investors who manage the public's long-term savings. These institutions include the provident and compensation funds, advanced training funds, old and new pension funds, and life insurance policies managed by the insurance companies (excluding the insurance companies' nostro portfolio, which they manage on their own behalf). The public's savings in these channels are invested in tradable and nontradable securities and in other instruments, according to the investment guidelines of each entity.

The composition of the public's financial assets portfolio reflects the decisions of the public and of the institutional investors, mainly according to considerations of yield, risk and liquidity, based on their expectations of future developments in the capital and money markets. The division of the asset portfolio into two—assets managed directly by the public and assets managed by the institutional investors on behalf of the public—reflects a number of structural differences, including: (1) Control—The public has full and ongoing control over the size of investment and the composition of assets held directly by it, compared with only a partial and infrequent influence on the composition of assets held by the institutional investors, exercised by selection of the investment track; (2) Range—In general, the public directly holds assets for a short-to-medium term, while the institutional investors hold assets for a longer term, which affects the liquidity and risk profiles of the assets; (3) Expertise—The institutional investors specialize in the management of financial assets and in regularly monitoring and analyzing a broad range of information on the assets, the issuing entities, and the relevant environment in Israel and abroad. In contrast, only some of the portfolio held directly by the public is managed by experts.

B. PRIVATE SECTOR DEBT

Outstanding private sector debt[1] continued to increase in 2015, at a similar rate to its increase in the previous year (3.2 percent). The increase was mainly the result of a quantitative increase in debt[2], while the price effect (the Consumer Price Index and the exchange rate) was negligible.

Outstanding business sector debt increased by about 1 percent in 2015, similar to its rate from the previous year. Since 2008, the annual rate of increase in business sector debt has been lower than the annual GDP growth rate, which is reflected in a decline in the business sector debt to GDP ratio. In contrast to the previous two years, there was an increase in bank debt in 2015, by about 3 percent, after the business sector quantitatively increased its loans from banks during the year, in contrast to a quantitative decline in bank loans in the previous three years. In contrast, the growth rate of nonbank debt declined during the year.

In 2015, the growth of the balance of household debt continued, at a similar rate to the previous year (6.7 percent). The growth rate in 2015 in nonhousing debt (7.5 percent) was higher than the growth rate of housing debt (6.3 percent). Most nonhousing household debt is to banks, but a more rapid growth rate occurred in debt to institutional investors (35 percent) and to credit card companies (18 percent), further to the trend of the previous year.

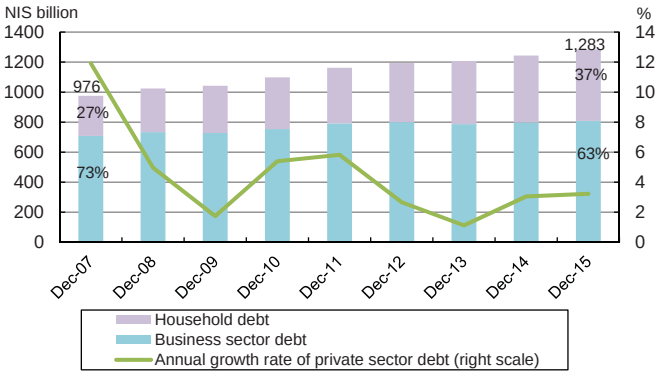
1. PRIVATE SECTOR DEBT

The increase in private sector debt continued in 2015, at a rate similar to that of the previous year.

Outstanding private sector debt increased by about NIS 40 billion (3.2 percent) to about NIS 1.3 trillion.

In the past five years, outstanding business sector debt has remained virtually unchanged, at about NIS 800 billion, and as of the end of 2015, it accounts for about 63 percent of private sector debt. Household debt as a share of total private sector debt has increased steadily since 2007, with the increase totaling about 10 percentage points.

Figure 2.1
Nonfinancial Private Sector Debt: Balance and Annual Growth, 2007–15



SOURCE: Bank of Israel.

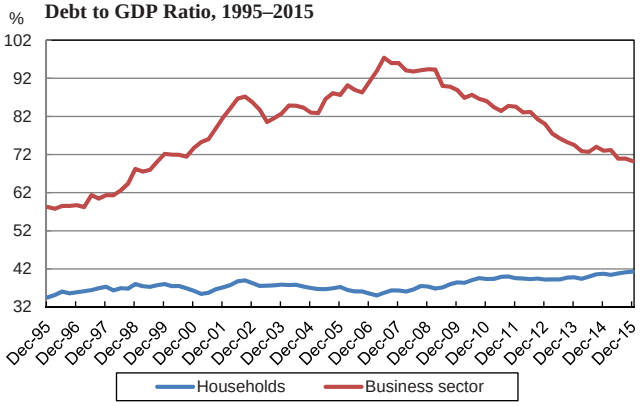
[1] The private sector includes the business sector (excluding banks and insurance companies) and households. This chapter focuses on private sector debt to the main lenders (banks, institutional investors and nonresidents), and does not include debt to other lenders (such as private credit companies) due to a lack of data. The assessment is that the volume of activity of the other lenders is smaller than the volume of activity of the main lenders.

[2] See Main Terms at the end of the chapter.

The downward trend in the business sector debt to GDP ratio continued in 2015, while the household debt to GDP ratio continued to increase slightly.

The business sector debt to GDP ratio continued to decline in 2015, by about 3 percentage points, to 70 percent at the end of the year. This was a result of a larger increase in GDP (5 percent in current prices) than in debt (1 percent). Since the second quarter of 2007, the decline in the debt to GDP ratio has totaled about 27 percentage points.

Figure 2.2
Debt to GDP Ratio, 1995–2015



SOURCE: Central Bureau of Statistics and Bank of Israel calculations.

The household debt to GDP ratio increased slightly in 2015, further to the increase in recent years, and reached about 41 percent. This is a result of the higher increase in household debt (7 percent) than in GDP.

2. BUSINESS SECTOR DEBT

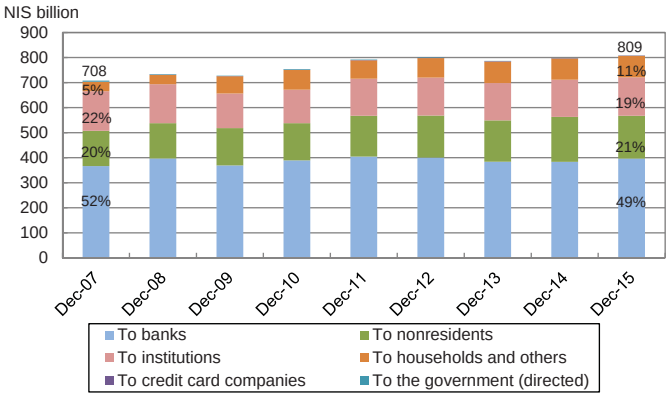
General

There was a slight increase in business sector debt in 2015.

Business sector debt totaled about NIS 809 billion in 2015 (an increase of about NIS 10 billion, 1 percent).

Outstanding debt to nonresidents stands at about NIS 171 billion, institutional investors are owed about NIS 154 billion, and households are owed about NIS 86 billion.

Figure 2.3
Business Sector Debt by Lender, 2007–15



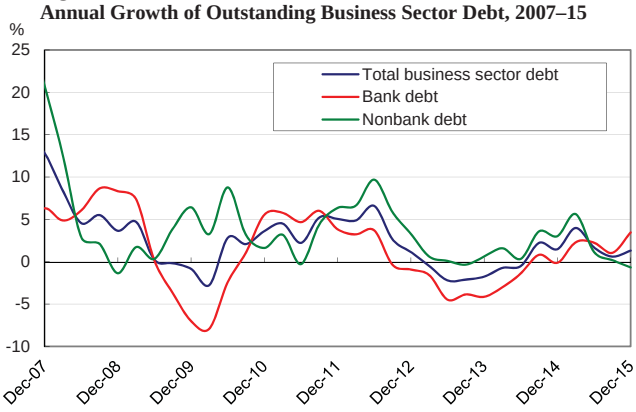
SOURCE: Bank of Israel.

About 49 percent of outstanding debt (about NIS 397 billion) is to banks, a proportion that has been declining in recent years, and which has declined by a cumulative 3 percentage points since the end of 2007.

Business sector debt increased in 2015 at a similar rate to the previous year.

Outstanding business sector debt to the banks increased by about 3 percent in 2015, following near-zero or negative change in previous years. In contrast, outstanding debt to nonbank lenders declined in 2015 as a whole (by 1 percent), in contrast to the upward trend that had characterized it in recent years. Staring in the second quarter of the year, the growth rate of nonbank debt has been lower than the growth rate of bank debt, contrasting the trend since 2011.

Figure 2.4
Annual Growth of Outstanding Business Sector Debt, 2007–15

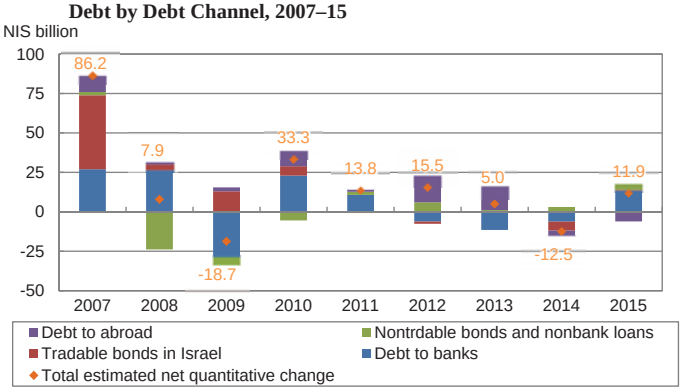


SOURCE: Bank of Israel.

The increase in outstanding debt in 2015 was a result of quantitative growth, following quantitative decline in 2014.

The quantitative growth in the banking channel was particularly prominent, at about NIS 14 billion, following three years of quantitative decline. There was also quantitative growth of debt in nontradable bonds and in nonbank loans, further to the trend since 2011, mainly a result of growth in loans from institutional investors.

Figure 2.5
Estimated Annual Net Quantitative Change of Business Sector Debt by Debt Channel, 2007–15



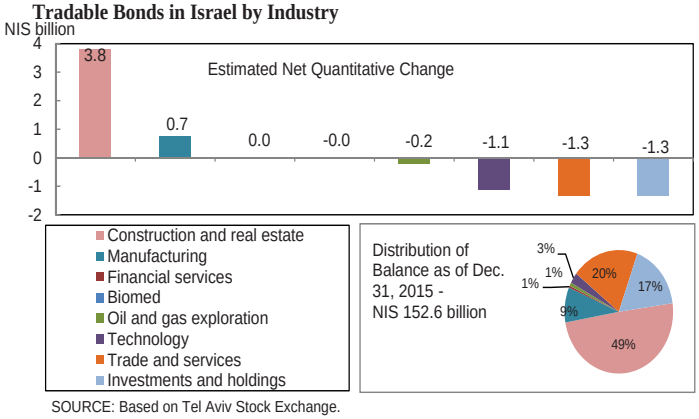
SOURCE: Bank of Israel.

Fundraising channels—instruments and lenders

There was quantitative growth in tradable bonds in Israel in 2015, following quantitative decline since 2011.

Companies in the real estate and construction industry and in the manufacturing industry quantitatively increased their debt through tradable bonds in Israel totaling about NIS 4.6 billion, while there were quantitative declines in the other industries totaling about NIS 4 billion.

Figure 2.6
Estimated Net Quantitative Change During 2015 and Year-End Balance of Tradable Bonds in Israel by Industry



SOURCE: Based on Tel Aviv Stock Exchange.

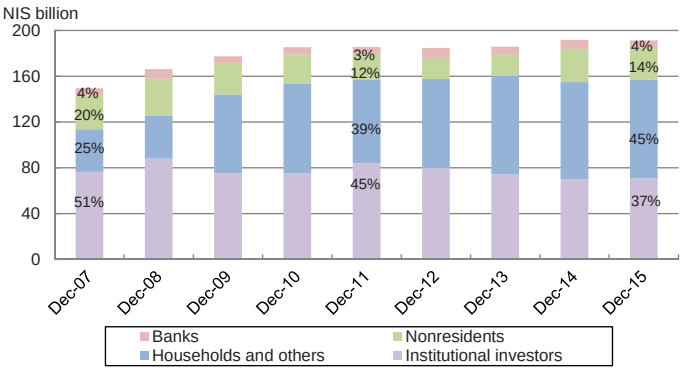
Outstanding business sector debt through tradable bonds in Israel totaled about NIS 153 billion in 2015, similar to the previous year. About half of the debt is by companies in the real estate and construction industry. The second-largest industry in terms of debt is commerce and services, which constitutes about 20 percent of total outstanding tradable bonds.

Since 2011 there has been an expansion of holdings of tradable bonds in Israel and abroad held by households and others, in parallel with a decline in holdings by institutional investors.

Outstanding bonds in Israel and abroad totaled about NIS 191 billion in 2015, with the main holders being households and others, which hold about NIS 86 billion of these bonds, and institutional investors, which hold about NIS 71 billion.

Households and others account for about 45 percent of holdings of tradable bonds as of the end of 2015, with this share increasing in cumulative terms by about 5 percentage points since 2011.

Figure 2.7
Outstanding Business Sector Debt Through Tradable Bonds in Israel and Abroad by Lender (Bondholder), 2007–15

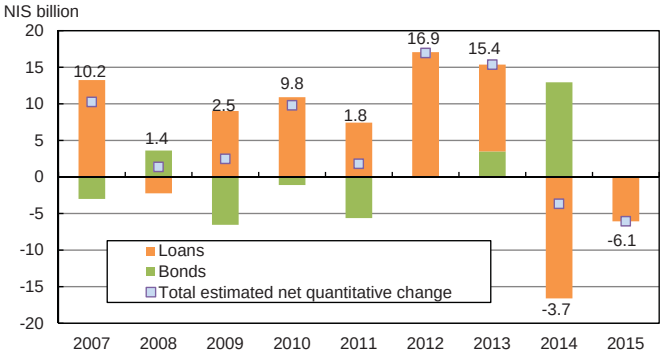


SOURCE: Bank of Israel.

There was a quantitative decline in debt to nonresidents abroad during 2015, further to 2014.

The quantitative decline in debt totaled about NIS 6.1 billion in 2015, in the loans instrument, while the change in bonds was near-zero. Moreover, the business sector did not issue bonds abroad at all in 2015, after large offerings during the previous year.

Figure 2.8
Estimated Annual Net Quantitative Change of Business Sector Debt to Abroad, 2007–15



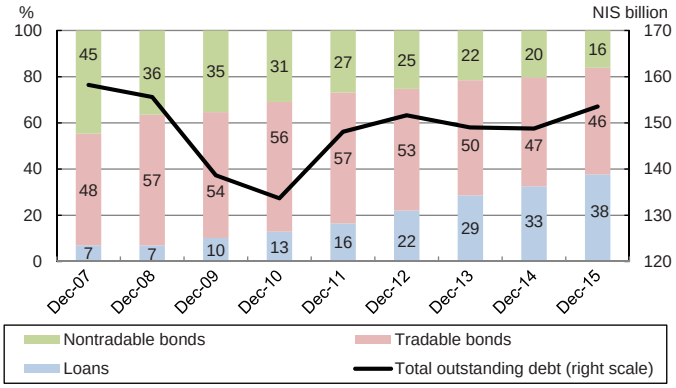
SOURCE: Bank of Israel.

The increase in loans from institutional investors to the business sector continued.

In recent years, there has been an increase in the balance of loans taken by the business sector from institutional investors, with the proportion of such loans as a share of total business sector debt to these institutions increasing to about 38 percent, against a decline in the proportion of tradable and nontradable bonds.

During 2015, the business sector's outstanding debt to institutional investors increased by about NIS 5 billion (3 percent) to about NIS 154 billion.

Figure 2.9
Distribution of Business Sector Debt to Institutional Investors, 2007–15



SOURCE: Based on reports from the institutional investors.

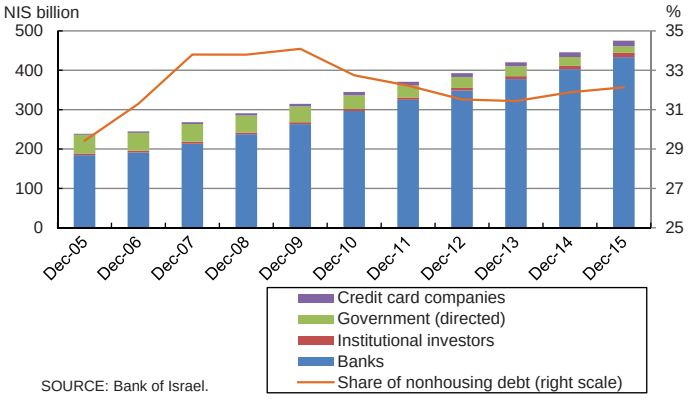
3. HOUSEHOLD DEBT

During 2015, the upward trend of household debt during the past decade continued.

Outstanding household debt totaled about NIS 475 billion, most of which (about 91 percent) was to banks. The rest is owed to the government, credit card companies, and institutional investors.

Nonhousing debt as a share of total household debt remained stable in the past two years, at about 32 percent, despite the continued upward trend in its balance in 2015.

Figure 2.10
Household Debt by Lender and Nonhousing Debt as a Share of Total Household Debt, 2005–15



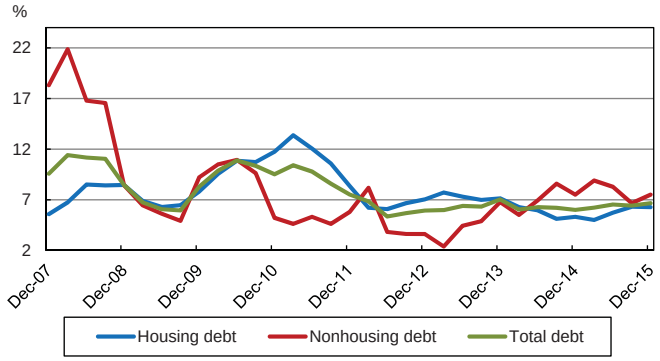
SOURCE: Bank of Israel.

The growth rate of total household debt is similar to previous years. Further to 2014, and in contrast to previous years, the growth rate of nonhousing debt is higher than the growth rate of housing debt.

Outstanding housing debt increased in 2015 by a slightly higher rate (6.3 percent) than in the previous year, reaching about NIS 322 billion.

Outstanding nonhousing debt increased by about 7.5 percent in 2015, totaling about NIS 153 billion. The annual growth rate of the latter balance increased during the previous two

Figure 2.11
Annual Growth of Outstanding Household Debt, Housing and Nonhousing, 2007–15



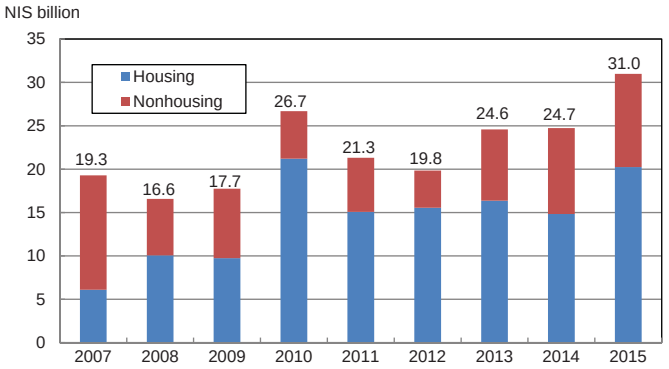
SOURCE: Bank of Israel.

The increase in outstanding household debt in recent years is mainly the result of a quantitative increase in both housing and nonhousing debt.

The quantitative increase during the year totaled about NIS 31 billion.

The quantitative increase in housing debt totaled about NIS 20 billion, higher than in recent years, while the quantitative increase in nonhousing debt totaled about NIS 11 billion, slightly more than in the previous year.

Figure 2.12
Estimated Annual Net Change in Household Debt, 2007–15

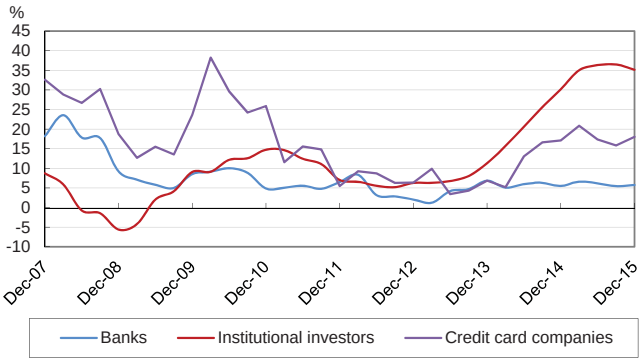


SOURCE: Bank of Israel.

Further to recent years, there was a high growth rate of households' nonhousing debt to nonbank entities, although outstanding debt to these entities remains low.

In 2015, there was marked growth of households' nonhousing debt to institutional investors (35 percent) and to credit card companies (18 percent), with a lower growth rate of debt to banks (6 percent). Outstanding debt to institutional investors totaled about NIS 8 billion, with outstanding debt to credit card companies totaling about NIS 14.1 billion, and outstanding debt to banks totaling about NIS 126 billion—further to the trends of the past two years.

Figure 2.13
Annual Growth of Outstanding Household Debt Excluding Housing Debt, by Main Lenders, 2007–15



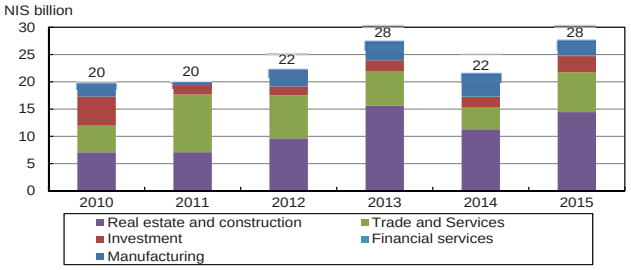
SOURCE: Bank of Israel.

ZOOM IN

GROSS ISSUANCE OF DEBT THROUGH TRADABLE BOND OFFERINGS BY THE BUSINESS SECTOR (EXCLUDING BANKS AND INSURANCE COMPANIES)[1]

About half of gross business sector issuance in 2015 was by the Real Estate and Construction Industry, after it was prominent in the previous two years as well.

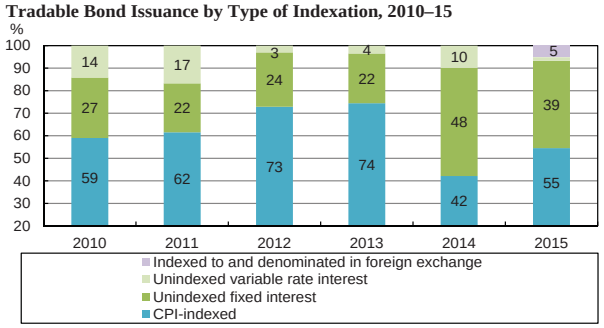
Figure 2.14
Tradable Bond Issurances by Industry*, 2010–15



* The manufacturing industry includes oil and gas and technology.

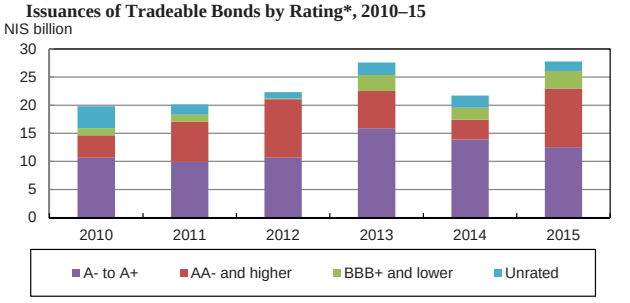
In 2015 there was a significant increase in debt raised through the CPI-indexed channel, following a decline in 2014, similar to the years 2010–13, when the proportion of debt raised in this channel was very high.

Figure 2.15
Tradable Bond Issuance by Type of Indexation, 2010–15



In 2015 there was an increase in the issuance of bonds rated AA- and higher, mainly due to issuances by companies in the real estate and construction industry, which were prominent during the year.

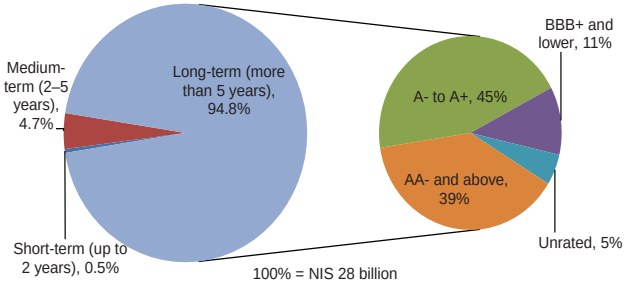
Figure 2.16
Issuances of Tradeable Bonds by Rating*, 2010–15



* The figures are by domestic rating. Companies with no domestic rating are included in the "unrated" group. Ratings data of the two ratings agencies were consolidated into an integrated scale.

About 95 percent of offerings in 2015 were of bonds with a term to maturity of more than 5 years, with 84 percent of those offerings rated A- or higher.

Figure 2.17
Issuance of Tradable Bonds by Term to Maturity, and Distribution of Long-Term Bonds by Rating, 2015



[1] Including tradable bond offerings by Israeli companies in Israel only, on the Tel Aviv Stock Exchange. Excluding structured, convertible and foreign bonds.

SOURCE: Based on the Tel Aviv Stock Exchange.

Main indicators of business sector and household debt						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**
Business sector debt						
Outstanding debt (NIS billion, end of period)	754	792	801	787	798	809
Estimated net quantitative change (NIS billion, yearly cumulative)	33	14	15	5	-13	12
Percentage of nonbank debt (end of period)	48	49	50	51	52	51
Percentage of tradable debt (end of period)	21	21	20	21	19	19
Business sector debt to business sector product ratio (end of period)	86	85	80	75	73	70
Household debt						
Total household debt (NIS billion, end of period)	345	371	393	420	445	475
Estimated net quantitative change (NIS billion, yearly cumulative)	27	21	20	25	25	31
Percentage of housing debt (end of period)	67	68	68	69	68	68
Total new mortgages taken out (NIS billion, yearly cumulative)	47	45	47	52	52	65
Household debt to GDP ratio (end of period)	39	40	39	40	41	41

SOURCE: Bank of Israel.

MAIN TERMS[3]

Outstanding debt shows the stock of credit (positions, stocks) from the point of view of the borrower at a given point in time. The value of the debt does not depend on the market value of the bond or the value of the loans in the lenders' books. Therefore, outstanding bonds are presented at adjusted par value[4] and outstanding loans are presented before deduction of loan loss provisions (such as doubtful or problematic debt provisions in the banks' balance sheets) in the lenders' books.
Estimated net quantitative change, quantitative increase/decrease of debt, is the change in outstanding debt showing economic activity in the credit market. Outstanding debt is influenced by net debt issuance (new credit raised, such as taking a loan or issuing bonds, minus repaid credit, such as repaid loans or repayment of bonds), by payment and accumulation of interest, by price changes (such as a change in the Consumer Price Index for CPI-indexed debt) and by other factors. Since there are no direct data on each of these components, an "estimated net quantitative change" is calculated from data on outstanding debt. The estimated quantitative change during a given period is calculated as the difference between outstanding debt at the end of the period and the outstanding debt at its beginning, minus relevant price changes. Since the estimated net quantitative change is derived from balances, it includes other effects on the balance beyond net debt raised, such as interest accumulations/payments. In this chapter, we do not relate separately to net debt raised.

[3] For more details on the definitions, terms and explanations, see "The Credit Data System in Israel" in the second part of this publication.

[4] The principal balance remaining to be paid, plus accumulated interest that is not yet paid, and indexing and exchange rate differentials (in accordance with the terms of the bond).

C. ECONOMIC ACTIVITY VIS-À-VIS ABROAD

The flow of Israelis' investments abroad continued in 2015. Financial investments by households and institutional investors continued, and there was a marked increase in direct investments by Israelis abroad. These investment flows were partly offset by realizations in other investments. Positive investment flows during the year led to an increase in Israelis' assets abroad.

There was also an increase in the balance of investments by nonresidents in Israel during 2015. The trend of financial and direct investments in Israel continued, with those investments partly offset by nonresidents' realizations of other assets in Israel.

The strong fluctuations in securities prices in Israel and around the world in the second half of the year decreased the balance of investments by Israelis abroad, while increasing the balance of investments by nonresidents in Israel.

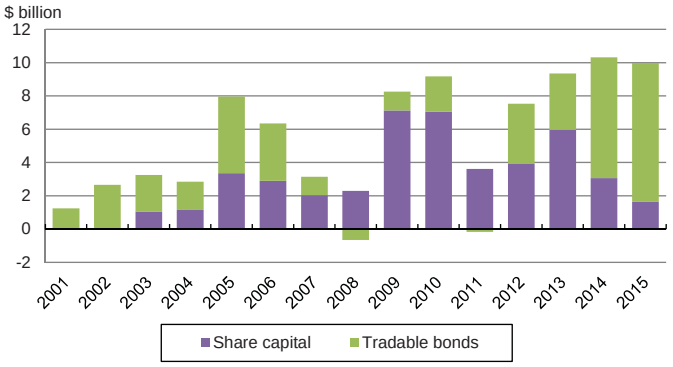
In 2015, there was a marked return to the downward trend in the external debt to GDP ratio as a result of increased output, with a decline in the balance of external gross debt to abroad.

1. ISRAELIS' ASSETS ABROAD—INVESTMENTS ABROAD BY ISRAELIS

In 2015, the high level of financial investment abroad by Israelis was maintained.

In the past four years, there has been a marked upward trend in the flow of financial investments in foreign bonds (an average of $5.7 billion), in parallel to continued more moderate financial investments in share capital (an average of $3.6 billion).

Figure 3.1
The Flow of Israelis' Financial Investments in Foreign Bonds and Shares, 2001–15

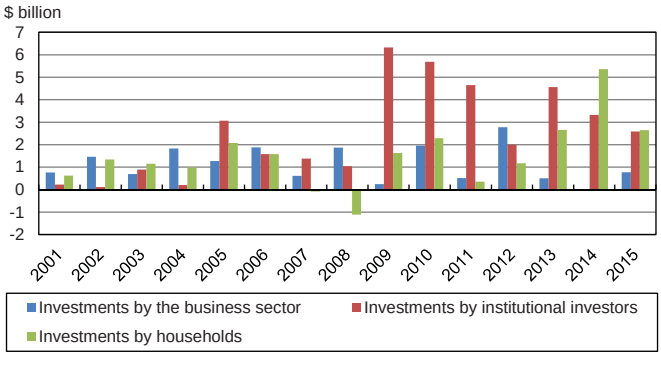


SOURCE: Bank of Israel.

In 2015, financial investments were mainly by institutional investors and households, further to the trend of the past three years.

The flow of investments by institutional investors and households continued in 2015, but more moderately than in the previous two years. Most investments by institutional investors were in foreign bonds, while most of the investments by households were in share capital. Furthermore, there were investments by the business sector in 2015, mainly in foreign bonds, in contrast to realizations in the previous year.

Figure 3.2
Distribution of the Flow of Israelis' Financial Investments Abroad By Sector, 2001–15

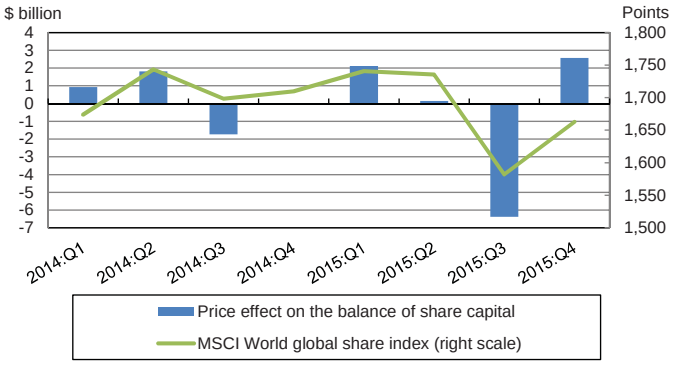


SOURCE: Bank of Israel.

In the second half of 2015, price changes had a strong effect on the balance of Israelis' financial investments in foreign share capital, in both directions.

In the third quarter, share prices declined globally, apparently due to the slowdown in China and the decline in energy prices. This decline lowered the balance of investments in share capital by about $6.3 billion (9.6 percent). The recovery in the global stock markets during the fourth quarter offset some of this effect. There was a price effect, which increased the balance by about $2.6 billion (4.3 percent). Together with the price effect on the balance in the first half of the year, the change in share prices lowered the balance of financial investments over the course of the year by about $1.5 billion.

Figure 3.3
The Effect of Price Changes on the Balance of Israelis' Financial Investments in Foreign Share Capital, 2014–15

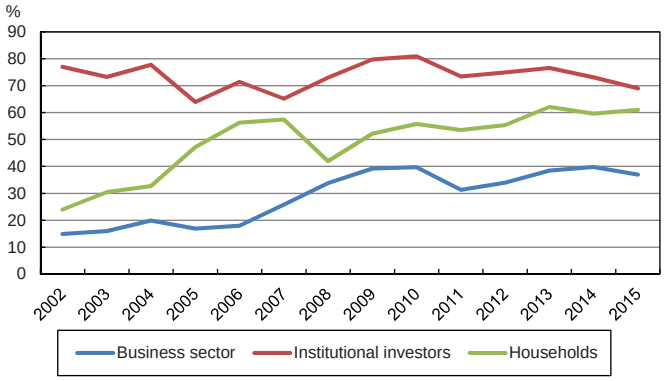


SOURCE: Based on Bloomberg data.

In 2015, the upward trend in shares as a portion of households' investment portfolio, which began in 2002, continued. In contrast, this trend was halted in the business sector's investment portfolio.

At the end of 2015, shares accounted for about 61 percent of the total securities portfolio of households (individuals and mutual funds)—a cumulative increase of 37 percentage points since 2002. Shares accounted for about 37 percent of the total securities portfolio of the business sector—a cumulative increase of 22 percentage points since 2002.

Figure 3.4
Balance of Equities as a Share of the Financial Investment Portfolio (stocks and bonds) Abroad, by Sector, 2002–15



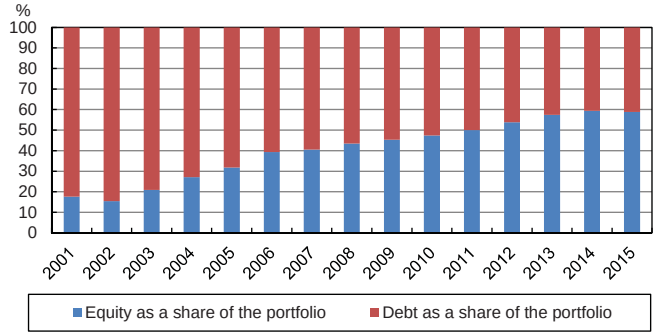
SOURCE: Bank of Israel.

The increase in shares as a proportion of the total securities portfolio of households and of the business sector is mainly the result of a cumulative flow of investment in shares, which explains about 80 percent of the increase in the balance since 2002.

The upward trend in the balance of financial investments in shares by households and the business sector was also reflected in an increase in capital assets as a share of the total assets of these sectors.

The change in the mix of the asset portfolio held abroad by the business sector and households indicates a continued increase in the proportion of investment in shares (financial and direct), which reached about 60 percent in 2015.

Figure 3.5
Equity[a] and Debt Instrument[b] Balances as a Share of Business Sector and Household Assets Abroad, 2001–15

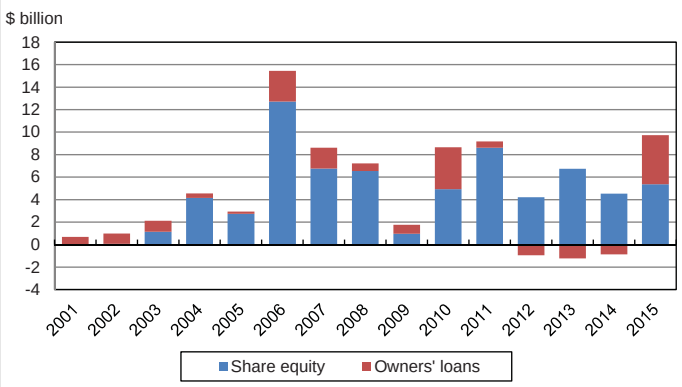


[a] Equity instruments: Direct and financial investments in shares.
[b] Debt instruments: Owners' loans, bonds, direct credit, deposits, and financial loans.
SOURCE: Bank of Israel.

In 2015, there was an increase in the flow of direct investments abroad by Israelis, which was mainly the result of owners' loans.

Owners' loans totaling about $4.3 billion were granted by Israelis to foreign subsidiaries (mainly one large company) in 2015, in contrast with repayments in the previous three years. In parallel, direct investments in share capital abroad by Israelis continued, totaling $5.3 billion in 2015—slightly lower than the average over the previous 5 years ($5.8 billion).

Figure 3.6
Israelis' Direct Investments Abroad, 2001–15

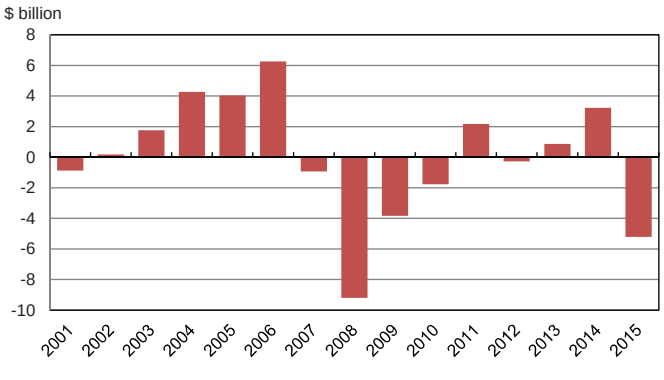


SOURCE: Bank of Israel.

In 2015, there were withdrawals from Israeli banks' deposits abroad.

Withdrawals from deposits abroad by Israeli banks totaled about $5.2 billion in 2015 (35 percent of the balance of deposits), in contrast to net deposits in the previous two years. This amount is lower than the withdrawals in 2008. In parallel, there were deposits by Israeli banks at the Bank of Israel.

Figure 3.7
Deposits (+) Abroad by Israeli Banks, 2001–15

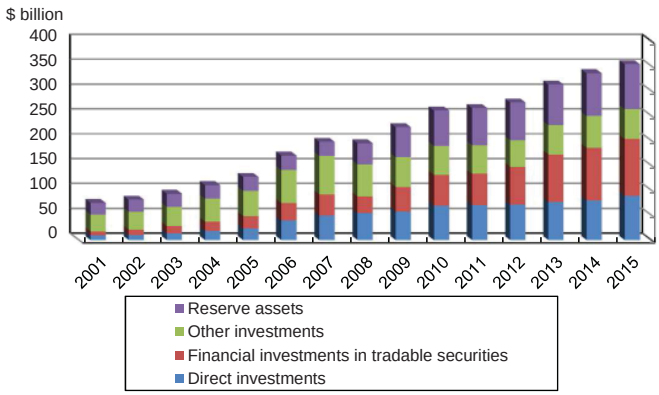


SOURCE: Based on reports from the banks.

Continued financial and direct investment abroad by Israelis during the year was reflected in an increase in the balance of Israelis' assets vis-à-vis abroad during the year.

The net flow of direct investment abroad in 2015, combined with financial investments, and offset by the realizations of other investments abroad, contributed about $16.6 billion to the increase in the balance of Israelis' assets abroad. During 2015, the effect of asset price changes on the value of investments was low, and the effect of changes in the exchange rate lowered the value of the investments. As a result of this and of the additional foreign exchange reserves during the year, the gross balance of Israelis' assets abroad increased by about $18 billion (5.3 percent) in 2015, to about $353 billion at the end of the year.

Figure 3.8
Israelis' Assets Abroad, 2001–15



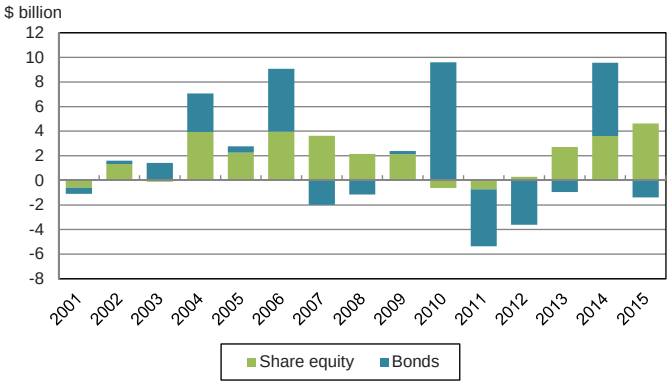
SOURCE: Bank of Israel.

2. ISRAELIS' LIABILITIES ABROAD—NONRESIDENTS' INVESTMENTS IN ISRAEL

In 2015, there were net realizations by nonresidents of investments in Israeli bonds, in contrast to net investments in 2014, but the upward trend of financial investments in Israeli shares continued.

Nonresidents realized about $1.4 billion in Israeli bonds in 2015, compared with net investments in bonds in 2014. This was apparently due to the small changes in the interest rate gap between Israel and the US. In contrast, the increase in the flow of nonresidents' financial investments in the share capital of Israeli companies continued, mainly in shares traded abroad.

Figure 3.9
Nonresidents' Financial Investments in Israel, 2001–15

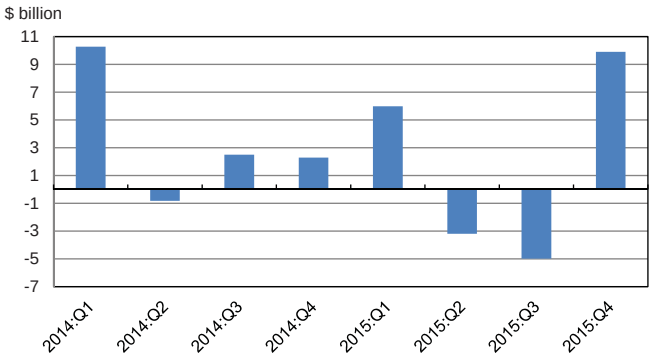


SOURCE: Bank of Israel.

There was a strong price effect on the balance of financial investments in share capital by nonresidents in 2015.

The sharp increases in the prices of a small number of Israeli shares held by nonresidents—which constitute a large percentage of the portfolio—in the first and fourth quarters of 2015 were partly offset by declines in the prices of Israeli shares in the second and third quarters. The total price effect on the balance of nonresidents' financial investments in Israeli share capital in 2015 increased the balance of investments by about $7.4 billion (8 percent).

Figure 3.10
The Effect of Price Changes on the Balance of Nonresidents' Financial Investments in Share Equity in Israel, 2014:Q1–2015:Q4

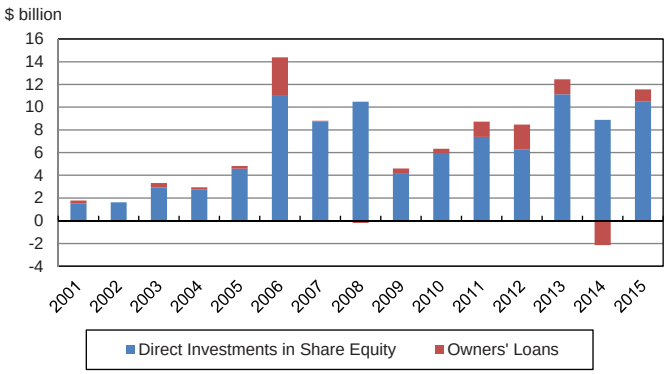


SOURCE: Bank of Israel.

The flow of direct investments by nonresidents increased in 2015, mostly in share capital.

In 2015, there was a marked increase in the flow of direct investments in share capital in Israel, further to the high average level of the flow of investments in share capital in the past decade, which was $6.7 billion.

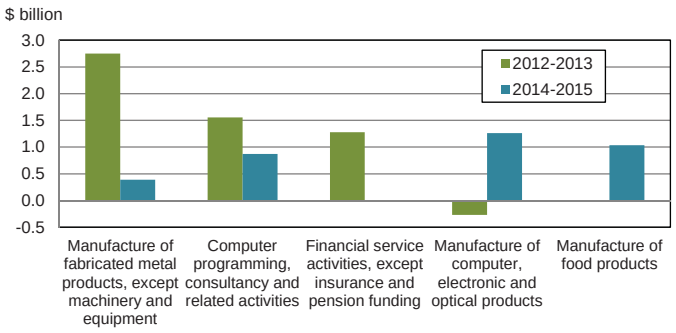
Figure 3.11
Nonresidents' Direct Investments in Israel, 2001–15



SOURCE: Bank of Israel.

In the past two years, there has been a marked change in the principle industries, in which nonresidents made direct investments, transitioning from investments in the shares of metal product manufacturing companies and in financial services companies to investments in the computer manufacturing and food product industries.

Figure 3.12
Distribution of Nonresidents' Direct Investments in Israeli Share Equity, by Main Industry, 2012–15

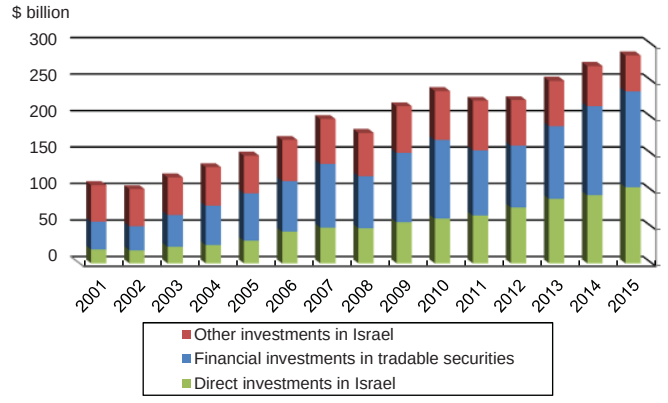


SOURCE: Based on reports from companies.

In 2012 and 2013, nonresidents' direct investment in Israeli share capital focused on the following industries: metal product manufacturing (30 percent of the flow of investments); computer software (17 percent); and financial services (14 percent). In 2014 and 2015, nonresidents' direct investment in Israeli share capital focused on the software and computer manufacturing industries (25 percent), and the food products industry (12 percent).

The flow of nonresidents' direct and financial investments in Israel in 2015 led to an increase in the balance of Israelis' liabilities to abroad.

Figure 3.13
Israelis' Liabilities vis-a-vis Abroad, 2001–15



SOURCE: Bank of Israel.

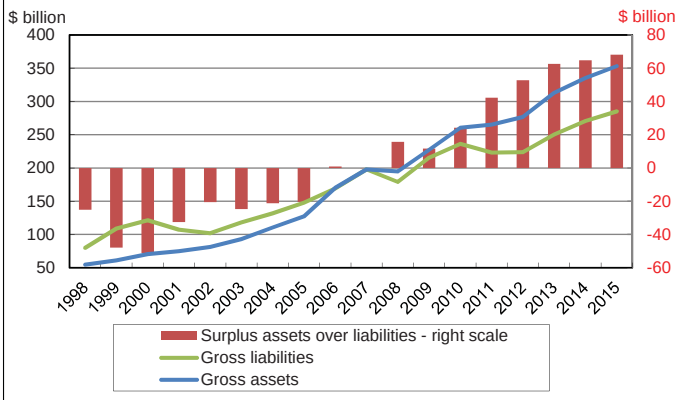
The flow of direct investments in Israel, combined with financial investments, and partly offset by withdrawals from other investments, mainly deposits, contributed about $9.5 billion to the increase in the balance of Israelis' liabilities abroad. As a result, and due to the increase in the prices of Israeli shares held by nonresidents in the financial portfolio—together with the increase in the value of direct investments—there was a $14.5 billion (5.3 percent) increase in the balance of Israelis' liabilities to abroad. The balance of Israelis' liabilities abroad was $285 billion at the end of the year.

3. SURPLUS ASSETS OVER LIABILITIES

In 2015, the upward trend in the surplus of Israelis' assets over liabilities vis-à-vis abroad continued.

The increase in the value of the gross balance of assets (about $18 billion, 5.3 percent) was partly offset by the increase in the value of the gross balance of liabilities (about $14.5 billion, 5.3 percent). As a result, the surplus of Israelis' assets over liabilities vis-à-vis abroad increased by $3.4 billion (5.2 percent) in 2015, to about $68 billion (about 23 percent of GDP). In addition, the increase in the surplus of Israelis' assets over liabilities vis-à-vis abroad in debt instruments only (negative net external debt) continued, with the surplus reaching $118 billion at the end of 2015.

Figure 3.14
Israelis' Surplus Assets Over Liabilities vis-a-vis Abroad, 1998–2015

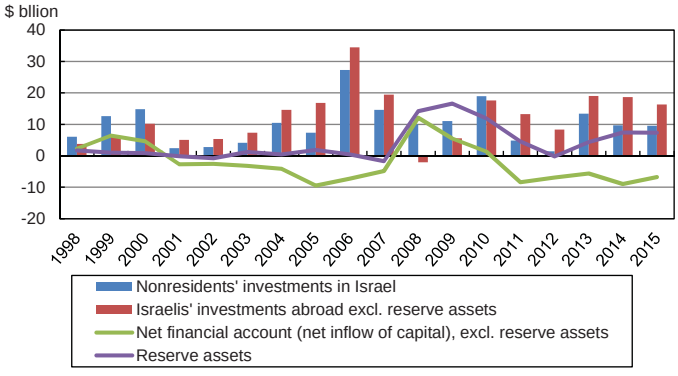


SOURCE: Bank of Israel.

There was a decline in the net export of capital (excluding reserve assets) in 2015.

The decline in the net flow of nonresidents' investments in Israel continued in 2015. In parallel, the decline in the net flow of Israelis' assets abroad also declined, for the second year in a row. The decline in the flow of nonresidents' investments in Israel—in parallel with the sharper decline in the flow of Israelis' investments abroad, including the decline in the growth of reserves—led to a decline in the volume of net capital exports from Israel to abroad.

Figure 3.15
Nonresidents' Investments in Israel, Israelis' Investments Abroad, and Net Inflow of Capital to Israel, 1998–2015

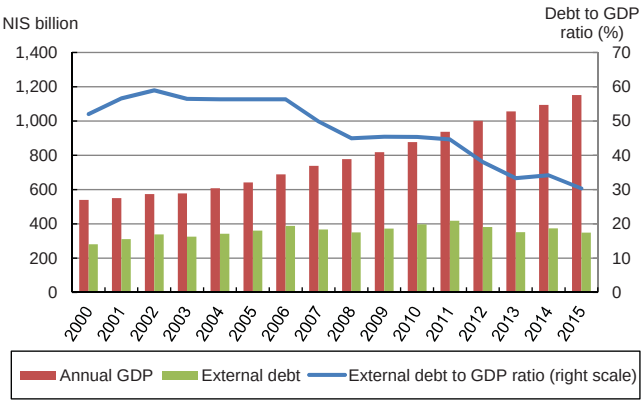


SOURCE: Bank of Israel.

There was a return in 2015 to the downward trend in the external debt to GDP ratio, which was 30 percent at the end of the year.

The decline in the debt to GDP ratio is a result of the continued increased in nominal GDP, which was not accompanied by a similar increase in the balance of gross external debt. In 2015, nominal GDP increased by 5.2 percent, while gross external debt declined by 6.8 percent. As a result, the debt to GDP ratio declined by about 4 percentage points.

Figure 3.16
Israel's GDP, Gross External Debt, and Debt to GDP Ratio, 2000–15



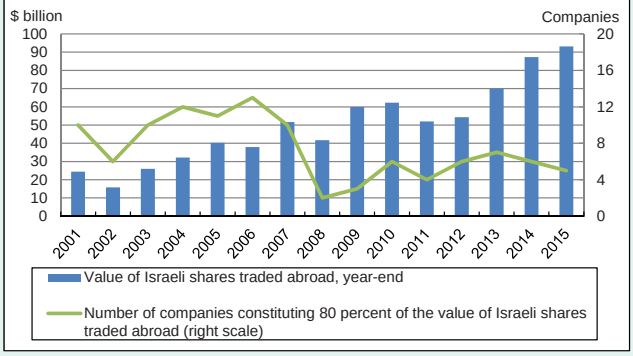
SOURCE: Based on Central Bureau of Statistics data.

ZOOM IN

ISRAELI CORPORATE BOND OFFERINGS ABROAD[1]

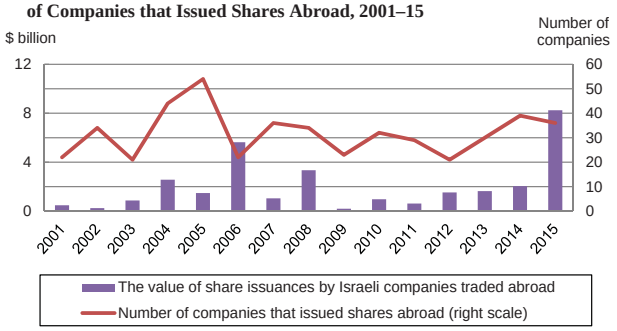
In 2015, the trend of concentration of the value of Israeli shares traded abroad in a small number of companies (out of about 100 Israeli companies traded abroad) continued

Figure 3.17
Value of Israeli Shares Traded Abroad, and Number of Companies Traded Abroad That Constitute About 80 Percent of the Value of Israeli Shares Traded Abroad, 2001–15



The number of Israeli companies issuing shares abroad has been stable in the past 10 years. In 2015, there was a significant increase in the value of share issuances* by Israeli companies abroad, mainly due to an issuance by one large company.

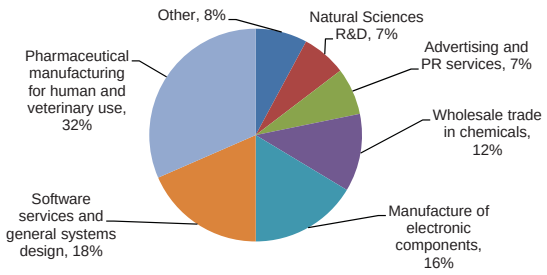
Figure 3.18
The Value of Israeli Share Issuances Traded Abroad, and the Number of Companies that Issued Shares Abroad, 2001–15



* IPOs and secondary offerings by Israeli companies traded abroad.

The value of IPOs* by Israeli companies abroad in 2014–15 totaled about $3 billion and was concentrated in the pharmaceutical manufacturing (32 perecnt) and software services (18 percent) industries.

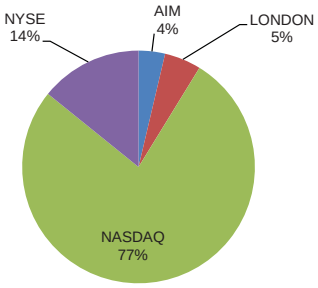
Figure 3.19
Distribution of the Value of Israeli IPOs Abroad, by Industry, 2014–15



* IPO: Initial offering by a company on the stock exchange.

The value of IPOs* by Israeli companies abroad in 2014–15 totaled about $3 billion and was concentrated in US stock exchanges.

Figure 3.20
Distribution of the Value of Israeli IPOs Abroad, by Stock Exchange, 2014–15



* IPO: Initial offering by a company on the stock exchange.

[1] Reporting nonfinancial companies only, which constitute about 67 percent of the balance.
SOURCE: Based on company reports.

Main indicators of activity vis-à-vis abroad

		2011	2012	2013	2014	2015
Indicators (percent)						
Financial robustness of the economy	Gross external debt to GDP	44.6	38.0	33.3	34.2	30.3
Liquidity vis-à-vis abroad	Short-term debt assets to total short-term debt*	240.4	276.0	302.0	342.2	380.6
	Foreign exchange reserves to short-term debt assets	60.7	63.0	62.4	62.6	65.3
Risks to the value of Israeli's assets abroad	Risk assets** as a share of total assets	57.2	60.5	63.0	64.0	63.7
	Stocks as a share of total assets	34.1	36.8	39.4	39.2	38.8
Openness of the economy vis-à-vis abroad	Assets + liabilities (vis-à-vis abroad) as a share of GDP	199.2	186.6	185.2	215.5	216.5
	Imports + exports (goods and services) as a share of GDP	71.5	72.4	64.6	62.9	59.5
Real contribution of abroad to the economy (liabilities)	Flow of direct investment as a share of gross capital inflow	1.8	5.8	0.9	0.7	1.2
	Flow of direct investment as a share of GDP	3.6	3.2	4.1	2.4	3.9
Main raw figures ($ billion)						
Balances	Balance of assets abroad	265.3	276.5	312.9	335.3	353.3
	of which: Reserves	74.9	75.9	81.8	86.1	90.6
	Balance of liabilities to abroad	223.0	223.7	250.3	270.6	285.1
	Surplus assets over liabilities	42.2	52.8	62.6	64.7	68.2
	Net external debt	-60.8	-67.5	-81.8	-99.5	-118.1
Transactions	Israelis' investments abroad	17.8	7.9	22.9	25.7	23.6
	of which: Direct investments	9.2	3.3	5.5	3.7	9.7
	Financial investments	3.4	7.5	9.3	10.3	10.0
	Nonresidents' investments in Israel	4.9	1.5	13.4	9.7	9.5
	of which: Direct investments	8.7	8.5	12.4	6.7	11.6
	Financial investments	-5.4	-3.3	1.8	9.6	3.2
Basic account	Net current account surplus	6.8	4.3	8.5	11.2	13.8
	Net foreign direct investment	-0.4	5.2	6.9	3.1	7.0
	Basic account surplus	6.4	9.5	15.4	14.3	20.8

* Short-term debt: Term to repayment of up to one year from the date of issue.
** Risk assets: Stocks (direct and financial investment) and corporate bonds.

SOURCE: Bank of Israel.

MAIN TERMS

Direct investment—Investment by nonresidents in Israeli companies or investment by Israelis in foreign companies is defined as a direct investment when it involves holdings of more than 10 percent of the company's capital (tradable and nontradable). Direct investment includes stock purchases, owners' loans, and investment in real estate.

Financial investment—Transactions between Israelis and nonresidents, involving debt instruments (including government bonds) or company stock where holdings are of less than 10 percent of the company's capital, excluding investment that is included in reserve assets. This category reflects activity on the Israeli stock market or foreign stock markets.

Direct and financial investments are part of capital flows between Israel and the rest of the world, which are recorded in the financial account of Israel's balance of payments. The distinction between direct investment and financial investment reflects the difference in motive and purpose of the investor. Direct investment generally reflects globalization of real economic activity, meaning the geographic distribution of development, production and marketing of goods and services and the establishment of multinational corporations. In contrast, financial investment generally reflects globalization of financial activity—management of the securities portfolio with geographic diversification, in an attempt to improve the yield to risk ratio of the portfolio as a whole.

The flows of direct and financial investment by foreign residents in the Israeli economy create a liability of the economy toward abroad, while the flows of direct and financial investments abroad by Israelis create Israeli assets vis-à-vis abroad.

D. FOREIGN EXCHANGE ACTIVITY OF THE MAIN SECTORS

In 2015, the high level of risk in the global and Israeli foreign exchange markets was maintained relative to the previous four years, following an increase since mid-2014. This risk is reflected in the standard deviations in exchange rate options on the currencies of advanced and developing economies.

In August 2015, there was a change in the shekel/dollar exchange rate, from appreciation of the shekel to depreciation, such that the shekel appreciated slightly against the dollar in 2015 as a whole, but there was a marked appreciation (7.3 percent) in terms of the nominal effective exchange rate.

During the year, there was a change in the foreign exchange activity of nonresidents and institutional investors. Nonresidents transitioned from exposure to an appreciation of the shekel to exposure to a depreciation—mainly the result of less hedging through derivatives. This was in contrast to the continued growth of their exposure to depreciation of the shekel since the end of 2012. In contrast, in 2015 as a whole, there was an increase in institutional investors' exposure to appreciation of the shekel, which resulted from net investments in balance sheet foreign exchange assets in parallel to partial hedging through derivatives. However, in August, the institutional investors transitioned from net foreign exchange sales to net foreign exchange purchases.

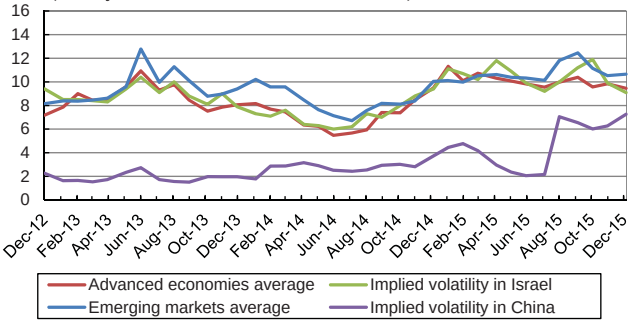
1. RISK AND THE EXCHANGE RATES

In 2015, the high level of exchange rate risk in Israel and the world was maintained, following its increase since mid-2014.

The high level of the average implied volatility reflecting exchange rate risk in Israel was maintained in 2015 (10.1 percent), compared with the average level in the previous four years (9.1 percent). This followed a marked increase since mid-2014.

These developments reflect an increase in risk, and took place against the background of the slowdown in China and expectations of an increase in the interest rate in the US.

Figure 4.1
International Comparison of Average Implied Volatility in Foreign Exchange Options[a]
(Weekly data, December 2012–December 2015)



[a] Implied volatility in emerging markets: Mexico, South Korea, Philippines, Poland, Chile, South Africa, Thailand, Hungary, Turkey and Singapore. Implied volatility in advanced economies: Australia, Canada, Japan, UK, Switzerland and eurozone.

SOURCE: Based on Bloomberg data.

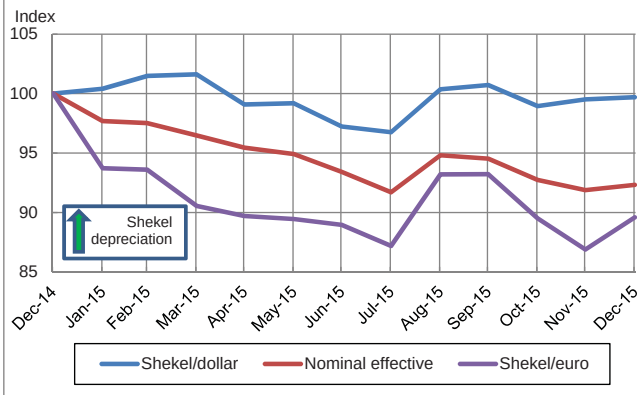
In August, the implied volatility of foreign exchange options in China and the other emerging markets increased sharply, and during 2015 as a whole, it increased by 3.5 percentage points in China and by 0.6 percentage points in the emerging markets as a whole.

In parallel with the increase in exchange rate risk, there was a change in the development of the shekel exchange rate in August 2015.

During the first seven months of the year, the shekel appreciated[1] vis-à-vis the dollar by about 3.3 percent. But from the beginning of August until the end of the year, it depreciated by about 3 percent, so that over the year as a whole, the shekel appreciated slightly against the dollar.

Against the euro, the shekel strengthened by about 13 percent during the first seven months of the year, but weakened by about 3 percent since August. Against the nominal effective basket of currencies[2] the same change took place in August, and over the year as a whole, the shekel appreciated by 7.3 percent, further to its appreciation in 2014.

Figure 4.2
Shekel/Dollar, Shekel/Euro, and Nominal Effective Exchange Rate Indices (Monthly data, December 2014–December 2015)



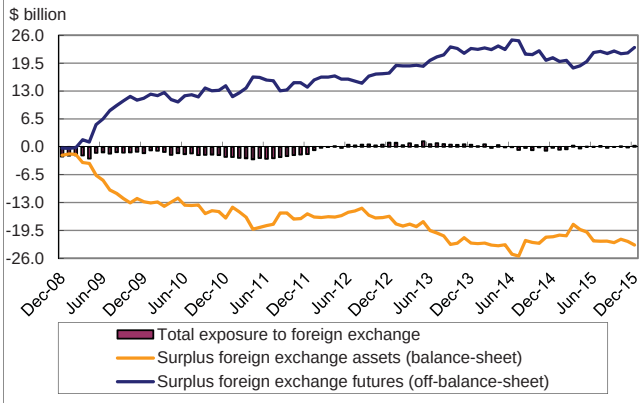
SOURCE: Bank of Israel.

2. EXPOSURES TO THE EXCHANGE RATE BY SECTOR[3]

The banking system maintained near-zero exposure to the shekel exchange rate in 2015.

The banking system has persistently maintained low exposures to the exchange rate. Starting in 2009, there has been a change in the composition of exposure, with a marked upward trend in the banks' surplus balance-sheet foreign exchange assets, in parallel with an increase in the surplus of their off-balance-sheet liabilities. In mid-2014, there was a reversal of this trend, with continued maintenance of near-zero exposure to the exchange rate.

Figure 4.3
Aggregate Banks' Balance of Foreign Exchange–Balance Sheet and Off-Balance-Sheet Assets, December 2008–December 2015



SOURCE: Based on the banks' nonconsolidated monthly balance-sheet figures.

Starting in March 2015, there has been a return to the upward trend in the surplus of balance-sheet assets and off-balance-sheet liabilities in foreign exchange.

Most of the balance of futures contracts for the purchase of foreign exchange by the banking system is against Israelis—financial entities and institutional investors.

[1] The calculations here are based on daily data for the beginning and end of the period.

[2] The nominal effective basket of currencies is an index comprised of the weighted average of 26 exchange rates, reflecting the relative importance of each currency in Israel's foreign trade. The two main currencies in the basket are the US dollar and the euro. For more information: http://www.boi.org.il/en/Markets/ExchangeRates/Pages/efectinf.aspx

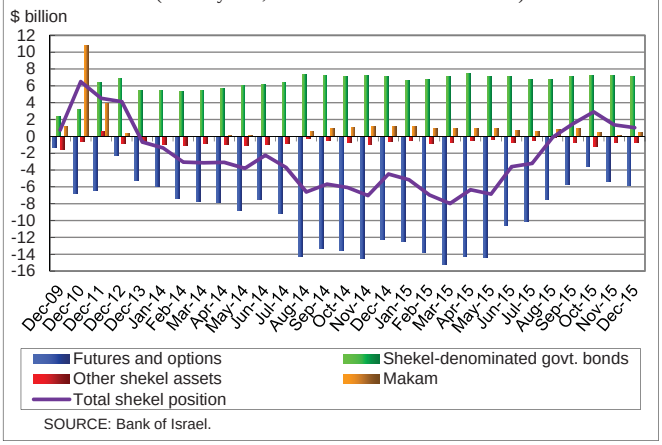
[3] See definitions, measuring and explanations of exposures to the exchange rate, at the end of the chapter.

In 2015, nonresidents transitioned from exposure to an appreciation of the shekel to exposure to a depreciation, in contrast to the persistent increase in their exposure to appreciation that began in 2012.

In 2015, there was an increase of $5.8 billion in the surplus of shekel assets against shekel liabilities (in debt instruments only), which is mainly derived from a decline in net future shekel liabilities ("hedging" through derivatives), following a persistent increase in them in previous years.

As a result of this decline in hedging, while the other shekel assets and shekel liabilities changed only slightly, nonresidents transitioned in August 2015 from exposure to appreciation of the shekel to exposure to depreciation.

Figure 4.4
Nonresidents' Surplus Assets of Shekel and Derivative Debt Instruments (Monthly data, December 2009–December 2015)



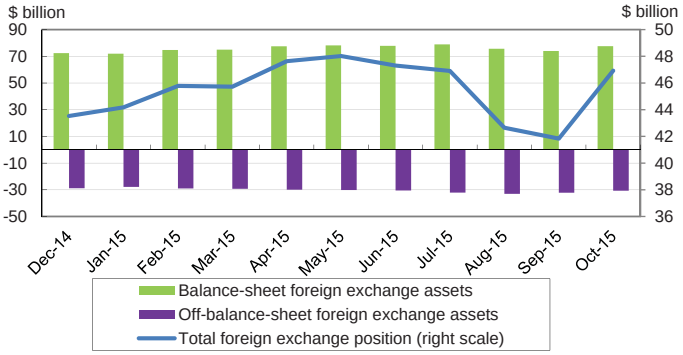
SOURCE: Bank of Israel.

During 2015[4], institutional investors increased their structural exposure to appreciation of the shekel.

During 2015, institutional investors increased their surplus foreign exchange assets (balance-sheet and off-balance-sheet) by about $3.3 billion: an increase of about $6.2 billion in balance-sheet foreign exchange assets against an increase of about $2.9 billion in off-balance-sheet foreign exchange liabilities.

Against the background of the high volatility in the markets in August, there was a temporary decline in institutional investors' exposure to changes in the exchange rate in August and September (totaling about $5 billion), due to temporary declines in global stock prices.

Figure 4.5
Institutional Investors'[a] Surplus Foreign Exchange Assets (+), December 2014–October 2015



[a] Including provident funds and advanced training funds, pension funds, and "profit-sharing" insurance companies.

SOURCE: Based on reports from the institutional investors.

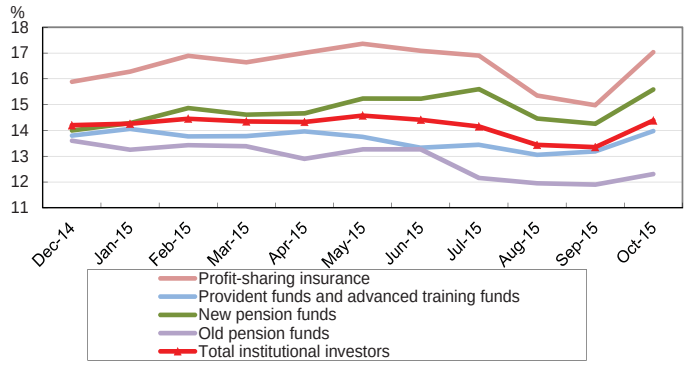
[4] Data on institutional investors include data for January–October only, due to a change in the method of calculation among some of the reporting institutions for the "Total shekel/foreign exchange futures/derivatives" section in November 2015.

In 2015, there was no significant change in the total rate of exposure to foreign exchange of all institutional investors from their total assets.

During 2015, there was an increase in the rate of exposure to foreign exchange of the new pension funds (an increase of 1.6 percentage points) and profit-sharing insurance companies (an increase of 1.1 percentage points). In contrast, there was a decline (of 1.8 percentage points) in the old pension funds' exposure to foreign exchange.

Due to the volatility in global stock prices, there was a temporary decline in the rate of exposure to foreign exchange of each of the types of institutional investors in August–September 2015.

Figure 4.6
Institutional Investors' Rate of Exposure to Foreign Exchange, by Entity, December 2014–October 2015



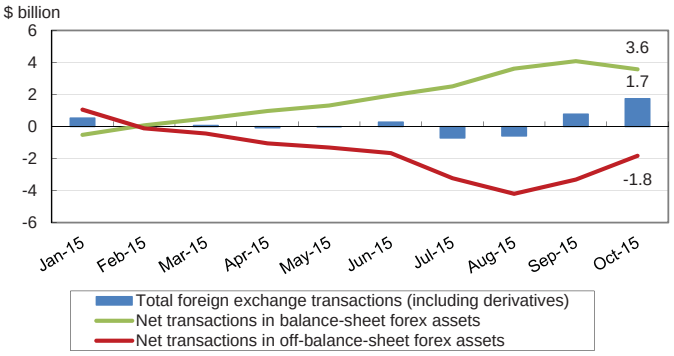
SOURCE: Based on reports from the financial institutions.

3.FOREIGN EXCHANGE PURCHASES AND SALES AGAINST THE SHEKEL

During 2015, institutional investors partly hedged their investments in foreign assets and increased the volume of futures transactions for the sale of foreign exchange.

During the year, institutional investors increased the balance of futures transactions for the sale of foreign exchange by about $1.8 billion, against an increase in investments in foreign exchange assets totaling about $3.6 billion, mainly in foreign bonds and stocks. In August 2015, there was a marked decline in off-balance-sheet foreign exchange liabilities, in contrast with the trend since the beginning of the year.

Figure 4.7
Foreign Exchange Asset Transactions by Institutional Investors Compared With Change in Shekel/Forex Derivatives and Foreign Exchange Purchases (+) (Monthly cumulative data, January–October 2015)

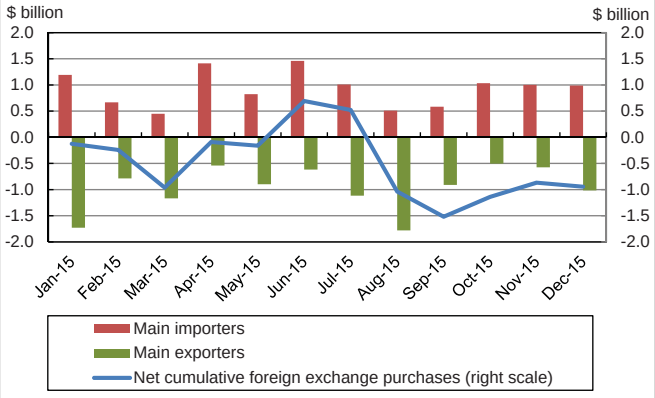


SOURCE: Based on reports from the institutional investors.

In 2015, there were net sales of foreign exchange totaling about $1 billion by Israel's main exporters and importers.

Due to the depreciation of the shekel, net cumulative foreign exchange sales by the nonfinancial sector (represented here by the large importers and exports) increased beginning in August. Exporters increased foreign exchange sales, while importers decreased foreign exchange purchases.

Figure 4.8
Import and Export Companies' Foreign Exchange Purchases
(Monthly data, January 2015–December 2015)



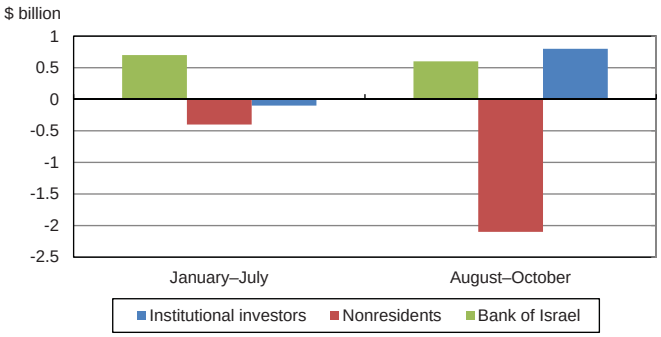
SOURCE: Bank of Israel.

Since August 2015, the institutional investors have transitioned to net foreign exchange purchases, while nonresidents have expanded their sales of foreign exchange.

In the first seven months of the year, both nonresidents and institutional investors were net sellers of foreign exchange. Starting in August 2015, there was a change in the foreign exchange activity of these two sectors, in opposite directions. The institutional investors transitioned to purchasing foreign exchange, while nonresidents increased their sales of foreign exchange.

The Bank of Israel purchased foreign exchange throughout the year.

Figure 4.9
Estimated[a] average transactions in the main sectors' foreign exchange positions (Monthly average, January 2015–October 2015)



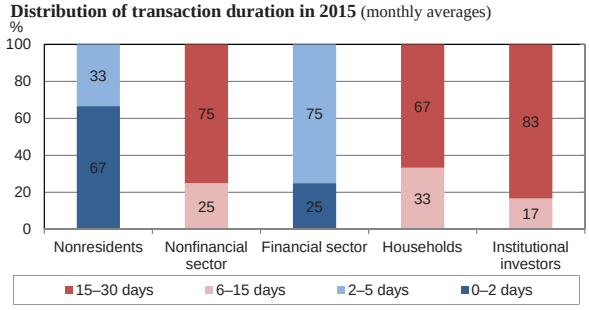
[a] Based on reported transaction data and on an estimate based on balance differentials.
SOURCE: Bank of Israel.

ZOOM IN

THE VOLUME OF FOREIGN EXCHANGE TRANSACTIONS

The average duration of transactions[a] by nonresidents and the financial sector is significantly shorter than the average transaction duration of the other sectors.

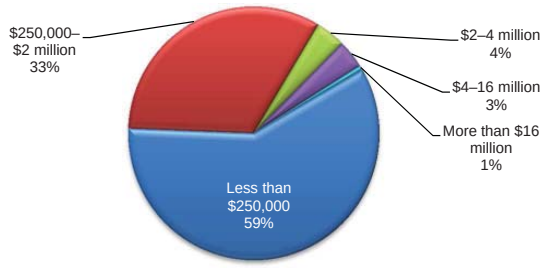
Figure 4.10
Distribution of transaction duration in 2015 (monthly averages)



[a] Excluding swap and options transactions.

There were 424,000 foreign exchange transactions[a] carried out in 2015, more than half of which were small transactions of less than $250,000.

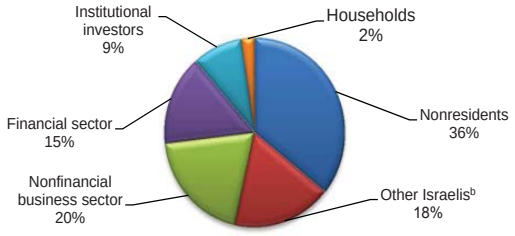
Figure 4.11
Distribution of number of transactions by value of each transaction, 2015



[a] Excluding swap transactions.

In 2015, the volume of transactions in the foreign exchange market[a] was about $625 billion, about half of which were carried out by nonresidents and the nonfinancial business sector.

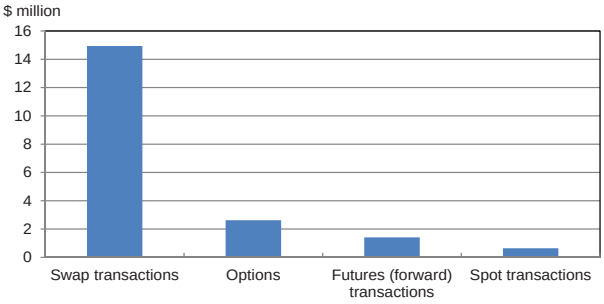
Figure 4.12
Distribution of the Volulme of Transactions in Foreign Exchange Market, by Segment, 2015



[a] Excluding swap transactions.
[b] Including: Non-profits, government, branch customers, and unclassified customers.

The average amount of swap transactions in 2015 was significantly higher than the average amount of transactions in other instruments.

Figure 4.13
The Daily Average Value of Transactions, By Instrument
(Total aggregate daily average of about $20 million in all instruments)



Main indicators in the foreign exchange market

	Level[a]				Change			
	2012	2013	2014	2015	2012	2013	2014	2015
Actual volatility of the shekel/dollar exchange rate (moving 20-day average)[b]	5.5%	3.5%	9.4%	5.1%	-0.1	-2.0	5.9	-4.3
Implied volatility of shekel/forex OTC options[b]	9.4%	7.9%	9.4%	9.1%	-1.8	-1.5	1.5	-0.3
Shekel/dollar representative exchange rate	3.73	3.47	3.89	3.90	-2.3%	-7.0%	12.0%	0.3%
Shekel/euro exchange rate	4.92	4.78	4.73	4.25	-0.3%	-2.8%	-1.2%	-10.1%
Dollar/euro exchange rate	1.32	1.38	1.22	1.09	2.0%	4.6%	-11.8%	-10.4%
Yen/dollar exchange rate	86.16	104.98	119.49	120.41	11.2%	21.8%	13.8%	0.8%
Nominal effective exchange rate (January 1, 2010 = 100)	97.22	89.80	92.75	86.02	-0.7%	-7.6%	3.3%	-7.3%
Average daily trading volume - conversions, swaps and OTC options ($ million)	4,978	4,157	8,428	5,936	-23.8%	-16.5%	102.7%	-29.6%
Nonresidents' share of trading volume[b]	41.0%	34.6%	32.7%	33.2%	1.8	-6.4	-1.9	0.6
Nonresidents' exposure to the exchange rate ($ billion)	4.1	-0.7	-4.5	1.4				
Institutional investors' exposure to the exchange rate ($ billion)	32.7	38.9	43.5	46.9[c]	2.0	-3.2	3.6	3 1.8
The banking system's exposure to the exchange rate ($ billion)	1.0	0.5	-0.2	-0.2	-8.5	-9.3	-12.5	-13.8
Foreign exchange purchases by institutional investors ($ billion)					15.5	12.6	14.1	11.9

[a] Level at the end of the period.

[b] Change in percentage points.

[c] Including data for January–October, due to a change by some of the reporting entities in the calculation method of the “Total futures and shekel/forex derivate assets” item in November 2015.

SOURCE: Bank of Israel.

MAIN TERMS

Exposure to the exchange rate is the monetary amount at risk in a case of changes in the shekel exchange rate vis-à-vis foreign currencies. In terms of Israelis and the various sectors in the Israeli economy, this amount is estimated in this chapter by the surplus of their foreign exchange assets over foreign exchange liabilities (denominated in and indexed to foreign exchange). In terms of nonresidents, this amount is estimated by calculating the surplus of their shekel assets over shekel liabilities. An Israeli is exposed to appreciation of the shekel when he holds a surplus of foreign exchange assets (positive), and is exposed to a depreciation of the shekel when he holds surplus foreign exchange liabilities (negative asset surplus). Nonresidents' exposure works in the opposite direction—surplus shekel liabilities leads to an exposure to appreciation of the shekel, and surplus shekel assets leads to an exposure to depreciation of the shekel.

Foreign exchange assets include: **balance-sheet assets** such as cash and deposits in foreign currency, foreign currency government and corporate bonds (generally foreign), and **off-balance-sheet assets,** meaning the open balance in transactions in derivative financial instruments (hereinafter: DFIs) for the purchase of foreign exchange against shekels, such as futures transactions and options (tradable and nontradable). Similarly, foreign exchange liabilities include: balance-sheet liabilities such as foreign exchange loans, and off-balance-sheet liabilities, meaning the open balance in DFI transactions for the sale of foreign exchange against shekels. Nonresidents' assets and liabilities in shekels are defined similarly.

Many Israelis, led by institutional investors, hold foreign assets as part of an investment policy of diversification of their asset portfolio and its risks. Such holdings, of foreign assets only, expose them to appreciation of the shekel. In order to minimize this exposure, they sell foreign exchange in DFI transactions (referred to as "hedging"). Exporters and importers are exposed to changes in the exchange rate due to their commercial activity—in opposite directions—and protect themselves through DFI transactions. Other Israelis, such as financial companies, may manage exposure to the shekel exchange rate with the intention of profiting from changes in the rate, by purchasing and selling foreign exchange against shekels in the present (spot) and through future DFI transactions. The nonresidents sector is comprised of various companies and individuals with activity in shekels and a similar variety of motives.

Part Two

Papers on statistical methodology and economic data, and their implementation at the Bank of Israel:

1. The Credit Market in Israel

2. The Measurement of Monetary Aggregates According to the International Standard

The Credit Market in Israel

By Hadar Gotsman* and Maayan Kellerman*

Abstract

The Information and Statistics Department at the Bank of Israel runs a database of local credit market activity and calculates aggregate data regarding credit volumes in the market, by segment. The data's main significance is for the purpose of determining the Bank of Israel's monetary policies and for the purpose of monitoring and analyzing financial stability. Datasets of credit aggregates are published on the Bank's website, and are very useful to economists and analysts following financial activity in the market.

The study features various segmentations of the market's credit aggregates, such as lender segments, borrower segments, types of instruments, balances and transactions, as well as their manner of calculation. This study includes a description of the data framework and definitions, with numerical examples of the borrower-lender (who to whom) matrix, a breakdown of the data sources, and a description of key application and processing methods.

* The Information and Statistics Department, Bank of Israel

1. Background and purpose of the study

The credit market is a meeting point between businesses and individuals seeking financing for their activity—such as investments and purchase of goods—and financial entities that are engaged in investment and financing. In a credit transaction, the lender provides the borrower with financing, and expects repayment at a preset date, in return for preset interest, and under additional terms and conditions agreed upon by the lender and the borrower. Financing is provided in the form of loans or in the form of purchasing debt securities issued by the borrower (which in the latter case is either a company or a government).

A perfect credit market contributes to the economy's growth by enabling redirection of financial resources to the appropriate places for the economy, efficiently and continually, while correctly pricing risks. This explains the importance of monitoring and analyzing the activity in the credit market for both economic policy makers and analysts analyzing the economic situation. The Bank of Israel is specifically interested in the credit market in Israel from three perspectives: The monetary perspective—the effect of the monetary policy (the interest rate) on the activity and inflation through the credit market; the real perspective—providing the financing needed for economic activity in the market; and the financial perspective—the financial market's stability.

For these purposes, the Information and Statistics Department at the Bank of Israel runs a database of the credit market in Israel. The Department collects data and information from reports and various sources, processes them to a whole and consistent data system and calculates the credit aggregates in the market by segment. The system also includes data on credit volumes and costs as well as interest rates. In this capacity, the Department monitors structural changes in the credit market and credit resources, and improves the data and methodology from time to time. The credit aggregates are used by the Bank of Israel in decision making processes, as well as for studies involving the Israeli credit market. The data are published on the Bank of Israel's website[1] and reported to international entities.

The purpose of this study is to present the credit data system in Israel in terms of credit volumes alone, and specifically, the manner in which the economy's credit aggregates are calculated. The study includes a description of the data framework and definitions, with numerical examples, a breakdown of the data sources, and a description of key application and processing methods.

2. The data and definitions framework

The credit system includes a large amount of data by various sections. In order to calculate the credit aggregates, several sections were used, which will be described in this chapter: by key dimensions, by balances and transactions, and by the debt side and credit side.

[1] http://www.boi.org.il/en/DataAndStatistics/Pages/MainPage.aspx?Level=4&Sid=53&SubjectType=2

2.1 Dimensions

Israel's credit aggregates include three key dimensions: lender segments, borrower segments and the financial instruments used to provide credit.

2.1.1 Lender segments are the entities and institutions providing credit in the market:

- The financial sector—the banks, institutional investors (insurance companies, provident funds, advanced training funds and pension funds) and credit card companies;
- Nonresidents;
- The government[2];
- Households and others.

There are additional financial entities outside the banks and institutional investors, which are engaged, inter alia, in credit provision. The volume of their credit activity is estimated to be small in relation to the system's overall volume of activity. These entities are not included in the credit system due to lack of sufficient information.

2.1.2 Borrowing segments are the entities and institutions taking credit in the market:

- Households;
- The business sector—Israeli businesses that do not form part of the financial lender sector (i.e., are not banks or insurance companies). At this stage, there is no distribution of the entire business sector's debt by economic activity;
- Government and municipalities.

2.1.3 The financial instruments by which credit is provided:

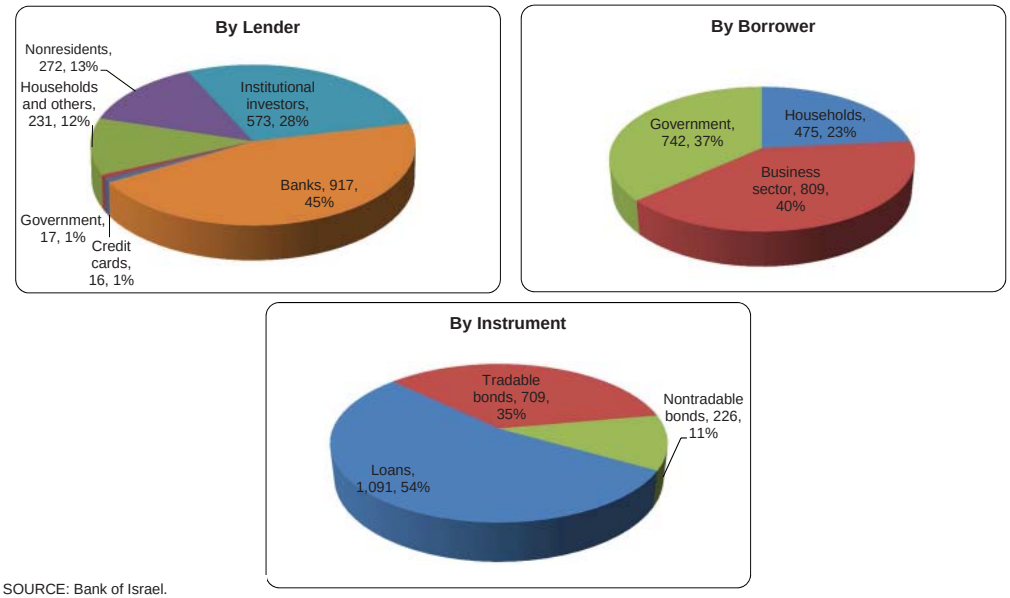
Loans (including overdrawn current accounts;
Tradable bonds (regular and convertible);
Nontradable bonds.

The instruments include all indexation segments (unindexed, CPI-indexed, and denominated in and indexed to foreign currency).

Figure 1 presents an example of the three credit dimensions for creating the economy's credit aggregates—the distribution of total debt in the economy as of a specific point in time (end of December, 2015) according to the three dimensions presented above. Table 1 is a matrix showing the economy's key credit aggregates as of that point in time—tThe debt balance of all three borrower segments and total debt in the economy, divided by lender segments and by the various lending instruments.

[2] Loans provided to borrowers by the government, usually go through the banking system, which serves as a pipeline for payment transfers.

Figure 1
Three Dimensions of Distribution of Debt–by Lender, by Borrower, and by Instrument
(Total debt in the economy as of December 31, 2015: about NIS 2 trillion)



SOURCE: Bank of Israel.

The data in Figure 1 and in Table 1 reflect several main points:

- The balance of the **total market debt** as of the end of 2015[3] was NIS 2 trillion. The distribution of debt according to the three dimensions shows that the two main borrowing segments in the market are the business sector and the government, which are similar in weight; the main lenders in the economy are the banks, with more than half of the debt in the economy created through loans;
- Total **business sector** debt reached about NIS 809 billion. Loans were the main instrument through which the debt was created (73%). The business sector is financed, in almost equal parts, by the banking system and by nonbank entities, with the main lenders being institutional investors and nonresidents;
- Total debt of **the government and local authorities** was about NIS 742 billion, mostly through tradable bonds (70%). The institutional investors are the main lenders to the government (55%);
- Outstanding **household debt** was NIS 475 billion, mostly from the banks (91%)—mainly for housing.
- **Institutional investors provide** credit mainly through the purchase of bonds—of the government and business sector. In recent years, the area of loans from institutional investors, mainly for the business sector, has been developing.

[3] For an analysis of debt developments, please see Chapter B in the first section of this report.

- **Households** provide credit by purchasing government bonds and bonds issued by the business sector—either directly or through holdings in mutual funds that invest in bonds. (Households also provide loans to businesses, but these are not included in the system).

Table 1
Gross debt balances in the economy: Distribution among lending and borrowing sectors (excluding the financial sector), December 2015

(NIS billion)

Lending sectors	Borrowing sectors: Households	Business sector	Government	Total debt in the economy
Total debt to banks	433	397	87	917
Nonhousing credit to the public	126	390	16	532
Housing credit to the public	307			307
Tradable bonds		7	72	78
Total debt to institutional investors	11	154	409	573
Loans	11	58	5	73
Tradable bonds		71	221	292
Nontradable bonds		25	183	208
Total debt to credit card companies	14	1		16
Loans	14	1		16
Total debt to nonresidents		171	101	272
Loans		143	3	146
Tradable bonds		28	80	108
Nontradable bonds			18	18
Debt from government sources	17	0		17
Targeted credit	17	0		17
Debt to households and others		86	145	231
Tradable bonds		86	145	231
Total debt	475	809	742[a]	2,026
By main debt instruments				
Loans	475	593	24	1,091
Tradable bonds		191	517	709
Nontradable bonds		25	201	226

SOURCE: Bank of Israel.

Information regarding credit provided by the business sector to households, such as loans from employers to their employees and trade credit (for households only), financed by the company itself rather than by a financial institution (such as credit card companies) is not included in the system due to insufficient data. The assumption is that these amounts are negligible in relation to the total credit provided to households.

It should be noted that the debt of each sector is net, i.e., it does not include intra-sector loans: The business sector's debt does not include trade credit, i.e. business to business (B2B) credit, and the debt of the government and municipalities does not include the debt of the municipalities to the government.

2.2. Balances and transactions

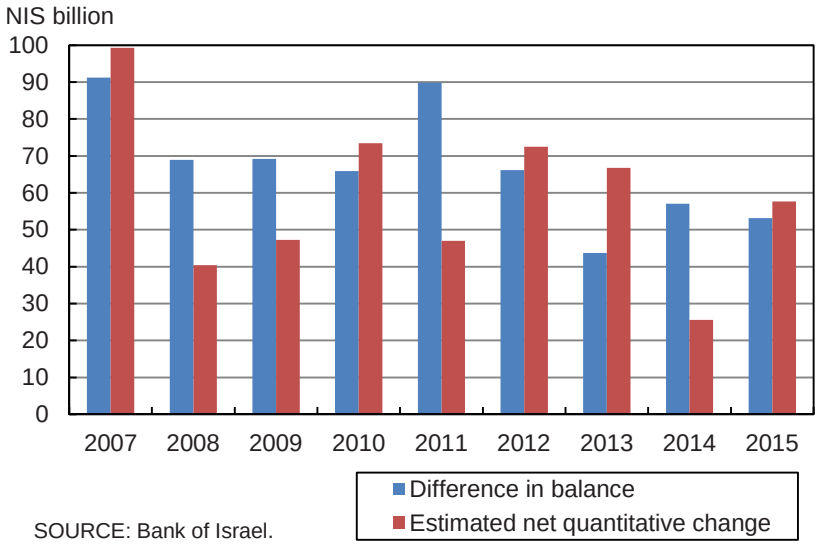
2.2.1 Balances represent the credit inventory (positions, stocks) and are related to the debt level at each point in time, as presented in Table 1. The balances are affected by the following key variables: Raising new debt (such as taking a new loan), repayment of old debts (for example, repayment of bonds), payments and accrued interest, changes in prices (the change in the Consumer Price Index and the exchange rate for CPI-indexed or exchange rate-indexed debt), and other factors;

2.2.2 Quantitative changes (transactions) represent the economic activity in the credit market and include two components—net raising of new debt and interest accruals and payments. Net raising of debt is new debt raised net of debt repaid during a given period (between two points in time). Most of the credit components lack direct data regarding quantitative changes. In such cases, the "quantitative change estimate" is calculated (see Section 3.2.1).

Figure 2 shows the quantitative changes (estimated net quantitative change) and the annual balance differences of total market debt each year, from 2007 to 2015.

Figure 2 provides information regarding various phenomena that have taken place in the past few years:

Figure 2
Total Change in Debt in the Economy, 2007–15



SOURCE: Bank of Israel.

- From 2007 to 2015, total market debt increased from year to year—i.e., each year, the economy raised new debt, and the balance differentials were also positive;
- In years when there was a higher difference in the balance than the estimated net quantitative change—a price increase occurred in addition to the quantitative increase, for example, in 2008 and 2014;
- In other years, in which the difference in the balance was lower than the estimated net quantitative change —the quantitative increase was partly offset by price decreases (over the entire credit balance), such as in 2012 and 2013.

2.3 Debt vs. credit

2.3.1 "Debt" – from borrowers' perspective: Represents the debt estimate for each of the main three borrower sectors in the economy. From the borrowers' point of view, the value of the debt is independent of its market value or its lenders' book value. Thus, the bond balances are presented at adjusted par value[4] and the total debt balances are presented before deduction of balances for allowance for credit losses in the lenders' books (for example, "doubtful debt provision / problematic debt provisions" in the banks' balance sheets).

2.3.2 "Credit" -from the lenders' perspective: Represents the credit estimate for each of the major lender segments in the market: From the lenders' perspective, the credit value depends on its market value or book value. Therefore, the balances of the tradable bonds are presented at market value, nontradable bond balances are presented at fair value (estimated market value) and total credit balances are presented after deduction of allowance for credit losses in the lenders' books.

Israel's credit aggregates are calculated and presented from these two perspectives—the debt side and the credit side. Each type of calculation has different uses. For example, data on the debt side is suitable for an analysis of the distribution of financing in the economy among the borrower sectors or among the various instruments, while data on the credit side is suitable for analysis of financial stability and the risks to which the lender segments (such as banks) are exposed.

[4] Outstanding principal that remains to be repaid, plus accumulated interest that remains unpaid and index/exchange rate differentials (according to the terms of the bond).

3. Main sources of data and calculations

3.1 Data sources and availability

3.1.1 The banking system reports to the Banking Supervision Department—Most of the data come from monthly reports on the banks' balance sheets (in stand-alone and non-consolidated financial statements).[5] Most of the data used in the credit system come from the assets side of the entire banking system's balance sheet: Credit balances provided to commercial entities, individuals and the government—by type of linkage; housing credit data—balances by linkage type; data on loan loss provisions; holdings in bonds; directed credit balances (credit provided by the government to the public through the banks).

3.1.2 Quarterly financial statements of credit card companies are also submitted to the Banking Supervision Department—data regarding credit provided by these companies to the business sector and households.

3.1.3 Reports by institutional investors to the Finance Ministry and the Bank of Israel—monthly reports containing details of the assets held by the institutional investors. The data used by the credit system are loans provided by these entities to companies and members (households) and their holdings of corporate bonds (of companies) and government bonds.

3.1.4 The Tel Aviv Stock Exchange—the source for data on tradable bonds issued by Israeli companies, including the par value balances and market value.

3.1.5 Direct reports of large Israeli corporations[6] to the Bank of Israel on their activities vis-à-vis nonresidents. The data that are relevant to the credit system are loans from nonresidents—shareholders' loans, loans from financial institutions, trade credit and corporate bond offerings abroad.

3.1.6 Reports of banks and other financial intermediaries to the Bank of Israel regarding nonresident holdings of Israeli financial assets.

3.1.7 The Ministry of Finance – the source for loans, and tradable and nontradable government bonds.

Most of the data are received on a monthly basis, but it is important to note that some are less audited than the quarterly data, and the quarterly data are often amended and improved in a manner that is not reflected in the monthly data. Thus, in some of the aggregates, end of quarter

[5] A bank's consolidated balance sheet consolidates the accounts of the parent bank with those of its subsidiaries, as if they were a single company. Among other things, it "offsets" activity between the parent bank and its subsidiaries, while a stand-alone balance sheet is a separate balance sheet for the parent bank and each of its banking subsidiaries.

[6] The reporting requirement applies to companies with annual turnovers of over $50 million and/or balance of financial assets exceeding $20 million. In addition, the reporting requirement applies to individuals who hold a balance of financial assets abroad of over $20 million.

balance data are inconsistent with the data as at the end of the months included in the quarter. In addition, the monthly data are more volatile than the quarterly data. Therefore, we recommend using quarterly data for analysis and drawing conclusions (although the data published on monthly balances appear on the Bank of Israel website). The Bank's website contains datasets of credit aggregate data from September 1992.

3.2 Main calculations

The Information and Statistics Department processes the abovementioned data in various ways so as to achieve a detailed, consistent and closed data system. Below is a breakdown of the main calculations and estimates:

3.2.1 Calculation of the estimated net quantitative change: Existing data sources include direct reports only regarding the quantitative changes in government debt and activity vis-à-vis nonresidents. Out of the other data, the "estimated quantitative change" is calculated only for the total credit of each borrowing sector—the business sector, households and the government. In addition, an estimated quantitative change is calculated for each of the business sector's fund-raising channels alone—bank loans, tradable bonds in Israel, nontradable bonds and nonbank loans and foreign credit.

The estimated quantitative change is calculated as follows: The estimated price effect is deducted from the difference between the debt balance at the end of the period and the balance at the beginning of the period. The calculation of the estimated price effect during the period is performed according to the debt balance's indexation sectors: Unindexed—zero price effect; CPI-indexed—deducting the effect of the change in the index; and indexed to and denominated in foreign currency—deducting the effect of the change in the exchange rate. Since the estimated net quantitative change is derived from the balances, it also includes additional effects such as interest payments/accruals, in addition to the net debt raised.

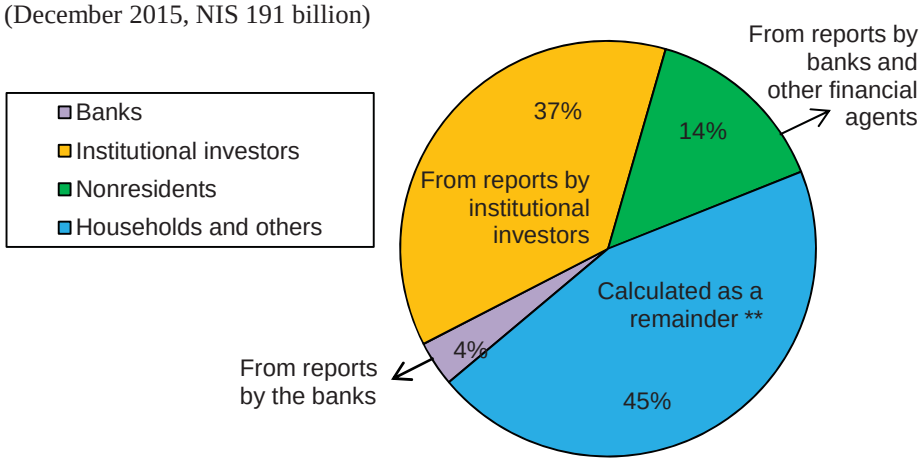
3.2.2 Breakdown of the balance of tradable bonds in Israel and abroad issued by the business sector, by holders:

3.2.2.1 The estimate is calculated only for holdings by institutional investors and nonresidents of bonds issued by the business sector: the total of these two lending sectors' holdings of corporate bonds, less the estimated holdings of bonds issued by banks and insurance companies.

3.2.2.2 The balance of households' and others' holdings of corporate bonds: calculated as a remainder—total balances of bonds issued by the business sector (data were taken from reports by the Tel Aviv Stock Exchange and direct reports of the companies), net of holdings in these bonds by the banks, institutional investors and nonresidents. Since the figure is calculated as a remainder, it includes households' holdings of these bonds, either directly or through mutual funds, as well as holdings by companies from the business sector.

Figure 3 depicts the result of the two calculations above for a distribution of the business sector's outstanding debt by holding sector as of December 2015:

Figure 3
Distribution of Holders of Tradable Business Sector Bonds* Issued in Israel and Abroad, in Debt Terms
(December 2015, NIS 191 billion)



* Total business sector bonds is taken from Tel Aviv Stock Exchange data and from direct reports by the companies.
** Total outstanding bonds minus holdings by the banks, institutional investors and nonresidents.
SOURCE: Bank of Israel.

3.2.3 Bank loans to the business sector—The following are deducted from the credit balances of loans to Israeli commercial corporations in the banks' balance sheets: credit to municipalities (included in credit to the government) and credit to credit card companies (since they are part of the lender entities and the credit they provide is measured directly).

This credit includes loans to individuals who are not private parties, but rather small independent businesses.

The Measurement of Monetary Aggregates According to the International Standard

Maayan Kellerman*

Abstract

Due to Israel joining the Organization for Economic Cooperation and Development (OECD), the Information and Statistics Department adjusted the definitions and the calculation of the monetary aggregates in Israel to the international definitions set by the International Monetary Fund (IMF). The main aggregate for measuring the money stock—the "broad money" aggregate—includes the most liquid instruments, such as cash and demand deposits, but also other less liquid instruments, such as short-term bills (known as makam). The main difference between the broadest monetary aggregate calculated until now in Israel—M3—and the broad money aggregate derives from the development in the last few decades of new instruments and issuers, which were not taken into consideration in the previous definition, such as money market funds (MMFs). Since the transition to an inflation targeting regime in monetary policy management in Israel and in many other countries, the monetary aggregates no longer serve a central role in determining monetary policy. Nevertheless, policy makers examine many indicators when assessing the policy required to attain the inflation target, among them the development of the monetary aggregates, as an additional source of information on the state of the economy.

* Information and Statistics Department, Bank of Israel

1. Introduction

Israel's ascension to the OECD[1] obliged it to meet international standards required by the Organization in various fields, including statistics. Within this framework, the Bank of Israel's Information and Statistics Department is working on, among other things, meeting international standards in the area of financial and monetary statistics. Adherence to international definitions in this field allows decision makers and analysts in Israel and globally to make international comparisons on the basis of uniform data. The importance of this factor increases as Israel becomes more closely integrated into the global economy.

One of the main areas of responsibility of central banks is the management of monetary policy in the economy as a tool for maintaining price stability. Money is a key element in the transmission mechanism between monetary policy and economic activity and inflation. Consequently, understanding the concept of money and the factors affecting it is important for central banks and economists. However, since the transition to an inflation targeting regime in the management of monetary policy in Israel and in many countries, monetary aggregates no longer serve a central role in determining monetary policy. In an inflation targeting regime the main tool is setting interest rates and not direct control over the money stock. Policy makers examine many indicators in order to assess the policy required to achieve the inflation target, specifically inflation expectations, which greatly affect the way prices are determined and the future inflationary process. However, decision makers and economists still also examine the development of the monetary aggregates as an additional source of information on the state of the economy and in order to monitor changes in the source and use of money in the economy.

Since the last financial crisis, monetary policy worldwide has been accommodative and this is expressed, in Israel as well, in interest rates that are low and, in some countries, even negative, and by quantitative easing—in other words, the injection of liquidity by the central bank.[2] In such an environment, it is particularly interesting to examine the effect of low and even negative interest rates in some countries on the behavior of the various monetary aggregates.

The Information and Statistics Department recently adjusted the data on Israel's monetary aggregates to the international standard, and the new data are already being reported to international organizations and displayed on the Bank's website.[3] This paper describes the definitions and the way the monetary aggregates are measured in Israel based on IMF guidelines adopted by the OECD as an obligatory standard for member countries, and demonstrates them with the help of data presented on the monetary aggregates in Israel and by comparing them with data from OECD countries.

[1] Currently, 34 developed countries are members of the OECD.

[2] For more on the subject of quantitative easing (QE) and other monetary tools, see "Unconventional monetary policy—goals and means" in the Monetary Policy Report for the second half of 2013.

[3] http://www.boi.org.il/en/DataAndStatistics/Pages/MainPage.aspx?Level=3&Sid=23&SubjectType=2

2. The Broad Money Aggregate

Money is described as an instrument that meets three criteria:
1. Serves as a unit of account: goods and services are measured in terms of money;
2. Store of value;
3. Accepted as a means of exchange for goods and services.

The International Monetary Fund established a uniform definition of monetary aggregates for all the countries, and the same definition is also obligatory for OECD countries.[4] The main aggregate for measuring the money stock, as determined by the International Monetary Fund, is called "broad money" and includes the most liquid monetary components, but also other instruments used for savings purposes and for carrying out transactions. According to IMF guidelines, the methodology is implemented based on a detailed balance sheet (an MFS report) of assets and liabilities of the central bank, the commercial banks, and other financial corporations.

Each aggregate of the money stock has three dimensions: the instruments or the financial assets, the sectors issuing financial instruments and the holding sectors.

2.1 The financial assets considered as money

Money, expressed as various types of financial assets, is held as means of exchange. Therefore, when defining the broad money aggregate an assessment is needed of the liquidity of the various financial assets. The term liquidity relates to the extent to which the asset can be sold on short notice and at a price equal to or very close to the market price. The most liquid financial assets are cash and demand deposits—they can be used immediately and at their full nominal value to purchase goods, services and assets. Other, less liquid, assets are also included in the definition of the broad money aggregate. It was therefore decided by the International Monetary Fund to include in broad money all the other low risk financial assets with original terms of maturity up to two years.[5] The instruments included in broad money according to the IMF[6] are:

- Cash;
- Demand deposits;
- Non-demand deposits with an original maturity period of up to two years;
- Bonds issued with an original maturity period of up to two years;

[4] International Monetary Fund (2000), Monetary and Financial Statistical Manual.
Burgess S. and Janssen N. (2007), 'Proposals to modify the measurement of broad money in the United Kingdom: a user consultation', Bank of England.

[5] It is reasonable to suppose that short instruments in terms of the period remaining until repayment are a more accurate indicator that these instruments will be used for exchange purposes. But according to the IMF, the original period of maturity (the repayment period at the date of issue) should be referred to because of the need to create a fixed criterion for international comparisons and the difficulty various countries have reporting according to the remaining period.

[6] Each country is entitled to make adjustments according to the structure and limitations of the data, with IMF permission.

- Repo transactions for a period of up to two years.[7]

It is important to note that included in the definition of broad money are those instruments in both domestic and foreign currency and for all indexation types. It is also important to stress that in a world in which financial systems are constantly changing, it is necessary to monitor instruments that need to be included in the broad money aggregate. For example, the use of electronic means instead of money will require a reappraisal of the definition of aggregates.

2.2 Issuers of money instruments

Issuers of money instruments are financial institutions issuing instruments used by their holders as a means of exchange (money issuers). There are two methods for defining the issuing sector: on a legal basis or on a functional basis. The first, which is employed for example in the UK, includes institutions that have been authorized by the law to accept deposits, for the most part the central bank and the commercial banks. In the second method, which is employed in the eurozone, in the US and in Israel, also taken into account are financial intermediaries, which are not the central bank or the commercial banks, such as money market funds, entitled to issue an instrument which is effectively a substitute for money, but officially cannot accept deposits.

The sectors and institutions issuing financial instruments in Israel included in broad money according to the functional method are:

- The central bank;
- The commercial banks – including branches of foreign banks in the country;
- The government;
- The money market funds;
- The Postal Bank.

2.3 The money holding sectors—the public

The money holders are all the sectors in the economy (Israeli residents), apart from the money issuers and nonresidents:

- Households;
- Nonfinancial companies;
- Financial corporations not included in the issuing sector (for example, institutional investors);
- Local municipalities.

According to IMF directives, the reason that nonresidents are not included in the money-holding sector is based on the assumption that most nonresident deposits in the local market are used as a

[7] A repo transaction is one in which party A purchases from Party B a security and undertakes to sell it back on a date known in advance at a price determined in advance on the day the contract is signed.

means of exchange outside the Israeli economy, whereas the broad money aggregate is intended to reflect the money used for local market activities.

3. Measuring the Broad Monetary Aggregate in Israel

Following is a breakdown of the broad money aggregate components, with the part included in the aggregate being only holdings by the holding sectors (the public):

- Cash – Calculated as the money (banknotes and coins) issued in circulation by the Bank of Israel less cash held by the banks[8];
- The public's NIS demand deposits;
- Deposits in NIS and foreign currency for up to a year[9] according to the original maturity period, including demand deposits in foreign currency.
- Money market funds (MMFs) – Mutual funds that invest their assets in short-term fixed income channels, such as short-term central bank bills (makam). Funds deposited in money market funds are liquid and low risk since they can be redeemed on any trading day and are therefore included in the broad money definition. There are countries such as the United States where it is possible to write a check against deposits in these funds. The money funds in Israel were set up at the beginning of 2008 and there are currently (as at the end of 2015) 36 such funds.
- Makam and government bonds originally issued for a period of up to two years—included in this item are makam which are non-interest bearing bills with a maturity period of up to a year, issued by the Bank of Israel, as well as government bonds issued with an original maturity period of up to two years.
- Deposits in the Postal Bank—The Postal Bank Ltd. was incorporated in Israel and began operating on March 1, 2006 as a subsidiary of the Israel Postal Company Ltd. and operates pursuant to the Postal Law. The Postal Bank's main services are collection for various beneficiaries; management of clearing accounts; domestic and international money transfers; foreign currency conversion and the issuance of debit cards; clearing services and various auxiliary services to holders of clearing accounts in the bank. As part of these services the public makes deposits in the Postal Bank. It is important to note that the Postal Bank is not considered a commercial bank since it does not give credit and is not subject to the Banking Law, and is therefore also not subject to supervision by the Bank of Israel.

Bonds issued by the banks and repo transactions of the central bank and the banks with the public with a maturity period of up to two years—These instruments were not taken into account since

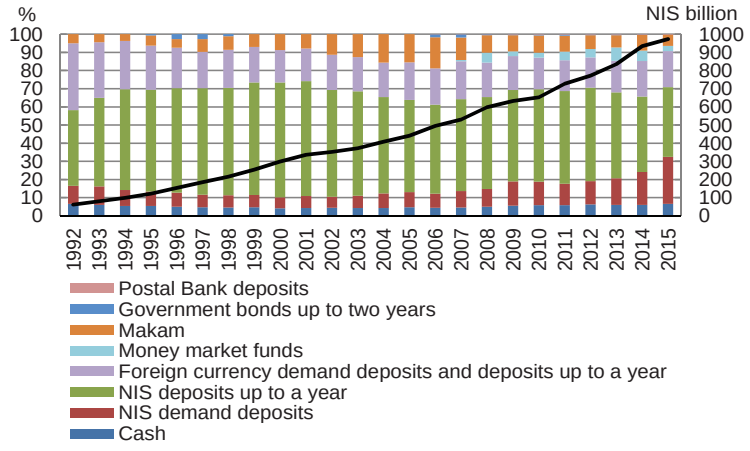
[8] It is possible that cash held by foreign residents is also included in this item, although the assumption is that it would be a small amount.

[9] Although the international definition is deposits with an original maturity period of up to two years, because of data limitations only deposits for up to a year are included.

they are not reported in the financial statements of the central bank and the banks in the format required for broad money aggregate measurement purposes. In any event, an analysis of the banks' financial statements shows that the amount is a negligible percentage of the total broad money aggregate (less than one percent in 2014) and therefore its non-inclusion does not substantially change the measurement of broad money.

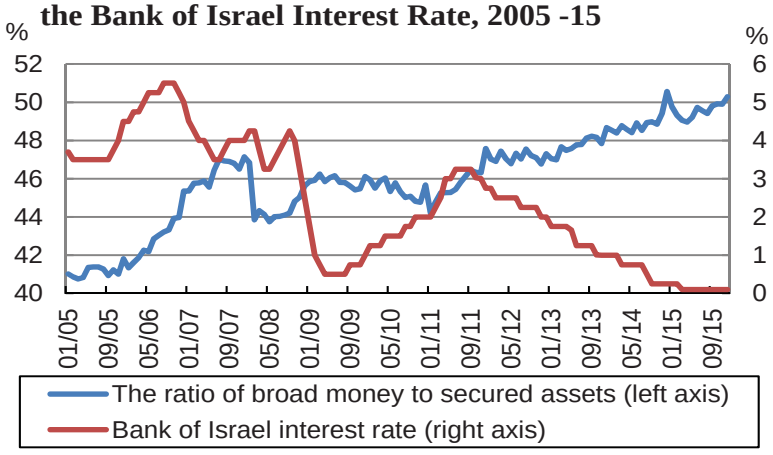
As an example of the methodology and its significance, the following two diagrams show data on the broad money aggregate in Israel: Figure 1 shows total broad money and the distribution of its components, and Figure 2 shows the ratio of broad money to the secured assets held by the public and Bank of Israel interest rate.

Figure 1
Broad Money and the Distribution of its Components, 1992-2015



SOURCE: Bank of Israel.

Figure 2
The Ratio of Broad Money to Secured Assets*, and the Bank of Israel Interest Rate, 2005 -15



*Secured assets – government bonds, makam, deposits and cash.
SOURCE: Bank of Israel.

Following are a number of points that should be made regarding the development of the broad money aggregate and its components:

- From 1992 until 2015, there was an almost continual increase in all components of the broad money aggregate;
- The most dominant instrument is NIS deposits for up to a year, which make up 38 percent of the total aggregate in 2015;
- In the last few years, the public's total demand deposits in the banks have increased at a brisk rate, and at the end of 2015 they were 26 percent of the total broad aggregate, compared with 10 percent in 1992, while the weight of cash held by the public remained stable at around 6 percent;
- Foreign currency checking deposits and other deposits in foreign currencies for up to a year also increased during the measurement period, although the total weight of the broad aggregate dropped from 37 percent at the end of 1992 to 20 percent at the end of 2015.
- The public's holdings of makam comprise 6 percent of the total broad aggregate as at the end of 2015;
- The money market funds, which began operating in Israel at the beginning of 2008, contributed about 3 percent at the end of 2015, compared with 6 percent at the end of 2014;
- The share of the aggregate of deposits in the Postal Bank and government bonds for up to two years is low (less than 0.5 percent as at the end of 2015);
- The ratio of broad money to secured assets, including—beyond broad money—government bonds and longer term deposits, has increased in the last few years along with a reduction in Bank of Israel interest rates. The significance is that the public is inclined to hold more liquid assets and for a shorter time, since there is less profit from waiving the holding of these assets.

The data sources are Bank of Israel accounting, the balance sheets of the financial banks reporting to the Bank of Israel—data on the public's deposits in the banks, the monthly reports published by the money market funds according to the directives of the Securities Authority, the annual financial statements of the Postal Bank, and Bank of Israel calculations.

4. Other Monetary Aggregates in Israel and Their Comparison with the Broad Money Aggregate

In 1980, the US Federal Reserve established definitions for the measurement of the money stock. Consequently, the following monetary aggregates were defined in Israel.
M1 = Cash held by the public and NIS demand deposits of Israeli and foreign residents, excluding interest-bearing checking accounts;
M2 = M1 with the addition of interest-bearing checking accounts and unindexed deposits for up to a year (pahak and pazak);
M3 = M2 with the addition of CPI-indexed deposits, foreign-currency denominated and indexed deposits for up to a year.

In monitoring the development of the money stock, the Bank of Israel uses the monetary aggregates data in the different definitions—the broad money aggregate and its components with the addition of M1 and M2 as explained above.

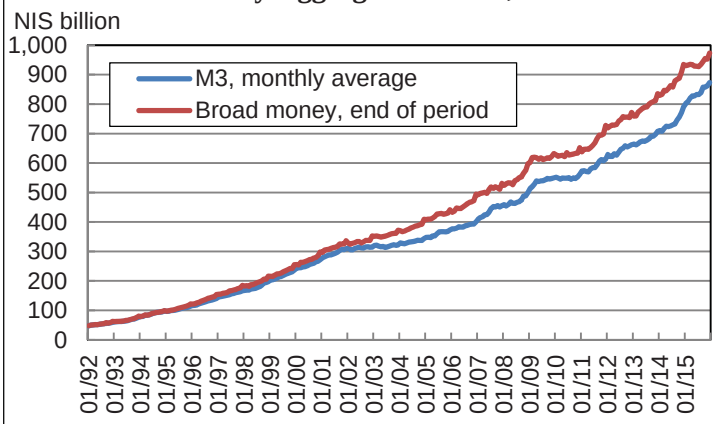
The M1 and M2 definitions in Israel are different from the international definitions –

- According to an IMF recommendation for the definition of the narrow monetary aggregate (M1), it should include cash held by the public with the addition of the public's NIS demand deposits in the banks. However, the M1 that the Bank of Israel presents and calculates includes only non-interest-bearing checking deposits since it is the narrowest aggregate and includes components without interest and indexation, and for historic reasons, these deposits are included in the components of M2.
- Included in M1 and M2 are nonresidents' deposits on the assumption that in a small economy like Israel's, nonresidents will use their deposits in the economy itself and not outside it.
- Moreover, the Bank of Israel calculates M1 and M2 on an average of the days in a month compared with the end of month data required in the calculation according to the IMF definitions, and that is because of volatility during months. The average provides a better description of the use of the monetary aggregate according to activities in that month and other conditions. In a datum that relates to only a single day, there is great volatility, especially at the end of the year, which does not reflect the basic economic factors that determine the demand for money.

A comparison between M3 and the broad money aggregate

Since 1992, M3 and broad money have been increasing, with the difference between them growing over the years (Figure 3). The main difference between M3 and the broad money aggregate according to the International Monetary Fund and the OECD requirement is the result of the development of new instruments and issuers in the last few decades, such as the money market funds, which were not taken into account in the definition of the M3 aggregate. Consequently, the advantage of adopting the measurement in Israel according to the international standard is not only in allowing an international comparison but also in giving proper expression to the developments that have occurred in the last few years in new instruments that comprise part of the money and that were not taken into account in previous definitions.

Figure 3
The Broad Money Aggregate and M3, 1992-2015



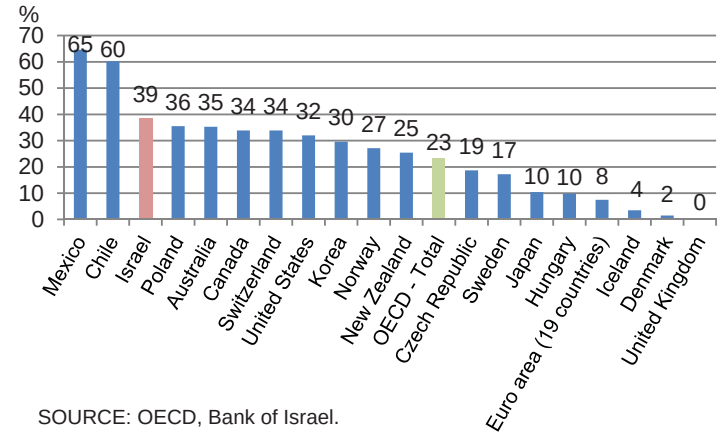
SOURCE: Bank of Israel.

5. International Comparison

In order to make a significant international comparison of the broad money aggregate, a comparison is shown below of the rates of change in broad money during a period for which we have data, and the relationship between broad money and GDP in selected OECD countries is shown as well.

It can be seen that from 2010 until 2014 (after the financial crisis that erupted in 2008), Israel's broad money aggregate increased by 40 percent, whereas the index of all the OECD countries combined increased by only 23% (Figure 4). This is against the background of three variables:

Figure 4
Rates of Change in the Broad Money Aggregate from 2010-14, Selected OECD Countries



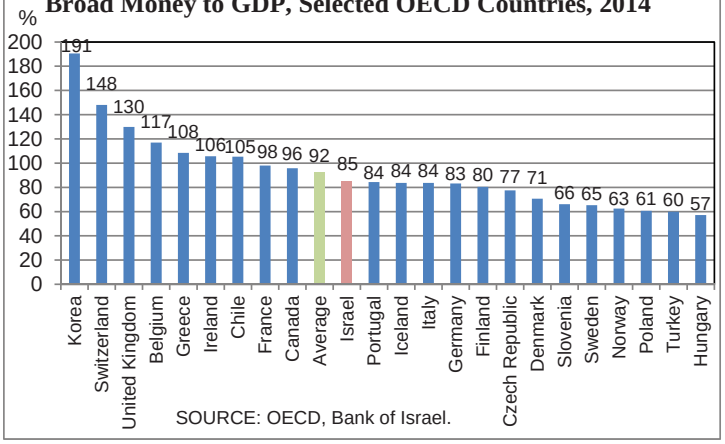
SOURCE: OECD, Bank of Israel.

1) Higher growth in Israel: An increase of approximately 4.6 percent in GDP in the period compared with an estimated 1.7 percent on average for the OECD countries.

2) Slightly lower inflation in Israel: Cumulative inflation of 7.4 percent in 2010–14, compared with 8.7 percent, on average, for OECD countries.

3) A lower average level of the central bank interest rate in Israel throughout the entire period: 1.8 percent compared with an average of 2.2 percent for most of the OECD countries.

Figure 5
Broad Money to GDP, Selected OECD Countries, 2014



SOURCE: OECD, Bank of Israel.

In a comparison between the ratio of the broad money aggregate to GDP for OECD countries for December 2014 data: At 85 percent, the ratio for Israel is close to the average of the selected OECD countries, which was 92 percent (Figure 5). It is important to note that the differences between countries are attributable to a large number of structural factors which require thorough analysis but are not included within the scope of this paper.