BANK OF ISRAEL

FINANCIAL STABILITY REPORT

Jerusalem, December 2015 • Tevet 5776

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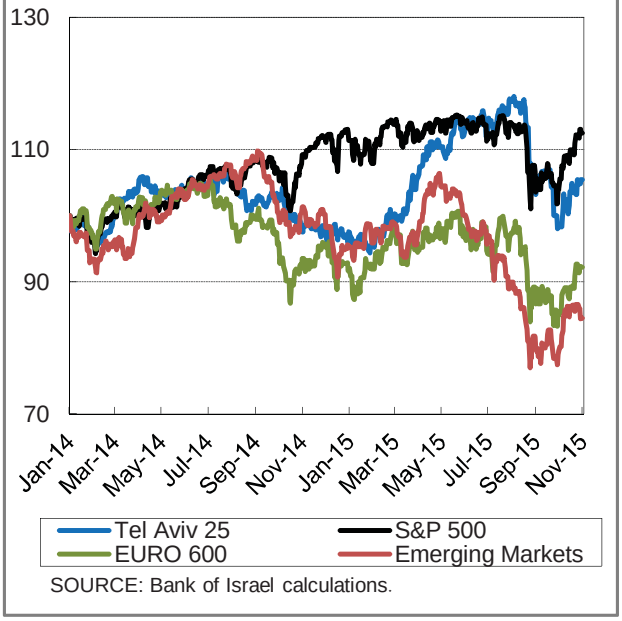
1. MAIN DEVELOPMENTS IN THE DOMESTIC FINANCIAL SYSTEM[1]

The domestic financial system remained stable in recent months, against the background of accommodative monetary policy in Israel and globally, and despite the fluctuations in the financial markets. The financial institutions are exposed to a risk of financial asset and home price declines, particularly in the case of a sharp increase in interest rates and yields—especially if they result from an increase in the risk premium, or if an increase in yields is accompanied by weaker growth than previously estimated. The financial system is also exposed to the risk of financial contagion resulting from negative developments in global markets.

From the beginning of the year until August, stock indices in Israel increased. The increase was in line with the trend in other advanced economies, and reflected accommodative monetary policy, but its strength was greater than in those other markets, even in dollar terms, due to the improvement in the performance of some companies (Figure 1). Corporate bond indices also increased during the period, though more moderately than the stock indices. In contrast with the positive trend in the financial markets of the advanced economies, commodity prices—particularly oil—already began declining in 2013 (Figure 2). At the end of April, stock market indices in emerging markets also began to decline, due to declines of commodity prices, concerns of slowing growth in China and the deteriorating stability of the stock market there, the continuing problems in Brazil, and an increase in yields in the US in the expectation of the start of the process of raising the interest rates there. The negative developments in the commodities markets and in emerging economies, alongside the uncertainty regarding the start of a rise in interest rates in the US, led to sharp declines in the stock market indices in advanced economies, as well, starting in August. The declines in the financial markets were accompanied by increased actual volatility, and by expectations of increased future volatility, which were reflected in a very sharp jump in the implied volatility in stock option prices (Figure 3).

Stock market indices in Israel declined from August due to declines in global stock markets, but the declines in Israel were sharper than in the US and Europe against the background of the wave of terrorism that Israel suffered during that period.

Figure 1
Selected Stock Indices in Israel and Around the World, in Dollar Values (January 2014 to November 2015, January 2014=100)



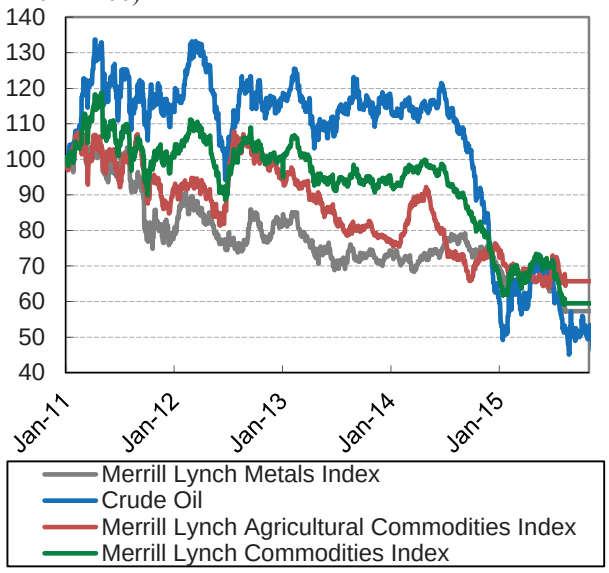
SOURCE: Bank of Israel calculations.

Stock market indices in Israel also reacted to these developments, and the decline in the TA-25 Index (in dollar terms) was even sharper than that of other stock indices around the world (Figure 1). In parallel, the high volatility in commodity prices and in the global capital markets led to a sharp increase in volatility in the domestic market as well, as measured by the Israeli VIX index ("fear index"), which increased by about 50 percent relative to its level at the end of July, and about 80 percent relative to its level at the end of 2014 (Figure 3). The declines in the Tel Aviv Stock Exchange worsened in the second half of September, against the background of the wave of terror that began at that time. In October, the main equities indices in Israel

[1] The data in this report are up-to-date to varying degrees in accordance with the availability of data. The analysis relates to events up to the end of December 2015.

Commodity prices continued to decline in 2015, further to their decline in the previous two years.

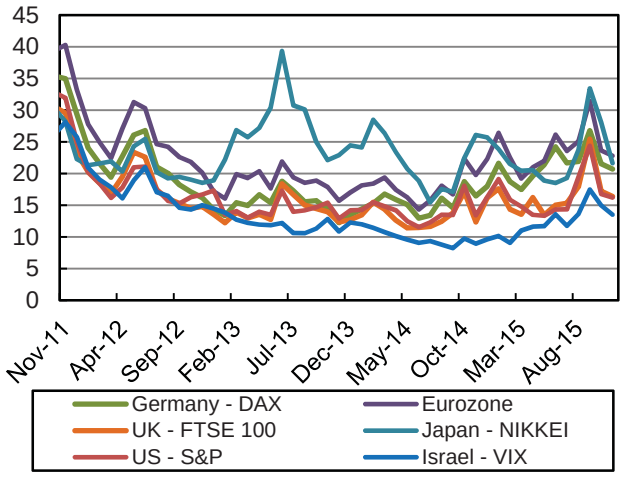
Figure 2
Selected Commodity Prices, in Dollar Terms, January 2011 to November 2015 (January 1, 2011=100)



SOURCE: Bank of Israel calculations.

The high level of volatility in the global capital markets in the second half of 2015, alongside the security incidents in Israel, led to increased expected volatility in Israel as reflected in the Israeli VIX index.

Figure 3
The Implied Volatility Derived from Options on the Stock Indices in Various Countries, November 2011 to November 2015
(monthly average, percent)



SOURCE: Bank of Israel calculations.

and worldwide recovered, and the implied volatility declined back to the levels of the end of August. However, the recovery of stock market indices and the decline in the implied volatility in Israel were more moderate than what was observed in other markets, perhaps as a result of the continuing security problems.

Home prices continued to increase in 2015, and the home price to rent ratio is at a historically high level. In 2015, home prices continued to increase significantly faster than the increase in the Consumer Price Index. The increase in home prices was accompanied by a high level of activity in the housing market, both in terms of the number of transactions and in terms of new mortgages taken out. (For more information, see the chapter on households in this report.) The financial system's high level of exposure to the housing market constitutes a prudential risk, due to the banks' exposure to the construction and real estate industry and to mortgage credit.

In 2015, both credit to the business sector and credit to households increased. The rapid increase in credit to households, in parallel with the increase in home prices, increases the risk to households and to the financial system. Since the beginning of the year[2], there was an increase of 2.8 percent in outstanding credit to the (nonfinancial) private sector—a result of the continued increase of credit to households alongside a slight increase in credit to the business sector. The growth of credit to households since the beginning of the year is derived from increases in both housing credit and nonhousing credit which, similar to its development in 2014, increased by an even higher rate than housing credit. The moderate growth of credit to the business sector was supported by a 3 percent increase in credit from institutional investors to the business sector. This increase is a result of the continued rapid growth of direct loans from institutional investors—by about 15 percent since the beginning of the year. This increase was partially offset by a similar rate of decline in

[2] The figures on credit in the economy are up-to-date as of September 2015.

institutional investors' holdings of nontradable corporate bonds.

The debt-to-GDP ratios for both household debt and nonfinancial business sector debt in Israel are lower than in other countries.[3] However, the relatively rapid growth of credit to households in the past few years, and particularly housing credit, alongside the rapid increase of home prices at the same time, create risks that may be realized in a case of a sharp decline of home prices—if it is accompanied by a worsening economic situation, particularly a negative impact on employment and wages. If such a scenario also includes an increase in interest rates, for instance due to an increase in the State's risk premium, households will find it even more difficult to pay off the loans they have taken out, including nonhousing credit.

Despite the fluctuations in the financial markets, the stability of the banking system and the insurance companies was maintained. The profitability of the banking system increased in the first three quarters of 2015, and the Tier 1 capital ratio of the five major banking groups also increased. (For more details, see the chapter on the banking system in this report.) The banks' high level of exposure to housing credit, consumer credit and credit to the construction and real estate industry, and the correlations between these types of credit, continue to constitute a major risk to the banking system.

In the first three quarters of 2015, insurance companies' profitability declined relative to the previous year. These companies, however, having made major provisions for the decline in yields in preceding quarters, reported profit pursuant to the upturn in yields on government bonds, which reduced the discounted value of their liabilities. Although the companies' recognized capital continued to grow in the first three quarters of 2015, the Solvency II regulations are expected to create a capital deficit among three of the country's five large insurance companies once they go into effect in Israel at the end of 2016. Ultimately, the Solvency II regulations are expected to improve the insurance companies' stability; in the short and medium terms, however, they will force the firms to shore up their capital structure.

Several measures were taken in 2015 to improve competition in the credit market and thus enhance credit availability while the stability of the financial entities that issue credit to the public is assured and the population of borrowers is protected. In June, the Minister of Finance and the Governor of the Bank of Israel appointed the Strum Committee to promote competition in widely used banking and financial services and to enhance fairness in the financial system while assuring appropriate regulation, protecting depositors' and savers' money, and maintaining macroprudential stability.

The task force on regulating noninstitutional financial activity (the Briss Committee), established to implement the recommendations of the Licht Committee, which looked into the regulation of currency-service providers, published a legislative memorandum on regulating the activity of noninstitutional financial entities. The team recommended the appointment of a regulator who would centralize the treatment of noninstitutional providers of currency and credit services. Along with being responsible for promoting consumers' interests and encouraging competition and innovation in these fields, the new regulator would act to prevent impairment to a service provider's ability to meet his or her liabilities. This is crucial due to risks that noninstitutional financial entities, which are less closely supervised than are banks, may present to the financial system. In the same spirit, the *Global Financial Stability Report,* published in April by the International Monetary Fund,[4] warns against the shifting of risks from banks to "shadow banks." Box 2 in this Report discusses noninstitutional financial intermediators and their stability.

3 However, the ratio of households' nonhousing debt to GDP is not low by international comparison.

4 *Global Financial Stability Report,* April 2015.

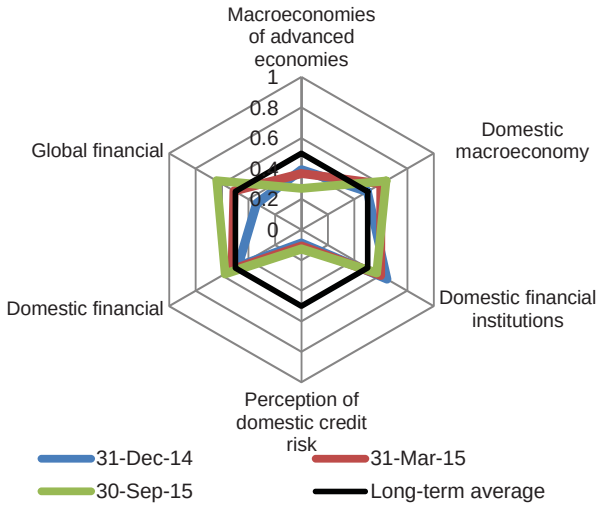
The Economic Arrangements Law for 2015–2016, passed by the Knesset, adds a section to the Banking Law that will allow nonbanking corporations to both make public bond issues and extend credit up to a certain sum. The idea behind the amendment is to mitigate credit concentration in the Israeli economy. When nonbanking credit providers finance themselves by issuing bonds to the public, they are engaging in a close approximation of banking activity. Like banks, they lend on the basis of debt from the public's money and the risks that they incur resemble those in banking activity. However, unlike a bank, which accepts deposits, the activity of nonbank credit providers does not come under macroprudential supervision. Hence the need for such regulation for these providers, adjusted to the level of risk that their activity poses to the Financial System. (For a detailed discussion of this topic, see Box 2 of this Report.)

The Credit Information Bill, passed on first reading and being discussed by the Knesset Economic Affairs Committee at the present writing, will allow the Bank of Israel to establish and operate a central credit register that will receive credit data on individuals and businesses. These data will be forwarded to the database by their sources in the manner that the bill sets forth. The bill will allow credit data to be shared with various financial entities in accordance with principles to be laid down. This centralization of data and the creation of a comprehensive arrangement for sharing it have several goals in mind: enhance competition in the retail-credit market, make credit more widely accessible, mitigate discrimination in issuing credit, and narrow economic disparities. The Bank of Israel will also use this anonymous database in the discharge of its duties, since the information to be gathered in it will be helpful in evaluating trends in various fields including credit and financial-stability risks.

The radar diagram (Figure 4)[5] describes the existing situation in various areas of the economy that may endanger the financial system as reflected in prices, corporate balance sheets, and macro data, *inter alia.* The long-term average, 0.5, is marked in the diagram with a bold black line. Values distant from 0.5 (outward) are indicative of a situation that is less auspicious than the long-term average; values smaller than 0.5 (toward the middle) reflect a situation better than the average. The main reason for the low pricing of the domestic credit risk, mirrored in the low level of this indicator, is the near-zero yield spread between Israel's sovereign debt and U.S. Treasury bonds. The financial situation in Israel and in foreign financial markets has hardly changed in the past half-year; in both arenas it is slightly worse than the long-term average. The world macro situation has improved due to continued declines in unemployment and faster economic growth in the G-7 countries, whereas the macro situation in Israel is slightly worse than the average, consistent with Israel's below-average growth rate. The situation of Israel's financial institutions improved during the first half of 2015 due to continued accumulation of core capital and a decrease in the share of problematic credit.

The perception of domestic credit risk is still low.

Figure 4
Radar Chart



Data on global macroeconomies and the risk to the stability of domestic financial institutions are as of June 2015. The rest of the data are as of September 2015.

[5] H. Zalkinder (2012), "Measuring Stress and Risks to the Financial System by Means of a Radar Diagram," Bank of Israel, Discussion Paper Series.

2. MAIN RISKS TO THE STABILITY OF THE FINANCIAL SYSTEM

a. The global environment

In its recently published financial stability report,[6] the International Monetary Fund placed greater emphasis than before on the difference between the state of the advanced economies, where the economic and financial situation usually continued to improve slowly, and that of emerging markets, which slumped in the aggregate and revealed additional weaknesses and risks. Important emerging markets, in the IMF's estimation, were marred by economic imbalance, decelerating growth, and over-leveraging of their business sectors (in both domestic and foreign currency), causing the risks to their financial stability to remain high. World capital market risk occasioned by low liquidity, high leveraging, and strong comovement among different financial markets also increased. To correct these weaknesses, vigorous coordination among policymakers around the world appears to be needed.

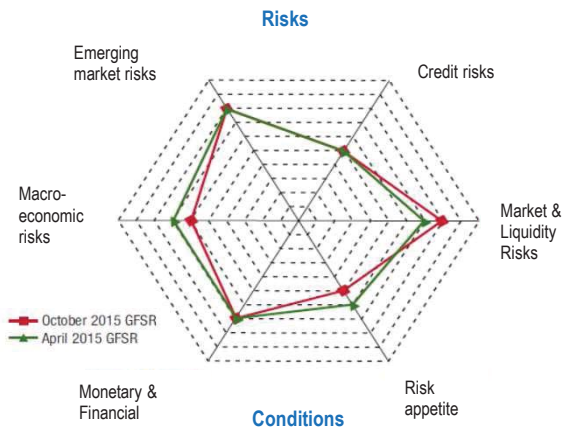
The IMF also stressed the significant challenge that China is facing in its (warranted) efforts to restructure its growth while trying to avert a "hard landing" in so doing. The difficulty in managing this complex process is amplified by the high level of leveraging in China's corporate sector, on the one hand, and the wish to make the country's financial markets more open, on the other. The first victims of a severe slowdown in China would be commodity exporters, some of which find themselves in a challenging situation. In the second stage, however, real and financial markets around the entire globe would probably be negatively impacted.

The radar diagram attached to the report summarizes developments in respect of risks:

- The diagram is divided into two sections. The upper section presents the risks; the lower part shows the economic conditions that influence them. The farther a point is from the middle, the higher the risk it denotes (in the upper portion) and the greater the risk appetite and the more comfortable the monetary conditions (in the lower part).
- By comparison, in the April 2009 report (when the financial crisis was at its peak), the points denoting all risks were arrayed along the line farthest from the middle or on the line immediately below it, whereas the risk appetite was in the middle (i.e., zero).
- **Macroeconomic risk declined,** mainly due to lower recession and deflation risk in Europe.
- **Emerging-market risk stayed at the high level attained in the previous period,** for two main reasons:
- Continued capital outflows from emerging markets as growing risk aversion among investors worldwide impaired the ability of the highly leveraged corporations in these countries to recycle their debts.
- The structural change and the economic slowdown in China pose a risk to the entire world, particularly emerging markets that export commodities and

Risk appetite decreased, due to an increase in market and liquidity risks at the same time as a decline in macroeconomic risks.

Figure 5
Radar Chart from the IMF-GFSR



SOURCE: IMF staff estimates in Global Financial Stability Report, October 2015.

6 *Global Financial Stability Report,* April 2015.

energy. Indeed, their situation worsened during the review period.

Market and liquidity risks continued to escalate due to weaknesses that accumulated in the capital markets during the lengthy period of acute monetary accommodation and falling liquidity, brought on by, among other factors, financial regulation.

Decrease in risk appetite. The upturn in volatility across a wide range of asset groups, strong comovement among diverse asset groups, weakness in China's capital markets, and lack of clarity about U.S. monetary policy have combined to induce a decrease in risk-taking. This is mainly to the detriment of emerging markets, among which those that are considered riskier suffered from the effects of capital outflow. The risks may erupt powerfully as liquidity pressures worsen.

In the IMF's estimation, credit risk remains unchanged and relatively low, largely due to the continuation of strong monetary accommodation around the world, foremost in Europe and Japan. However, credit risks are building up, chiefly in China and other emerging markets, and the situation of the banks in some of these countries has worsened. These risks may erupt as monetary conditions are tightened and spreads widen.

The main exogenous risks to the Israeli economy are the following:[7,8]

- **The Chinese economy's risk to the global economy and its stability continued to rise during the review period.** The main risks emanating from China originate, in our assessment, not in the real economy but in the Chinese capital markets, where they have already begun to realize in steep declines in equity prices (after even steeper increases in the preceding year). The authorities responded to the downturns with a lengthy series of measures that, while calming the markets temporarily, left the process of liberalizing these capital markets behind and evoked fears that the financial strains would spread to corporate debt—a great risk in view of its size and quality. The especially high leveraging of Chinese corporations and the low profitability rates of some have long been a major risk factor and the turbulence in the financial markets along with the considerable slowing of China's growth may be the spark that spreads the panic to the debt market. The tightening of credit terms and the widening of spreads will almost certainly make it harder for many firms to service their debts. Although the proportion of bad debts in the portfolios of Chinese banks has not grown much in recent months, the prevailing assessment is that the share of firms in trouble has increased significantly.
- **However, the very weakness of China's economy, which has triggered worldwide investor concern and was one of the factors that prompted the Fed to postpone its interest rate "liftoff,"** does not appear thus far to have deviated from the path that had been foreseen in view of the Chinese economic restructuring, and the chances of a hard landing remain, in our estimation, mild. In the chapter on main domestic risks, we will relate in detail to the channels by which the impact of this risk may reach Israel.
- **Emerging-market risk to global stability increased during the review period.** The countries most badly affected were exporters of commodities and energy, which suffered from the continued steep decline in demand for their exports and a decrease in their export prices. The acute upturn in risk aversion, which crested in August, led to an outflow of capital from emerging markets, some of which made extensive use of foreign reserves to thwart continued currency depreciation. The softness in China also affected technology-exporting countries that see China as a major destination for their output, such as South Korea and Singapore. In the medium term, however, these countries, and Israel with

7 In all the risks described below, the expected effect on Israel will be caused mainly via the financial markets and the decline in financial risk appetite. The direct exposures of Israel's domestic economy and financial institutions to focal points of risk are very low.

8 The risks are presented in the order of their severity as we assess it. The first two risks are the main ones.

them, may come out ahead insofar as the structural change in China increases Chinese citizens' ability to consume. (The blow to the economies of exporters of commodities, in contrast, may persist in the medium term.) Also, the transmission of shocks in China to the global economy and global markets is likely to take place mainly via vulnerable emerging markets to which foreign banks and investors are much more exposed than they are to China. The structural weaknesses in many important emerging markets that are suffering from large current-account deficits and sizable foreign-currency debt (which has actually increased since the global economic crisis), along with additional weaknesses, are making these markets especially vulnerable to continued global economic slowdown and/or increases in risk aversion. In the section on main domestic risks, we will discuss in detail the channels along which a crisis in countries that rely on commodity exports or have large foreign-currency debts may affect Israel.

- **Lack of clarity surrounding the timing and pace of rate increases in the U.S. increased during the review period.** The weakening of the global macroeconomic environment, mainly (but not only) in emerging-markets, and some loss of momentum in the United States as well, prompted the Fed to postpone its interest "takeoff." This blunted investors' confidence in the continuation of monetary-policy support of the economy and markets abroad and abetted an increase in market volatility. The lack of clarity slackened a little after the Fed went ahead with takeoff in December.
- Importantly, the sluggish growth around the world is still, even at this writing, based largely on very strong monetary accommodation. Therefore, **an exit from this monetary policy remains complex and risky to both the financial markets and the real economy.** If the process is poorly timed, it may deal a blow to the Israeli economy via the capital markets and also through the deceleration of growth and a decrease in demand for Israel's exports in destination markets. Low market liquidity and regulation that attenuates the power of market makers may also amplify the crisis.
- **Geopolitical risk** increased during the review period due to the direct involvement of Russia and Iran in the Syrian crisis, the spread of Islamic terrorism to Turkey, the problem of mass refugee migration (mainly from Syria) to Europe, and, foremost, the spate of terror in Israel that began in September 2015. In contrast, the strategic threat to Israel remains relatively mild and Israel's CDS indices increased only slightly, remaining below their levels in recent years. Yields also stayed low and the currency appreciated, attesting to the limited importance that investors abroad attribute to domestic security events.
- **The immediate risk to global financial stability emanating from Europe has diminished considerably; the main reason for this, however, is that other events have overtaken most of the attention.** Europe's predicted growth rate is continuing to rise, deflation risks have abated, and terms of credit have improved slightly. Particularly important is the acceptance by Greece's ruling party of all terms set forth by the troika and its victory in the lightning election campaign that followed immediately after. These events evidently reduced support for the euro-skeptic parties in Greece and mitigate the risk of the ascent of similar parties elsewhere in Europe. A new problem that arose in the review period was mass refugee migration from Syria to continental Europe, triggering social instability in Europe's weaker countries and threatening to befoul the atmosphere of consensus in the eurozone. In the long term, the refugees may contribute to the continent's economy (foremost in Germany, which has received the largest number of refugees). In the near term, however, they pose a risk to the European economy against the background of its still-high debt levels, weak and poorly balanced domestic growth and demand, high business leveraging, weak global demand, and, above all, high level of economic fragmentation and political polarization. In sum, the immediate risk originating in Europe seems to be ebbing, at least as long as monetary policy remains strongly accommodative and other focal points of

risk around the world dominate investors' attention. The underlying problems, however, have not been solved and are liable to resurface and pose a risk to the world, including Israel.

- **Low-interest rate risk.** This risk, covered at length in our previous Report, not only persists but is rising as the period of near-zero interest rates is prolonged. Yields abroad remain at historical lows in almost all markets including the United States, where they declined after the postponement of takeoff and remained especially low even afterward. These yield levels encourage investors to engage in faulty risk pricing, aggravating the risk to the financial markets and impairing the expected yield on long-term savings in Israel and abroad. As a result, pension savings may be invested in risky vehicles that do not match the nature of such savings, or aggregate consumption may slump due to a decline in savers' confidence in their post-retirement future.

b. Main domestic risks

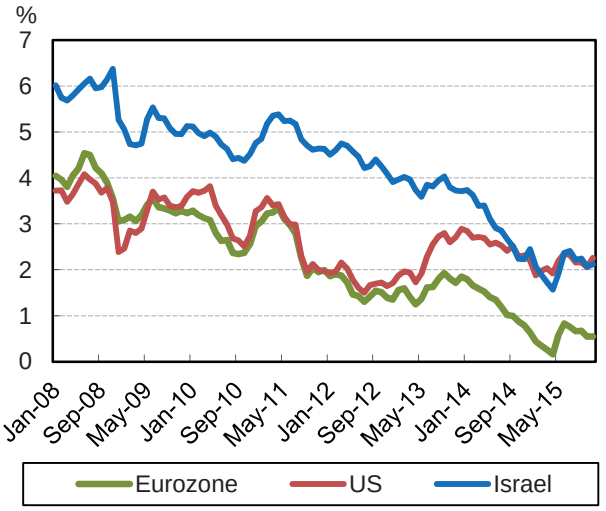
1. Low-interest rate risks

The domestic financial system is susceptible to risk of low interest rates over an extended time. In Israel, as in other advanced economies, the low interest rate and flattening of the yield curve led to a steep increase in asset prices. The risks attending to these developments may materialize if yields continue to drop because among some financial institutions, such as insurance companies, an increase in the discounted value of liabilities may impair profitability and equity. The risks may also materialize if interest rates rise. An increase in foreign and domestic yields would be expected in view of healthy growth; however, if the growth rate falls short of forecasts or if yields rise as a result of an upturn in the risk premium and not due to rate increases, asset prices may fall, to the detriment of investors including financial entities.

In April 2015, yields tumbled to a low that exposed susceptible entities to a low interest rate environment risk and motivated some, e.g., insurance companies,

The trend of sharp declines in yields globally and in Israel was halted in May.

Figure 6
Nominal 10-Year Yield: Israel ("Shahar"), US and Eurozone (January 2008 to November 2015)



SOURCE: Bank of Israel calculations.

to record losses on this account.[9] In May, foreign and domestic yields began to rise (Figure 6). This was credited to an improvement in activity in some developed countries and the expectation of rate-hiking in the U.S., and in other advanced economies in America's wake, from the zero level then in effect. The increase in foreign and domestic yields during the review period mitigated the risk of continued decline in the interest and yield environment, although the risk remains considerable. The financial statements of the five large insurance companies for the second quarter of 2015 indicate that the stemming of the downward trend in long-term yields allowed the firms to stop provisioning for an increase in the value of their pension liabilities, a necessity that had impaired their profitability in previous quarters. (For an expanded discussion, see the chapter on insurance in this Report.) Even as yields rose moderately, uncertainty about the Fed's interest rate path abetted an increase in volatility in the financial markets.

9 See the June 2015 *Financial Stability Report*.

Given the low foreign and domestic interest rates in recent years and the ongoing decline in sovereign yields, investors in Israel sought alternative vehicles that would give them a greater return even at the price of greater risk. For this reason along with the relatively auspicious state of the Israeli economy that attracts foreign investment[10], prices of domestic financial assets escalated rapidly in recent years, as did those of domestic real estate.[11] However, the upturn in financial assets in Israel was not accompanied by an increase in corporate leveraging. Whereas the development of a bubble in asset prices is usually accompanied by an increase in credit, the increase in financial-asset prices in Israel in recent years, particularly in corporate bonds—i.e., a decrease in firms' funding costs—did not come with an upturn in business credit. This reduces concern for firms' stability in the event of a rapid increase in yields. It is true that the rise in home prices has been accompanied by relatively fast growth of mortgage lending. However, strict limits imposed by the Supervisor of Banks on the loan-to-value ratio in housing loans, the payment-to-income ratio of borrowers, and the variable rate component of housing loans, has reduced the share of high risk mortgages in new housing loans. (See figure in the Household Sector chapter in this Report.)

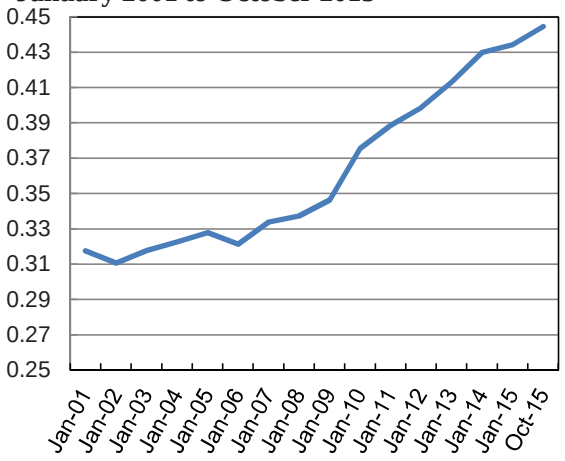
A rapid increase in yields may cause asset prices to fall. If this happens, private investors, institutional investors, and even banks may sustain losses despite the low leveraging of Israeli households and businesses and the restrictions on housing loans.

1.1 Home prices

The financial system's exposure to the housing market still creates a substantial risk because the banks remain heavily exposed to the construction and real-estate industry and to housing loans (Figure 7). The risk emanating from these exposures, as well as from exposure to nonhousing consumer credit, is enhanced because these forms of credit are strongly correlated.

The financial system's exposure to the housing market constitutes a significant risk, due to the continued increase in the banks' exposure to the construction and real estate industry and to considerable outstanding mortgages.

Figure 7
Housing Credit and Credit to the Construction and Real Estate Industry as a Share of Banks' Balance Sheet Credit, January 2001 to October 2015



SOURCE: Bank of Israel calculations.

A shock that pushes interest rates upward or impairs borrowers' income may adversely impact banks that are exposed to the relevant borrowers. If such an event also causes home prices to plummet, its impact on banks' stability will grow because it will degrade the collateral that the banks hold.

A comparison of the value of the Israeli public's real-estate investments with that of its investments in portfolio assets[12] shows that the increase in the value of the public's real-estate investments in recent years was proportional to the growth in its portfolio assets. Real estate accounts for about half of Israelis' total assets (portfolio assets and dwellings), much as in Europe and more than in the United States.[13] (For an expanded

[10] In the past decade, nonresidents invested nearly $3 billion in Israel on quarterly average.

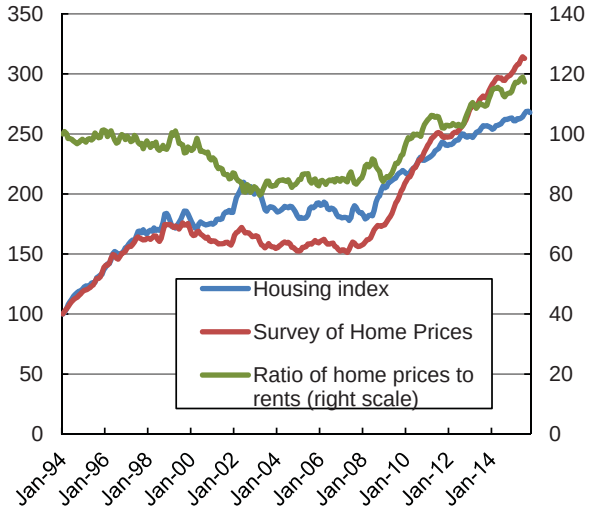
[11] Dwellings serve both as assets for residential purposes and for investment purposes. For a discussion of the issue, see Chapter 4 of the Bank of Israel *Annual Report* for 2013.

[12] The public's portfolio of financial assets includes direct investments in financial assets and indirect investment via institutional entities and/or business ownership.

[13] Piketty, T., and A. Goldhammer (2014), *Capital in the Twenty-First Century*, Belknap Press, chapters 3–4.

Due to the continued rapid increase in home prices and stability in the rate of increase of yearly rents at about 2 percent, the ratio of home prices to rents reached a record high in mid-2015.

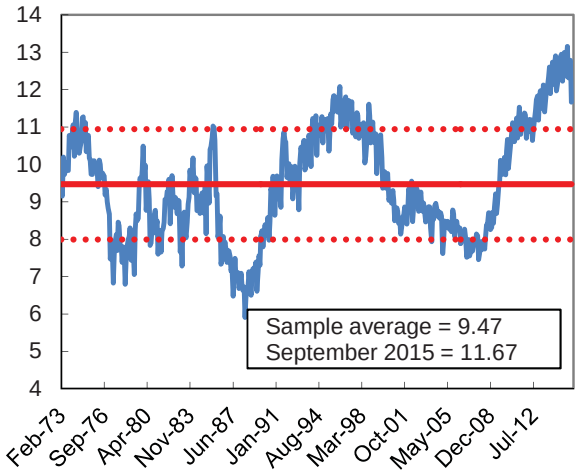
Figure 8
The Housing Index, the Survey of Home Prices, and the Ratio of Home Prices to Rents, January 1994 to July 2015 (January 1994=100)



SOURCE: Bank of Israel calculations.

The ratio between the average home price and the average wage per employee post is also at a record high.

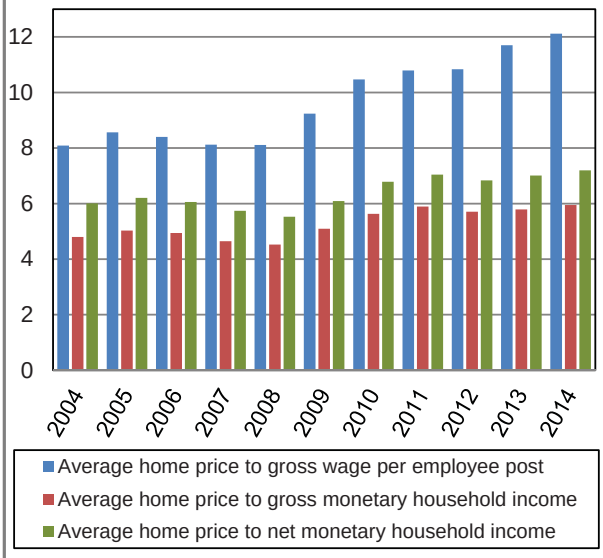
Figure 9
The Ratio Between the Average Home Price and the Average Wage Per Employee Post
(January 1973 to September 2015, wage years)



SOURCE: Bank of Israel calculations.

The increase in the ratio of the average home price to household income in recent years was more moderate than the increase in the ratio of the average home price to the average wage per employee post, against the background of the increase in the employment rate, most of which is due to the increase in the labor force participation rate.

Figure 10
The Ratio Between the Average Home Price and the Wage Per Employee Post and Household Income, 2004–14 Income Years



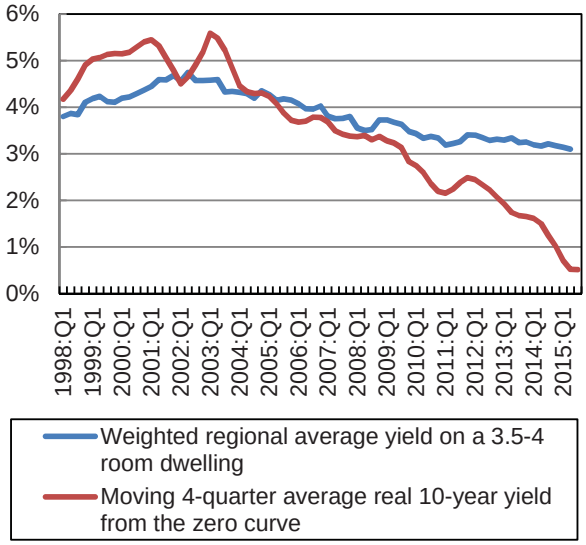
Source: Based on Central Bureau of Statistics data.

discussion, see the June 2015 *Financial Stability Report*.) However, unlike portfolio investment, which is usually unleveraged, home investment generally entails rather high leverage. Therefore, as home prices escalated, so did borrowing for home purchases.

Home prices in Israel have risen by around 100 percent since 2007. Pricing in a housing market is conventionally examined relative to fundamentals—particularly rent, which reflects the potential return on an investment in a dwelling, and wage or income, mirroring individuals' purchasing power. In mid-2015, as Israeli home prices continued to sprint ahead while the rate of increase in rents settled at around 2 percent per year, the home price/rent ratio rocketed to a record level (Figure 8) as did the ratio of average home price to average wage per employee post (Figure 9). Relative to average household income, however, the increase

The increase in home prices in recent years is in line with the decline in long-term yields.

Figure 11
The Yield on Renting Out a Dwelling Compared to the Real 10-Year Yield from the Zero Curve (1998–2015)



SOURCE: Bank of Israel calculations.

in home prices in recent years appears to have been more moderate because the employment rate has risen, mostly due to an upturn in labor-force participation (Figure 10). The increase in home prices in recent years is in line with the decline in long-term yields (Figure 11). This is because the return on property ownership should resemble that on any other financial asset, adjusted for differences in risk, since they are alternative investment vehicles.[14] Indeed, a statistical test for the accelerated widening of the home price/rent ratio[15] shows that this ratio has been increasing very quickly but is in line with the steep decline in domestic yields.

After years of little new building, housing starts increased to around 40,000 annually in 2010 and to more than 45,000 annually since the middle of 2013. If the upward trend in housing supply continues, it may abet a decrease in home prices. From the pricing perspective, it is important to remember that an increase in housing supply may also bring rent levels down. If this happens, the home price/rent ratio will not revert to its long-term average unless home prices fall considerably.

As for the financing aspect, housing-loan takeup climbed to a record level in 2015. However, the risk indicators of new housing loans remain stable at low levels relative to the past. (For elaboration, see the Household Sector chapter in this Report.)

1.2 Financial asset prices

The financial system's exposure to financial assets, particularly corporate bonds, is an additional risk. In October 2015, corporate bonds in Israel constituted 12 percent of the institutional investors' total portfolio, second only to sovereign bonds and foreign investments, and another 8 percent was in equities. The risk in institutional investors' exposure to financial assets is higher due to the high correlation between their investments.[16] In a recent report on the Israeli economy, IMF economists noted that Israel's nonbanking financial institutions are exposed to a (downward) correction in the corporate-bond market.[17]

As domestic corporate-bond prices fell steeply in the years following the global financial crisis, institutional investors severely reduced the share of their holdings of corporate bonds, thereby mitigating their exposure to this avenue of risk. However, the institutional entities' role was taken over by households, largely through their holdings in mutual funds that invest in corporate bonds.[18] The mutual funds' amassing of

[14] For an expanded discussion, see Rubinstein (1999).

[15] For elaboration on the methodology of this indicator, see Caspi (2015).

[16] For an examination of the correlation among institutional entities' investments, see Chapter 4 of the Bank of Israel *Annual Report* for 2012.

[17] *IMF Country Report No. 15/261*, September 2015.

[18] Corporate-bond mutual funds and government-bond mutual funds that also hold corporate bonds.

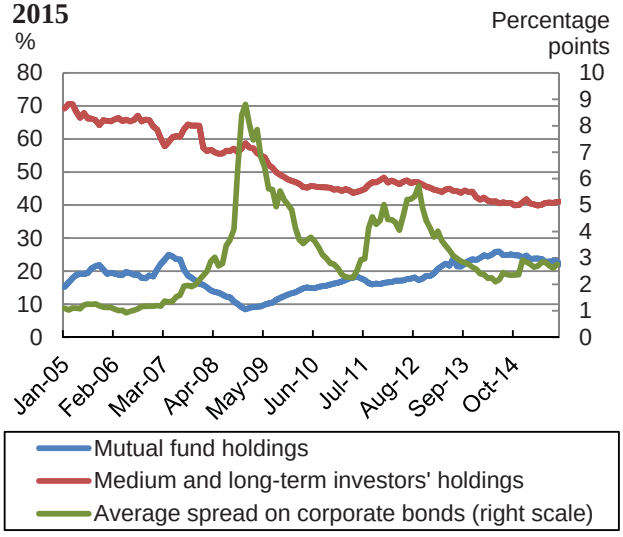
relatively large quantities of corporate bonds[19] may make this investment vehicle highly volatile because, in the event of a decline in risk appetite, investors in mutual funds may withdraw their money quickly, forcing the funds to sell corporate-bond holdings under pressure and making the downturns in this market even steeper (Figure 12).[20]

As mutual funds are a short-to-medium term investment vehicle and, unlike most money managed by institutional players, allow depositors to withdrawal funds without the loss of a tax benefit, this avenue tends to be more volatile and prone to the risk of massive and rapid withdrawal of money. This may trigger steep declines in the corporate-bond market, to the detriment of the institutional investors, which are directly exposed to this market.

The largest source of credit to the business sector remains bank loans; the business sector's debt to banks is almost half of its total indebtedness to all lenders. The third way businesses may borrow, along with bank loans and bond issues, is by taking loans from institutional investors directly. This activity has grown rapidly in recent years, from 1.5 percent of business lending at the end of 2008 to 7 percent in September 2015, for reasons including the toughening of regulation on institutional investments in tradable bonds.[21] Although loans from banks and institutional investors are not directly affected by the prices of corporate bonds, declines in the corporate-bond market may make it harder for firms to rollover debt and, in turn, service the loans that they took from banks and institutional investors.

An increase in mutual funds' share of corporate bond holdings in recent years may make investment in this instrument very volatile.

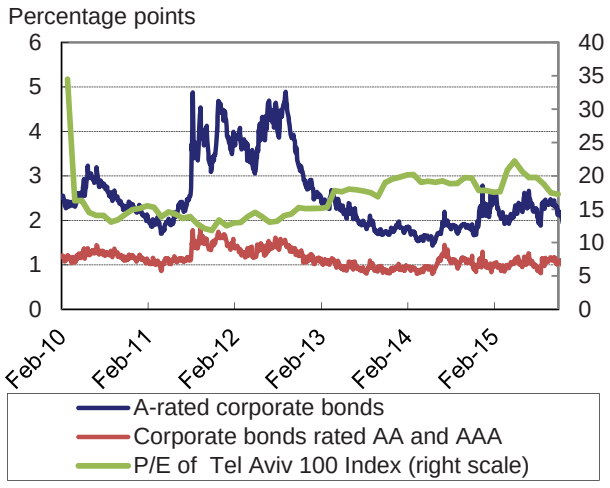
Figure 12
The Average Spread in the Corporate Bond Market and Corporate Bond Holdings of Mutual Funds and Medium- and Long-Term Institutional Investors , January 2005 to October 2015



SOURCE: Bank of Israel calculations.

The aggregate financial ratios of the various stock indices are currently around their long-term average. In contrast, the spreads of corproate bonds relative to similar government bonds are at historic lows.

Figure 13
CPI-Indexed Corporate Bond Spreads and the P/E Ratio of the Tel Aviv 100 Index, February 2010 to November 2015 (weighted average, excluding structured and convertible bonds)



SOURCE: Based on Tel Aviv Stock Exchange and

[19] Some 27 percent of money managed by mutual funds in September 2015 was invested in corporate paper. Around 20 percent of the market value of corporate bonds in Israel (and 23 percent of market value of tradable corporate bonds) is held by mutual funds.

[20] IMF economists recently mentioned this risk in the context of the American corporate-bond market, one-third of which is held by retail investors, mainly mutual funds (see *Global Financial Stability Report*, October 2015).

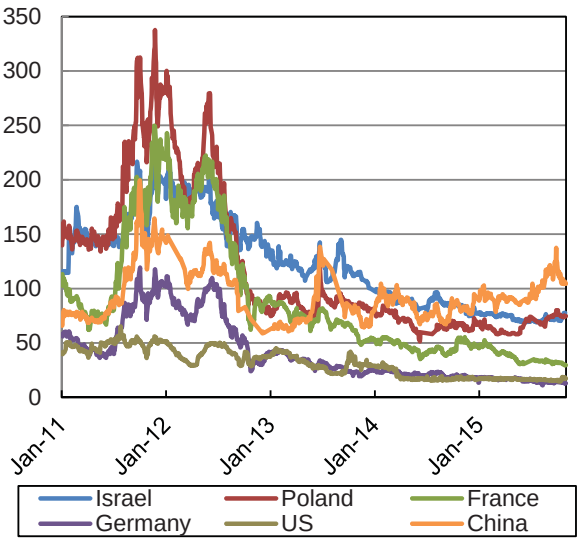
[21] For a discussion of direct lending, see the June 2014 *Financial Stability Report*.

At the present writing, the aggregate financial ratios of the various equity indices approximate their long-term averages. Corporate bond spreads over comparable government bonds, however, are at historical lows (Figure 13). The concern that corporate bond spreads do not accurately reflect the risks was discussed at length in our previous *Financial Stability Report*[22] and found expression in the IMF's latest report on Israel.[23] Corporate yields are also at historic lows, due to both the narrow spreads and the paltry sovereign yields. Concurrently, the mild increase in government yields against the background of rising yields abroad, even as Israel's CDS spread remains low (Figure 14), alleviates to some extent the concern about the underpricing of risks in the corporate-bond market.

At the end of 2014, the share of tradable bonds with a yield to maturity of more than 8 percent increased, mainly due to an upturn in the yields of bonds of companies in business groups exposed to the Russian market, where the crisis escalated at that time.[24] In the middle of 2015, the share of high-yield bonds fell slightly to 7.6 percent of tradable bonds, nearly all of which trading at yields below 40 percent (Figure 15). More than 16 percent of bonds trading at yields to maturity in excess of 8 percent belong to two business groups that recently entered debt restructuring proceedings. Notably, however, yields vary considerably even among firms in each of these business groups. In each group, there is (a) one company going through a debt restructuring proceeding, the bonds of which are trading at yields to maturity of dozens of percent; (b) several firms with bonds yielding less than 8 percent, reflecting an ordinary course of business; and (c) a holding company that, although going through a debt restructuring proceeding, has bonds that are trading at a yield of nearly 10 percent, suggesting that recovery or, at least, the payback of much of the debt is genuinely possible.

Israel's CDS spread remains very low.

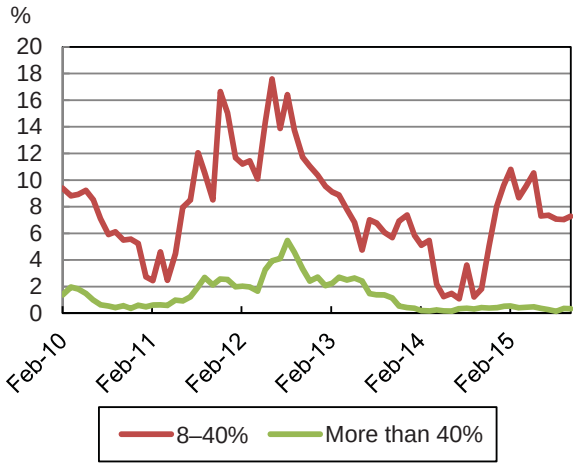
Figure 14
CDS Spreads of Israel and Selected Countries, January 2011 to October 2015 (daily data)



SOURCE: Bank of Israel calculations.

Outstanding bonds with a yield to maturity of more than 8 percent, which increased at the end of 2014, declined slightly in mid-2015, to about 7.6 percent of outstanding bonds.

Figure 15
Distribution of the Value of Outstanding Bonds (in par value) by Yield Group[a], February 2010 to October 2015



[a] CPI-Indexed, fixed-interest tradable corporate bonds with a duration of more than 0.5, excluding foreign companies, structured and convertible bonds.

SOURCE: Bank of Israel calculations.

[22] See the June 2015 *Financial Stability Report*.

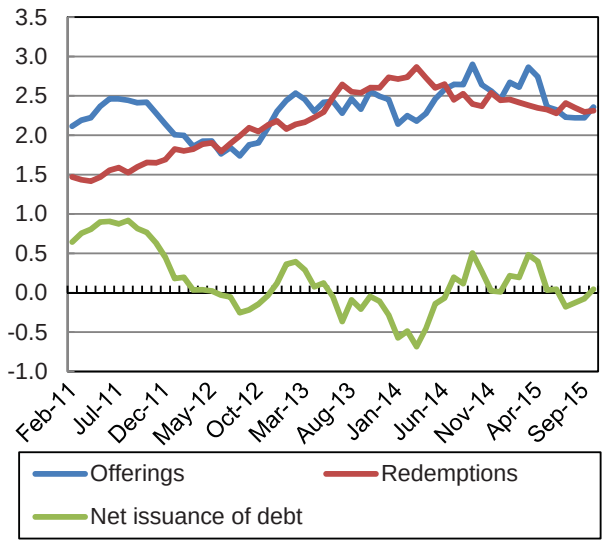
[23] *IMF Country Report No. 15/261*, September 2015.

[24] See the December 2014 *Financial Stability Report*.

Although corporate yields remained low in 2015, issuing in the nonfinancial corporate market stayed moderate. Thus, net issuance (issues less redemptions) by nonfinancial firms was less than NIS 6 billion in the first ten months of the year, not far from the net in the year-earlier period (Figure 16). In the course of 2015, the trend toward issuance by foreign firms on the Tel Aviv Stock Exchange persisted and gathered strength (Figure 17). Those who invest in such issues, however, appear to be selective, adding criteria in addition to ratings to their pricing calculus—unlike the situation in the corporate-bond market shortly before the global financial crisis; two planned issues of foreign corporate bonds were canceled in September due to scanty investor demand even though the rating agency rated the instruments highly. Much as in previous years' issues, most of which were by real-estate companies, all foreign corporations that issued debt in Israel in 2015 engaged in real estate.

Despite the low yields on corporate bonds, net issuance of debt in the nonfinancial corporate market remained moderate in 2015.

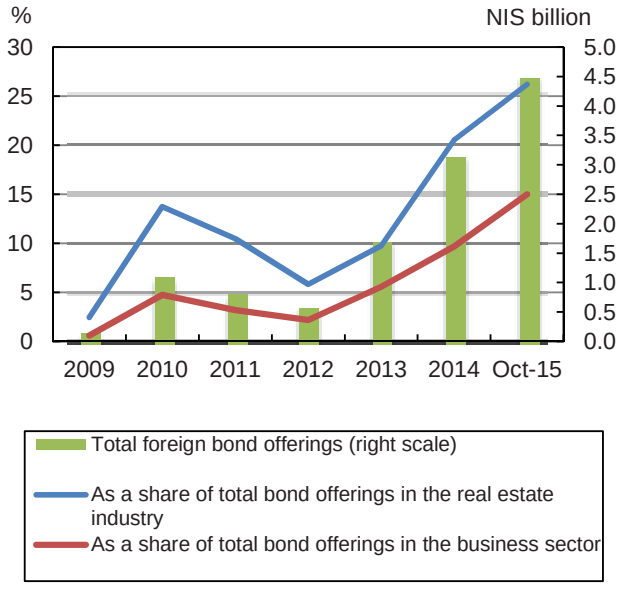
Figure 16
Net Debt Issuance, Offerings and Redemptions of Nonfinancial Business Sector Corporate Bonds, February 2011 to October 2015
(NIS billion, moving 12-month average)



SOURCE: Bank of Israel calculations.

During 2015, the trend of foreign companies issuing bonds on the Tel Aviv Stock Exchange continued and even strengthened.

Figure 17
Total Bond Offerings by Foreign Companies in Israel and as a Share of Total Offerings in the Real Estate Industry and in the Business Sector As A Whole[a], January 2009 to October 2015



[a] Tradable and nontradable bonds.
SOURCE: Bank of Israel.

The continued trend of debt issuance by foreign firms in the domestic corporate-bond market raises concern that the risks in this market are still being underpriced. This fear traces, among other reasons, to differences between domestic and international rating scales. However, foreign firms have an incentive to issue bonds in Israel for reasons not originating in the domestic pricing level, e.g., differences between the American and the Israeli markets in the funding of real-estate activity. Either way, it is important to remember that investing in foreign firms' debt may involve unique risks, particularly if the firm in question reaches default.[25]

[25] For an extensive discussion of the characteristics of foreign firms' bond issues, their possible explanations, and their attendant risks, see box in the December 2014 *Financial Stability Report*.

As for IPOs on the Tel Aviv Stock Exchange, years of scanty activity were succeeded by even less activity in the past few months. Thus, the average domestic IPO was NIS 120 million in June–October 2015 compared with a monthly average of more than NIS 400 million since the beginning of 2011. From September 2015 onward, four large foreign corporations listed their equities for trading on the TASE using the dual-listing procedure. All four engage in biotechnology and pharmaceuticals; they are large enough so that one of them is expected to join the Tel Aviv 75 Index and the other three are likely be included in the Tel Aviv 25 Index. Although only four firms are involved for the time being, the trend may continue and gather strength for reasons including the structural changes that are being planned for the TASE, especially its conversion into a for-profit corporation.[26] If this is the beginning of a trend, it may have implications for domestic investors' portfolios and the role of the TASE as a source of funding for domestic firms.

From the perspective of investors, the listing of foreign firms for trading in Tel Aviv may make it more convenient and less expensive to invest in foreign equities. As a result, it may also make their portfolios more internationally diverse, mitigate home bias, and reduce portfolio risk. However, due to similarity in these firms' areas of activity and the dominance of pharmaceutical and biotech companies on the TASE to begin with (particularly in its leading indices), the investors' sectoral diversity may be harmed—especially for those who track the exchange's leading indices. The acute risk that typifies the activities of biotech firms is reflected in the severe volatility of their equities[27] and may affect the risk embedded in these investors' portfolios. Furthermore, if foreign firms become dominant in the leading indices, investment tools that track these indices (either passively or as a benchmark index for active investment) will not be able to serve as an appropriate instrument to gain exposure to the Israeli economy.

As for the economy, the main purpose of the TASE is to facilitate the efficient allocation of capital for domestic economic activity. On one hand, the listing of foreign firms, particularly large and familiar ones, for trading on the TASE may whet foreign investors' interest in the domestic exchange, including the Israeli firms that are traded on it. On the other hand, when capital is raised domestically for activity that will take place in greater part abroad, domestic growth is not supported. As a potential side effect, it might crowd out Israeli firms from the TASE indices, possibly making it more difficult for these firms to issue in the future.[28]

2. International financial contagion risk

The financial system is vulnerable to the risk of contagion from a crisis in financial markets abroad. Steep decreases and heightened volatility in foreign financial markets, induced by exogenous shocks to the domestic economy, may drag Israel's financial markets down as well, thereby posing a serious risk to the domestic financial system too. This effect was observed in the 2008 global financial crisis. At that time, misadventure in financial markets abroad, initially tracing mainly to complex financial instruments that did not exist in the domestic market and to which the domestic financial system was not heavily exposed, dealt the domestic financial markets a severe blow. The effect owed its origins less to direct exposure to the aforementioned financial instruments than to the Israeli economy's exposure to global financial markets and the global economy, which were battered by the crisis. Specific

[26] The planned capital structure of the TASE may accelerate its integration into the international financial system to the extent of possible future cooperation and even merger with, or acquisition of or by, foreign bourses. For specifics on this topic and other proposals for changes at the Exchange and in trading, see recommendation of the Trading Liquidity Committee, tasked with streamlining trading and enhancing liquidity on the exchange.

[27] For example, the daily return on the Tel Aviv Biomed index in the past year was roughly twice as volatile as that of the Tel Aviv 100.

[28] At least a partial remedy for this concern may be found in a reform that the TASE is considering for its equity indices, probably combining an increase in the number of firms in the leading indices with stricter limits on the weight of each security in the index. Pending the reform, the Exchange made two decisions: firms that list themselves for trading in Tel Aviv but are incorporated outside Israel and have no connection with Israel will not be included in the indices, and the maximum weight of a security joining the Tel Aviv 25, 75, and 100 indices will be 4 percent.

structural weaknesses in the domestic financial system made the damage to the domestic financial markets even worse; they included business concentration, particularly in the form of pyramidal business group structures, the overexposure of institutional investors to undercollateralized bonds, and high concentration in the financial system.

In its October 2015 report on financial risks,[29] the IMF warned that **the focal point of risk to global financial stability has migrated from developed markets to emerging ones** and that nonfinancial companies and banks in these markets are suffering from weak balance sheets and are susceptible to risks of financial stress, economic slowdown, and capital outflow. These risks, the IMF continued, stand out in view of the decrease in commodity prices, the bursting of China's equities bubble, and the pressure on emerging markets' currencies, the last-mentioned of which may prove harmful to borrowers in emerging markets that are exposed to foreign-currency loans. Our previous stability report had much to say about these risks; we continue to analyze them in this report, in the chapter on the global environment.

In August 2015, some of these risks were partly realized as disappointing data on production in China, doubts about the Chinese growth data, and downturns in the Chinese equity market along with decreases in commodity prices around the world, foremost oil, caused capital markets around the world to tumble and become much more volatile. (For elaboration, see overview of risks to the global financial system in this report.) As the various markets lost ground, the correlation among the changes in these markets in August surpassed the average in recent years. From October onward, the global and domestic financial markets began to recover. However, if stock prices fall steeply and protractedly—due to problems in China, in other emerging markets that are exposed to foreign-currency loans, or in emerging or even developed markets that rely heavily on exports of commodities—Israel's financial system may also stand to suffer.

Insofar as the realization one of the aforementioned risks sets off a global crisis, it is highly probable that the Israeli economy will also experience its repercussions. The question is whether, and to what extent, Israel will be affected by the realization of a risk that will induce a crisis **in certain countries only,** those most heavily exposed to the realized risk. The concern is that Israel will suffer "contagion" from a crisis in other countries that are exposed to the risk that is realized. This phenomenon—"contagion" of one country by a financial crisis originating in problems in another country or countries—is called "international financial contagion."

Box 1—International Financial Contagion

The term "international financial contagion" denotes the spread of market declines from one country to another.[1] A distinction exists between (a) fundamentals-based contagion, which reflects the normal dependency among markets, resulting from real and financial relations between them, and (b) non-fundamentals-based contagion, which trace solely to the behavior of economic agents, particularly investors.

(a) Fundamentals-based contagion may emanate from a global shock, e.g., an abrupt change in commodity

[1] This general definition includes the spread of declines in accordance with comovement among different markets at all times and not only a significant increase in comovement among markets following a shock in one country. Forbes and Rigobon (2002) contend that the 1997 East Asian crisis, like previous crises in which contagion was alleged, saw the results of comovement or interdependence existing among the markets even in normal times. They do not, however, find evidence of an increase in the unconditional comovements that they call contagion. Within the framework of our discussion, we will not dwell on the differences between the spread of a crisis due to comovement among markets in normal times and the spread of a crisis that reflects an unconditional increase in such comovement.

[29] *Global Financial Stability Report*, October 2015.

prices or even a marked change in the interest rate in a major market. Such contagion may also stem from an adverse shock in a specific country that may affect other countries due to trade relations and/or financial relations between them or with third countries. An adverse shock to a specific country may harm countries with which it has trade relations or with which it competes in exporting to third countries via the exchange-rate channel. Such a shock may also be harmful to countries with which it has financial relations through its effect on financial entities that are exposed to the affected country, or via its influence on foreign direct investment (FDI) or foreign portfolio investment (FPI) between the countries. That is, investments made by firms in the affected country in other countries may be liquidated on short notice and foreign investments in the affected country may lose much of their value.

(b) Contagion originating in the behavior of economic agents may come about, among other reasons, due to foreign investors that operate in several markets and that face limitations such as liquidity, incentives, and information asymmetry, are motivated to reduce their investments in one country due to a crisis in another country in which they are also invested.[2] Contagion triggered by the behavior of economic agents may also occur due to a coordination problem or a self-fulfilling crisis. That is, investors want to withdraw their money from a country that may suffer from contagion before other investors can do so, but the very act of the withdrawal creates the contagion, which might have been avoided otherwise.[3] Finally, contagion due to economic agents' behavior may come about if the agents change their evaluation of the international financial system, including nations' commitment to pay their debts and the willingness and ability of the various international entities to help countries in crisis.

A country's vulnerability to the risk of financial contagion resulting from an exogenous crisis is affected by (a) the global environment, (b) its own fundamentals, and (c) its direct and indirect relations with the countries at the focal point of the crisis.

[2] For example, Kaminsky, Lyons, and Schmukler (2001) emphasize the risk of massive withdrawals from emerging-market mutual funds as a precipitant of contagion between these markets. Miyajima and Shim (2014) show that the use of similar benchmark indices and similar directionality in investors' withdrawals/accumulations with money managers may produce correlation in the investment decisions of money managers who invest in emerging markets. Furthermore, using a simple vector autoregression model, they detect a significant and bidirectional positive relation between accumulations in emerging-market mutual funds and the total dollar return on assets in these markets.

[3] See, for example, Obstfeld (1996) and Goldstein and Pauzner (2004).

Below we attempt to test the menace of contagion to Israel due to a crisis in the countries most exposed to the three risks discussed above, on the basis of the criteria of country vulnerability to international financial contagion described in the box above.

(a) At the present writing, the global environment seems relatively vulnerable to the possibility of a financial crisis that may infect countries outside its epicenter. In addition to brittle global growth and weak fundamentals in many important markets, numerous developed markets are suffering from debt levels so high that they will find it difficult to limit the impact of a crisis by means of fiscal policy. Concurrently, since monetary policies in many developed countries are highly accommodative—particularly in the zero levels of many central banks' interest rates—these countries are limited in their ability to use monetary policy to attenuate the impact of a crisis. A comparison performed by Goldman Sachs between the state of the world today and that on the eve of the East Asian crisis in 1997[30] indicates that the 1997 crisis was typified by collapse of the indexation of several currencies that were at indefensible levels, whereas today, a floating exchange-rate regime is more conventional. Indeed,

[30] *Goldman Sachs Global Economics Weekly 15/20* (2015).

the protracted depreciation of many emerging market currencies suggests that this adjustment mechanism is already in place.[31] Conversely, global trade and financial relations have become stronger since the 1997 crisis, increasing the risk of contagion. In its April 2015 *Global Financial Stability Report*,[32] the IMF noted the very strong tendency of financial assets in different markets to co-move. The recent precipitous changes in commodity prices and exchange rates, coupled with structural changes in China's economy and the Fed's rate increase, appear to be risk factors against the background of the continued sluggishness of the developed markets' recovery.

(b) Israel's fundamentals appear to place the country in a relatively good situation: strong growth by developed countries' standards, a reasonable level of government deficit, and a protracted surplus on current account.[33] Furthermore, Israel's public and private debt is low relative to other developed countries, only 17 percent of total public and private debt is indexed to foreign currencies, and the maturities of its government debt are relatively long.[34] Moreover, Israel has a flexible exchange-rate policy (with intervention in the foreign-currency market where necessary) that allows the exchange rate to respond to capital flows.[35] Finally, the considerable increase in Israel's foreign reserves in recent years may allow the central bank to prop up the exchange rate if necessary.[36] It is true that Israel's strong integration into the international financial markets increases its contagion risk[37] but its firms, government, and households fund their activities mainly from domestic sources. Thus, Israel's total resident debt to nonresidents is only 14 percent of total debt to all lenders, much smaller than its debt to domestic banks and institutional investors.

(c) Various studies indicate that geographical proximity is an important determinant of financial contagion.[38] From this standpoint, Israel is at little risk of contagion from its proximate environment because it has scanty relations with its neighbors and its neighbors are relatively closed to the global economy. Geographic proximity aside, contagion risk is affected by trade relations[39] and financial relations with countries in crisis and by similarity in the entities that invest in the countries in crisis.[40] To test these risks, we will focus on three groups of countries that may stand in the epicenter of a global crisis and assess their relations with Israel from the standpoints of investors, trade, the banking system, and portfolio investments. (For elaboration on the risks that these groups of countries face and additional risks originating in the global environment, see the section in this Report on global economy risks.)

We have identified three groups of countries that are susceptible to three main global-economy risks: those highly exposed to the Chinese economy and the risk of a crisis in China (foremost China itself), those acutely exposed to the global commodities market and the risk of continued steep declines in commodity prices; and those vulnerable to the risk of a debt crisis, particularly those with sizable foreign currency debts. Having identified the countries that are most gravely exposed

31 See the IMF's reference to the topic in *Global Financial Stability Report,* October 2015.

32 *Global Financial Stability Report,* April 2015.

33 Eichengreen, Hale, and Mody, in Classens and Forbes, eds., *International Financial Contagion,* 2001, argue that a deficit on current account and real inelasticity may aggravate contagion by forcing countries in distress to continue borrowing even as market conditions are worsening.

34 De Gregario and Valdes (2001) find that longer maturity of debt may limit contagion risk. Chang and Majnoni, in Classens and Forbes, eds., *International Financial Contagion,* 2001, infer, using a theoretical model, that the extending of the duration of public debt can improve a country's ability to withstand contagion.

35 De Gregario and Valdes (2001) find that exchange-rate flexibility may limit contagion risk.

36 Kumar, Moorthy, and Perraudin (2003) show that foreign reserves and changes in the reserves contribute to the prediction of currency crises in emerging markets.

37 See, for example, Dornbush, Park, and Classens (2000).

38 See, for example, Glick and Rose (1998).

39 See, for example, Eichengreen, Rose, and Wyplosz (1996) and Glick and Rose (1998).

40 See, for example, Kaminsky and Reinhart (1998); Frankel and Schmukler (1998); and Froot, O'Connell, and Seasholes (2000).

to each of these risks,[41] we will attempt to analyze Israel's exposure to them.

First, from the standpoint of investors, it is important to note that most countries in the three risk groups are emerging markets. Israel, in contrast, is recognized by the IMF, other international institutions, and most firms constructing international indices as a developed market. Consequently, international investors usually tend to classify Israel as a developed market and investment funds that focus on such markets consider Israel a potential investment destination. As a result, Israel's exposure to contagion from emerging markets as the result of international investors' behavior (the second type of contagion discussed above) is limited. In this context, it is noteworthy that in recent years the correlation of changes in Israel's equity indices with changes in developed markets' equity indices has been stronger than the correlation with changes in those of emerging markets. In particular, in August 2015, when concern about the eruption of a crisis in China clouded the world's capital markets, the correlation of changes in Israel's equity indices with those in developed markets was much stronger than that of changes in Israel's indices with those of equity indices in countries that have strong trade relations with China. It is important to recall, however, that if a crisis in emerging markets would have a material effect on financial markets in main advanced economies, one would also expect it to have a powerful impact on Israel's financial markets and even its real economy.

Second, from the perspective of trade relations, the main contagion risk is a blow to Israel's exports to crisis countries and to third countries where Israeli exporters compete for market share with exporters from crisis countries. To assess this risk in the context of the risk groups defined above, we examined the cumulative share of Israel's exports of goods[42] to these three risk groups and that of exports of goods to third countries.[43] The results show that the cumulative exposure of Israeli direct exports to the twenty countries most exposed to the Chinese economy adds up to 24 percent of Israel's exports (Figure 18), whereas the indirect exposure via exports to third countries is greater—more than 40 percent (Figure 19). Accordingly, a crisis in China that spills into countries for which exports to China constitute a large share of GDP may cause significant harm to Israel's exports, particularly if the crisis is manifested in depreciation of the affected countries' currencies that impairs Israeli exporters' ability to compete with them in exporting to third countries. Unlike the considerable exposure of Israeli exports to countries dependent on China, the exposure to the twenty countries most susceptible to a decrease in commodity prices is nil. Likewise, the cumulative exposure of Israeli direct exports to the five largest commodity-exporting emerging markets amounts to 5 percent of Israel's exports of goods and the cumulative indirect exposure, via exports to third countries, is 6 percent. Accordingly, a crisis in countries heavily exposed to the commodities market is unlikely to cause Israeli exports serious harm. Similarly, direct exports

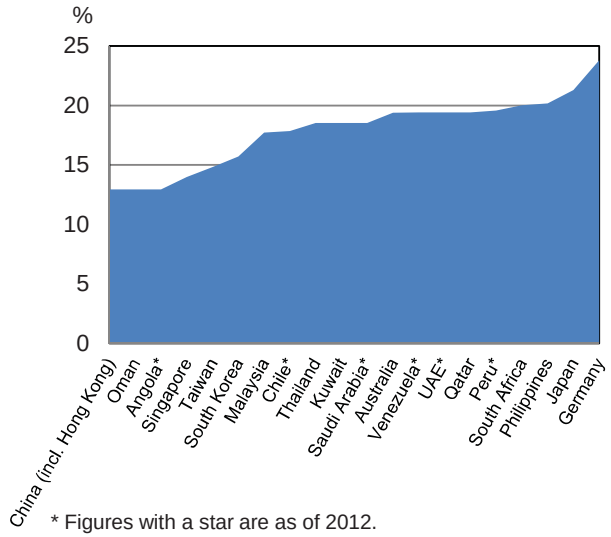
[41] The countries most at risk to China are defined as the twenty countries that have the highest ratios of exports to China to GDP, on the basis of data from *Goldman Sachs Global Economics Weekly 15/20* (2015). Those most seriously exposed to commodity prices are defined as the twenty countries whose net exports of commodities as a percent of GDP is the highest, on the basis of UN data. Since most of these countries are relatively small and do not have strong relations with Israel, we also examined five important commodity-exporting emerging markets that were mentioned in the IMF's October 15 *Global Financial Stability Report*: Brazil, Chile, Malaysia, Russia, and South Africa. Lacking adequate data on most countries in terms of their foreign-currency debt, we defined the twenty countries most exposed to debt-crisis risk as the twenty countries that have the highest external debt relative to national income according to World Bank data. Here we assumed that external debt is the best possible proxy for foreign-currency debt. For an additional check, we examined twelve emerging markets that according to BIS economists account for much of American credit in dollars to nonbank borrowers in emerging markets. (See McCauley, McGure, and Sushko, 2015.)

[42] The analysis focuses on goods exports for several reasons. (a) Most of Israel's exports are of goods; (b) the data on goods exports are updated frequently, whereas those on services exports, parsed by countries, are adjusted at a lag of several years; (c) services exports data are based mainly on a survey, whereas those of goods exports are based on Customs data; (d) services exports data do not allow us to construct an export index based on exports to third countries, and (e) goods exports are more sensitive to the business cycle and vulnerable to crises than services exports. (See, for example, Borchert and Matto, 2009, and Bank of Israel *Annual Report* for 2009, Balance of Payments chapter.)

[43] The "exports to third countries" index assumes that exporters competing with those from Israel to any destination are from other countries that export to the same destination, and assigns them a weight accordingly. The weight of country *i* in the index is the weight of imports of country *j* from country *i* multiplied by the weight of country *j* in Israel's exports to all destinations (that is, Israel's 38 main export destinations).

The cumulative exposure of direct Israeli exports to the 20 countries most exposed to the Chinese economy totals 24 percent of Israeli exports.

Figure 18
Israeli Exports to Countries Exposed to China as a Cumulative Share of Total Israeli Exports, 2014

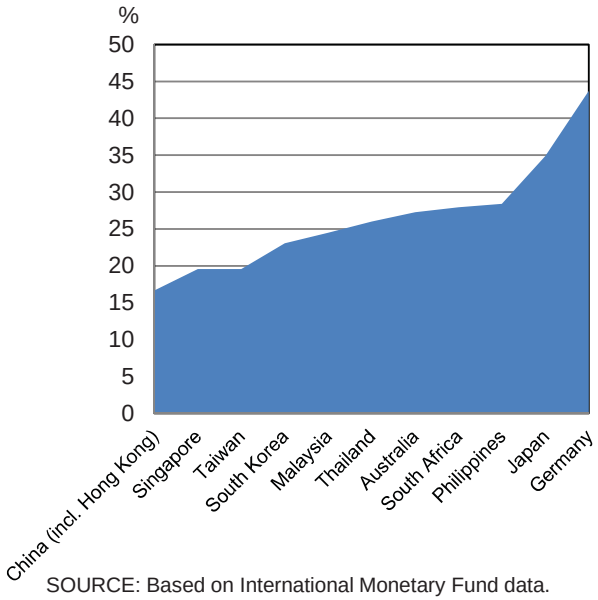


* Figures with a star are as of 2012.

SOURCE: Central Bureau of Statistics, Israel Export Institute, and Observatory of Economic Complexity.

The exposure of Israeli exports—indirectly, through exports to third countries—to the 20 countries most exposed to the Chinese economy, totals more than 40 percent of Israeli exports.

Figure 19
Cumulative Share of Countries Exposed to China in Israel's "Exports to Third Countries" Index, 2014



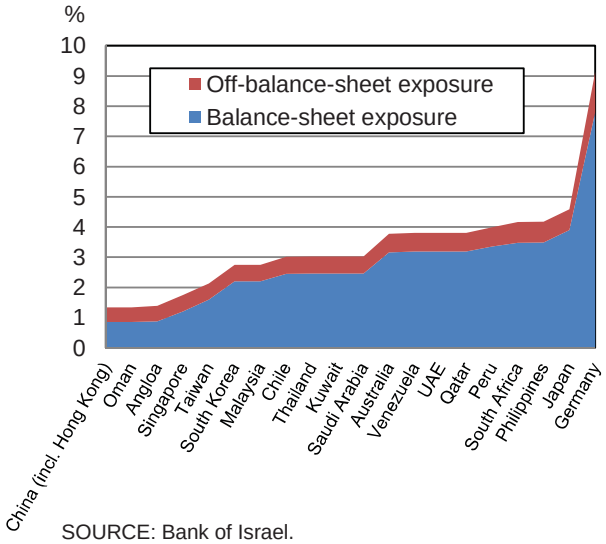
SOURCE: Based on International Monetary Fund data.

of goods from Israel to the twenty countries that have the largest external debt add up to only 1 percent of total Israeli exports of goods, and the indirect exposure of Israeli exports to these countries, via competition in exporting to third countries, is also small. In contrast, Israel's direct exports of goods to the twelve emerging markets that have the most onerous dollar-denominated debts are more than 14 percent of total Israeli exports of goods, and the cumulative indirect exposure of Israel's exports to these countries, via exports to third countries, comes to some 18 percent of the index of exports to third countries.

Third, in reference to financial entities' exposure to countries at risk, we focus on the exposure of the banking system to countries included in the three risk groups identified. To assess this risk in the context of these groups, we examined the cumulative share of the balance-sheet and off-balance-sheet exposure of the five large banking groups to countries in each of the three risk groups. Our inquiry showed that the cumulative exposure of Israel's five large banking groups to the twenty countries most heavily exposed to the Chinese economy is 9 percent of their total exposure to countries abroad, and most of it is on the banks' balance sheets (Figure 20). Thus, a crisis in China that cascades to its trading partners may have some effect on Israeli banks. In contrast to the aforementioned exposure of the banking system to countries that depend on China, the banking groups' exposure to the twenty countries most susceptible to a decrease in commodity prices is less than 0.5 percent. Similarly, the cumulative exposure of these banking groups to the five largest commodity-exporting emerging markets adds up to around 1 percent of their total exposure to countries abroad. If so, a crisis in countries that are exposed to the commodity market is unlikely to impair Israel's banks. Similarly, the cumulative exposure of Israel's five large banking groups to the twenty countries that have the largest external debt relative to

The cumulative exposure of the five large banking groups in Israel to the 20 countries most exposed to the Chinese economy amounts to about 9 percent of their total exposure to abroad, the vast majority of which is on the banks' balance sheets.

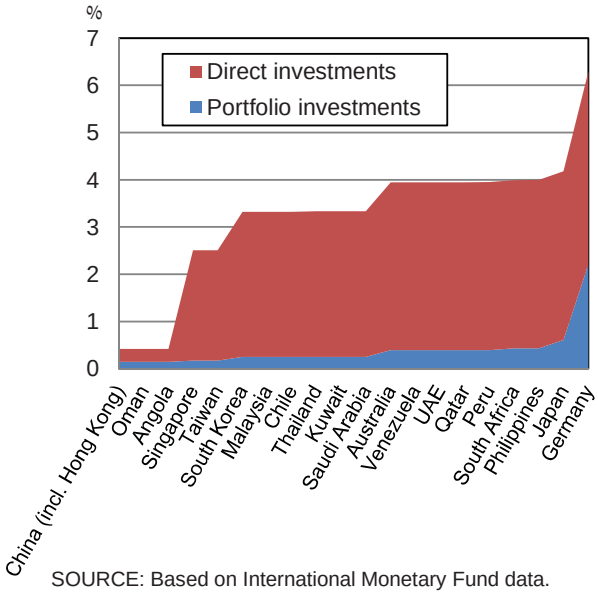
Figure 20
The Cumulative Exposure of the Five Large Banking Groups in Israel to Countries Exposed to China as a Share of Their Total Exposure to Abroad, 2015



SOURCE: Bank of Israel.

The cumulative exposure of Israeli investments abroad to the 20 countries most exposed to the Chinese economy, amounts to about 6 percent of total investments abroad, most of which are direct investments by Israelis in those countries.

Figure 21
Cumulative Israeli Investments in Countries Exposed to China as a Share of Total Investments Abroad by Israelis, 2013



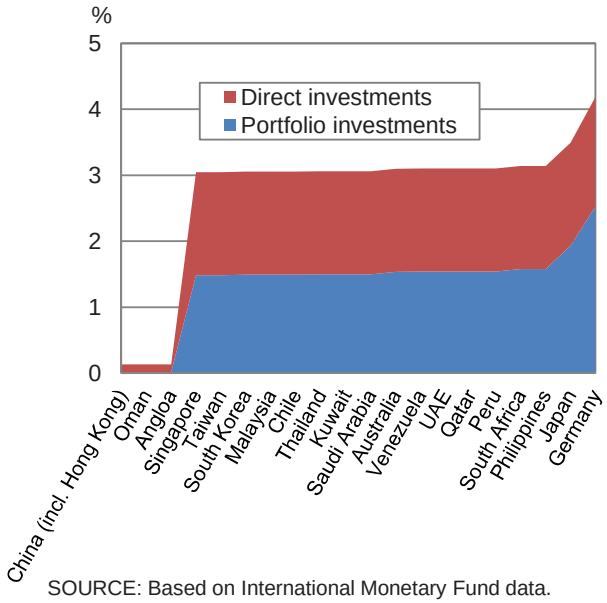
SOURCE: Based on International Monetary Fund data.

income is less than 1 percent of their total exposure to countries abroad. Israeli banks' cumulative exposure to the twelve emerging markets typified by large dollar-denominated debts is more significant, verging on 6 percent of the banks' total exposure to the rest of the world. Therefore, a debt crisis accompanied by depreciation of the currencies of the emerging markets that have the largest dollar-denominated debts will probably have some effect on banks in Israel.

Finally, to test the financial exposure to risk countries on account of investments in and from them, we examined Israelis' investments in countries belonging to the three aforementioned risk groups and investments by residents of these countries in Israel. For this purpose, we looked into the cumulative share of Israelis' direct and portfolio investments in countries in each of the three groups in Israel and vice versa. We found that the cumulative exposure of Israelis' investments in the twenty countries most exposed to the Chinese economy is 6 percent of total investments abroad, most of which are FDI (Figure 21). Investments originating in these countries, in turn, account for 4 percent of total foreign investment in Israel (Figure 22). Thus, a crisis in China that would spill into its trading partners may have some effect on the value of Israeli assets abroad, including Israeli-controlled companies. It might also lead to the liquidation of foreign investments in Israel—mainly portfolio investments, which are easier to liquidate than direct investments. In contrast to the bilateral investment relations described above vis-à-vis countries dependent on China, Israelis' investments in the twenty countries most exposed to a decrease in commodity prices and investments in Israel from these countries are nil. Similarly, Israelis' investments in the five largest commodity-exporting emerging markets come to 0.5 percent of total resident investments abroad,

Investments originating in the 20 countries most exposed to the Chinese economy account for about 4 percent of total foreign investment in Israel.

Figure 22
Cumulative Investments from the Countries Exposed to China As A Share of Total Investments in Israel, 2013



SOURCE: Based on International Monetary Fund data.

and investments in Israel by residents of these countries are virtually zero. Accordingly, a crisis in countries highly exposed to the commodities market is unlikely to impair the value of Israel residents' investments abroad and to result in the liquidation of investments in Israel. A zero level of investment in Israel is also typical of countries with the largest external debts relative to national income and the emerging markets that have the largest dollar-denominated debts. Israelis' investments in high-external-debt countries and emerging markets with large dollar debt are also small, at 1 percent and 2 percent, respectively, of Israeli investments abroad—nearly all of which are direct investments.

The main conclusion to draw from this set of checks is that a crisis originating in a shock to the Chinese economy, a decline in commodity prices, or the balance sheets of emerging markets that borrowed extensively from abroad, particularly in foreign currency, is likely to have only a limited effect on Israel—provided it does not spread to the advanced economies and evolve into a global crisis. The concentration of exposure to these three focal points of risk on emerging markets and Israel's relatively good fundamentals may help the country to avoid financial crisis contagion unless the crisis spreads to the large advanced economies, particularly the US and major European economies.[44] Among the three risks examined, we found that the risk of a crisis in China that would infect its trading partners is more significant from Israel's standpoint than the risk of a decrease in commodity prices, which would affect countries that rely on commodity exports, and the risk of a debt crisis accompanied by depreciation of debtor countries' currencies, which would affect countries that have large external debt, particularly in foreign currency. Among the potential paths of contagion examined above, that of exports appears to be the riskiest, particularly if a crisis in the countries at risk is accompanied by steep depreciation of their currencies against the NIS.

3. THE BANKING SYSTEM

In the first three quarters 2015, the banking system maintained its resilience and stability amid modest growth in real domestic activity and the low interest rate environment. The system's strength and steadiness were reflected in an increase in profitability, continued capital accumulation, reinforcement of capital, and adequate liquidity. During the review period, portfolio concentration of credit by borrower size continued to decline—a process that the Banking Supervision Department has been promoting for several years.

Concurrently, household credit continued to grow and its share in the banks' credit portfolio increased against the background of low interest, rising home prices, and growth in private consumption. Banks continued to

[44] To illustrate the risk that the Israeli economy would face if one of the crises examined above spreads to the large advanced economies, we should note that the exposure of the Israeli economy to the United States alone—in terms of direct exports, the banking system, and reciprocal investments—exceeds the Israeli economy's cumulative exposure to the twenty countries most vulnerable to each of the risks examined above.

increase their exposure to construction and real-estate credit and housing credit, which together accounted for 45 percent of their credit portfolios. The correlations among these types of credit pose a presumed risk to the banking system that the Banking Supervision Department has been monitoring. In the past few years, cyberwar against banking systems in Israel and abroad has been escalating and compliance and conduct risks in cross-border banking activity have grown. The banking system faces a challenge on this account, especially in view of the toughening of supervision and enforcement on financial entities in Israel and around the world. The banking system is also susceptible to geopolitical risks, some of which will be examined as part of the standard stress test.

a. Capital adequacy

The aggregated Common Equity Tier 1 capital ratio of the five banking groups increased in the first nine months of 2015 by 0.2 percentage point, ending that period at 9.4 percent. This is credited to banks' accrued profit during that time, after some of them distributed dividends. The transitional provisions relating to employee rights, the implementation of which began on January 1, 2015, and continued application of the transitional provisions relating to Basel III affected the Common Equity Tier 1 capital ratio adversely. In regard to banks' profitability, the five large banking groups reported NIS 6.8 billion in total net profit during the review period, up 19 percent, and a 10.2 percent return on equity, surpassing the long-term average (9.5 percent).

By international comparison, the ratio of capital to assets in Israel's banking system resembles the OECD average but the Common Equity Tier 1 capital ratio falls short of it. One of the main reasons for the disparity is that Israel's banks assign capital in accordance with the standard approach as opposed to the advanced approaches; therefore, their risk assets are much more heavily weighted than they are in OECD countries. Over the next few years, however, the Israeli banking system is expected to continue amassing and strengthening its capital. First, the capital targets are expected to increase gradually until January 1, 2017, in accordance with the directive concerning the buildup of capital cushions against the housing-credit portfolio. Second, the banks have set higher Tier 1 capital targets than those laid down in the March 2012 directive. In any event, the Supervisor of Banks is allowed to instruct the banks, at any time, to set differential Common Equity Tier 1 capital targets in accordance with their risk profiles, as derived from the Supervisory Review and Evaluation Process (SREP). Finally, the Banking Supervision Department allowed banks, for the first time, to issue capital instruments that will qualify as part of their Tier 2 capital.

In April 2015, the Banking Supervision Department issued a directive that applies the Basel III framework to leverage ratios. The directive specifies that all banks must maintain a leverage ratio of not less than 5 percent on a consolidated basis by January 1, 2018. When a bank's total consolidated balance-sheet assets constitute more than 20 percent of the total balance-sheet assets of the banking system, it must meet a leverage ratio of at least 6 percent by the same date. From April 1, 2015, onward, banking corporations had to disclose their leverage ratios in their financial statements. By September 2015, all banking corporations were in compliance with the ratio set forth.

b. Credit risk[45]

In the first three quarters of 2015, the quality of the banking credit portfolio improved somewhat and credit concentration by borrower size continued to decline. Outstanding credit to all sectors (housing, consumers, business sector, abroad) increased at a pace that accelerated in the third quarter of the year. Most of the upturn originated in household credit, particularly for housing.

The balance-sheet credit of the five banking groups grew by 5 percent during this time, to NIS 899 billion,

[45] The analysis relates to data for the five large banking groups in the first nine months of 2015, expressed in annual terms.

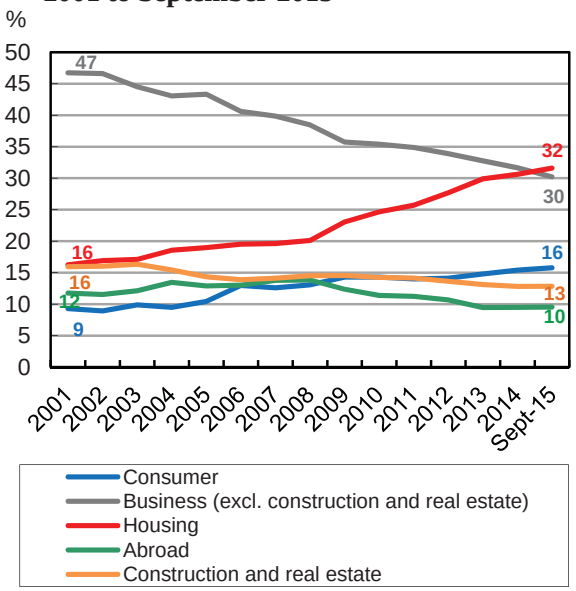
again mostly due to continued increases in housing and consumer credit. Credit for construction and real estate also expanded and, together with housing credit, accounted for 45 percent of the banking credit portfolio. The banks' hefty credit exposure to the construction and real-estate industry, housing, and the consumer segment, and the correlations among these kinds of credit, pose a risk to the banking system. The low interest rate macro environment exacerbates the risk because it may encourage economic agents to indulge in highly risky conduct in search of returns. This, in turn, may aggravate the risk of borrower overleveraging and bring on an increase in the prices of assets and, perhaps, the underpricing of their implicit risks.

The business credit portfolio of the five banking groups increased by less than 1 percent during this time as the deceleration of this kind of credit in recent years continued. Most of the expansion was due to construction and real-estate credit, which increased by 5 percent during the review period.

Household credit continued to grow, its share in the banks' credit portfolio climbing from 32 percent in December 2007 to 48 percent in September 2015. In the past few years, household finance has been the main source of growth in bank credit; its expansion during this time comes against the background of the low interest rate environment, the increase in home prices, and more vigorous private consumption.

Housing credit, which accounts for roughly two-thirds of lending to private individuals, increased by a steep 10 percent—resembling its growth rate in recent years—to NIS 284 billion. Average monthly performance of housing loans in the first three quarters of 2015 was NIS 5.5 billion; the highest single-month performance was NIS 7 billion in June. The risk characteristics of housing loans that were issued during this time remained mild: the average payment-to-income (PTI) ratio was 26 percent and the average loan-to-value ratio was 52 percent.

Figure 23
Distribution of Outstanding Balance-Sheet Credit, the Five Banking Groups, 2001 to September 2015



SOURCE: Published financial statements and reports to the Banking Supervision Department.

Consumer credit grew by 9 percent and its share in the total portfolio came to 16 percent. Due to the steep escalation of consumer lending in recent years, it has become necessary to make sure the credit-loss provisions are conservative enough. Therefore, in January 2015 the Supervisor of Banks issued a directive stating that starting with the public financial statements for 2014, the rate of qualitative adjustments included in the group credit-loss provision for consumer lending should be no smaller than 0.75 percent.

Concentration of the credit portfolio by borrower size continued to decline but remains relatively high. Background factors in the decrease include strict restrictions on borrower and borrower-group indebtedness and the banking system's focus on household and small-business borrowers.

c. Market risks

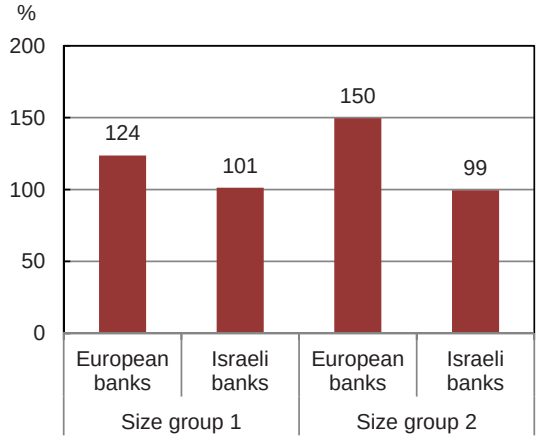
The banking system is exposed to interest risks and indexation-base risk. Most banks are vulnerable to a rate increase in all indexation segments. The potential

loss induced by a 1 percentage-point increase in interest increased in 2015 relative to the previous year and stood at NIS 4.4 billion at the end of September—6.2 percent of fair value of capital. Notwithstanding the increase, the interest exposure remained smaller than the credit exposure. The banking system's susceptibility to indexation-base risk fell slightly during the year; the potential loss from maximum changes in inflation and exchange rates[46] was only NIS 398 million, 0.5 percent of the five groups' total capital. Most of the banks were exposed to currency depreciation and an unexpected decline in the Consumer Price Index, much as they were a year earlier.

d. Liquidity risk

Liquidity in the Israeli banking system was adequate at the end of the third quarter of 2015, as evidenced in the 101 percent aggregate liquidity coverage ratio (LCR)[47] in September 2015 (Figure 24) and ample proportions of high-quality assets. The LCR varied from one bank to the next but exceeded 80 percent—the minimum requirement set for January 2016—at all banking groups.[48] In a comparison with banks that operate in the European Union, it was found that most corporations in Israel have lower LCRs than EU counterparts in both size groups examined[49] (Figure 24), although some of the disparities are due to dispensations that European banks receive. Israeli corporations, particularly small ones (Group 2), have better asset quality than their counterparts in the European Union[50] because almost their entire balance of assets is Tier 1, consisting mainly of cash and deposits with the central bank (Figure 25).

Figure 24
Liquidity Coverage Ratio (total activity) at Israeli Banks and at Banks Operating in the European Union, Distinguishing Between Two Size Groups[a], Total Banking System, Sept. 2015[b] (bank basis)



[a] Size group 1 includes bankes with a total Tier 1 capital of more than 3 million euros that are active internationally (comparable to Leumi, Hapoalim and Discount).
Size group 2 includes banks with a total Teir 1 capital of less than 3 million euros and/or more than 3 million euros, but that are not active internationally (comparable to all other banking corporations in Israel, excluding the three largest).
[b] For the European Union, average values to December 2014 are shown.

SOURCE: ECB publications, reports to the Banking Supervision Department, and calculations by the Economics Unit in the Banking Supervision Department.

[46] The maximum change in inflation and the exchange rate is determined on the basis of monthly changes that occurred, respectively, in inflation expectations and the nominal NIS/USD exchange rate in the past seven years, assuming normal distribution and a 99 percent significance level.

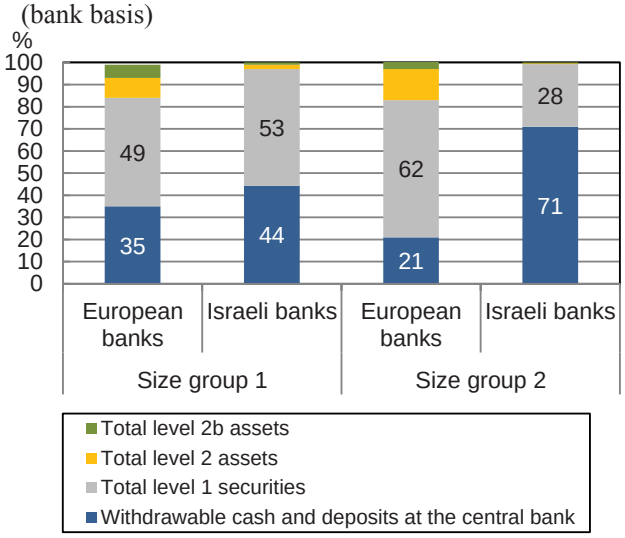
[47] The LCR, developed by the Basel Committee to enhance the short-term resilience of banking corporations' liquidity profiles, indicates the quantity of HQLA (High-Quality Liquid Assets) that banking corporations should hold in order to withstand a significant stress scenario that lasts thirty calendar days. The LCR is composed of two elements. The first, on the numerator side, is the stock of HQLA, which is comprised of two levels of assets. Level 1 includes high-quality assets that may be held in unlimited amounts; Level 2 is composed of assets that are limited to a maximum aggregate holding of 40 percent of the HQLA stock. (This level is divided into two sublevels: 2A and 2B. At the latter level, the share of assets that may be held is limited to 15 percent.) The second element, on the denominator side, is total net cash outflow, i.e., the expected total cash outflow less the expected total cash inflow in the stress scenario. The expected total cash outflow is calculated by multiplying the balances of different categories or types of balance-sheet and off-balance-sheet liabilities by their expected runoff or drawdown rates. The total expected cash inflow is calculated by multiplying outstanding contractual receivables by the interest rates at which they are expected to be received in the scenario, up to a cumulative 75 percent of the predicted total cash outflow.

[48] On April 1, 2015, the minimum requirement was 60 percent. It will be raised to 80 percent on January 1, 2016, and to the target level of 100 percent in January 2017.

[49] Group 1 includes banks that have more than EUR 3 billion in Common Equity Tier 1 capital and operate internationally (comparable to three Israeli banks: Leumi, Hapoalim, and Discount). Group 2 is comprised of banks that have less than EUR 3 billion in Common Equity Tier 1 capital or have more than this but do not operate internationally (comparable to all banking corporations in Israel except the three largest).

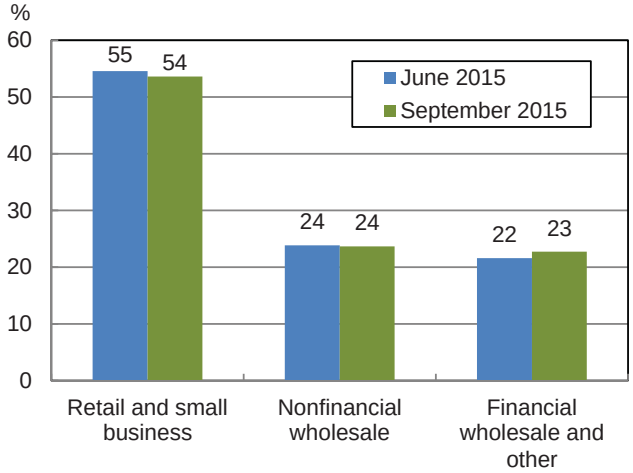
[50] This finding is all the more valid in view of the dispensations that were applied in the European Union concerning the classification and fitness of liquid assets in calculating liquidity cover ratios.

Figure 25
Composition of the Inventory of High-Quality Liquid Assets[a] at Israeli Banks and Banks Operating in the European Union, Distinguishing Between Two Size Groups[b], September 2015[c]
(bank basis)



[a] For more information, see the footnote in the text.
[b] Size group 1 includes bankes with a total Tier 1 capital of more than 3 million euros that are active internationally (comparable to Leumi, Hapoalim and Discount).
Size group 2 includes banks with a total Teir 1 capital of less than 3 million euros and/or more than 3 million euros, but that are not active internationally (comparable to all other banking corporations in Israel, excluding the three largest).
[c] For the European Union, average values to June 2014 are shown.
SOURCE: Israel— reports to the Banking Supervision Department; European Union—EBA.

Figure 26
Distribution of the Public's Demand Deposits up to 1 Month, Total Banking System, September 2015 Compared With June 2015 (bank basis)



SOURCE: Reports to the Banking Supervision Department and calculations by the Economics Unit in the Banking Supervision Department.

As for the quality of sources, sources are stable and Israeli banks rely more on retail deposits as a principal source for the funding of their activity than on wholesale deposits. In September 2015, total deposits were divided among retail (from private individuals and small businesses) at 54 percent, nonfinancial wholesale at 24 percent, and financial at 23 percent (Figure 26). Concentration of large deposits improved slightly during the review period, after four years of increases.

4. INSURANCE COMPANIES

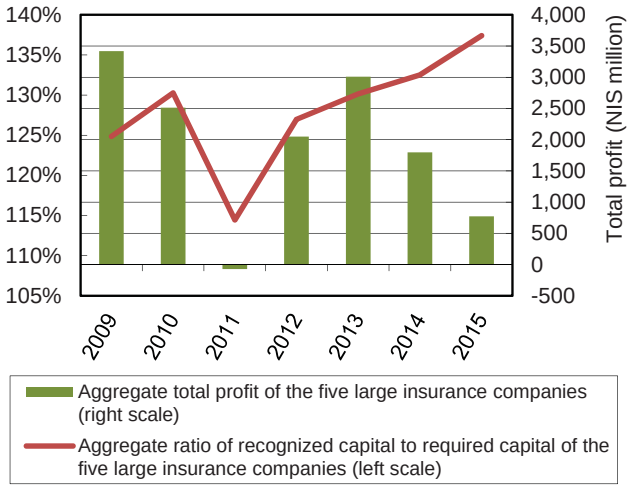
Insurance companies' profitability slipped in the first half of 2015 relative to the corresponding period in the previous year. Their recognized capital, however, continued to increase as a result, among other things, of their preparations for the implementation of a solvency regime based on Solvency II.

a. Profitability of insurance companies declined

In the first half of 2015, the five large insurance companies reported NIS 773 million in total aggregate

In recent years there has been a marked downward trend in profitability in contrast with an increase in recognized capital.

Figure 27
Total Profit and the Ratio Between Recognized Capital and Required Capital of the Five Large Insurance Companies, Year-End 2009 to Year-End 2014 and End of the First Half of 2015



SOURCE: Based on the financial statements of the insurance companies.

profit (Figure 27), 26 percent below year-earlier. The decrease was affected mainly by (1) weakness in the financial markets and losses in the second quarter of the year, which dampened profits, (2) an increase in the discounting rate, which had a downward effect on liabilities; and (3) a regulatory change in the way insurance reserves are calculated, making liabilities larger. Details follow.

(1) In the second quarter of 2015, weakness in the financial markets lowered the return on the insurance companies' investments in the first half of the year relative to year-earlier. For specifics on the markets, see the Global Environment section on the Main Risks chapter under "Main Developments in the Domestic Financial System." In the wake of the lower return, revenue from variable management fees declined considerably[51] as the five large insurance companies refunded NIS 1.99 billion in variable management fees in the second quarter of the year. Even so, the companies' management fee revenues were 12 percent higher in the first half of 2015 than year-earlier.

(2) In the first half of 2015, profitability was enhanced by an increase in the discounting rate. Insurance companies have a direct exposure to interest-rate risk through the mechanism of the discounting rate on their liabilities. This rate is determined in accordance with the yield curve and depends mainly on long-term yields. Since insurance companies have long-term liabilities that originate in life and nursing-care coverage, any decrease in long-term interest raises the value of liabilities and forces the companies to make provisions that reduce their profit. Conversely, an upturn in this interest rate reduces the value of the liabilities and increases profit. On the assets side, any decrease/increase in interest rates raises/lowers the value of assets, which are evaluated at fair value. Since a maturity mismatch exists between assets and liabilities—the duration of assets is shorter than that of liabilities—a change in long-term interest rates affects the value of liabilities more than it does the value of assets.

After a lengthy downward trend in long-term interest rates that necessitated nine-digit NIS provisions to cover liabilities in recent years, the yield curve turned upward in the first half of 2015. Accordingly, the discounting rate rose, allowing the five large insurance companies to reduce their reserves by NIS 208 million. For details on the upturn in the yield curve, see Main Risks to the Stability of the Financial System, above. If the yield curve remains where it is or rises further, no additional provisions and losses are foreseen. Although the discounting rate has stopped declining, as long as it stays relatively low the insurance companies will have an incentive to take greater risks in investing in their proprietary (nostro) portfolios in order to obtain a better return.

(3) In the first half of 2015, the value of liabilities increased due to a regulatory change: In the second-quarter financial statements, the method of calculating the adequacy of insurance companies' provisions was revised. The first important change required the companies to take into account insurance risk that cannot be diversified away. The new directive requires the addition of a safety margin to the best-estimate assumptions that are used in calculating liabilities, thereby raising the value of the insurance companies' liabilities. In life and health insurance, it was stated that the margin should be no smaller than a 5 percent increase to the relevant rates of morbidity, mortality, cancellations, or expenditures. The second change in the method of calculating the adequacy of provisions

[51] Insurance companies are allowed to charge variable fees for the management of insurance policies that were sold between 1991 and 2003. The maximum fee is 15 percent of the annual return net of fixed management fees. In the event of a loss, insurance companies may not charge a variable management fee until the cumulative loss is covered. Variable management fees strongly affect companies' earnings because the sums they yield may be very volatile in years when the return on this portfolio is low. In addition, on account of policies sold from 2004 onward, insurance companies charge a fixed management fee based on savers' accrued balance. In insurance policies issued before 2013, the management fee as a share of accrued balance was as high as 2 percent. Since then, the maximum management fee has been 1.05 percent of the accrued balance per annum. Insurance companies' earnings on account of these management fees are less volatile because these fees are charged at a constant rate irrespective of the companies' performance.

is the addition of a mandatory illiquidity premium[52] to the liability discount interest rate—100 percent when calculating the value of allowances paid and 50 percent to the value of other liabilities not backed by earmarked bonds.[53] This change raises the discounting rate and reduces the insurance companies' liabilities.

The combined effect of these two changes in the financial statements for the second half of 2015 was an increase in liabilities and a decline in profitability. Accordingly, after the directive went into effect, the five large insurance companies recorded a provision in the sum of NIS 128 million.

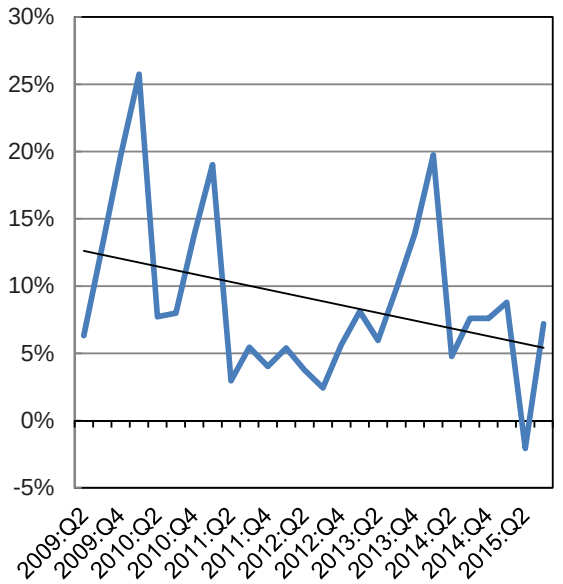
b. Recognized capital

In the first half of 2015, the insurance companies' recognized capital increased even though their total earnings continued to decline. Recognized capital[54]—NIS 27 billion among the five large insurance companies—is an important variable in measuring insurance companies' stability. During the review year, the ratio of the five companies' recognized capital to their required capital[55] increased from 133 percent to 138 percent. In addition, the aggregate ratio of Tier 1 capital to total proprietary (nostro) assets of the five companies increased slightly (by less than 1 percentage point) relative to the end-of-2014 level and stood at 12 percent.

In 2015, the large insurance companies took various measures to increase their recognized capital. All of them raised hybrid Tier 2 or Tier 3 capital, inferior tiers in terms of capital quality,[56] mainly by issuing bonds that have a mechanism for the absorption of losses in a going concern. The increase in the rate of recognized capital originates, among other factors, in preparations for the implementation of a solvency regime based on the Solvency II directive (see details below).

The return on equity of the five large insurance companies has been declining in recent years.

Figure 28
The Return on Equity of the Five Large Insurance Companies, 2009 to June 2015



The return on equity (the ratio of quarterly net earnings to Tier 1 capital at the beginning of the year) has been slumping in recent years (Figure 28).

[52] An illiquidity premium is calculated in accordance with assumptions given for the Solvency II directive. According to a notice from the Capital Market, Insurance, and Savings Division of the Ministry of Finance, the method used to calculate the premium and its rate of increase for calculating the value of the various liabilities, are still being reviewed, but the directive shall apply until some other directive is published.

[53] For policies that were sold up to 1991—old policies on which the insurance companies undertook to provide a guaranteed return—the state issued nontradable earmarked bonds that deliver an assured real yield that exceeds the rate of the liability. As of the end of 2014, the five large insurance companies' percentage of state issued nontradable earmarked bonds out of the portfolio for policies issued before 1991 ranged from 44 percent to 74 percent.

[54] Recognized capital provides insurance companies with a cushion against unforeseen losses and the need to make immediate payouts. It is composed of various tiers that are differentiated in terms of the quality of security that they provide. The highest-quality equity is Tier 1, composed of share equity, the premium on the shares, and the retained earnings line on the balance sheet. The lower tiers (2 and 3) are comprised of components such as deferred liabilities, i.e., those that the companies issued and will defer in the event of liquidation relative to any other debt. Deferred liabilities include mechanisms for the absorption of losses—e.g., postponement/cancellation of principal or interest—that are invoked under certain circumstances.

[55] Required capital is the minimum recognized capital that, according to the regulator, an insurance company must maintain in order to remain stable.

[56] For an explanation of recognized capital, see note 54.

c. Transition to Solvency II

The insurance companies are preparing to introduce a solvency regime based on the Solvency II directive starting with the December 2016 statements, about a year after the directive was adopted in Europe. Once implemented, Solvency II, which is meant to enhance insurance companies' stability and create a standard European regime for the supervision of such firms, will transform the way insurance companies' capital adequacy is tested and their required capital and recognized capital are determined. The directive mandates several changes, foremost economic as opposed to accounting capital measurement, including adjustment of insurance reserve calculations; calculating capital requirements by means of scenarios—instead of factors—that reflect value at risk in Tier 1 capital at a 99.5 percent confidence level, and a group view of all subsidiaries in the insurance industry instead of each company separately.[57]

In July 2015, the Capital Market, Insurance, and Savings Division of the Ministry of Finance issued various transitional directives. According to the main directive, an insurer that fails to comply with capital requirements once the directive goes into effect will be allowed to make up the difference by the end of 2018. Capital requirements relating to equity holdings will go into effect in a gradual linear process over seven years until the full rate is attained.

In the financial statements for the third quarter of 2015, the insurance companies began to report expected shortfalls in required capital in accordance with the directives. Only two of the large insurance companies foresaw a capital shortfall and only one reported the need for significant measures to stay within the deficit ceiling: Migdal, Israel's largest insurance company. As of the third quarter of 2015 and absent suitable preparations, it expects a capital shortfall in the sum of NIS 4.5 billion.

d. Changes in directives concerning institutional investments in "coordinated loans"

In 2015, the Commissioner of the Capital Market, Insurance, and Savings issued several circulars on the investment policies of institutional entities with regard to "coordinated" (direct consortium and syndicated) loans. Preceding this step, among other factors, were failures that came to light and the conclusions of committees[58] that were established to regulate institutional players' investments and prevent possible failures in this area of activity. The provisions are meant to toughen procedures and supervise insurance companies' conduct in issuing such loans, thereby mitigating their investment risk and enhancing their stability.

For elaboration on the risks that insurance companies incur and an analysis of the structure of their investments, consult the *Financial Stability Report* for 2014.

e. Update for the third quarter

The insurance companies' financial statements for the third quarter of 2015, published before this Report went to press, were influenced by the processes described above as reported in the statements for the first half of the year. Weakness in the markets dampened the insurance companies' profitability in this quarter. Consequently, the total post-tax earnings of the five large insurance companies declined by NIS 140 million but recognized capital held firm at NIS 27 billion.

In sum, insurance companies' profitability has been falling in the past few years for reasons that include low interest rates and weakness in the financial markets. For the time being, however, this has not affected the stability of the companies and most of them have recognized capital that is expected to exceed the rate that the regulator requires. The implementation of the Solvency II directive and the low-profitability environment pose a challenge to the

[57] Including analysis of subsidiaries and not of sister companies, because there is no regulation of sister companies.

[58] Two committees: one to investigate the method of institutional entities' investments in tailored loans (the Goldschmidt Committee) and another to look into the conduct of institutional players in the course of debt settlements (the Andorn Committee).

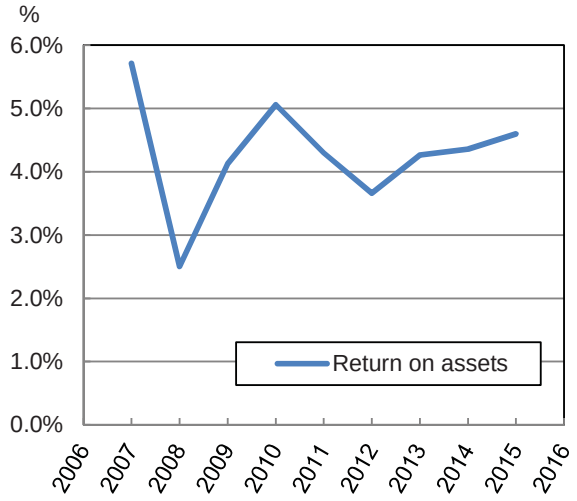
industry and, particularly, to Israel's largest insurance company—which, as of the third quarter of 2015, is facing a NIS 4.5 billion capital deficit unless it takes substantive preemptive measures. The stability of Israel's insurance companies is being maintained and Solvency II will enhance it further in the long term.

5. THE NONFINANCIAL BUSINESS SECTOR

The nominal indebtedness of the nonfinancial business sector in September 2015 was NIS 825 billion, up 1.5 percent from its end-2014 level.[59] The share of bank credit in the debt rose slightly during that time—from 47.4 percent at the end of 2014 to 48 percent in September 2015—but remained low by past standards.[60]

The return on assets of public nonfinancial companies increase in the past two years, and is close to its long-term average.

Figure 29
The Return on Assets of Public Nonfinancial Companies, December 2007 to June 2015[a]

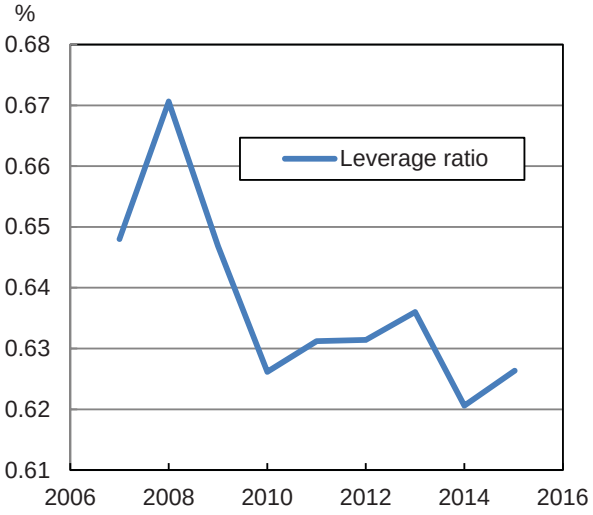


[a] The return on assets for the first half of 2015 is an estimate calculated based on the media of the return on assets in the past four quarters.

SOURCE: Based on the financial statements of public companies.

In the second half of 2015, the leverage of public nonfinancial companies increased slightly, but it remains lower than its long-term average.

Figure 30
The Leverage Ratio of Public Nonfinancial Companies, December 2007 to June 2015



SOURCE: Based on the financial statements of public companies.

The rate of return on the assets of public nonfinancial corporations[61] has hardly increased in the past two years and resembles its long-term average (Figure 29). The combination of a higher return on assets and a decline in the price of corporate debt,[62] abetted by the low-interest environment, means that the firms are better able to service their debts.

In Table 1, we gather a set of financial ratios that were calculated on the basis of the financial statements of nonfinancial public corporations between January 2009 and June 2015. The ratios calculated reflect the risk of default among these firms from various perspectives. For each ratio, two averages—long-term

[59] An estimate of the quantitative change in the debt, i.e., the total change neutralized for exchange-rate and indexation differentials, shows that it went up by 4.9 percent in the first three quarters of 2015—a 7.3 percent increase in business debt to banks and a 2.3 percent decline in debt originating in other countries.

[60] The share of bank credit in total business credit was 56.2 percent in January 2009 and 50.5 percent on long-term average.

[61] The return on assets for a given period is the median of the ratios of operating earnings to assets on the basis of their book value, as are calculated for each firm in the same period.

[62] For elaboration, see the business-sector chapter in the June 15 *Financial Stability Report*.

Table 1
The leverage, coverage and liquidity ratios of public nonfinancial companies and the long-term averages January 2009 to June 2015 (percent)

Leverage ratio		Current ratio		Quick ratio		Coverage ratio		Cash-based coverage ratio	
Long-term	Jun-15	Long-term	Jun-15	Long-term	Jun-15	Long-term	Jun-15	Long-term	Jun-15
0.64	0.62	1.36	1.42	1.02	1.05	1.79	1.98	1.11	1.16

SOURCE: Based on the financial statements of the public companies.

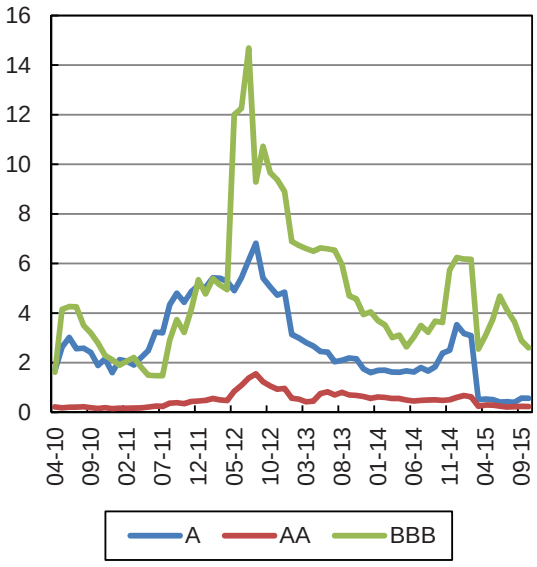
and June 2015—were calculated. The data in the table show that the leverage ratio[63] in June 2015 was under its long-term average. In this context, it is noteworthy that the leverage ratio of real-estate companies is affected by an increase in property values (as distinct from a decline in the level of liabilities) that originates in the large revaluation earnings that these firms have reported in recent years.[64] The cumulatively based interest coverage ratio[65] and the cash-based interest coverage ratio[66] (hereinafter: coverage ratio and cash-based coverage ratio), which reflect a firm's ability to service its debts on the basis of the results of its ongoing activity, are above their long-term averages. One of the background factors for this is the low-interest environment, which abets a decrease in firms' funding costs and, in turn, an increase in their coverage ratios. The firms' liquidity ratio,[67] reflecting their ability to service their debts even if current activity does not generate enough earnings or cash, also exceeds its long-term average.

An analysis of developments in the financial ratios shows that in the first half of 2015, the leverage ratio rose slightly relative to the end of 2014 (Figure 30), mainly due to an increase in the leveraging of firms in the gas and oil industry and in trade.

The cash-based coverage ratio of firms in the nonfinancial business sector decreased relative to its level at the end of 2014. An examination of the distribution of cash-based coverage ratios in June 2015 relative to their distribution in December 2014, however, shows that the share of companies with ratios under 1 declined. The firms' current ratio went up a little and their quick ratio dipped slightly, possibly reflecting an increase in the book value of the firms'

The probability of default, derived from companies' balance sheets and from share pricing, declined.

Figure 31
The EDF of Public Companies by Rating, April 2010 to October 2015 (monthly data)



SOURCE: Moody's KMV.

63 The leverage ratio for a given date is the median of the ratios between total liabilities and total assets, as calculated for each firm on the same day.

64 For elaboration, see the June 15 *Financial Stability Report*.

65 The cumulative coverage ratio, for a given period, is the median of the ratios of operating earnings and funding expenditure as are calculated for each firm at the same time. Since this ratio is very volatile, below we relate to the cash coverage ratio only.

8.5ratios of current cash flows and funding expenditure, as are calculated for each firm at the same time.

67 A firm's liquidity rate at a given time mirrors its current ratio, i.e., the ratio of its current assets to its current liabilities at that time, or its quick ratio: the ratio of its current assets net of inventories to its current liabilities at that time.

inventories due to an increase in their quantity and/or value.

The probability of insolvency, as derived from the firms' balance-sheet liabilities and the pricing of their equities (the EDF index), declined during the review year (Figure 31).

6. HOUSEHOLDS

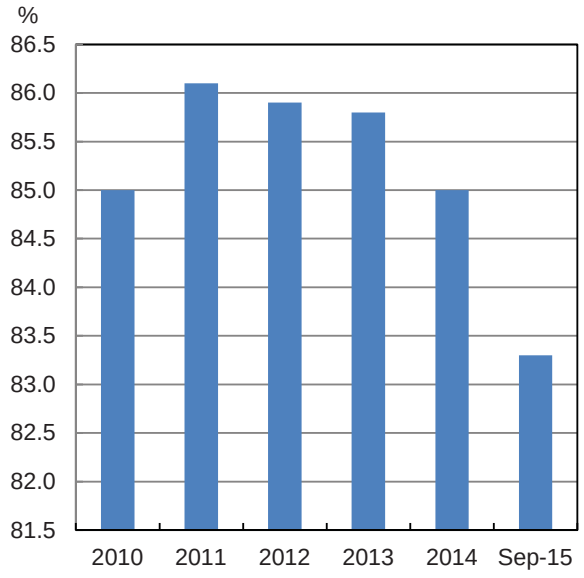
Although household debt has been growing rapidly in recent years, the ratio of household debt to GDP has gone up only mildly and is low by international standards.[68] Outstanding household debt was NIS 456 billion in September 2015 and its share in GDP was 41.7 percent, slightly higher than year-earlier. The increase in household debt in the first three quarters of 2015 accelerated to 7.1 percent in annual terms as against 5.5 percent year-earlier, and both housing credit and nonhousing credit contributed to the acceleration.

Nonhousing credit increased in the first three quarters of 2015 by an 8.0 percent annual rate, outpacing the growth rate of housing credit during that time and that of nonhousing credit in the year-earlier period (6.1 percent).[69] The share of nonhousing credit issued by banks has been trending down slightly since the beginning of 2014 (Figure 32) as institutional entities have been executing a growing proportion of loans. Still, however, most nonhousing credit—83 percent—is provided by banks.

Credit for housing increased in the first three quarters of 2015 by an annual rate of 6.5 percent, in contrast with a growth rate of 5.2 percent in the corresponding

There is a certain downward trend in bank credit as a share of total nonhousing credit, but most nonhousing credit is still issued by the banks.

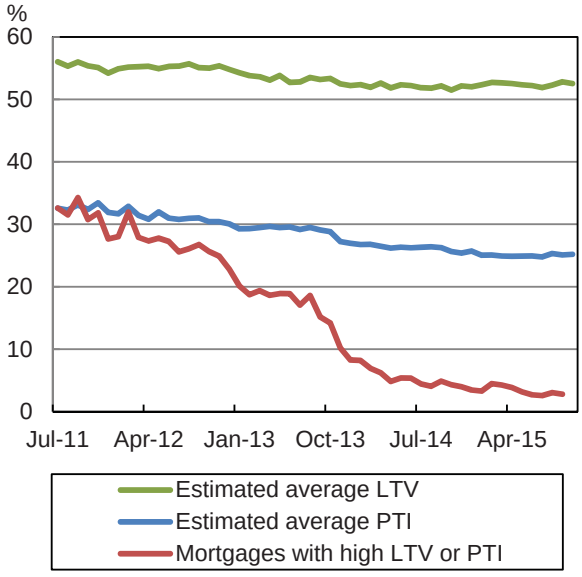
Figure 32
Bank Credit As A Share of Total Nonhousing Credit, 2010 to September 2015



SOURCE: Bank of Israel calculations.

The risk indices for new mortgages remain stable at relatively low levels.

Figure 33
The Risks in New Mortgages, July 2011 to September 2015 (monthly data)



SOURCE: Bank of Israel calculations.

[68] The ratio of nonhousing household debt to GDP in Israel, however, is not low by international standards.

[69] For discussion of possible reasons for the increase in nonhousing credit, see the Household Sector chapter in the June 15 *Financial Stability Report*.

period of the previous year. This credit is made up mostly of mortgages granted by banks. Those balances increased by 9 percent in annual terms.

The average level of risk in new housing loans declined somewhat. The average loan to value (LTV) ratio was 52.8 percent in September 2015, basically unchanged from year-earlier, but the average payment to income (PTI) ratio fell by 1.5 percentage point, to 25 percent. Furthermore, only around 3 percent of new housing loans in recent months are considered high-risk, i.e., with LTVs of 75 percent or more or PTIs of 40 percent or more (Figure 33).

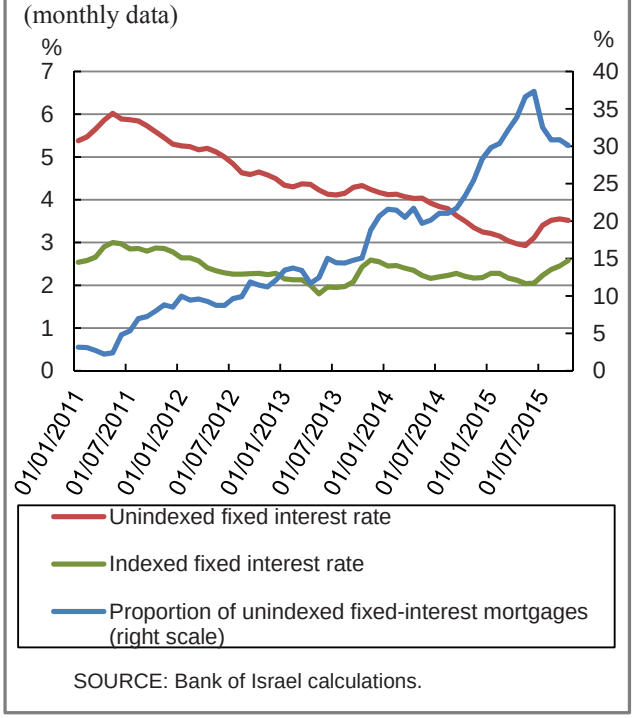
Those who take housing loans at floating interest are exposed to an interest risk that may be realized if a domestic rate increase causes the PTI ratio to rise. In the past few years, there has been an upward trend in the share of constant-rate housing loans and a downward tilt in that of floating-rate facilities, against the background of low domestic interest and measures by the Supervisor of Banks.[70] This trend has a mitigating effect on mortgage takers' exposure to the interest risk and on the menace that this exposure may pose to financial institutions' stability. In the past few months, however, given the increase in average mortgage lending interest at constant rates, the share of constant-rate housing loans in total housing loans issued has declined and that of floating-rate facilities has gone up (Figure 34).

Total lending for mortgage refinancing and the share of refinancing facilities in total housing credit[71] have been trending upward since the middle of 2014 and came to NIS 2.67 billion and 30 percent, respectively, in June 2015—much higher than their long-term averages (Figure 35).

The background for this trend was a decrease in domestic interest at that time and relatively vigorous competition among the banks in housing loan activity, due to which at least some of the decline in the banks' cost of raising capital was passed on to the public. An increase in the share of housing loans that is refinanced does not raise the net leverage rate of households, and an increase in the proportion of loans given at constant interest reduces households' interest risk. Consequently, not only does mortgage refinancing not aggravate the risk to banks' stability but it even helps to reduce it. Notably, however, total loans issued for mortgage refinancing purposes and their share in total housing credit have been declining since July 2015 against the background of an increase in the constant nonindexed interest rate for new mortgages and a decrease in the potential for additional mortgage

In recent years there has been an upward trend in the proportion of unindexed fixed-interest mortgages, but in recent months, due to the increase in unindexed fixed interest rates, this proportion has declined.

Figure 34
The Proportion of Unindexed Fixed-Interest Mortgages and the Average Interest Rate on Them, January 2011 to September 2015
(monthly data)



SOURCE: Bank of Israel calculations.

[70] In recent years, the Supervisor of Banks issued two directives that limit the share of housing loans issued at variable-rate interest: Limitations on Housing Loans, April 2011, and Guidelines regarding Limitations on Housing Loans, August 2013.

[71] Housing credit in this paragraph includes refinancing mortgages granted at the same bank, refinancing mortgages granted at another bank, and directed mortgages.

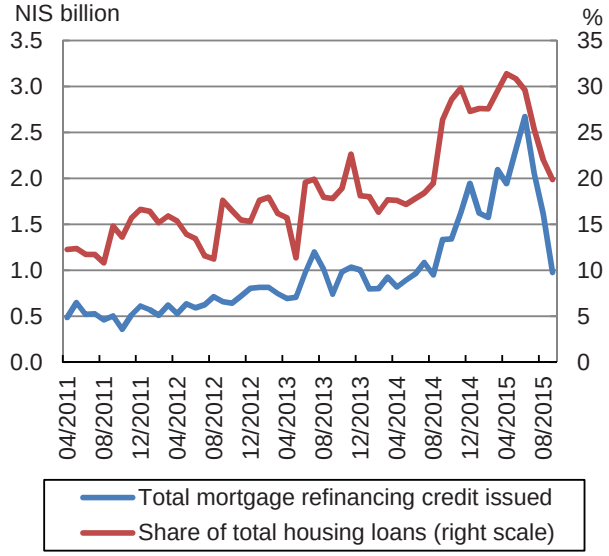
refinancing after several years of large-scale activity of this kind.

The share of investment purchases in all homebuying transactions spiked in May–June 2015 (Figure 36), evidently because investors wished to take advantage of reduced property-tax rates in view of the government's announcement, at around that time, of its intent to raise taxes on investment dwellings. Since the share of dwellings purchased for investment purposes fell back steeply in July, the overall average from the end of April 2015 to the end of July 2015 resembles the long-term mean.

The prudential risk associated with a large share of investors in real estate may be realized if a downturn in the business cycle is accompanied by a decrease in home prices. In such a case, investors may rush to liquidate their real-estate holdings due to fear of continued price decreases, pushing home prices even lower and exacerbating the adverse effect on the stability of the institutional entities that provide housing loans. Since investments in real estate involve much higher transaction costs than those surrounding a portfolio investment, however, the possibility of rapid liquidation of investments upon a change in the business cycle is less worrisome in the former context than in the latter. Furthermore, a decrease in home prices when the business cycle bottoms out is not necessarily accompanied by a similar decrease in housing price. What this means is that an investor's return on real estate does not necessarily change when home prices fall and, by extension, it is not clear that he or she has a greater incentive to liquidate a real-estate investment in this event.

From mid-2014 until mid-2015 there was a marked increase in total loans issued for refinancing mortgages and in the proportion of such loans out of total housing loans. This trend contributed to lowering the banks' prudential risks.

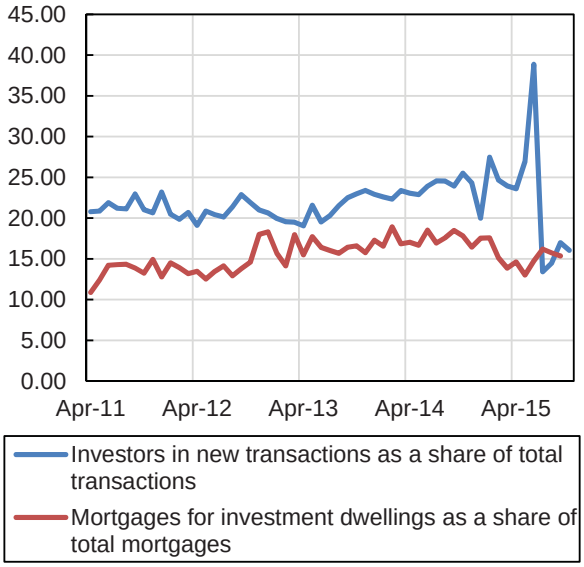
Figure 35
Mortgage Refinancing Loans Issued, Total and As A Proportion of Total Housing Loans, 2011 to September 2015



SOURCE: Bank of Israel calculations.

The proportion of investors in new transactions as a shre of all transactions increased sharply in May and June and declined sharply in July, due to expectations of purchase tax increases on investment dwellings.

Figure 36
Investors As A Share of Total New Transactions and New Mortgages, April 2011 to July 2015 (monthly data)



SOURCE: Bank of Israel calculations.

Box 2: Shadow Banking

Shadow banking[1] is a nonbank credit intermediation activity. There are many advantages to shadow banking, the main one being increasing the economy's credit supply and making it accessible to a broad population of borrowers. However, alongside these advantages, such activity incorporates risks, which are liable to impact on financial stability and the economy. The risks are all the more significant when an entity conducts activities that are similar to banking activities, with a high degree of interconnectedness between shadow banking and the regular banking system. In order to minimize these risks, an assessment of the scope of the shadow banking activity and the risks incorporated in it is called for.

Following is a description of the non-institutional credit intermediation industry. We shall define non-institutional credit intermediation companies as those whose main business is credit provision, while not being banks, insurance companies, pension funds or provident funds. We will focus on these companies due to the upcoming regulatory changes in the non-institutional credit intermediation industry.

We will highlight the importance of balanced prudential supervision over shadow banking institutions, in addition to consumer-related supervision. Appropriate prudential supervision will reduce the risks inherent in shadow banking, and at the same time enable this market to continue to exist and develop. In this manner, the public will be able to safely enjoy the advantages embodied in such activity.

Summary and conclusions

Currently, the scope of shadow banking in Israel, and especially of non-institutional credit intermediation, is not significant, but we expect it to continue to grow at a rapid rate. For this reason, it is important to shape the desirable policies in this area at this early stage. Shadow banking is advantageous in that it increases the economy's credit resources and its liquidity, *inter alia*, for individuals and entities who are barred from obtaining credit through the traditional banking system.

Shadow banking even contributes to increased competitiveness within the financial system. However, alongside those advantages, there are risks inherent in shadow banking, especially in non-institutional credit intermediation, that are liable to impact on the financial system as a whole, and may cause a credit crunch which would damage the real sector as well. These risks are not unique to shadow banking, they are characteristic of the entire credit intermediation system, at the center of which are banks and financial institutions. However, as opposed to shadow banking, the supervision over banks and over financial institutions strives to minimize and monitor these prudential risks. In the absence of adequate prudential supervision mechanisms, shadow banking—and especially the activity of non-institutional credit intermediaries—is fragile and less stable than traditional banking activity.

Raising capital from the public through tradable bonds increases the risks inherent in shadow banking activity: First, the information asymmetry between borrower and lender reduces the public's ability to supervise the investment and increases the ability of the financial entity to take excess risks. Thus, the danger of overreaction and contagion also increases. Second, as this form of financing requires the financial institution to repay the

[1] The term "shadow banking" does not imply a negative or critical view of this type of banking activity. The term is widely used in the professional literature, as noted in documents issued by the Financial Stability Board (FSB) on the subject.

investment to the public[2], it depends on the state of the markets and the ability to roll over the debt through the markets. Therefore, an external shock that leads to a standstill in the markets or to a loss of confidence in a financial institution would make it difficult for such an institution to raise new funds in order to roll over the debt, and thus, in addition to the freeze in granting credit, would make it difficult for the institution to meet its obligations. The shorter the duration of the liabilities, and the larger the gap between the duration of the liabilities and the duration of the assets, the graver the problem is. The tradability of the bonds could lead to a fire sale, negatively impacting the bonds' value, which will make future financing, meeting obligations, and providing credit even more difficult. Third, financing by issuing tradable bonds increases the scope of the entity's potential activity and leverage, as well as all the risks inherent in it. Thus, in Europe, as a direct result of these risks, regulation that is similar to the one imposed on banks—although more lenient—is imposed on an intermediary issuing bonds for the purpose of credit provision.

In sum, when determining regulation for entities in the field of non-institutional credit intermediation in Israel, the following points should be taken into account:

- The supervision over credit intermediaries should not be solely consumer-oriented but also prudential. Prudential supervision has to reduce the risk of a specific non-institutional credit intermediary finding itself in distress, as well as reduce the impact of that distress on the overall economy (macroprudential risks). Regulation should be in line with the level of risk created by such entities for the banking system. If the new regulatory burden over these intermediaries will be too great, they will be unable to operate. It is therefore important to strike a balance between risk mitigation and preserving the advantages to the economy resulting from the activity of these entities.
- It is very important to adjust the prudential regulation for entities issuing bonds and providing credit (especially in large amounts) to their risk levels, similarly to the regulation of entities taking deposits from the public but with some leniency.

Due to the significant systemic risk inherent in non-institutional credit intermediation activity, there is a need—in addition to prudential regulation and consumer-oriented supervision—for ongoing systemic supervision and monitoring of the entire credit activity in the economy. This should be assumed by a financial stability committee, which should be established as soon as possible.

What is shadow banking?

In order to understand the term shadow banking, it should be compared to traditional banking: similar to banks, shadow banking provides credit and liquidity. But, as opposed to banks, it does not include the taking of deposits, is usually unsupervised by a strict microprudential regulatory regime such as a bank taking deposits, is not entitled to emergency financial assistance in the form of monetary loans, and is usually not eligible for deposit insurance.

[2] With regard to repayable funds from the public, we shall make a distinction between financing through current-account deposits and financing through bonds and term deposits. The prudential risk in the former is greater.

There are various definitions of shadow banking.[3] We shall mention two of them here, both proposed by the Financial Stability Board (FSB). According to the first, broader, definition, shadow banking is credit intermediation by entities through activities outside the traditional banking system. The second, more narrow, definition which we shall mention here, focuses on the entity's economic function. According to this definition, shadow banking is simply nonbank credit intermediation with an inherent duration mismatch risk[4], liquidity conversion risk or leverage risk. This approach is based on classifying nonbank financial entities into five different economic functions which embody these risks[5].

Several types of entities come under these definitions, including guaranteed-yield money market funds[6], securitization[7], hedge funds, and broker-dealers, which provide credit to their customers along with executing their transactions, and non-institutional credit intermediation companies. Investment funds, on the other hand—including mutual funds and ETNs (Exchange Traded Notes)—come under the broad definition of shadow banking, rather than the narrow one, since they do not embody the risks mentioned above.[8]

Scope of shadow banking worldwide

Despite the global financial crisis of 2008, which led to a decrease in shadow banking, the field appears to be recovering (Figure 1) and even growing. Based on the broader definition (Figure 1a): According to the FSB's estimates, in the surveyed countries, global shadow banking grew in 2014 by $2 trillion, reaching $80 trillion. The growth of shadow banking worldwide in 2011–14 was greater than that of banks. In 2014, shadow banking reached 128 percent of the GDP of the surveyed countries, an increase of 6 percentage points since 2013. According to the narrow definition, which includes the five key economic activities mentioned above (Figure 1b), shadow banking assets in the surveyed countries grew by $1.1 trillion, reaching $36 trillion. According to this definition, the share of shadow banking out of the total financial assets remained stable in the past few years, at 12 percent, but the percentage of shadow banking assets out of GDP increased from 55 percent in 2012 to 59 percent in 2014.

Figure 2 shows the distribution of shadow banking according to the broad definition, by type of institution. One

3 For a review of the FSB's definitions we presented in this box, please see the FSB's Global Shadow Banking Monitoring Report for 2013 and 2015. For a discussion of the various definitions of shadow banking, please see also the Financial Stability Report by the International Monetary Fund (hereinafter: IMF), from October 2014 and the FSB's report "Shadow Banking: Strengthening Oversight and Regulation" published in October 2011.

4 When the duration of the assets or their liquidity is different than that of the liabilities. For more information, see below.

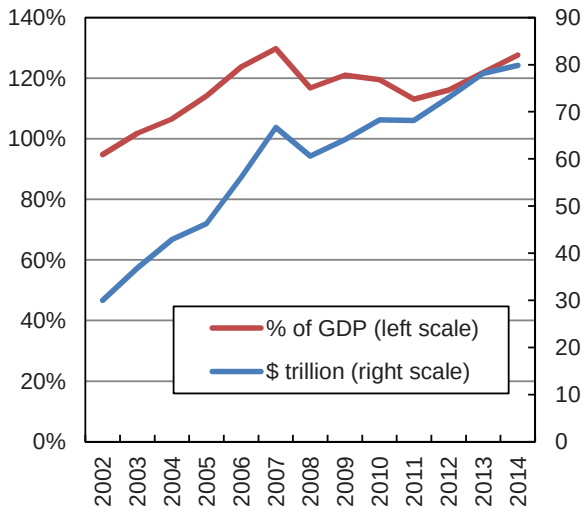
5 For more information on the five economic activities, please see the FSB's Global Shadow Banking Monitoring Report for 2015 and 2013. For further explanations of these activities and other shadow banking activities, please see also: Shadow Banking from a Swedish Perspective, Sveriges Riksbank Economic Review 2014 and "Shadow Banking in the Euro Area", European Central Bank, April 2012.

6 The risk inherent in guaranteed-yield money market funds is substantial, since these entities hold liquid assets, for which they are exposed to economic distress and bankruptcies. In a case of mass withdrawals from the funds, the value of the assets declines, but the financial guarantee requires the entities to repay the deposit in full. As there is a gap between the value of the assets and the value of the liabilities, these entities are considerably exposed to "runs" and prudential risk. The risk materialized following the global financial crisis: many guaranteed-yield money market funds around the world went bankrupt.

7 A securitization transaction involves the issuance of securities whose repayment is ensured by pre-defined cash flows, which are expected to derive from a defined asset or group of assets. For more information please see the report by the Committee to Promote Securitization in Israel, November 2015.

8 Until the most recent report by the FSB, institutional entities were explicitly excluded from the definition of shadow banking. But with the move to defining shadow banking in accordance with economic activity, these entities were included in the FSB's definitions, and data were gathered about them. Since the institutional entities in Israel are under the prudential supervision of the Commissioner of Capital Markets, Insurance and Savings, we will not focus on them here, nor will we present any data regarding them.

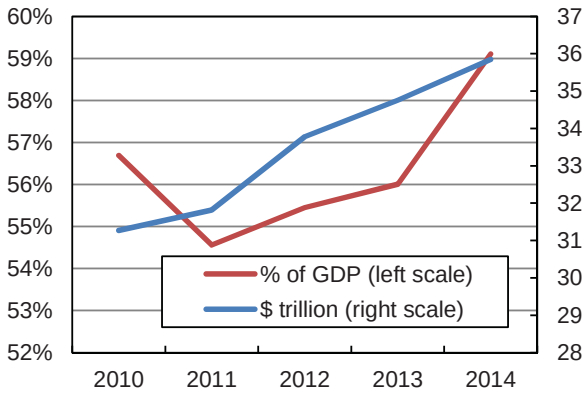
Figure 1a
Shadow Banking Assets (by the broad definition), Selected Countries[a], 2002–14



[a] The countries are: Argentina, Australia, Brazil, Canada, Child, China, Hong Kong, India, Indonesia, Japan, South Korea, Mexico, Russia, Saudi Arabia, Singapore, South Africa, Switzerland, Turkey, UK, US, and the eurozone.

SOURCE: FSB "Global Shadow Banking Monitoring Report" 2015.

Figure 1b
Shadow Banking Assets (by the narrow definition), Selected Countries[a], 2002–14



[a] The countries are: Australia, Canada, France, Germany, Hong Kong, Ireland, Italy, Japan, South Korea, Netherlands, Singapore, Spain, Switzerland, UK, US, Argentina, Brazil, Chile, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, and Turkey.

SOURCE: FSB "Global Shadow Banking Monitoring Report" 2015.

can see that the lion's share of shadow banking (according to the broad definition, excluding financial institutions) is made up of investment funds, which constitute approximately 40 percent of it. Broker-dealers constitute about 14 percent, securitization - about 7 percent, and non-institutional credit intermediaries, which are the main focus here, constitute about 5 percent of shadow banking. The value of shadow banking assets in the countries presented in Figure 2 is $68.1 trillion, which constitutes 112 percent of the GDP in these countries. Accordingly, non-institutional credit intermediation companies constitute 5.6 percent of the GDP.[9]

Shadow banking in Israel

Shadow banking is not well developed in Israel. Its riskier sectors—which are included in the narrow definition as well—do not have a substantial presence here, and therefore, currently, the risk to financial stability inherent in them is insignificant. Thus, for example, there are no guaranteed-yield money market funds in Israel. The securitization market in Israel is still in its infancy, and legislation is required to regulate its activity, so as to allow it to expand in an efficient and controlled manner.[10] The number of broker-dealers in Israel providing short-term credit to customers is small, since only members of the stock exchange may provide such credit. There are 24 stock exchange members in Israel, 14 of which are banking corporations. In other countries, broker-dealers have a wider range of options to provide credit, rendering the activity riskier. Thus, the focus on this field in other countries is greater than in Israel.

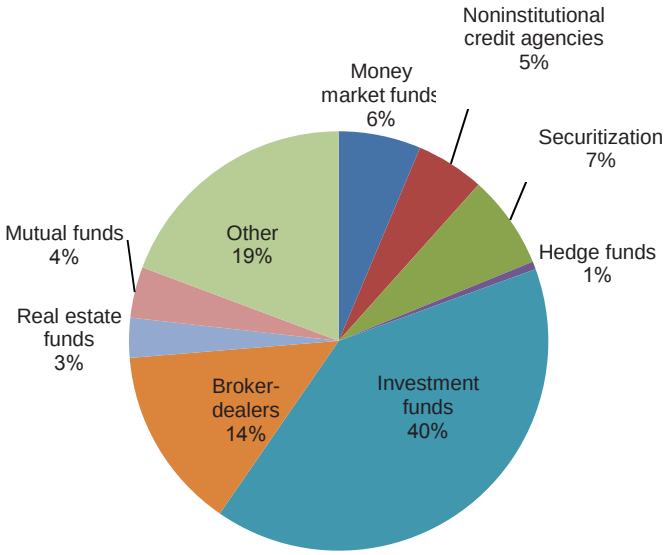
Non-institutional credit intermediation in Israel

An evolving market of non-institutional credit intermediation is active in Israel which will be discussed in the following section. The focus on non-institutional credit intermediation follows continuous regulatory changes in this area:

[9] 5x112/100 = 5.6.

[10] An international comparison conducted by the World Economic Forum in 2012 can attest to the undeveloped state and limited size of the securitization market in Israel. In this report, Israel was ranked 54th out of 59 countries. For more information on the securitization market in Israel, please see the report by the Committee to Promote Securitization in Israel, November 2015.

Figure 2
Shadow Banking Worldwide[a] (broad definition) in 2014, Distribution by Institutions[b]



[a] The countries are: Argentina, Australia, Brazil, Canada, Switzerland, Chile, China, Germany, Spain, France, UK, Hong Kong, India, Indonesia, Ireland, Italy, Japan, South Korea, Mexico, Netherlands, Russia, Saudi Arabia, Singapore, Turkey, US, and South Africa.

[b] The distribution of shadow banking by institution is based on a smaple of 26 juridictions, and according to this examination, shadow bankng assets total $68.1 trillion. In contrast, the estimation of total shadow banking assets presented in this box is based on a broader sample of 20 jurisidctions and the eurozone, and shows total shadow banking assets of $80 trillion.

SOURCE: FSB "Global Shadow Banking Monitoring Report" 2015.

The Supervision of Financial Services (Non-Institutional Financial Services) Bill, 5775-2015, is in the process of legislation by the Knesset. The proposed law proposes to establish a new type of entity—a special-purpose financial regulator—which would supervise nonbanking and non-financial institution entities providing financial services (non-institutional credit intermediaries and currency service providers). According to the bill, this market will be regulated by taking into account consumer-related and prudential aspects. An additional regulatory change is the Economic Arrangements Law which was presented alongside the 2015-2016 budget, in which non-institutional credit intermediaries were given the ability to finance their activity by issuing bonds up to a value of NIS 2.5 billion without the need for a banking corporation license.[11] (Until the amendment is passed, any entity wishing to finance the provision of credit through bond issuing was required to come under supervision as a banking corporation, in accordance with the Banking (Licensing) Law, 5741-1981.) When the new special-purpose regulator will be activated, such entities will come under its supervision. In preparation for the imminent regulatory changes, it is important to examine the non-institutional credit intermediation in Israel in a broad international and theoretical context. Understanding the risks will assist in developing a regulatory outline which would adequately address those risks. We would like to clarify that, despite the sector's growth and although the risk inherent in it is relatively lower than in other sectors mentioned in the international review (sectors that are more leveraged, more complex and provide guaranteed yield), the sector embodies significant risks. The aim of this box is to describe them.

Five non-institutional credit intermediation companies are active on the Tel Aviv Stock Exchange. In 2014, the total credit provided by the traded companies for non-institutional financing[12] reached approximately NIS 1.5 billion—less than 1 percent of the banking credit provided to small and medium enterprises in 2013, which stood

[11] The Minister of Finance is authorized to approve the raising of the upper limit up to NIS 5 billion.

[12] In this report, 5 Israel-based public companies engaged in non-institutional credit intermediation. In addition to them, there are other, private companies dealing with non-institutional credit intermediation, the data of which were not included in our survey. Thus, the data represent a partial estimate.

at NIS 187 billion.[13] The three largest non-institutional credit intermediaries increased their provision of credit in 2014, by 20 to 50 percent. The growth trend is also evident from the number of such companies seeking to raise capital on the Stock Exchange. This is in addition to their key source of financing—credit from banking corporations. Increasing the credit sources enables them to increase their credit supply.

The surveyed companies' main area of activity is providing instant liquidity to small and medium enterprises, and most of their credit portfolios are for repayment within a maximum period of 3 months. The companies finance their activity mainly through bank debt, are required to post a relatively high level of collateral, and charge their borrowers interest rates that are relatively high compared to banks.

In 2014, the exposure of the two largest companies to the real estate sector was significant. The percentage of these companies' clients active in real estate out of all their customers is 22 percent and 11 percent, and the percentage of the business entities providing the collateral (usually by way of checks) in the real estate field out of the total collateral is 29 percent and 22 percent. This exposure rate is the highest of all sectors.

The difference in the customers' profile, the type of credit provided, the loans' short duration and the type of borrowers support the claim that customers who turn to non-institutional credit are ones who find it difficult to obtain credit from banks and are forced to make do with more expensive financing from these entities.

The advantages of shadow banking

Shadow banking, particularly non-institutional credit intermediation, embodies numerous advantages, chief among them increasing the supply and broadening the range of sources of credit in the economy by providing credit to individuals or entities who are unable to obtain credit from the traditional banking system, or would have obtained credit at a higher cost[14]. As a result, shadow banking provides credit to higher-risk entities, including small businesses, thus contributing to economic growth. Shadow banking also serves as an alternative to the traditional banking system, increasing competition in this market. In this manner, it contributes to decreasing the cost of credit to the economy and to making the financial system more efficient. Providing credit at significant scope, under preferential terms and conditions, is made possible in shadow banking due to the lesser regulation and lower regulatory burden as compared with the banks, which reduces the cost of credit provision and allows these entities to provide it without some of the restrictions which apply to banks. Thus, shadow banking can assume risks which banks are not interested in taking on, or not allowed to assume. Reducing the regulatory burden also allows profit sharing and excess yield for investors in shadow banking, thus competing with banks

[13] "A periodic report of the Status of Small and Medium Enterprises in Israel, 2013-2014", the Ministry of the Economy.

[14] In the credit market, it is not always possible to adjust the "price" (interest), so that the market balances out, with no excess demand or supply remaining. This phenomenon is called "credit rationing". The market's inability to balance out is related to the fact that the interest not only regulates supply and demand, but also incorporates the pricing of the loan's risk. In Stiglitz, Joseph E. and Weiss, Andrew, 1981, Credit Rationing in Markets with Imperfect Information, American Economic Review, Vol. 71, Issue 3, p. 393-410, a theoretical model is developed, which links incomplete information and the price and quantity of credit in equilibrium. In the situation they describe, banks will prefer not to raise the interest rate and provide additional credit despite excess demand. The intuitive explanation of the model's results is that increasing the interest rate affects the composition of the group of borrowers seeking credit, so that the average borrower's risk increases, thus impacting the conduct of the borrowers after they have obtained the credit: They now have an incentive to carry out relatively high risk projects. The additional profit that the lending bank obtains from the increase in the interest rate does not always compensate it for the expected losses resulting from the change in the composition of borrowers and their behavior. According to Denis, D. J., and V. Mihov, 2003,"The Choice among Bank Debt, Nonbank Private Debt and Public Debt: Evidence from New Corporate Borrowings", Journal of Financial Economics, Vol. 70, Issue 1, p. 3-28, good firms will tend to raise financing through public debt, mediocre ones will tend to choose bank debt, while the weakest ones will opt for non-bank private debt.

for investors.[15]

The Risks Inherent in Shadow Banking Activity[16]

1. Macroprudential Risks

In case of several financial entities in shadow banking, or a single entity, finding themselves in distress, there is concern that the damage will be magnified and infect other sectors through various mechanisms, resulting in systemic risk to the economy. This concern regarding non-institutional credit intermediaries increases when the share of the credit intermediaries (whether of one large intermediary or several small ones) out of the overall credit intermediation system, or out of the credit provision market for certain sectors, is not insignificant. The following is an outline of the risks.

a. Systemic risk over time - enhancing business cyclicality

Credit intermediation is a procyclical activity. In other words, during a period of economic prosperity and growth, when there is high demand for credit, this activity increases, while decreasing during periods of economic slowdown or recession, when the demand for credit is lower and the incidence of problem debt increases.

Shadow banking activity is even more pro-cyclical than that of traditional banking, since shadow banking provides credit mainly to small and medium businesses, which are more affected by economic cycles[17], and because—as opposed to banking credit intermediation—shadow banking is not subject to regulations which restrict pro-cyclical risk. (For more information, please see Box 3 in this report.) Shadow banking, especially non-institutional credit intermediation, provides an alternative to bank credit in times of prosperity, when bank credit is in short supply. In such times, the need for an external source of financing arises, since the supply by banks is unable to meet demand, and credit provision is regarded as profitable. This activity encourages booms and busts and increases the market's vulnerability to crises. The risk of adversely impacting real activity increases if there is a specific real sector which finds it difficult to obtain financing from the banks and is financed instead by non-institutional credit intermediaries, which—as a result of distress by one credit intermediary or several intermediaries at the same time—is left without financing alternatives

b. Horizontal systemic risk – Contagion

1. Contagion - interconnectedness

If there are significant interrelations between shadow banking and the rest of the financial system, especially the banking system, economic distress experienced by one or more shadow banking entities may infect additional

[15] The IMF's Financial Stability Report, dated October 2014.

[16] The following discussion includes a review of shadow banking activity, with special focus on non-institutional credit intermediaries. We would like to clarify that the risks described herein exist in financial institutions as well, and more so when a bank acts as a deposit-taking credit intermediary. However, the financial institutions and banks are subject to regulation, which deals with these risks. For this reason, we shall not discuss them directly in this box.

[17] Herman, Alexander, Deniz Igan, Juan Sole (2015), "The Macroeconomic Relevance of Credit Flows: An Exploration of U.S. Data" (IMF Working Paper) WP/15/43.
Gertler, Mark and Simon Gilchrist (1993), "The Cyclical Behavior of Short Term Business Lending: Implications for Financial Propagation Mechanisms", Board of Governors of the Federal Reserve System Finance and Economics Discussion Series 93-6.

entities in the system, resulting in systemic risk. There is a range of possible theoretical links between shadow banking and banks or other financial entities:

First, banks and other financial institutions can invest directly in shadow banking and/or finance it. Thus, when a shadow banking entity is in distress, the value of the assets it has issued declines and the banks and institutions that have invested in it or financed it are hurt. There are also cases where the bank is committed to increase the supply of credit to a shadow banking entity in distress—such as when the entity has a credit line with the bank.

Second, shadow banking entities may invest in banks or other institutions. In this case, when the shadow banking entity finds it difficult to raise financing and is forced to reduce its investments in banks, which may experience financing difficulties as a result.

Third, when banks and shadow banking entities invest in the same assets— and the latter have an immediate need for liquidity but are unable to raise capital—they could be forced to sell the assets and cause a fire sale. Fire sales reduce the value of the sold assets, thus inflicting damage on the banks and all other financial entities holding assets of the same type, in addition to damaging the shadow banking entity in distress.[18]

When shadow banking entities provide customers with credit, the level of customers' leverage increases, as does the odds that customers will not meet their liabilities to other financial intermediaries. As a result, the risk level of financial intermediaries in the economy increases.

2. Contagion - loss of confidence in the financial system

Default by a shadow banking entity or several entities, especially non-institutional credit intermediaries, may lead to loss of confidence in other financial intermediaries (for example, similar credit intermediaries and even banks), despite the fact that their real risk profile has not changed.[19] Loss of confidence may cause investors to panic, driving them to act as a herd—selling off or withdrawing the assets invested or saved in another financial entity or entities (for example, making mass withdrawals from provident funds and mutual funds even though they are not significantly invested in that entity). In this manner, financial intermediaries may encounter financing distress, which may result in a credit shortage, which, in turn, may adversely affect real activity[20].

The manner in which shadow banking is financed may increase the horizontal macroprudential risk. The loss of confidence in the system increases if the entity is funded directly by the public through the issue of bonds rather than by professional entities (banks and institutional entities), which are able to obtain information on shadow banking, making them less sensitive to this type of risk. Financing through bonds enables entities to grow in the manner which would not have been possible otherwise. The more significant the market share captured by a large entity, the greater the macroprudential risk inherent in that entity. In addition, financing through tradable bonds results in exposure to increased risk for a fire sale of the tradable bonds, which will cause their value to decline, damaging all of the securities' holders.

[18] Shadow Banking from a Swedish Perspective, Sveriges Riksbank Economic Review 2014 and the IMF's Financial Stability Report published in October 2014. In Israel, there is high similarity among institutional entities in terms of investment distribution, both in terms of portfolio assets and the weight of each asset. This similarity may increase the interconnectedness risk. Please see the box in the Bank of Israel's 2012 annual report: "An Inescapable Network of Mutuality: The Similarity Between Investments of Institutional Investors, and its Consequences."

[19] The most recent financial crisis was characterized by the public's loss of confidence even in financial entities which were not exposed to the toxic assets (mortgage-backed products), resulting in a general credit crunch in the economy. In this manner, the banks in Israel - some of which were not exposed to the US market - had difficulty raising capital and providing credit to the public.

[20] The IMF's Financial Stability Report, dated October 2014.

As mentioned above, the macroprudential risks in shadow banking, banks and institutional entities are more significant than in non-institutional credit intermediation entities, but adequate regulation is able to mitigate these risks. Thus, for example, cyclical capital requirements, restrictions on loans to risky borrowers and leverage restrictions help mitigate pro-cyclical risk, and restrictions on exposure to large borrowers mitigates the interconnectedness risk. It should be noted that regarding the risk of losing confidence in the system—this risk is greater when it comes to banking activities, due to their taking current-account deposits, which the public can withdraw immediately, and a massive withdrawal of funds could compromise the banks' financial stability ("run on the bank"). Yet at the same time, the risk of shadow banking losing the confidence of the system is greater than the risk inherent in the activity of the banks and institutional entities, since in the absence of adequate supervision and disclosure requirements, these sectors become less clear, and the public will tend to lose its confidence in them more quickly. Banks also enjoy regulatory backing, which makes it easier for them to deal with crises, such as emergency loans, and in many countries - deposit insurance.[21]

The macroprudential risks mentioned above relate to financial companies. Such risks are somewhat present in real companies as well, but the concern from them in the financial sector is considerably greater. The financial sector provides the credit, which is the lifeblood of the entire economy and of all industries (real and financial). For this reason, damaging the financial system, and thus damaging credit provision to all industries, may cause even the real sectors to run into distress, resulting in an economic crisis. The macroprudential risks of contagion inherent in financial entities are greater than those inherent in real entities, due to the significant interconnectedness among the financial entities, and the loss of confidence which may occur that can infect the entire financial system. As opposed to the real sector, the activity of the financial sector, which is characterized by significant leverage, is based on the public's confidence in the financial system. A significant financial entity in distress may lead to an immediate loss of confidence in the system as a whole. As mentioned above, such loss of confidence may lead to massive withdrawals from the financial institutions and to an economy-wide crisis.

c. Risks impacting on the stability of entities in shadow banking

In the former section, the systemic risks which may result from a shadow banking entity experiencing distress were outlined. In this section, we will outline the reasons why a shadow banking entity may experience distress. The level of such risks is also impacted by the manner in which shadow banking entities are financed. Credit risk is the risk of a loss resulting from providing credit to entities which fail to repay their debt. The risk is magnified due to valuation errors and, in cases where there is an incentive to invest in entities embodying excess risk. Thus, an intermediary may reach insolvency, compromising its repayment ability, which will, in turn, negatively impact the saving public. A moral hazard occurs when an entity financing its activity solely through its equity capital undertakes excessive risks. It does so because its loss is blocked) at the level of its equity capital, (while

[21] Deposit insurance and lender of last resort functions contribute to reducing the macroprudential risks inherent in banking activity and to compensating depositors. However, these mechanisms significantly increase moral hazard. In order to overcome the increased moral hazard, large scale regulation is needed, which would include, *inter alia*, increased capital requirements, restrictions on the level of leverage, restrictions on exposure to risks and supervision of officeholder remuneration. Such regulatory requirements have costs, which are naturally rolled over to the customers. The decision whether to provide deposit insurance and emergency loans to certain financial entities should be based on a balance between the advantages and disadvantages of these mechanisms. The macroprudential risk inherent in shadow banking is smaller than the risk inherent in the activity of deposit taking banks, so the advantage of these mechanisms is smaller. Such mechanisms can even damage shadow banking's key advantage, which is to provide credit at a lower cost and to larger populations.

its profits may increase the greater the risk inherent in its activity. Moral hazard increases as the leveraging levels of the entity increases. Since financial companies, including non-institutional credit intermediary firms, are more leveraged than real companies,[22] the risk inherent in their activity is greater. Making it possible for non-institutional credit intermediaries to expand their debt-raising will increase their leverage, thus increasing the moral hazard. The exposure to moral hazard and credit risk resulting from financing through capital is lower than the one resulting from raising debt without covenants, since in the former way of financing, investors are able to supervise the intermediary.[23] In addition, some of the shadow banking sectors use complex financial instruments, whose investors find them hard to evaluate and price the risk embodied in them, thus increasing the credit risk. Even erroneous incentives given to officeholders may increase the credit risk and moral hazard.[24] Adequate regulation could mitigate such risks, for example by setting out procedures for credit provision and capital requirements which limit the level of leverage along with the monitoring activity itself and the need to report to the regulator. Imposing disclosure requirements may also decrease investors' lack of understanding.[25]

The various financial entities providing credit are exposed to a duration mismatch risk and a liquidity risk. This risk is created when short term financing, short term loans and short duration bonds or liquidity are converted into a long term or illiquid investment through the provision of loans. In this manner, an imbalance may occur between the duration and liquidity of an entity's liabilities (which are short-term and liquid) and the duration and liquidity of the assets (which are long-term and illiquid). This imbalance renders these entities vulnerable in periods of recession or slowdown, when the possibilities for short term financing are reduced, or when the entity's funds have been exhausted and the illiquid asset in which it is invested is not sellable.[26] Thus, when a bank finances its activity through liquid current-account deposits, it has the highest exposure to this risk, since the public can withdraw its liquid assets at any given moment; the bank's liabilities, on the other hand, are longer-term and less liquid. The various regulatory tools—including capital and liquidity requirements, deposit insurance and emergency monetary loans—reduce the duration risk and liquidity risk. In the absence of adequate supervision mechanisms, shadow banking is quite exposed to this risk, which increases the shorter the duration of the liabilities and the more liquid they are. Thus, the level or risk exposure is impacted by the manner in which shadow banking entities finance their activities.

The level of exposure to microprudential risk increases when financing is through tradable bonds raised from the public. First, financing through bonds leverages the entity and increases the moral hazard. Second, the information asymmetry between the borrower and the lender is greater when the financing entity is the public, rather than a professional entity, and this restricts the public's ability to supervise its investment and increases the financial entity's ability to take excess risk. Third, an external event or loss of confidence in the financial intermediary may create panic, which would make it difficult for the entities to refinance and roll over their debt. The shorter the

[22] Financial companies are more leveraged than nonfinancial companies. In 2014, the five largest companies in Israel - Teva, Perrigo, ICL, Bezeq and Azrieli - had a leverage ratio (assets to equity) of 50, 46, 84, 64 and 48 percent, respectively. In contrast, in the same year, the leverage ratio for the four nonbanking credit intermediation companies (before they were allowed to raise capital from the public through bonds) was less than 30 percent.

[23] Ashcraft, Adam B., 2006, “Does the Market Discipline Banks? New Evidence from Regulatory Capital Mix.”

[24] See an example for an attempt to overcome this moral hazard in circular No. C-06-2484 regarding compensation policies in banking corporations.

[25] "Shadow Banking: Strengthening Oversight and Regulation", a report published by the Financial Stability Board in October 2011.

[26] Shadow Banking: Strengthening Oversight and Regulation" by the Financial Stability Board, published in October 2011; "Shadow Banking in the Euro Area" by the European Central Bank, published in April 2012; Shadow Banking from a Swedish Perspective, Sveriges Riksbank Economic Review 2014.

duration of the liabilities and the greater the gap between that and the duration of the liabilities and that of the assets, the more significant the problem is. Fourth, the tradability of the bonds could lead to a fire sale, negatively impacting the bonds' value, which will make future financing and meeting obligations more difficult.

Economic distress of a single significant borrower, or of several borrowers at the same time, can lead to the credit intermediary experiencing economic distress. Thus, this risk is magnified when the credit intermediary is exposed to the borrower or a group of borrowers whose portion of its asset portfolio is substantial, and the probability of experiencing financial distress is common to all. This risk may also be mitigated by adequate regulation, which restricts exposure to large borrowers.

An example of non-institutional credit intermediation risks materializing

Countries that endured financial crises resulting from distress by shadow banking entities, especially distress experienced by credit intermediaries, can teach us about the potential damage when the reviewed risks materialize.

An example of a crisis experienced by non-institutional credit intermediaries whose activity is similar to those of their Israeli counterparts may be seen in the non-institutional credit intermediaries crisis that took place in New Zealand[27] between 2006 and 2011. During those years, 45 non-institutional credit intermediaries collapsed, about $3 billion were written off, and the government paid about $2 billion to companies and savers. At the peak, 8 percent of all loans granted in New Zealand were granted by non-institutional credit intermediaries. In 2013, this sector was slashed by more than half, granting a mere 3 percent of all loans. The crisis resulted from a lack of adequate prudential oversight over these companies, a situation due to which the quality of their assets deteriorated, multiple loans were granted to interested parties, and management was deficient, even criminal in some cases. The collapse of the companies resulted in pressure, mainly in the construction sector, a significant portion of whose credit came from non-institutional intermediary sources. The sector had difficulty financing itself even after the crisis was over.

In 2003, South Korea experienced a crisis in its credit card market, which impacted on the entire economy. Some of South Korea's credit card companies are under the control of banks, while others are under the control of nonbank entities. (The latter are defined as non-institutional credit intermediaries.) The main causes for the crisis was encouragement from the government, which included deregulation moves (tax benefits for using credit cards, revocation of a leverage restriction on credit card companies and low capital requirements) and aggressive competition, which resulted from new players entering the market. Between 1999 and 2002, the annual total of credit card transactions increased from 91 trillion won (about NIS 300 million) to 623 trillion won (about NIS 2,052 million). At the same time, household debt increased from 41 percent to 64 percent of available income. The financing of the credit provision was made primarily through the issuing of bonds to institutional entities. When credit card companies began realizing that their risk profile was high and that the percentage of problematic debt was increasing (reaching 18 percent in 2002), they began to toughen their conditions for providing credit, and in 2003, a credit shortage occurred, which impacted real companies and households. The credit crunch impacted households' ability to repay loans to credit card companies, thus further increasing the

[27] Reserve Bank of New Zealand, Report for the Minister of Finance on the Operation of the Prudential Regime for Non-bank Deposit Takers, September 2013.

percentage of problematic debt, in a vicious circle. In addition, during this period, credit card companies were unable to raise debt in the capital market. Thus, the credit card companies themselves suffered a credit crunch and illiquidity which reduced their ability to provide credit, increasing the credit crunch in the economy and causing credit card companies to go bankrupt. At this stage, in March 2003, the government intervened, actively bailing out bankrupt companies, as well as providing liquidity to all financial system entities—which suffered from systemic risk due to the crisis in the credit card companies, especially to the corporate bond market, which was plagued by contagion risk. It is estimated that a third of the book value of credit card companies' loan business was written off during the crisis. The crisis damaged growth, household expenditure and companies' expenditure for years after the crisis was over.

Another example of a significant crisis is the one experienced by nonbank savings and loans companies in the US[28] during the 1980s. This crisis occurred in non-institutional credit intermediaries, which—as opposed to Israel—are also allowed to take deposits from the public.[29] Between 1985 and 1995, about one-third of American savings and loans companies collapsed. The cost of the crisis to the US economy reached about $160 billion, $132 billion of which were taxpayers' money. The crisis resulted from faulty supervision, due to deregulation processes in the early 1980s and the companies' reliance on short-term financing, in addition to faulty management, which in some cases amounted to fraud.

A smaller crisis occurred in Poland at the beginning of 2015[30]—a massive bankruptcy by credit unions, also non-institutional credit intermediaries taking deposits from the public, which constituted 1.1 percent of Poland's bank assets. This crisis was also the result of faulty supervision and came at a significant cost to the economy.

Global review of regulation of non-institutional credit intermediaries

Global regulation over shadow banking is broad and dependent on numerous criteria, including the history and legal situation in each country. When examining global regulation in an attempt to draw conclusions regarding the desirable regulation in Israel, we shall focus at this stage only on regulating non-institutional credit intermediaries, which are, as mentioned above, the focus of our attention.

The European legislation[31] defines a "credit institution" as an institution which on one hand provides credit, and on the other hand finances its activity through deposits or by raising debt from the public. The classical banking institutions come under this definition. Different European countries interpret the definition of a credit institution differently, and the European regulation of credit intermediaries is not uniform. Nevertheless, the European Banking Authority (EBA) recommends subjecting credit intermediaries which finance themselves through bond issues from the public to the regulatory regime over banks.[32] The definition of a "banking corporation" in Israel is similar to the European definition of a "credit institution" as it includes banks and credit intermediaries raising

[28] A 1996 report submitted to Congress by the US Accountant General regarding "Resolution Trust Corporations' 1995 and 1994 Financial Statements" and information found on the Federal Deposit Insurance Corporation's website.

[29] When entities take deposits from the public, they are at increased risk for "runs", and if they have deposit insurance, this increases the moral hazard by providing a safety net in case of distress.

[30] http://www.reuters.com/article/2014/12/12/skokwolomin-bankruptcy-idUSL6N0TW1G720141212

[31] European Union, Regulation (EU) No 575/2013, 27.6.13 European Union, Directive (EU) No 36/2013, 27.6.13.

[32] "Report to the European Commission on the Perimeter of Credit Institutions Established in the Member States", published by the European Banking Authority in November 2014...

debt from the public. However, as noted above, the change in the Economic Arrangements Law allows such entities to issue bonds without being required to obtain a license to operate as a banking corporation.

There is a global trend of increasing regulation of non-institutional credit intermediaries. The trend also characterizes recommendations by international organizations, as recommended by the EBA above, and is the result of lessons learned from national crises as well as from the global financial crisis. There are countries in which the gap between the supervision of banks and the supervision of non-institutional credit intermediaries is insignificant. Thus, for example, Austria applies quite uniform regulation to all non-institutional credit intermediaries, and Sweden applies a regulatory regime that is similar to the one that applies to the banks to non-institutional credit intermediaries which finance their activity through raising debt from the public. In countries where the supervision is lighter, there is a trend towards increasing regulation. Estonia and New Zealand have already enacted laws which expand supervision of credit intermediaries, with a focus on prudential supervision. In recent years, the US and UK have established consumer regulating entities which supervise all credit intermediaries; in addition, the prudential supervision of large entities embodying systemic risk was increased.

It is important to emphasize that supervision is to the benefit of the supervised entities in that it indicates to the market that they are reliable and stable, and can thus lead to a decrease in financing costs. In certain cases, this situation allows supervised entities to provide credit at a lower price than non-supervised entities.

Box 3: Basic Concepts in the Field of Financial Stability[1]

Systemic Risk. Systemic risk is the risk of a disruption in the provision of financial services caused by an impairment of all or part of the financial system. This risk may result in significant adverse consequences for the real economy.[2] As such, a risk will be defined as systemic if it involves significant failure, such as lack of accessibility to certain financial services or a sharp increase in the cost of the financial services, as well as significant potential for damage to the real economy. The damage can be caused by impact on the supply of real services and products or through impact on the demand for real services and products. As shall be explained below, the initial fault may constitute a mere catalyst for additional faults, which would be the ones to cause damage. Systemic risk has two dimensions—time and breadth:

(a) The time dimension—the risk of enhancing business cyclicality: This concept relates to the development of aggregate risk over time: The business cycles of the financial system and real economy enhance each other, thus encouraging credit and asset booms and busts, and increasing the economy's vulnerability to crises. In times of prosperity, when the prices of assets increase, financial institutions assume more risks and increase the supply of credit in the economy, thus contributing to a further increase in asset prices. During a slowdown, the prices of assets decline, the risk increases, and the risk appetite decreases, as does the credit supply. The decrease in credit supply results in a lower demand in the real sector, further price decreases and in exacerbating the slowdown.

[1] There is no consensus regarding the definitions of the following concepts, so we have chosen among the definitions. For further discussion of these concepts, please see: Box 4.2 in the Bank of Israel's 2010 annual report.

[2] Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations-FSB, IMF & BIS, October 2009.

(b) The breadth dimension—the risk of contagion:[3] This concept focuses on risk distribution in the financial system during a given time period, and relates to the risk caused by interconnections and mutual dependence among various entities in the financial system and the economy. The concern is that due to these interconnections, a fault impacting on a single entity will result in a domino effect—impacting connected entities, which will, in turn, impact other entities, and so on. In addition to the direct impact of the distress experienced by a single entity on interconnected entities (for example, by damaging entities which have invested in the entity in distress), there is an indirect result—loss of confidence in the financial system. Thus, for example, the default of a single bank can damage the confidence in other financial entities and motivate numerous clients to withdraw their deposits at the same time. The financial entities would not be able, of course, to meet this demand, and will experience distress.

The purpose of **macroprudential policies** is to reduce systemic risk. For this purpose, it takes into account risk factors that are beyond the specific circumstances of each financial institution, focusing on connections between financial entities, the markets, the financial infrastructures and the entire economic activity. In this respect, macroprudential policies differ from the traditional, microprudential policies, which focus on maintaining the stability of each entity. In order to mitigate risk in the time dimension, macroprudential policies seek to moderate financial cyclicality, especially credit fluctuations. Thus, for example, in times of prosperity, prudential standards set are stricter, increasing entities' prudence, such as by applying stringent restrictions on leverage capital and the amount of debt provided to borrowers[4], while during a slowdown, the restrictions are relaxed, as is prudence. In order to minimize the contagion risks, the policies work both to weaken the interconnectedness between the entities, such as by restricting the exposures to large borrowers, as well as to decrease the risks in entities whose default may be significant and disastrous for the entire system (SIFIs)[5], by applying close supervision and stringent stability standards to these entities, and restricting the concentration of the financial institutions.

[3] For more information regarding contagion in international context, please see Box 1: International Financial Contagion in this report.

[4] LTV—Loan to value. DTI—debt service to income.

[5] Institutions too big or too interconnected to fail. For more information, please see "Reducing the moral hazard posed by systemically important financial institutions", FSB, June 18, 2010.

Main indicators of the stability of the financial system in Israel, 2011 to November 2015
(percent)

	2011	2012	2013	2014	2015	Updated to
A. The global environment						
Global real GDP growth rate	4.2	3.4	3.3	3.4		31/12/2014
World trade growth rate	6.7	3.1	3.3	3.2		31/12/2014
Emerging Markets Bond Index (EMBI) spread[a] (periodic average)	3.4	3.4	3.2	3.3	4.1	31/10/2015
Chicago Board Options Exchange VIX index (periodic average)	24.2	17.8	14.2	14.2	16.6	31/10/2015
B. The domestic environment						
Government debt to GDP ratio (end of period)	67.4	66.5	65.9	65.5	63.9	30/09/2015
Net external debt to GDP ratio (end of period)	-25.1	-25.4	-27.1	-35.6	-37.2	30/09/2015
Total private credit to GDP ratio (end of period)	124.3	119.4	114.4	113.9	112.6	31/10/2015
Business sector credit to business sector product ratio (end of period)	114.9	109.2	101.7	100.6	97.8	31/10/2015
Debt burden on households—the ratio of credit to households to disposable private income (end of period)	56.8	56.6	57.2	58.2		31/12/2014
Israel's sovereign risk premium (5-year CDS spread—periodic average)	1.58	1.69	1.20	0.88	0.73	31/10/2015
The differential between yields on 10-year shekel-denominated government bonds and 10-year US Treasury Notes (periodic average)	2.2	2.6	1.5	0.4	-0.05	31/10/2015
The corporate bond market spread—total bonds excluding financial corporate bonds (periodic average)	4.2	6.6	4.4	3.2	4.0	31/10/2015
C. Financial Assets						
Risk indices (periodic average)						
Implied volatility:						
of the exchange rate	10.3	10.8	11.5	10.8	10.8	31/10/2015
of the Tel Aviv 25 index	27.5	25.3	17.5	15.7	19.6	31/10/2015
Actual volatility:						
of the exchange rate	9.2	6.6	6.2	5.3	8.7	31/10/2015
of the General Shares Index	18.7	11.7	8.9	9.1	13.1	31/10/2015
Prices and yields (annual terms)						
Rate of change of the shekel vis-à-vis the dollar (during the period)	7.7	-2.3	-7.0	12.0	-0.6	31/10/2015
Rate of change in the effective exchange rate (during the period)	4.9	-0.7	-7.6	3.3	-6.8	31/10/2015
Rate of change in the General Shares Index (during the period)	-22.1	4.6	15.3	11.5	7.0	31/10/2015
Yield to maturity on unindexed 5-year government bonds (periodic average)	4.2	3.3	2.5	1.7	1.0	31/10/2015
D. Resilience of the financial system						
The banking system[b] (end of period)						
Total core capital to risk components ratio[c]	14.0	14.9	14.7	14.2	13.8	30/09/2015
Core Tier 1 capital to risk components ratio[c]	8.4	9.1	9.7	9.6	9.4	30/09/2015
Ratio of annual loan loss provision to total balance-sheet credit to the public (multiplied by 100)	0.39	0.41	0.25	0.15	0.11	30/09/2015
Insurance companies (end of period)						
Initial capital as a share of total assets	5.7	5.6	5.7	5.6	5.5	30/06/2015
Risk assets as a share of nostro assets	40.3	41.5	42.6	44.0	45.2	30/06/2015
Provident funds[d] (end of period)						
Liquid accounts as a share of total liabilities	63.8	66.9	68.6	70.0	70.4	30/09/2015
Ratio of liquid assets to liquid liabilities	29.0	30.6	33.8	38.1	37.2	30/09/2015
E. Market liquidity						
Total trading volume in the markets[e] (periodic average, NIS billion)	4.9	4.4	4.7	4.7	4.8	31/10/2015
Spread between highest and lowest NIS/$ exchange rate quote (periodic average)	0.46	0.34	0.32	0.36	0.72	31/10/2015

a. The spread between the yield on emerging market government bonds and the yield on US Treasury bills.
b. The five major banking groups.
c. Until 2009, according to Basel I definitions; Between 2009 and 2013, according to Basel II definitions; From 2014, according to Basel III definitions.
d. Including main provident funds for severance and advanced study funds.
e. Including trading volume of makam, government bonds, corporate bonds and shares.
SOURCE: Based on data from the International Monetary Fund, the Capital Markets, Insurance and Savings Division of the Ministry of Finance, and the Tel Aviv Stock Exchange.