

Israel: Financial System Stability Assessment

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ISRAEL

Financial System Stability Assessment

Prepared by the Monetary and Capital Markets and European Departments

Approved by José Viñals and Reza Moghadam

March 12, 2012

- This Financial System Stability Assessment (FSSA) Update is based on the work of the Financial Sector Assessment Program (FSAP) Update mission that visited Israel in November 2011. The FSAP findings were discussed further with the authorities during the Article IV Consultation mission in February 2012.
- The FSAP team comprised: Daniel Hardy and included Anna Ilyina, Dale Gray, Kotaro Ishi, Rodolfo Wehrhahn, Peter Lindner, Virginia Rutledge (all IMF), as well as external experts Joel Shapiro, Thierry Bayle (Banque de France), Chris Mann, Lawrie Savage, and Malcolm Rodgers. Mr. Amit Friedman, (Office of the Executive Director), took part in meetings as an observer. The FSAP Update team is thankful for the excellent cooperation it received from the authorities and market participants.
- Analysis suggests that Israel's financial sector is robust, although concentration in the financial and nonfinancial sectors could amplify systemic effects. The most immediate vulnerabilities are to possible shocks in global financial markets and regional geopolitical events.
- Financial regulation and supervision are strong, and the level of observance of international financial sector standards is high. Further enhancement is needed in some areas, such as liquidity regulations and supervision of groups, as international practice evolves.
- The establishment and operation of a cross-sectoral financial stability committee would enhance the coordination and effectiveness of micro- and macro-prudential analysis and policy.
- The framework for financial crisis management needs to be reinforced through better articulation of the conditions under which emergency liquidity support will be provided to financial institutions; completing the set of tools for intervention including early intervention; and clarifying the fiscal backstop for bank solvency support and protection of depositors.
- The main author of this report is Daniel Hardy with contributions from the rest of the FSAP team.

FSAPs are designed to assess the stability of the financial system as a whole and not that of individual institutions. They have been developed to help countries identify and remedy weaknesses in their financial sector structure, thereby enhancing resilience to macroeconomic shocks and cross-border contagion. FSAPs do not cover risks specific to individual institutions, such as asset quality, operational or legal risks, or fraud.

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GLOSSARY

AML/CFT	Anti-Money Laundering and Combating the Financing of Terrorism
ACH	Automated Clearing House
BOI	Bank of Israel
BCP	Basel Core Principles
bp	Basis point
CAR	Capital adequacy ratio
CCA	Contingent claims analysis
CMISD	Capital Markets, Insurance, and Savings Division
CPSS	Committee on Payment and Settlement Systems
CT1	Core Tier 1
DGS	Deposit guarantee scheme
ECB	European Central Bank
EDF	Expected default frequency
ELA	Emergency Liquidity Assistance
FATF	Financial Action Task Force
FSAP	Financial Sector Assessment Program
FSC	Financial Stability Committee
GAAP	Generally Accepted Accounting Principles
IAIS	International Association of Insurance Supervisors
ICP	Insurance Core Principles
IFRS	International Financial Reporting Standards
IOSCO	International Organization of Securities Commission
ISA	Israel Securities Authority
LTS	Long-term savings
MBS	Mortgage-backed securities
MOF	Ministry of Finance
MOU	Memorandum of Understanding
NBFI	Nonbank financial institution
NIS	New Israeli shekel
NPL	Nonperforming loan
P&A	Purchase and Assumption
PCA	Prompt corrective action
RTGS	Real-Time Gross Settlement
RWA	Risk-Weighted Assets
TASE	Tel Aviv Stock Exchange
TBTF	Too-big-to-fail

EXECUTIVE SUMMARY

The Israeli financial system currently appears to be generally robust, but faces an unusually uncertain and dangerous global economic environment. While Israel's direct exposure to the most vulnerable countries is minor, there is a clear risk of a recession in Israel's main trading partners in Europe and the United States, heightened risk aversion in financial markets, and difficult funding conditions. Moreover, Israel lives with persistent regional geopolitical risks, which would have economic repercussions if realized. Domestically, even an idiosyncratic disturbance in a major bank or nonbank financial institution (NBFi), or one of the large nonfinancial groups, could generate a systemic event, given the concentrated and interlinked structure of the economy. The boom in housing prices and construction in recent years represents a further vulnerability, although recent evidence points to a soft landing, partly in response to the authorities' policy actions.

Stability analysis suggests that systemic financial vulnerabilities to severe shocks in line with historical experience are manageable; in aggregate, buffers (including those in the household sector) are at comparatively comfortable levels. A variety of stress tests for banks, insurance companies, and long-term savings funds were undertaken. The calibration of these tests was demanding, but only a few individual institutions were projected to suffer major losses or to become relatively short of liquidity. Nonetheless, further development of stability analysis, with particular emphasis on cross-sectoral linkages and network effects, is warranted, not least because of the possibility of exceptional global shocks.

In this context, the authorities are encouraged to continue to build up mechanisms for coordinated macroprudential oversight, and linking this analysis to policy actions. As evidenced during the 2008–09 crisis—when strains were most apparent in the corporate bond market but also long-term savings vehicles and banks were affected—and in light of the importance of both banks and NBFIs, complementary efforts are required of the three financial sector supervisors, the Bank of Israel (BOI) as monetary authority, and also the Ministry of Finance (MOF) in its budgetary policy. To this end, establishing a standing organization (perhaps called the Financial Stability Committee, FSC) to guide coordination and macroprudential policy work would be worthwhile. The BOI seems to be best suited to continue to play the leading role in these efforts. If a consensus-based approach proves ineffectual, further institutional changes may be needed to achieve fully coherent and decisive financial sector policy-making.

The authorities already operate an effective, pro-active, and sophisticated system of financial sector oversight, which, however, needs to be developed further in some areas. The level of observance of the main international financial supervisory standards was assessed to be high. Various risk factors, such as liquidity risk and group inter-connectedness, deserve to receive more attention, and there are a few gaps in coverage and

the possibility of inconsistent treatment, for example, related to certain securities markets activities. At the same time, the authorities need to take into account the burden on financial institutions and their clients of complex and rapidly changing regulations. Keeping up with an evolving financial sector will require the retention of supervisory staff with specialized skill sets, with commensurate compensation.

The authorities have underpinned the functioning of the financial system by enhancing the central bank liquidity framework and introducing a real time gross settlement system (Zahav). Removing remaining barriers to the development of the repo market, strengthening payments system oversight, and further developing a comprehensive business continuity plan would contribute to both stability and efficiency.

The current combination of external threats and the relative stability of the domestic system are propitious for strengthening the crisis management framework. It would be best to set up a framework now rather than be forced to do so in a rush should a major disturbance occur in the future. Action is needed in the following main areas:

- **The framework for the provision of emergency liquidity assistance (ELA) needs to be better defined.** Solvent but illiquid banks (or a systemically important NBFIs such as a clearing house) should be able to count on the central bank to provide funding, but under predictable conditions that provide appropriate incentives and protect the central bank from losses;
- **There needs to be a complete set of tools for early intervention in a troubled bank, and then a special framework for going-and-gone concern resolution of banks and possibly certain NBFIs.** Using normal bankruptcy proceedings (at least for a major bank) would be very disruptive to the provision of financial services, credit to the economy, and the protection of retail depositors;
- **Means must be available to meet solvency needs and fund bank resolution, and at the same time protect less financially sophisticated savers.** These could include establishment of a resolution fund, a deposit guarantee scheme, or a government line of credit, possibly combined with a bank levy and depositor preference in resolution. In this connection, it should be emphasized that solvency support is essentially a fiscal activity with which the central bank should not be saddled; and
- **Responsibilities and mechanisms for coordination in times of crisis are needed.** One element could be to prepare the FSC for conversion into a crisis management steering committee when the need arises.

The following table summarizes the main recommendations of the FSAP Update. Since the mission, the authorities have begun taking steps to address many of the issues raised here and implement the recommendations.

Table 1. Israel FSAP Update: Main Recommendations

Recommendation	Authority	Priority	Para.	Time-frame 1/
Overall Financial Sector Oversight				
Strengthen the institutional framework for macroprudential oversight and policy setting by more formally establishing a Financial Stability Committee (FSC) and initiating its operations	All	High	46	Near-term
Further improve stress testing techniques, including the capacity to analyze systemic risks, credit risk, and liquidity risk	BOI, CMISD	High	20, 23, 24, 47	Near-term
Eliminate gaps and overlaps in supervisory responsibilities, ensuring that like activities are subject to equally stringent regulation and supervisions	BOI, ISA, CMISD	High	28-30	Near-term
Undertake more systematically cost-benefit analysis of regulatory changes, and streamline regulations where possible	BOI, ISA, CMISD	Medium	26	Near-term
Strengthen the AML/CFT legal and regulatory framework, in particular with regard to the designated non-financial businesses and professions, and the transparency of beneficial ownership.	Government	High	43	Near-term
Banking Oversight				
Further strengthen regulation and supervision of interest rate risk and market risk	BOI	High	33	Immediate
Develop regulation of liquidity risk as international practice in this area evolves, and intensify monitoring	BOI	High	32	Near-term
Introduce greater flexibility in personnel management and budgets to attract and retain financial sector experts with the required skill mix	BOI	Medium	27	Near-term
Insurance Sector Oversight				
Intensify cross-border supervisory coordination and information-sharing	CMISD	High	35	Immediate
Widen powers to supervise groups connected to insurance companies, and in particular related holding companies	CMISD	High	36	Near-term
Securities Markets Oversight and Securities Markets Development				
Enforce uniformly high standards of due diligence in the underwriting of securities issues	ISA	High	38	Immediate
Establish an appropriate licensing and supervisory framework for currently unregulated broker-dealers	ISA	Medium	38	Near-term
Ensure consistency of relevant supervisory practice by TASE, the ISA, and the BOI	TASE, ISA, BOI	Medium	39	Near-term
Remove impediments (including tax treatment) to repo market development	MOF	Medium	49	Near-term
Payments and Securities Systems Oversight				
Develop and test more comprehensive business continuity plans	BOI	High	42	Immediate
Protect finality of settlements in payments systems linked to Zahav	BOI	Medium	41	Immediate
Complete development of payment system oversight	BOI	Medium	40	Near-term
Crisis Management				
Establish a policy framework for ELA	BOI	High	50	Immediate
Establish by law and make operational <ul style="list-style-type: none"> • a full set of early intervention tools; and • a special framework for going-and-gone concern resolution 	BOI, MOF	High	51-55	Near-term
Establish mechanism for providing solvency support and for funding bank resolution, protecting the BOI from quasi-fiscal activities	BOI, MOF	High	56-58	Near-term
Agree on a protocol for the coordination of, and assignment of responsibilities for system-wide crisis management	All	High	59-60	Immediate

1/ "Immediate" is within one year; "near-term" is within 1–3 years.

I. BACKGROUND

A. Financial and Macroeconomic Setting

Structure of the financial system

1. **The main financial institutions are banks and insurance companies; there is a large and active market in shares, corporate bonds, and government bonds; savers have available a variety of pension, provident, and mutual funds (Table 3, and Figure 1).** The Bachar reform that began in mid-2005 forced banks to divest most noncommercial banking activities, such as insurance, pension, and provident funds; the banks today focus on traditional banking business. Partly as a result, the nonbank financial sector has grown rapidly, now playing a large role in credit markets. Most institutions have relatively little overseas activity; dollarization has been greatly reduced. Foreign institutions play a minor role, and, with a few exceptions, foreign ownership of Israeli institutions is limited. The banking and insurance sectors are concentrated (Box 1).

2. **Financial supervision responsibilities in Israel are shared among several agencies.** The BOI supervises banks and is responsible for payments system oversight. The Israeli Securities Authority (ISA) oversees the securities sector, while the Capital Markets, Insurance, and Savings Division (CMISD) at the MOF is responsible mainly for oversight of the insurance and pension sector. The Tel Aviv Stock Exchange (TASE) has some supervisory responsibilities for its members. Only the BOI has an explicit mandate to promote the stability of the financial system.

Effects of the global crisis

3. **The global crisis affected Israel's economy, but no domestic financial institution got into serious difficulties during the crisis.** Banks weathered the storm of the global crisis, although profitability suffered.¹ In part, the relatively robust performance was due to the short-lived recession and the characteristics of Israel's banking system, namely, banks' conservative management; reliance on deposit funding and the small interbank and wholesale funding markets; lack of complex asset and securitized markets; and strong and intrusive bank supervision.

4. **The corporate bond market and NBFIs were hard hit by the global crisis.** The primary market shrank and largely "froze" in late 2008 (Figure 2). Corporate bond yields rose sharply, particularly in the real estate industry, which had larger exposures to markets abroad. Moreover, the some long-term savings products made significant losses. With

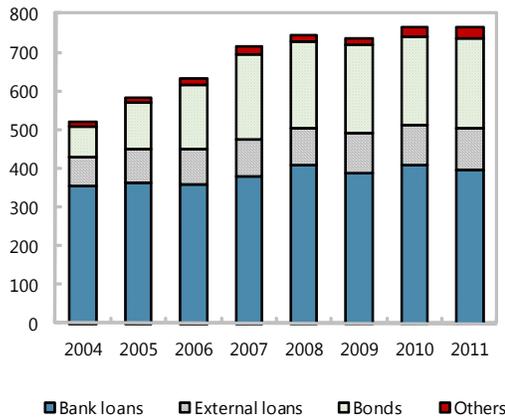
¹ One bank made large losses on U.S. mortgage-backed securities (MBS), but losses on domestic business were small.

public confidence in asset quality shaken, mutual and provident funds faced large redemptions.² While the crisis was the trigger for the retrenchment, there were underlying weaknesses in the basic infrastructure, including an inadequate framework for evaluating and monitoring credit risks and poor transparency.

Figure 1. Israel: Structure Change in the Financial System

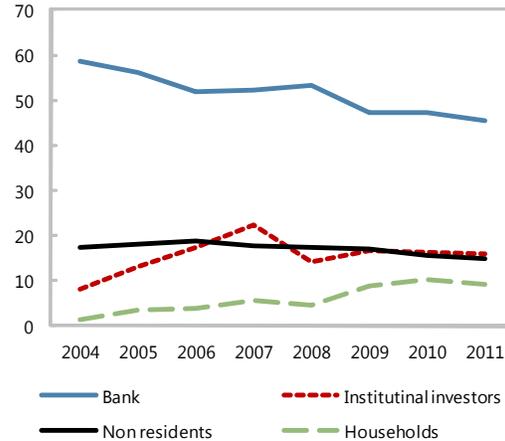
Business sector borrowing
(In billions of NIS)

Corporate bond financing grew...



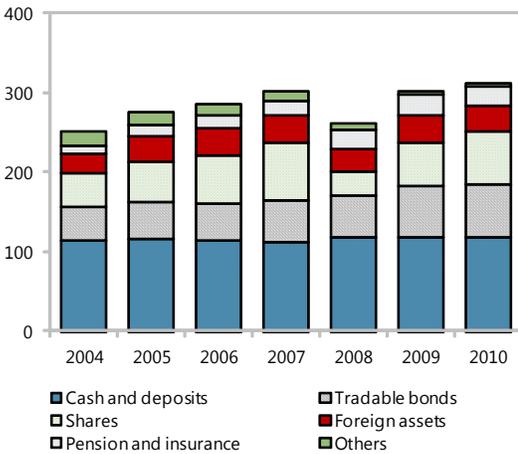
Credit to the business Sector
(Percent of GDP)

... and institutional investors and households now play a large role in providing credit.



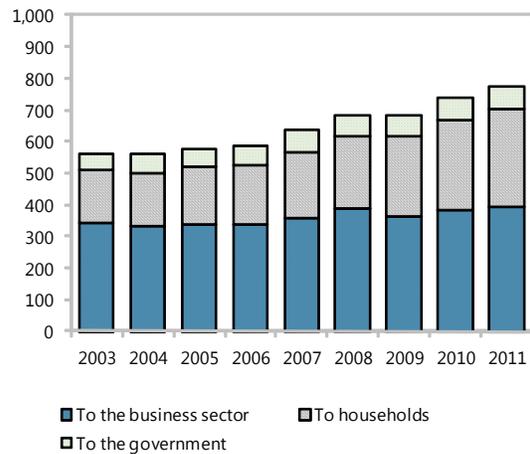
Public assets
(In percent of GDP)

Households' saving in pension and insurance grew rapidly.



Bank credit by sector
(In billions of NIS)

Meanwhile, banks increased lending to households.



Sources: Bank of Israel, Israel Central Bureau of Statistics, Haver Analytics.

² Pension funds were protected by regulation penalizing early withdrawals.

Box 1. Financial Sector Structure and Concentration

The level of concentration in both bank and nonbank financial sectors remains high:

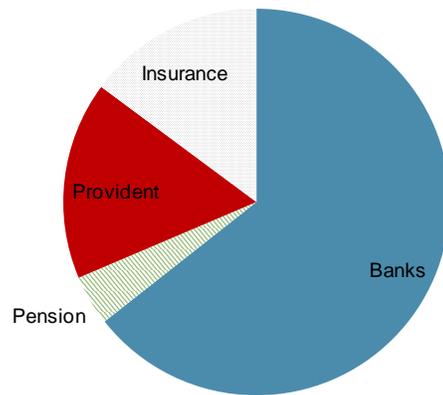
Israel's banking system is dominated by five banking groups, which provide universal banking services and account for 95 percent of banking sector assets.³ The two largest alone constitute more than half the system. The rest of the system consists of three independent banks, and four branches of foreign banks.

Parts of the nonbank financial sector (comprising insurance companies, pension funds, and provident funds) are concentrated. In the insurance sector, the four largest groups have a dominant market share in most business lines (for example, their share in the life insurance market is over 80 percent). In comparison to the banking sector, there is greater foreign involvement, with one major insurer being foreign owned.

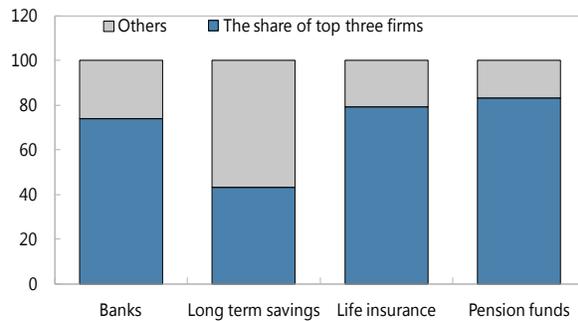
Israel's corporate sector generally is dominated by large conglomerate groups.⁴ For example, the turnover of the six largest groups accounts for about a quarter of GDP. A notable feature of the Israeli firms is the presence of controlling shareholders. According to the ISA, 88 percent of all Israeli public companies have a controlling shareholder.

Concerns that concentrated market power and control might have adverse effect on competition led to the recent creation of the Committee on Increasing Competitiveness in the Economy. One of the key recommendations of this Committee is a prohibition of control or holding in a "significant" financial institution (over NIS 50 billion in assets) by a significant real entity or by the controlling shareholder of a significant real entity (over NIS 8 billion in sales or assets of NIS 20 billion).

The Structure of Israel's Financial System
(In percent share)



Structure of selected financial industries
(Percent share)



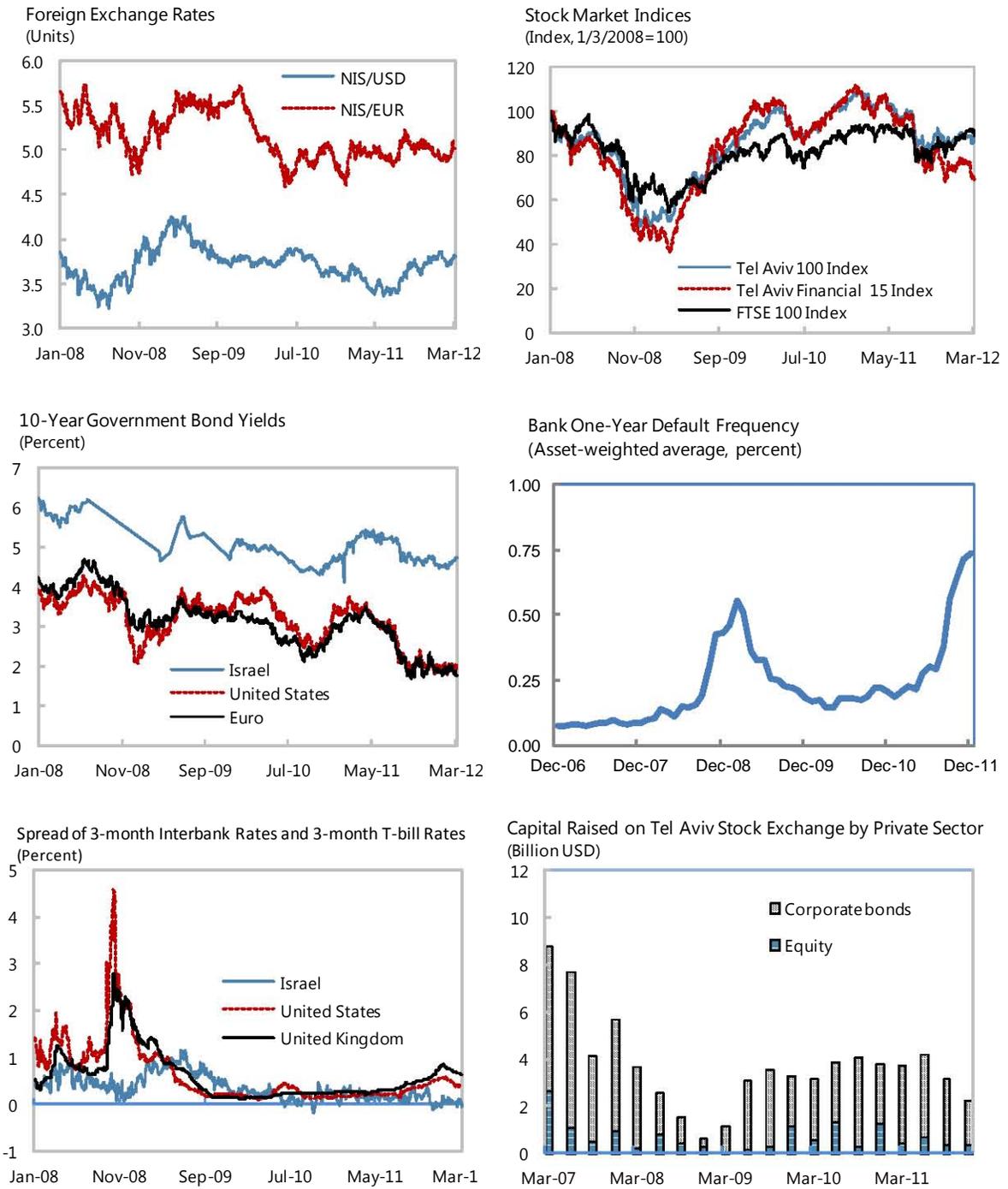
Sources: Bank of Israel and market reports.

1/ new pension funds, provident funds, and profit participating life insurance.

³ Each of five largest banking institutions in Israel represents a "bank holding company," which typically comprises the main bank, one or more wholly-owned boutique banks, and several nonbank financial subsidiaries.

⁴ See for example "Corporate Governance in Israel 2011," OECD.

Figure 2. Israel: Selected Financial Market Indicators



Sources: Bloomberg; Datastream; and Moody's KMV.

5. **The authorities preempted the spread of financial stress with a slew of support measures, but they went largely unused.**⁵ The BOI aggressively cut its policy interest rates, and expanded liquidity facilities. The BOI also tightened bank supervisory measures in areas of reporting, capital, and liquidity. In areas of capital markets, the MOF established various back-stop mechanisms, such as a “safety net” program for provident fund savings, and a program offering guarantees to banks for raising capital, while the ISA set up a debt settlement framework. Furthermore, this episode led to the establishment of the Hodek committee, which in 2010 presented a set of recommendations to the government to improve market transparency, conduct, and the corporate governance of institutional investors.

Macroeconomic performance

6. **Following a mild recession in early 2009, output started recovering in mid-2009 and continued to grow strongly through the first part of 2011 (see Table 4).**

Unemployment fell to comparatively low levels, inflationary pressures became apparent, house prices increased rapidly (more than 40 percent in real terms since 2008), and strong capital inflows continued even during periods of heightened regional tension.

7. **As global growth slows down, Israel’s growth momentum is expected to weaken, and the BOI turned to a monetary easing cycle in September 2011.** Israel is a small open economy and Europe and the U.S. are largest trading partners, and hence developments in those countries are likely to affect Israel strongly.⁶ Although Israel’s exposures to European periphery countries are negligible, financial markets turmoil in Europe in fall 2011 negatively affected Israel’s financial markets, as evidenced by rising risk premia on corporate bonds.

B. Implementation of 2001 FSAP Recommendations

8. **The original FSAP found that the financial system was generally robust.** At the time, the system was largely bank-based, corporate bond and money markets were nearly nonexistent, and the state assumed insurance and pension fund risks. Most components of the supervisory system were relatively strong, but coordination was weaker, and the safety of the payment and settlement system and its oversight was inadequate.

⁵ See IMF Country Report No. 10/23.

⁶ An increasing share of exports goes to emerging market economies.

9. **The general robustness of the system was demonstrated in the 2002 and 2009 recessions.** Risk factors relating to high public debt and contingent pension liabilities have diminished in relative importance. Many of the FSAP recommendations have been implemented (Appendix I). Supervision in all sectors including that of the payment system has been strengthened. The framework for financial crisis management still lacks certain elements (see below).

II. VULNERABILITY ANALYSIS

A. Key Macroeconomic and Financial Risks

10. **The Israeli economy and financial system has proven resilient in the recent past, but several risk factors can be identified** (Appendix II):

- **The global economy and in particular some of Israel's main trading partners (especially Europe but also the United States) may slip back into recession, leading to a contraction in trade.** Funding conditions (including in the corporate bond market, where a substantial volume of rollover is expected in 2012) would become more difficult. Capital could flow to Israel in a search for yield and lead to a substantial appreciation, hurting the tradables sector.⁷ However, direct exposures to vulnerable European countries are very small.
- **Israel is unusually exposed to geopolitical risk.** The economy survived well past episodes of conflict, but ongoing regional turmoil could have a more severe impact, especially if of long duration and associated with a large increase in energy prices, inflation, and a reaction of much higher real interest rates around the globe.
- **The nonfinancial, banking, and insurance sectors are concentrated, so an idiosyncratic shock to one major institution could have direct and indirect effects on others.** Even an operational failure in one bank, say, could weaken confidence across the system. Difficulties in a major conglomerate would have unpredictable effects across the economy and lead to higher risk premia, which in turn would dampen investment.⁸
- **The rise in housing prices and the construction boom of recent years appears to have slowed, but could pose renewed risks if momentum is regained, or if housing prices fall sharply.** Much of credit growth has been concentrated in these sectors. The

⁷ Such inflows were seen in 2010–11 (see accompanying Staff Report on the 2012 Article IV consultation).

⁸ For example, difficulties in a conglomerate-owned construction company could spread to its holding company, which is typically high leveraged, and thus affect the financing available to affiliated companies in other sectors.

sector could suffer a sudden reversal, resulting in nonperforming mortgages and loans to construction companies.

B. Household and Corporate Sector Vulnerabilities

The household sector and the housing market

11. **Households have relatively little mortgage or consumer debt, and their financial assets have built up strongly in recent years, but house prices seem to be somewhat above their long-run equilibrium and could reverse.** A large share of both assets and liabilities are indexed or carry a variable interest rate. Mortgage loans have not generated significant losses for banks in the past decade: a mortgage loan carries recourse, and loan-to-value ratios are typically low (Figure 3). Residential construction has boomed, and mortgage lending has increased rapidly. By mid-2009, there were signs of deterioration in mortgage lending standards—such as an increase in unindexed floating rate mortgage loans—and the authorities introduced prudential and other measures to contain risks that were building up, including higher capital requirements for housing loans, supplemental reserve requirements, and variable interest rate mortgage limits. House price inflation has recently leveled off, but vulnerability remains.

The corporate sector

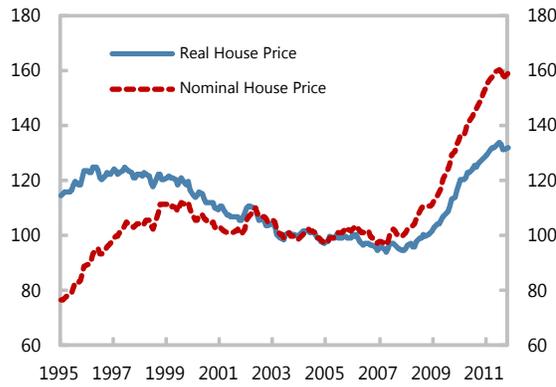
12. **The corporate sector is recovering from the 2008–09 global crisis (Figure 4 and Table 8).** Most recently, however, market indicators for corporate default probability have begun to rise, though they are still below 2008–09 levels.

13. **Regulatory reforms have probably increased the resilience of the systemically-important corporate bond market, but a legacy of risk remains.** Total corporate bonds outstanding amounts to 32 percent of GDP, of which commercial real estate-related corporate bonds amounts to 12 percent of GDP—levels far above those seen in most advanced economies. The implementation of the Hodek committee recommendations (such as the imposition of minimum covenants for new bond issues), and of related provisions that the ISA imposed on mutual fund managers, has likely improved the quality of new issues. However, bonds restructured following the 2008 crisis are falling due in the coming period. Moreover, a large fraction of the real estate-related debt is linked to overseas activities, which exposes the Israeli economy to economic and financial shocks from abroad. Furthermore, it seems that the corporate bond market is somewhat shallow relative to its size—there is little market making or foreign involvement—so there is a risk of sudden price movements and market illiquidity. Hence, for example, disruption in bond markets abroad could quickly affect corporates' financing conditions.

Figure 3. Israel: Housing Sector

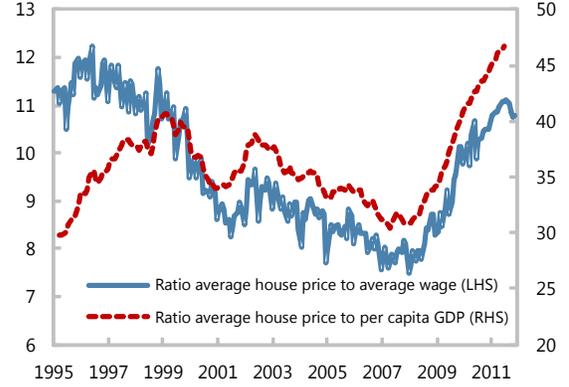
House prices have risen sharply...

House Price Indices
(Index 2004 = 100)



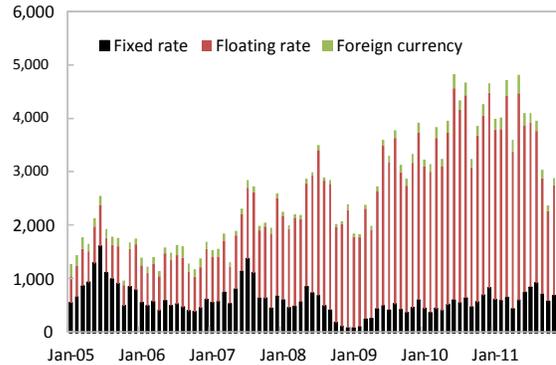
...compared to rent and wages.

Ratio of average house price to wage and to income
(Percent)



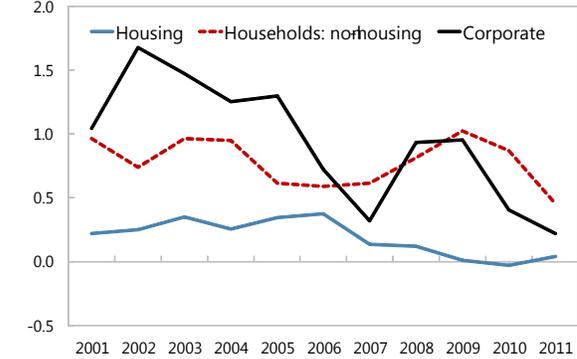
Following prudential measures, new loans, particularly floating rate loans, have fallen...

New residential mortgage loans
(In millions of NIS)



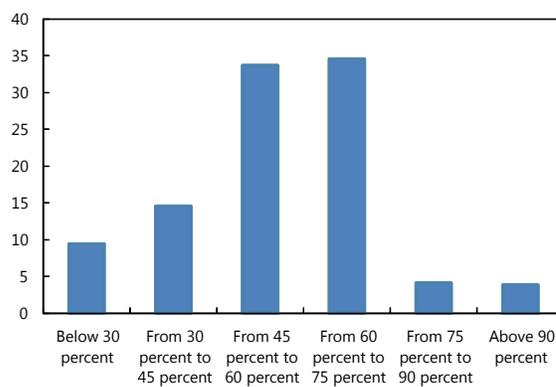
...and loan loss provision remains low.

Loan loss provision
(In percent of total loans)



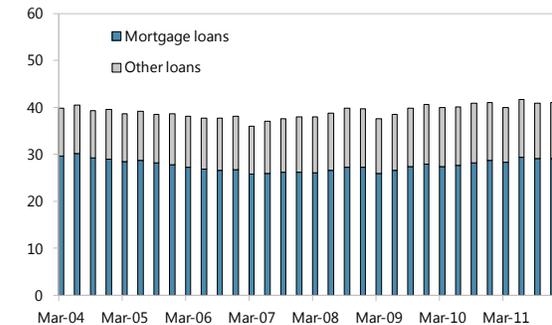
For the majority of new loans, the loan to value ratio remains below 75 percent...

Loan to value ratio of new loans (Percent)



...and households' debt has remained broadly stable as percent of GDP.

Household debt
(In percent of GDP)

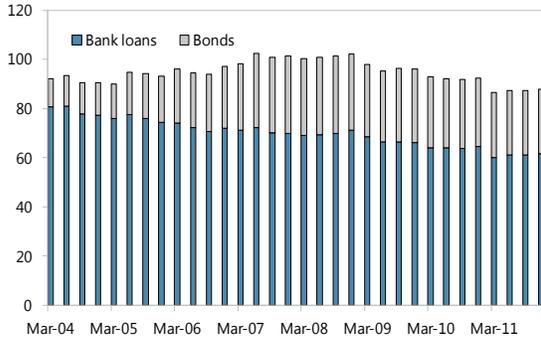


Sources: BOI, Haver, and IMF staff calculation.

Figure 4. Israel: Corporate Sector

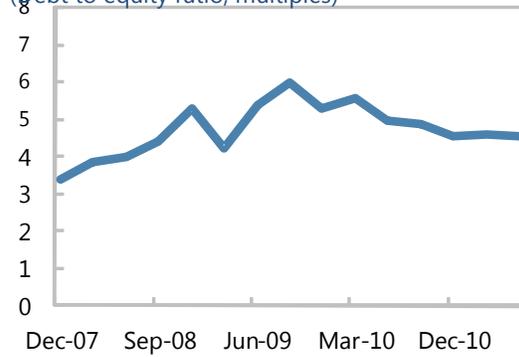
Total corporate debt has remained largely stable...

Corporate debt
(In percent of GDP)



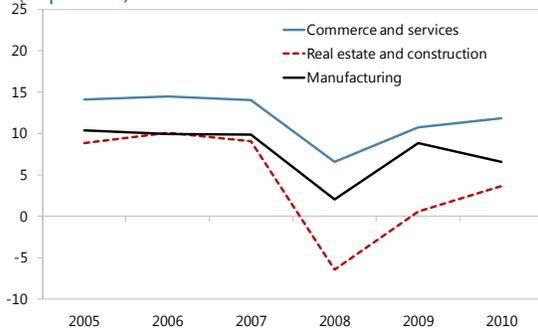
...while corporate leverage has fallen from recent peaks.

Leverage ratio of large conglomerates
(Debt to equity ratio, multiples)



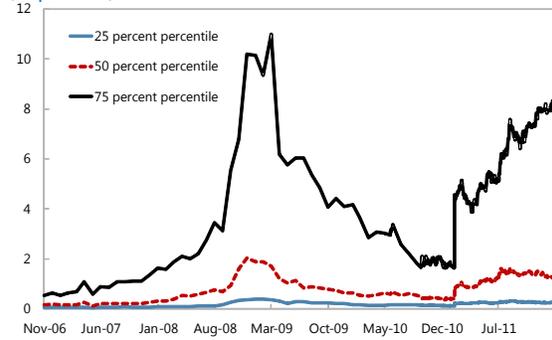
Corporate profitability has recovered but remains below pre-crisis levels.

Corporate ROE
(In percent)



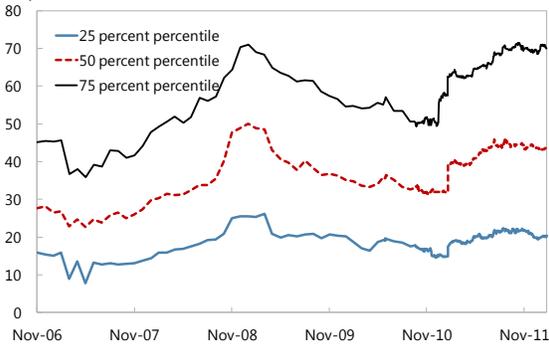
Most recently, default probability has risen...

Corporate sector - Moody's KMV expected default frequency
(In percent)



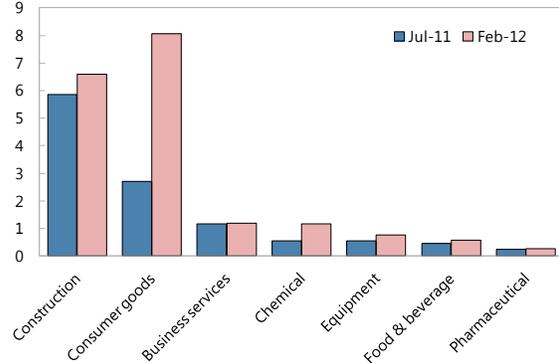
...as have market leverage indicators.

Corporate sector - Moody's KMV market leverage indicator
(In percent)



In particular, default risk in construction is perceived to be high.

Moody's KMV expected default frequency by industry
(In percent)



Sources: BOI, Haver, Moody's KMV, and IMF staff estimates.

1/ Excluding commercial real estate-related bonds.

C. Banking Sector Risk Assessment

14. **Financial stability indicators for banks are satisfactory and broadly in line with those of comparator countries (Table 5, Figure 5).** Capitalization ratios have been rising, although much of the increase has taken the form of Tier 2 capital. Nonperforming loans (NPLs) are low and well provisioned. Deposits make up over two-thirds of total liabilities and in aggregate exceed loans. Profitability has been adequate and fairly stable after allowing for exceptional items.⁹ However, noninterest expenses (mainly staff remuneration) make up a relatively high share of gross income, which feature may limit resilience against the compression of interest rate spreads that may occur in some phases of the cycle.

15. **The banking sector risk assessment includes a top-down balance sheet stress test and single factor tests carried out by the BSD and a contingent claims analysis (CCA) stress test carried out by BOI and IMF staff (Appendix III).**¹⁰ The five major banks are covered, with results projected to end-2014 in order to capture the full effects of shocks. The bank solvency tests are based on three scenarios which reflect key macroeconomic and financial risks, particularly a domestic slowdown and the potential impact on the Israeli economy and banks of a European crisis and U.S. slowdown:

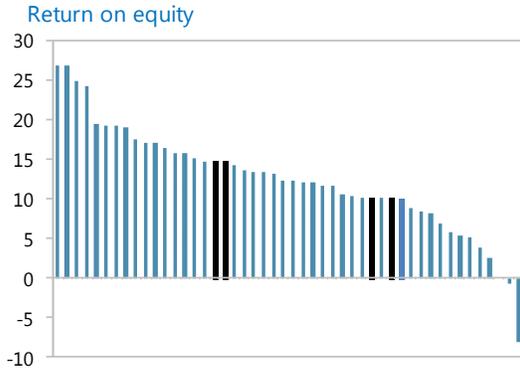
- The **Base scenario** is based on BOI staff's forecasted path of the economy, which relies on the BOI macro-model; it is more conservative than the IMF WEO October 2011 forecast.
- **Adverse scenario 1** assumes a domestic recession, caused by geopolitical concerns leading to economic disruption, declining demand (especially in real estate), an increase in unemployment, and a rising risk premium.
- **Adverse scenario 2** reflects a global recession and difficulties in Europe, which affect the Israeli economy sharply. Real GDP declines relative to the baseline by about 2½ standard deviations.

⁹ For example, banks made one-off profits from the sale of provident funds in 2005-07.

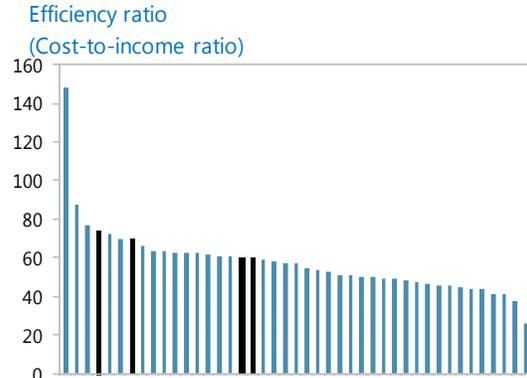
¹⁰ The balance sheet-based tests project bank balance sheet items and profitability (which feeds back into capitalization) based on relevant satellite models, which link credit quality, etc. to macroeconomic variables. The CCA uses both market and accounting information to project under the various scenarios risk-adjusted balance sheets of banks based and, ultimately, credit spreads as a measure of riskiness.

Figure 5. Israel: International Comparisons of Bank Financial Soundness Indicators (In percent)

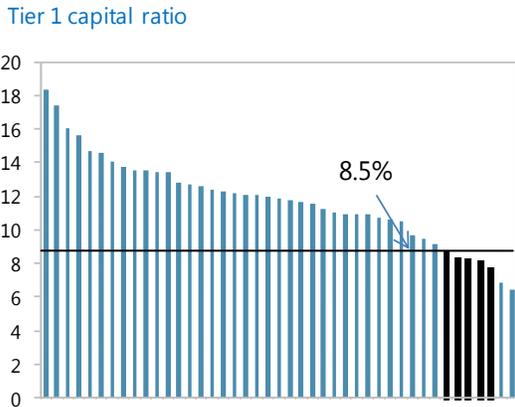
Israeli Banks' ROEs are close to average.



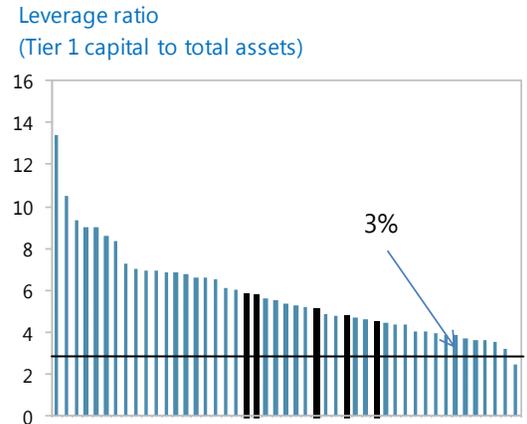
The operating efficiency is moderate.



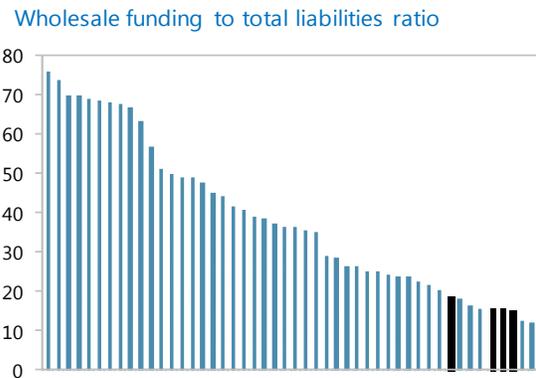
Israeli Banks' Tier 1 capitalization (on a risk-weighted basis) looks relatively weak...



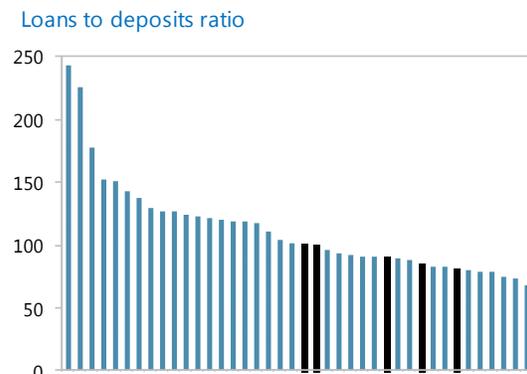
but their leverage ratios (which are not sensitive to approaches used to compute RWAs) are close to average.



On the upside, Israeli banks do not rely on wholesale funding...



and their loan-to-deposit ratios are at or below 100 percent



Sources: BOI, Bloomberg, and staff estimates.

Note: Israeli banks are colored in black; the comparator sample consists of the largest banks domiciled in Australia, Austria, UK, Canada, Chile, Czech Republic, France, Poland, Sweden and USA. Data are as of June 2011 or latest available.

16. **The balance sheet scenario stress test results suggest that banks' capital would remain adequately capitalized under the Base and Adverse 1 and 2 scenarios (Figure 6).**¹¹ The reasons for the robust results, even in the Adverse scenario 2, appear to be the relatively comfortable initial capitalization and profitability, low housing default risk, and the favorable starting point for corporate credit losses, which reflects recent good corporate performance. In addition, there are no large changes in risk-weighted assets (RWA) because banks are under the standardized approach.¹² However, some banks seem significantly more exposed than others to certain risk factors, suggesting that supervisory attention should be directed to such cases.

17. **Single factor shock results show that concentration risk has the largest potential impact on capital (see stress testing summary table in Appendix III).** The largest impacts on capital come from a credit shock from each bank's largest borrower group, and also the impact of a credit shock of the largest three individual borrowers is significant for several banks. This result confirms the concern that concentration risk is significant. Exposures to European sovereigns and banks are so small as to have a negligible impact.

18. **The results of the CCA analysis are consistent with the balance sheet stress test results (Figure 7).** Under the Adverse 1 scenario, estimated credit spreads—as a measure of riskiness—do not rise much above those of the baseline.¹³ Under the Adverse scenario 2, banks' estimated credit spreads increase to a level (about 400 basis points, bps) somewhat higher than those seen during the worst periods of the financial crisis in 2008/09, which, for Israel, proved manageable. As in the balance-sheet test results, some banks seem rather more vulnerable than others do—at least in these scenarios. The CCA results also give an estimate of the total losses to bank creditors for the five largest banks as a percent of GDP: under the Adverse scenario 2, the total expected losses to bank creditors increases to about 1.4 percent of GDP, which is low by comparison to that seen in other advanced countries (in part because the banking system is smaller relative to GDP).¹⁴

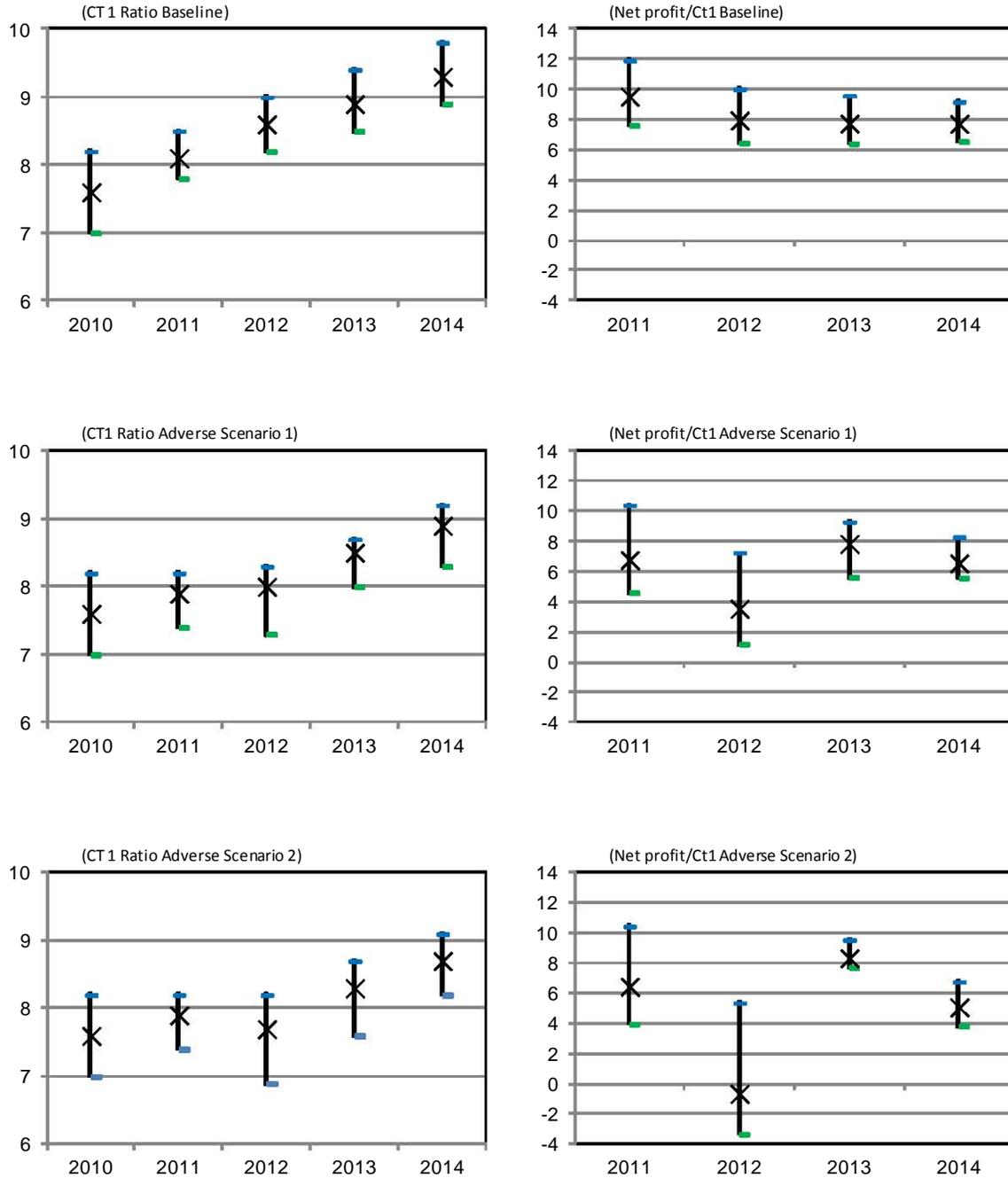
¹¹ The effects under Adverse scenario 2 are indeed more severe than those seen in 2008-09 after allowing for the exceptional valuation losses on U.S. MBS suffered at that time.

¹² There is small reduction in RWA due to exchange rate effects under the standardized approach rules.

¹³ A rise in bank spread means a rise in bank marginal funding cost (in basis points).

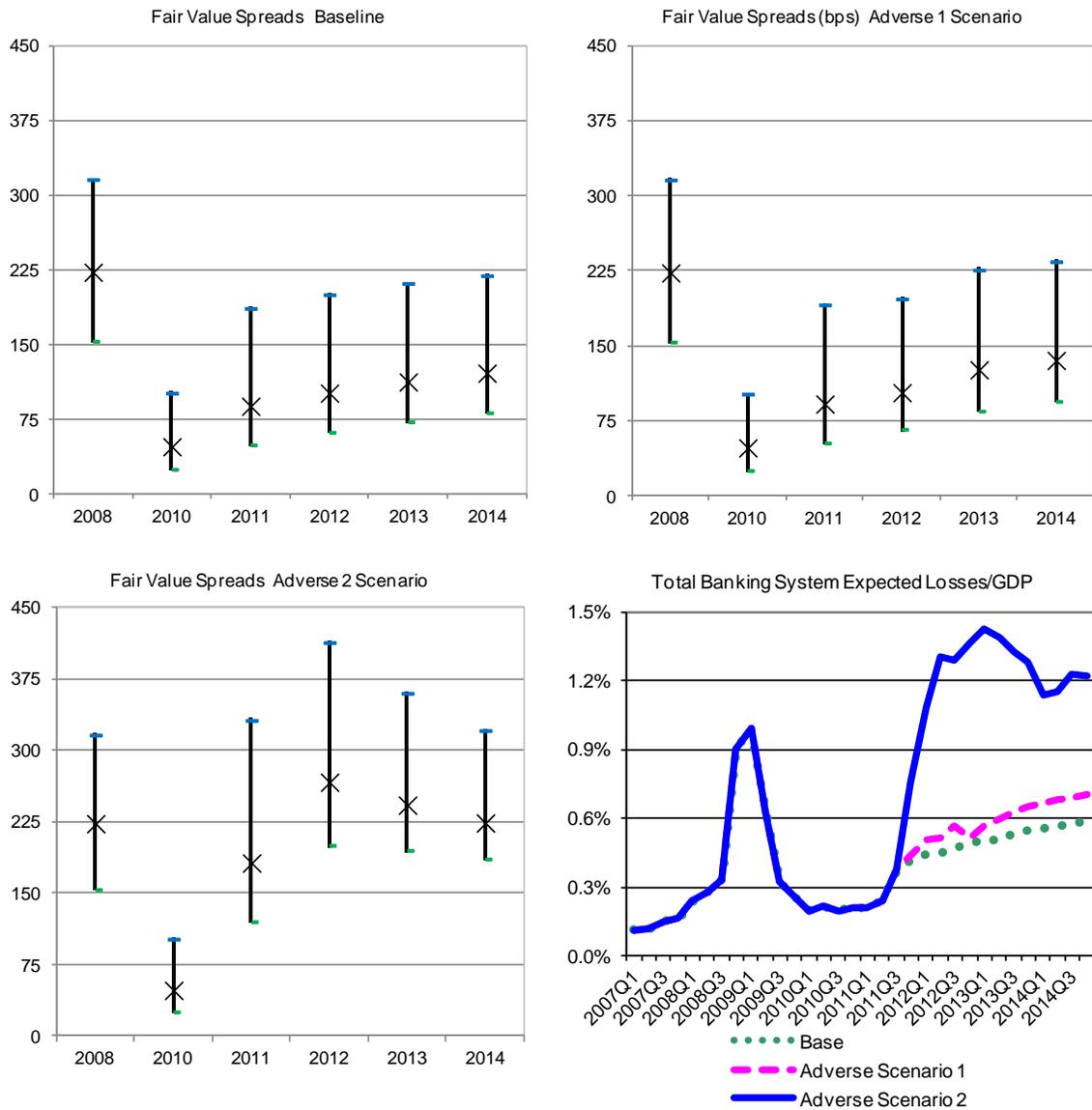
¹⁴ Expected loss to bank creditors refers to the expected loss associated with bank debt (in million NIS), which is equal to default probability times loss given default.

Figure 6. Israel: Bank Balance Sheet Stress Test Results
(Maximum, unweighted mean, and minimum)



Source: BOI, and staff estimates.

Figure 7. Israel: CCA Stress Test Results
(Basis points maximum, unweighted mean, and minimum spreads; and percent)



Source: BOI, and staff estimates.

19. **The liquidity test results show that all the major banks would be able to maintain the liquidity ratio above unity under strong stress scenarios (Table 2).**

However, for foreign currency liquidity positions alone, some banks would not be able to maintain an excess of foreign currency short-term assets over liabilities. Because banks do not rely on market funding and hold relatively few securities, deposit outflows are potentially the main source of risk to liquidity.

The stress testing capacity built up in the BOI in recent years forms a good basis for further refinement and extension. Significant progress has been made by the BOI, although the robustness of some estimated satellite models is weakened by the shortness of available data samples. Going forward, BOI stress testing should continue to be refined and extended, including by enhanced liquidity, profitability and corporate credit risk stress testing.

Table 2. Israel: Liquidity Stress Test Results
(Change in ratios unless indicated)

	All currencies	Foreign currency
Baseline	1.63	1.59
Average	1.62	1.49
Minimum	1.48	1.04
A 10 percent outflow of short-term deposits	1.28	1.25
Average change from baseline	0.35	0.33
Worst change from baseline	0.36	0.50
A 20 percent outflow of non-resident deposits	1.53	1.30
Average change from baseline	0.09	0.27
Worst change from baseline	0.12	0.50
A bank's largest interbank claim becomes illiquid	1.61	1.52
Average change from baseline	0.02	0.10
Worst change from baseline	0.04	0.16
Short term securities become illiquid/ 1	1.57	1.38
Average change from baseline	0.05	0.18
Worst change from baseline	0.10	0.38
Memorandum items:	(percent)	
Short-term assets/total assets	33.32	40.26
Short-term foreign currency assets/total short-term assets	...	22.72

Source: BoI, and staff estimates.

1/ Excluding Israeli treasury bills.

D. Insurance Sector and Long-Term Savings Instruments Risk Assessment

20. **Available financial soundness indicators for insurers show recovery from the effects of the global crisis, with a few firms lagging (Figures 8, 9, Tables 6, 7).**

Capitalization, profitability, and liquidity are now at levels comparable to those of international peers, and market-based measures of soundness are back to “normal” levels. This sector is a major holder of Israeli corporate bonds.

Figure 8: Israel: Insurance Financial Soundness Indicators

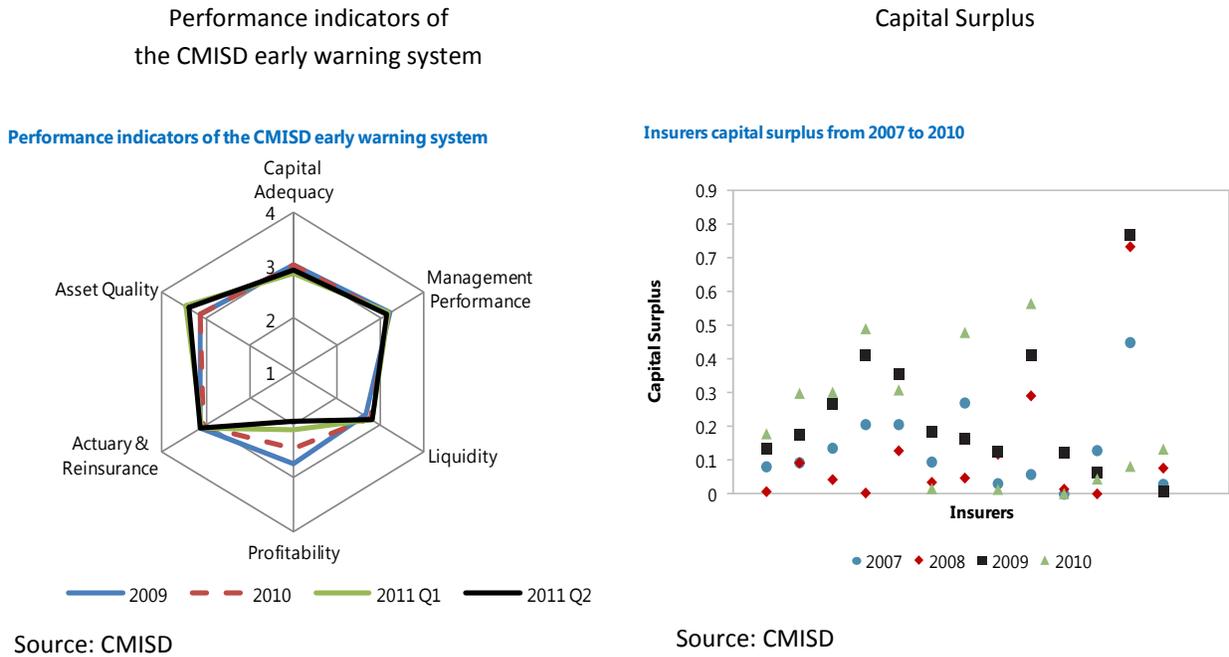
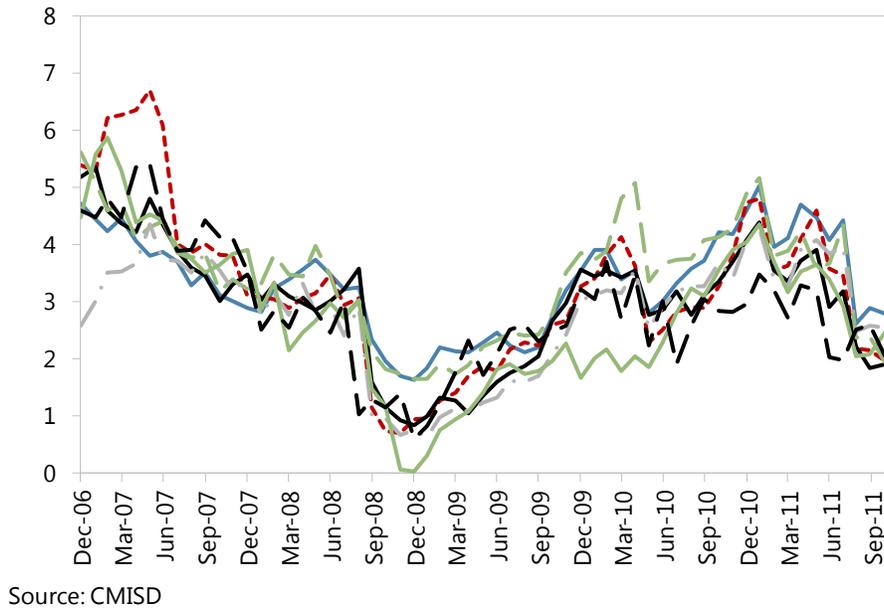


Figure 9: Israel: Insurers' Distance to Distress
(Selected Israeli insurance companies)



21. **The results of stress tests for long-term savings (LTS) products show manageable effects (Appendix III).** Market shocks of similar magnitude as those that occurred during the fourth quarter of 2008 and a simulated scenario of a severe local shock would result in an average 7.7 percent loss on the LTS portfolio of individuals (Figure 10).

22. **The stress test applied to the insurance business excluding the saving products did not expose large vulnerabilities (Figure 11).** Some companies are positively impacted in their capital position by a deterioration of claims due to reserve release and tax credit, but two companies face challenges to meet the new, higher capital requirements.

23. **The supervisory stress tests run by the companies for internal risk analysis need to be more stringent.** For example, insurance and market risks should be combined in a single stress scenario, such as a historical scenario and an insurance shock (e.g., an earthquake during a 2002 crisis scenario).

Figure 10. Israel: Long-Term Savings (LTS) Stress Test Results

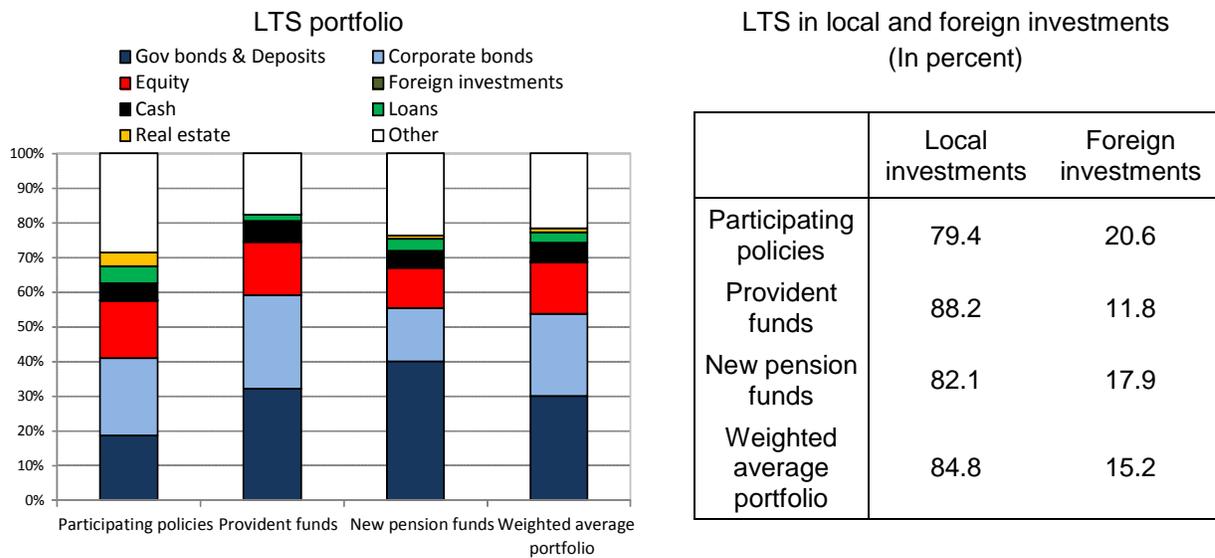
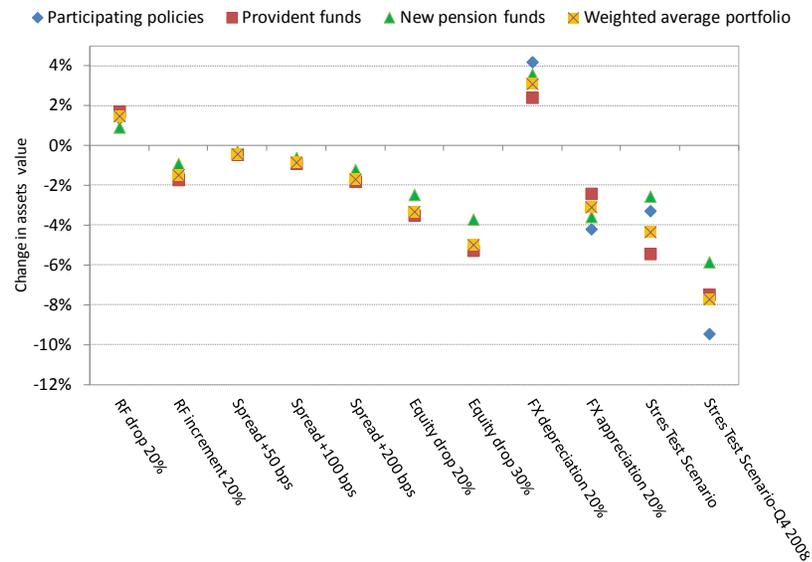


Figure 10 (Continued). Israel: Long-Term Savings Stress Test Results
(Change in value of LTS products, in percent)

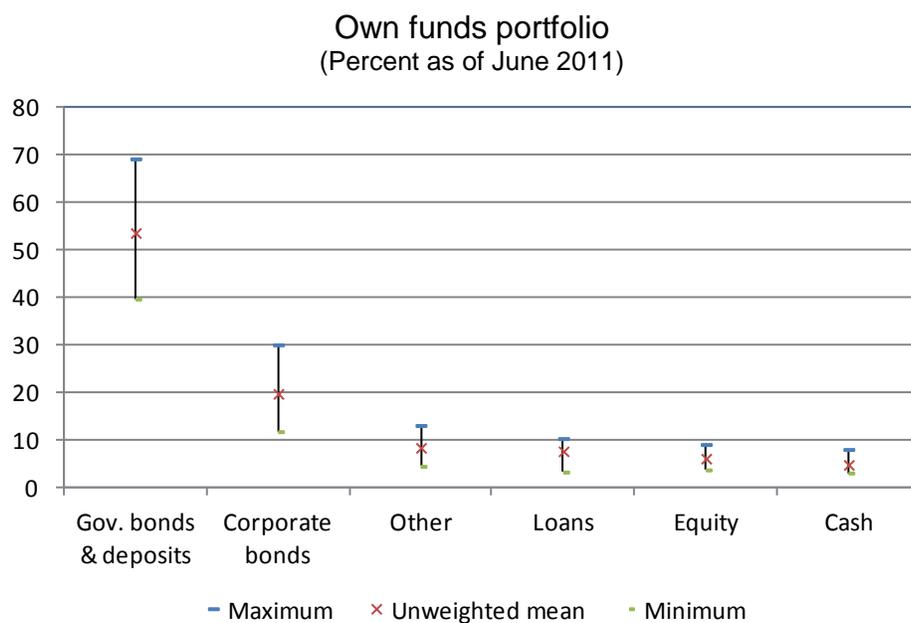
Scenario / Segment	RF drop 20%	RF increment 20%	Spread +50 bps	Spread +100 bps	Spread +200 bps	Equity drop 20%	Equity drop 30%	FX depreciation 20%	FX appreciation 20%	Stress test scenario	Stress test scenario-Q4 2008
Participating policies	1.4	-1.4	-0.4	-0.9	-1.8	-3.5	-5.2	4.2	-4.2	-3.3	-9.4
Provident funds	1.7	-1.7	-0.5	-0.9	-1.8	-3.5	-5.3	2.4	-2.4	-5.4	-7.5
New pension funds	0.9	-0.9	-0.3	-0.6	-1.2	-2.5	-3.7	3.6	-3.6	-2.5	-5.8
Weighted average portfolio	1.5	-1.5	-0.4	-0.8	-1.7	-3.3	-5.0	3.1	-3.1	-4.3	-7.7

Scenario results											Local Shock Stress Test Scenario				Stress Test Scenario-Q4 2008							
	RF drop 20%	RF increment 20%	Spread +50 bps	Spread +100 bps	Spread +200 bps	Equity drop 20%	Equity drop 30%	FX gain 20%	FX loss 20%	Risk free interest	Spread	Equity	FX	Equity	Gov bonds	Corporate bonds	Loans	Cash	Deposits	Foreign investments		
											-20%	+200 bps	-30%	-20%	-29.8%	4.6%	-9.4%	-4.4%	0.8%	4.6%	-15.0%	
Participating policies	1.4	-1.4	-0.4	-0.9	-1.8	-3.5	-5.2	4.2	-4.2		-3.3											-9.4
Provident funds	1.7	-1.7	-0.5	-0.9	-1.8	-3.5	-5.3	2.4	-2.4		-5.4											-7.5
New pension funds	0.9	-0.9	-0.3	-0.6	-1.2	-2.5	-3.7	3.6	-3.6		-2.5											-5.8
Weighted average portfolio	1.5	-1.5	-0.4	-0.8	-1.7	-3.3	-5.0	3.1	-3.1		-4.3											-7.7



Source: Israeli authorities, and staff estimates.

Figure 11. Israel: Insurance Own Funds Stress Test Results



Change in insurers' capital surplus
(In percentage points)

Scenario / Company	Mortality	Motor	Property	Mortality +motor	Mortality +motor+ property	2008Q4	2008Q4+ mortality	2008Q4+ motor	2008Q4+ property	2008Q4+ motor+ property	2008Q4+ mortality+ motor	2008Q4+ mortality+ motor+ property
A	-0.9	-0.3	-0.4	-1.2	-1.6	1.5	0.6	1.2	1.2	0.9	0.3	0.0
B	-0.4	-0.5	-0.6	-0.8	-1.4	-4.0	-4.4	-4.5	-4.6	-5.1	-4.9	-5.4
C	-0.6	-0.4	-0.6	-1.1	-1.6	-10.9	-11.5	-11.3	-11.5	-11.9	-11.9	-12.5
D	-1.3	-0.8	-1.3	-2.1	-3.4	-3.5	-4.9	-4.3	-4.8	-5.6	-5.6	-6.9
E	-0.7	-0.7	-0.8	-1.4	-2.2	-2.8	-3.5	-3.4	-3.5	-4.2	-4.2	-5.0
F	-0.2	-1.5	-1.8	-1.7	-3.5	-9.6	-9.7	-11.1	-11.4	-12.9	-11.3	-13.1

Source: Israeli authorities, and staff estimates.

III. FINANCIAL SECTOR OVERSIGHT

A. Cross-Cutting Issues

Supervisory approach

24. **Financial regulation and supervision is generally sophisticated and thorough.** International supervisory standards are assessed to be observed to a high degree.¹⁵ Across the financial sector, the authorities take a pro-active, stability-oriented approach. Regulations are generally up to date, a great deal of information is gathered and analyzed through on-site and off-site supervision, and the authorities demand prompt correction of any deficiencies they detect.

25. **The authorities' intrusive approach is appropriate, but care needs to be taken to avoid over-complication and undue regulatory burden.** Financial institutions and their clients are challenged by the complexity of regulations, and relatively frequent changes.¹⁶ It may be worth undertaking a medium-term project to streamline and systematize legislation and regulations. There is consultation on new regulations, but more detailed and publically available assessment of costs and benefits, when feasible, would be helpful.

26. **Maintaining effective supervision requires that supervisors are effectively independent and have up-to-date skill sets.** In practice, the supervisors appear act with consistent independence. However, certain aspects of their personnel policies and budgets are subject to government control. Furthermore, in Israel as elsewhere, supervisors face a challenge in keeping up with the innovations introduced by private institutions, meeting which requires specialized quantitative skills to understand and oversee. To acquiring these skills, which are well-remunerated in the private sector, supervisors need flexibility in their personnel policies and budgets.

Cross-sectoral cooperation and information-sharing

27. **The relatively large NBFIs sector and securities markets in Israel puts a premium on cooperation between supervisors.** The practice of cooperation seems to be broadly satisfactory for normal times, but may be over-stretched in times of crisis or weak in anticipating and limiting the build-up of common vulnerabilities. Therefore, it may be useful to institutionalize arrangements for sharing information and analysis through more detailed, operational memorandums of understanding (MOUs), in part to define what information

¹⁵ See the accompanying the Reports on Observance of Standards and Codes.

¹⁶ At issue is not just prudential and market conduct regulation, but also other elements, such as taxation.

cannot regularly be shared because of confidentiality concerns. A more formal framework for cooperation may be advisable (see below).

28. **The division of responsibilities among three supervisors seems to have led to some gaps and overlaps.** For example, bank members of TASE are supervised by the BOI, while nonbank members are supervised by TASE; ensuring a level playing field requires consistency of treatment, which is not easily achieved by such a division. Bank subsidiaries underwrite securities issues; ISA has responsibility for the oversight of this activity but the BOI must also be closely involved. Currently, these gaps mainly affect market conduct and competition rather than representing direct threats to financial stability, but such threats could emerge if the gaps are not addressed.

29. **Addressing these gaps and overlaps can be achieved by various means, with an overall goal of ensuring that like activities are subject to like regulation and supervision.** Regulatory arbitrage can be contained by ensuring that like activities are subject to the same regime, and that the regulation (and taxation) of close substitutes is carefully coordinated. There is no global “best practice” to the architecture of supervision, but as the system develops, the case for a more integrated approach may strengthen.

B. Banking Supervision

30. **Banking sector regulation and supervision is generally stringent and in line with international standards.** The BOI has implemented Basel II very thoroughly, and is now in the process of making their supervisory practice more risk-based and preparing for an eventual move to Basel III. Initiated in 2008, the risk-based supervision program has enabled the supervisors to evaluate risk both on an institutional level and from the perspective of the most critical systemic banking risks. However, for capital adequacy purposes, banking institutions are still required to calculate capital under standardized approaches, which may be less risk-sensitive (for example, regarding sovereign risk and risk correlations) and forward looking.

31. **The regulation and supervision of liquidity management and funding (including foreign currency liquidity; see stress testing results above) will need to be enhanced.** Israeli banks currently enjoy a stable funding base, but more attention needs to be paid to these areas in the light of other countries’ experience in the global crisis. Relevant BOI supervision has focused on off-site inspection; on-site inspection resources should be utilized more. A revision to the existing directive on liquidity management is under way.

32. **The supervision of interest rate risk and some aspects of market risk seems to be relatively underdeveloped, although these risks are not of highest importance given banks’ current business models.** The supervisor rightly devotes much attention to possible credit risk generated by interest rate fluctuations, but more attention needs to be paid to the

direct effects on earnings and capital from adverse movements in interest rates in respect of the banking book. There are some possible gaps in the supervision of securities business housed in nonbank subsidiaries.

33. **The BOI recognizes that its policy of requiring each bank to have a “controlling shareholder,” who holds a significant block of equity, may become difficult to sustain.** This approach has advantages, for example, because it ensures that some owners have a strong incentive to monitor management and limit risk-taking that might imperil their “franchise value.” The main disadvantage is that maintaining the controlling position limits flexibility in capital management. As a bank grows and needs more capital (or if it gets into difficulties), persisting in this approach may become increasingly difficult. In this connection, another major challenge will be the move towards Basel III, to which BOI is committed. Given the importance of Tier 2 in banks’ current capital structure and the limited range of credit risk mitigation techniques available, banks will have to raise additional equity—which may be difficult in the current global environment—or shrink their balance sheets, which may unduly restrict credit supply. The Basel III objective is appropriate, but if there are signs that credit supply is being unduly affected during the transition, offsetting measures (in terms of the monetary policy stance or conditions that support the sustainable supply of non-bank credit) should be considered.

C. Insurance and LTS Products Sector Supervision

34. **The regulation and supervision of the insurance, pension fund, and provident funds is generally of a high standard, but cross-border supervisory cooperation and information-sharing needs to be strengthened.** MOUs and regular communication with supervisors of jurisdictions with significant investment in the Israeli insurance sector (or where Israeli insurers operate) should be in place.

35. **Current regulation lacks sufficient tools to supervise groups effectively.** At present, the CMISD does not have formal policies with regard to group capital adequacy, reinsurance and risk concentration, internal control mechanisms, and risk management systems, nor are there specific requirements for group-wide reporting, and the holding companies escape supervision. Work is already underway to strengthen this aspect of the insurance supervisory system (in line with evolving international best practice).

36. **The capacity of insurers and pension funds to assess credit risk may become a higher priority for supervisors.** Insurers and pension funds already hold increasing amounts of corporate bonds and engage in some syndicated project lending. These trends may well continue as banks adjust to the new regulatory framework.

D. Regulation of Securities Markets

37. **The regulatory regime has been strengthened in recent years, but some deficiencies remain.** A potentially significant gap is that that broker-dealer activity can be undertaken outside of the regulatory framework, for example, if the activity does not involve membership of the stock exchange or the provision of advice services to retail clients, and is not undertaken by a bank. Similarly, certain over-the-counter derivatives activity, including the sale of products to retail investors, can take place outside the regulatory regime. The absence of a licensing framework for intermediaries of this kind—which seem currently to be modest in volume—could have serious implications for investor protection. If unregulated activity grew to a significant size, it could have an impact on overall market stability. For the bond market, consideration should be given to eliminating the possibility of issuing under previously filed prospectuses: some companies are using the possibility of reopening outstanding issues in order not to provide bond covenants that abide by the Hodek committee’s recommendations.¹⁷

38. **TASE, as a self-regulatory organization, is responsible for the licensing and supervision of its members, but some responsibilities are closely linked to those of others and require close coordination.** As mentioned, bank members of TASE are wholly supervised by the BOI. Responsibility for detecting and dealing with insider trading and market abuse remains with the ISA. Arrangements for coordination and communication are in place, but there is also a need for a high degree of practical interaction on a day-to-day basis.

E. Regulation of Payments and Settlement Systems

39. **The introduction in 2007 of a real time gross settlement high-value payment system, Zahav, and the enactment of a Payment Systems Law in 2008 and the BOI Law in 2010 have transformed the system’s operations and legal framework.**¹⁸ The system is now technically more efficient and stable, and better administered. However, some gaps remain, mainly in the protections available. Thus, it is important that the multilateral net settlement systems that settle in Zahav (i.e., Masav, BCH and the TASE clearing house, TASE-CH) are not a source of instability to Zahav itself, which may arise settlement on one such system is disrupted by the illiquidity of a major participant. To guard against this risk, legal provisions and oversight of could be strengthened.

¹⁷ However, the “pre-Hodek” series will be run off over time.

¹⁸ Summary statistics are presented in Table 9.

40. **Now that Zahav is operational, focus is switching to establishing the effective oversight of payment systems (Zahav itself, Masav, the Israeli Automated Clearing House (ACH), and the check clearing system BCH).** The authorities need to ensure that this project is completed by the 2013 target date.

41. **Efforts to establish more comprehensive business continuity and disaster recovery mechanisms need to be accelerated in the payments system and the BOI more generally.** At a technical level, business continuity planning and practice is well advanced. Further effort is needed to coordinate, especially with other parties on which Zahav depends for its smooth running, such as the provision of intra-day liquidity via TASE-CH or BOI monetary operations.

F. Anti-Money Laundering and Combating the Financing of Terrorism Framework

42. **The framework for the Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) continues to be strengthened.** The authorities cooperate actively with counterparts abroad and relevant international organizations. Moneyval (the relevant Financial Action Task Force (FATF)-style regional body) undertook an assessment of Israel's compliance with the FATF 40+9 Recommendations in 2008. The evaluators found an overall working AML/CFT regime, although gaps were identified, several of which had already been addressed by the authorities, as evidenced in the progress reports they presented to Moneyval in 2009 and 2011. The authorities are in the process of amending regulations for each category of financial institution in areas such as customer due diligence, recordkeeping, and supervision. Draft legislation is pending before the Knesset to impose AML/CFT obligations on certain designated non-financial businesses and professions that are currently not covered. Consideration is also being given to ensure greater transparency with respect to beneficial ownership of legal persons and arrangements

G. Macroprudential Framework

43. **The authorities have made significant efforts to develop macroprudential supervision.** A Financial Stability Group consisting of representatives from the three supervisory agencies was set up in mid-2011. The group meets regularly and produce an internal report every quarter, providing an overview of macrofinancial stability issues together with policy options to be discussed by the BOI's Monetary Committee and the other supervisory agencies.

44. **Given the structure of the Israeli economy, a more coherent approach to macroprudential issues is needed.** All financial regulatory agencies should be involved in macroprudential supervision, but the BOI is best positioned to play the leading role. The BOI has the requisite mandate, powers, and capacity as both central bank and bank supervisor. Other supervisory agencies too have made progress in establishing systemic risk

monitoring frameworks for their respective sectors. The ISA has made progress in monitoring a build-up of risks in different market segments and instruments. The CMISD has continued to improve its stress-testing capacity, including the analysis of potential feedback effects from distress in insurance and pension funds into the rest of the financial system. Yet, currently, these activities are insufficiently coordinated.

45. **Accordingly, it is suggested to establish more formally a standing FSC charged with macroprudential policy setting.** The FSC should be chaired by the BOI, which should have representatives for both monetary policy and banking sector stability, and in addition comprise the ISA, CMISD, and the MOF.¹⁹ The FSC would aim to work by consensus, but, if that proves unwieldy, mechanisms to reach quick and firm decisions may have to be introduced. The mandate and functions of the FSC should comprise the monitoring of sources of systemic risk, and the establishment of a policy agenda to mitigate these risks. The FSC would have to deal with competition in the financial sector, consumer protection, and market conduct insofar as these issues are of systemic importance. Any outstanding issues related to possible legal or other impediments for information-sharing, or the use of microprudential tools for macroprudential purposes should be dealt with during the process of establishing the FSC. To ensure accountability, the framework should stipulate duties to communicate major policy decisions; joint publications such as a Financial Stability Report could be used as a vehicle for communication of key messages to the general public. The aim is to establish an animated forum for cooperation both at the policy and at the technical levels, rather than a fully autonomous agency.

46. **In this context, stress testing activities should be designed to guide micro- and macroprudential policy to enhance financial stability.** Integrated stress testing analysis should be expanded to analyze macroprudential risks and policies (e.g., through risk transfer among corporate groups, insurance companies, savers, and government), to which end the authorities' current project to assemble data on inter-connectedness in the corporate and financial sectors is commendable.²⁰ Efforts should be made to build hypothetical scenarios that incorporate experience of other countries during the crisis. Stress testing can also help analyze the potential benefits (i.e., reduced vulnerability from lower default risk and implied credit spreads) of possible new financial sector policies and other changes, such as the proposed changes in the ownership structure of conglomerates.

¹⁹ The MOF has a role because its policies affect macro-financial conditions; it controls instruments that may be used for macro-prudential purposes (e.g., real estate taxation); and it needs to bear the fiscal burden in case of a crisis.

²⁰ Such data were not yet available to be used in the FSAP Update stress testing exercise.

IV. LIQUIDITY, CRISIS MANAGEMENT, AND SAFETY NETS

A. Liquidity Management

Monetary operations and money markets

47. **The central bank’s liquidity operational framework has been significantly strengthened in recent years.** The loan quota system was replaced with standing credit and deposit facilities, and interbank settlement practices were revamped.

48. **Repurchase (repo) markets are thin, and further efforts to develop markets are merited.** The lack of repo activity in part reflects currently ample liquidity in the system, resulting from the BOI’s recent large-scale foreign exchange purchase policy. While the authorities have made efforts to develop repo markets over the past years—including the introduction of a central trading and clearing facility for repos at TASE—a new tax legislation defining repo transactions as lending has yet to be enacted.

Emergency Liquidity Assistance

49. **An explicit emergency liquidity assistance (ELA) policy framework needs to be established in order to avoid situations when the BOI’s liquidity assistance slips into quasi-fiscal solvency support.** There is a risk that, without well-articulated criteria and procedures for providing ELA, the BOI will have to provide liquidity to (and possibly take on credit risk on) institutions of doubtful solvency or immediate systemic importance. Furthermore, the new BOI Law has broadened the central bank’s power to provide ELA in principle to all NBFIs; generally, ELA is most relevant for institutions that are directly involved in the high-value payment system, which suggests that ELA should be provided to nonbank financial institutions only under very exceptional circumstances.

B. Early Intervention and Orderly Resolution of Problem Banks

50. **Establishing an efficient and effective crisis framework is especially important in Israel given the concentrated structure of the financial system,** which makes it essential to deal effectively with emerging problems, and to address major problems decisively and quickly.

Early intervention

51. **The ordinary enforcement powers could be enhanced in several respects:** (a) by providing more flexible grounds for requiring corrective measures; (b) by ensuring that the BOI may require a bank to take specific actions to correct identified problems; and (c) by broadening the list of other measures the BOI may impose on a bank.

Going concern resolution

52. **The official administration framework should provide the administrator with a broad range of resolution techniques.** These include (a) mergers with a healthy bank; (b) rapid recapitalization with or without existing shareholders; (c) conversion of subordinated debt to equity; and (d) dispose of assets and liabilities. For these purposes, the law should grant the administrator considerable discretion in dealing with different assets and liabilities, unlike under current law, which requires that any transfer apply to all liabilities.

Gone concern resolution

53. **The authorities should consider incorporating liquidation into the special resolution regime provided for in the Banking Ordinance.** Under the current framework in Israel, banks are subject to liquidation under the general corporate insolvency law, which does not ensure continuity in the provision of financial services. A special bank resolution regime should include (a) authority of the liquidator to organize rapid transfers assets, liabilities, and combined portfolios of both (sometimes called P&A transactions) ; (b) depositor preference; and (c) power to establish a “bridge bank;” and (d) ex post judicial review so that the liquidation process is administratively handled rather than being a court-controlled process.

C. Early Intervention and Orderly Resolution of Problem Nonbank Financial Institutions

54. **Existing legislation provides nonbank supervisors with powers to intervene and resolve NBFIs.** Because resolution of these nonbanks is typically not as time-sensitive, the general insolvency regime can normally apply, but settlement systems and clearing houses, for example, may constitute exceptions, because their ongoing functionality is important for the wider economy, and because exposures can change greatly in a short time. Furthermore, it would be worthwhile to review in detail whether adequate legal and operational capacity is available to deal promptly with a problem NBFIs, especially where the institution belongs to a conglomerate, in which case the ability to impose some form of ring-fencing may be helpful.

D. Solvency Support and Funding of Banks in Resolution

55. **The current legal framework allows the BOI to guarantee public deposits, as well as other bank liabilities with the approval of the government, and thus to incur a large contingent liability—a responsibility that should rest squarely with the government and not with the monetary authority.** Moreover, a precedent and expectations have been established that depositors (and often other creditors) are bailed out. For example, during the recent global crisis, the MOF and the BOI issued statements

assuring the public that the government would stand behind the stability of the financial system and that the BOI would use all tool available to protect depositors. Moreover, provident fund investors were protected ex post from downside risk. Thus, the current arrangement does not protect the BOI from taking on quasi-fiscal potential liabilities, nor does it ensure adequate sharing of costs associated with solvency support and resolution of problem financial institutions between the government, the financial sector, and creditors.

56. In addition to establishing robust legal framework for bank resolution, several (in part complementary) measures could be considered:

- amending Banking Ordinance to allow the government to guarantee public deposits, as well as other bank liabilities, after the consultations with the BOI;
- introducing a formal DGS; or
- introducing depositor preference.

In this connection, it should be recognized that financial institutions (and their creditors) already enjoy much implicit government support; these measures serve to make that support explicit and to shift part of the burden back to the institutions.

57. The value of introducing a formal DGS should be kept under review (the possibility has been extensively debated in the past in Israel). The main objectives of a DGS are to contribute to the stability of a financial system (by preventing panic withdrawals of bank deposits or by providing funding for certain types of resolution tools) and to protect less financially-sophisticated depositors from the loss if a bank fails. Furthermore, a DGS is supposed to contribute to creating the level-playing field between the large and the small banks. There may be disadvantages, however, in reducing flexibility in how to deal with a problem bank, and the need to pre-fund at least part of potential claims, which would require imposing premia on banks and depositors; a useful level of reserves would be comparatively large given the concentration of the banking system. Without a formal DGS, other elements of the crisis management framework need to be stronger. Depositor preference is in some regards a substitute for a DGS, and also has complementary features.

E. Coordination and Information-Sharing

58. The BOI has internal guidelines that set out the procedures for dealing with weak/troubled banks, including through the establishment of a steering committee, but further organizational preparations would be worthwhile. The mission recommends that a protocol be agreed in advance for establishing a committee for coordinating crisis management preparations and efforts, and generally for allocating crisis management

responsibilities.²¹ Furthermore, it is worth considering the preparation of an operational crisis management MOU, covering such matters as information sharing and the allocation of specific responsibilities. On occasion, joint “fire drills” could be held, perhaps coordinated by the FSC.

59. **The authorities need to strengthen their preparations for dealing with a cross-border crisis in a financial institution.** While foreign operations of Israeli financial institutions are currently limited in aggregate, a few are more exposed, and interconnections with abroad may rise over time.

²¹ The proposed FSC could form the basis for this committee, but the structure would need to be adapted, for example, to take into account the role of the fiscal backstop.

STATISTICAL APPENDIX

Table 3. Israel: Structure of the Financial System

	2005					2008					2010				
	Number of			Total assets		Number of			Total assets		Number of			Total assets	
	Institutions/ funds	Branches	Employees	In billions of NIS	Percent of GDP	Institutions/ funds	Branches	Employees	In billions of NIS	Percent of GDP	Institutions /funds	Branches	Employees	In billions of NIS	Percent of GDP
A. Banks															
Five major banks, consolidated	5	1,018	39,569	859.2	142.9	5	1,191	46,790	1,012.8	140.0	5	1,208	47,690	1,068.8	131.5
Bank Leumi Le Israel	1	258	11,268	272.8	45.4	1	322	13,108	310.8	43.0	1	322	13,339	328.2	40.4
Bank Hapoalim	1	332	12,615	273.3	45.5	1	292	13,884	306.8	42.4	1	295	13,875	320.9	39.5
Israel Discount Bank	1	203	8,712	154.8	25.7	1	234	10,382	182.2	25.2	1	252	10,219	185.8	22.9
Mizrahi Tefahot Bank	1	129	3,713	86.3	14.4	1	168	4,627	114.0	15.8	1	163	5,170	133.3	16.4
First International Bank of Israel	1	96	3,261	71.9	12.0	1	175	4,789	98.9	13.7	1	176	5,087	100.7	12.4
Other banks	3	46	1,470	42.1	7.0	3	52	1,555	49.0	6.8	3	51	1,666	52.8	6.5
B. Non-bank financial institutions				667.7	111.1				765.2	105.8				1,068.0	131.4
Provident and severance pay funds	104	...	...	165.6	27.5	87	...	...	145.4	20.1	66	...	...	194.1	23.9
Advanced study funds	...	...	...	72.0	12.0	...	...	...	72.6	10.0	...	...	...	112.0	13.8
Old pension funds	18	...	...	142.5	23.7	18	...	...	237.2	32.8	18	...	...	287.2	35.3
New pension funds	18	...	...	44.7	7.4	13	...	...	71.0	9.8	10	...	...	111.3	13.7
Mutual funds	918	...	...	124.6	20.7	1,185	...	...	98.1	13.6	1,247	...	...	156.6	19.3
Assured yield life insurance plans	...	...	...	47.3	7.9	...	...	...	54.9	7.6	...	...	...	66.1	8.1
Profit sharing life insurance plans	...	...	...	71.1	11.8	...	...	...	86.1	11.9	...	...	...	140.7	17.3
C. Financial service providers	171	...	...	...	...	235	...	...	...	...	203	...	...	...	...
Portfolio management firms	159	...	...	...	...	198	...	...	...	...	164	...	...	...	...
Investment advice firms	12	...	...	...	...	11	...	...	...	...	12	...	...	...	...
Investment marketing firms	0	...	...	...	...	26	...	...	...	...	27	...	...	...	...
Total financial system (A+B)	...	...	...	1,526.9	254.0	...	...	...	1,778.0	245.7	...	...	...	2,136.8	262.8
Memorandum items:															
GDP (NIS billions)	...	...	...	...	601.2	...	...	...	...	723.6	...	...	...	...	813.0

Sources: Bank of Israel, Ministry of Finance, and Israel Securities Authority.

Table 4. Israel: Selected Economic and Social Indicators
(Percentage change, unless otherwise indicated)

	2007	2008	2009	2010	2011 Est.	2012 Projections	2013
Real economy							
Real GDP	5.5	4.0	0.8	4.8	4.7	2.8	3.8
Domestic demand	6.6	2.2	0.0	4.4	7.2	3.3	2.9
Private consumption	6.3	2.8	1.4	5.3	3.6	1.5	2.5
Public consumption	3.3	1.9	2.4	2.5	3.7	3.4	2.1
Gross capital formation	11.7	0.9	-7.0	4.0	22.8	7.8	4.9
Foreign demand (contribution to real GDP growth)	-1.0	1.9	0.4	0.5	-2.2	-0.3	0.9
Unemployment rate (percent)	7.3	6.2	7.6	6.6	5.7	6.0	5.8
Overall CPI (end period)	3.4	3.8	4.0	2.6	2.2	2.0	2.0
Saving and investment balance							
Gross national saving (percent of GDP)	23.1	19.6	20.3	18.1	18.1	18.7	19.7
Foreign saving (percent of GDP)	-2.7	-0.9	-3.6	-2.9	0.6	1.0	0.2
Gross domestic investment (percent of GDP)	20.3	18.7	16.7	15.2	18.7	19.7	19.9
Money and credit (period average)							
M1	15.4	14.2	50.8	12.1	4.0	...	...
M3	12.9	8.0	14.1	6.6	...	...	...
Interest rates (percent)							
Bank of Israel policy rate (end year)	4.00	2.50	1.00	2.00	2.75	...	...
10-year government bond yield (average)	5.55	5.92	5.06	4.68	4.98	...	...
Public finance (percent of GDP)							
Central government							
Revenues and grants	34.0	31.4	28.0	28.8	29.6	29.8	30.8
Total expenditure	34.0	33.7	33.3	32.6	32.9	33.2	33.1
Overall balance	0.0	-2.3	-5.3	-3.7	-3.3	-3.4	-2.3
General government							
Overall balance	-1.3	-3.3	-6.0	-4.6	-4.0	-3.5	-2.6
Debt	78.1	77.0	79.4	76.1	74.4	73.5	72.3
Of which: foreign currency external debt	17.2	14.9	14.4	12.7	12.8	11.2	10.9
Balance of payments (percent of GDP)							
Exports of goods and services	42.4	40.3	34.7	36.9	36.9	33.6	33.8
Real growth rate (percent)	9.2	6.6	-12.6	13.4	4.9	-4.4	6.0
Imports of goods and services	43.9	41.6	32.3	34.9	37.8	35.1	34.4
Real growth rate (percent)	11.7	2.3	-14.0	12.6	10.6	-3.7	3.7
Trade balance	-1.5	-1.3	2.4	1.9	-1.2	-1.6	-0.8
Oil Imports (billions of U.S. dollars)	8.9	12.8	8.1	10.4	13.6	14.2	14.3
Current account	2.7	0.9	3.6	2.9	-0.6	-1.0	-0.2
Foreign reserves (end period, billions of U.S. dollars)	28	43	61	71	75	77 2/	77
Exchange rate							
Exchange rate regime					Free floating		
NIS per U.S. dollar	4.1	3.6	3.9	3.7	3.6	...	...
Nominal effective exchange rate (2005=100)	103.6	115.1	109.8	115.1	...	...	...
Real effective exchange rate (2005=100)	100.6	112.1	109.9	115.4	...	...	...
Social Indicators (reference year)							
GDP per capita (current U.S. dollars, 2009): 27,656; Population density (2009): 343.9 inhabitants per square kilometer; Poverty rate (2008) ^{1/} : 19.9 percent; Fertility rate (2009): 3.0 per woman; Life expectancy at birth (2009): 79.7 (male) and 83.5 (female); Infant mortality rate (2009): 3.4 per 1,000 births; Physicians (2007): 3.6 per 1,000 people; CO2 emissions (tons per capita, 2007): 9.3.							

Sources: Haver Analytics; Bank of Israel, Central Bureau of Statistics; World Bank; and IMF staff estimates and projections.

1/ Poverty rate from National Insurance Institute of Israel.

2/ As at end-February 2012.

Table 5. Israel: Financial Soundness Indicators: Five Major Banks 1/
(End period; in percentage points; unless otherwise indicated)

	2005	2006	2007	2008	2009	2010	2011 Q1	2011 Q3 Prel,
Capital Adequacy								
Regulatory capital to risk-weighted assets 2/	10.6	10.7	11.1	11.3	13.6	13.9	13.6	13.6
<i>Highest bank minus lowest bank</i>	2.4	0.7	1.2	2.0	2.2	1.6	1.1	1.0
Regulatory Tier I capital to risk-weighted assets 2/	7.2	7.4	7.7	7.5	8.3	8.5	8.3	8.2
<i>Highest bank minus lowest bank</i>	1.6	1.2	2.0	2.0	1.8	1.1	1.0	0.8
Capital as percent of assets (leverage ratio)	5.6	5.9	6.1	5.8	6.3	6.5	6.3	6.7
<i>Highest bank minus lowest bank</i>	1.5	1.5	1.0	1.3	1.4	1.6	1.7	
Asset quality and exposure								
Nonperforming loans to total gross loans	...	...	...	...	...	3.1	2.5	2.5
<i>Highest bank minus lowest bank</i>	...	...	...	...	...	3.0	2.4	...
Nonperforming loans net of loan-loss provisions to capital	...	...	...	...	...	23.3	20.4	21.8
<i>Highest bank minus lowest bank</i>	...	...	...	...	...	22.7	19.5	...
Sectoral distribution of bank credit (percent)								
Industry	13.7	13.0	12.4	13.0	11.1	10.5	10.6	...
Construction and real estate	15.7	15.2	15.8	16.9	16.8	16.7	16.5	...
Commerce	9.5	8.7	8.4	8.5	7.5	7.5	8.0	...
Finance services	12.4	13.0	15.8	12.5	11.8	11.7	10.6	...
Households	30.3	33.5	31.2	32.8	37.1	38.3	39.4	...
Of which: mortgages	19.3	20.5	18.7	19.8	22.8	24.2	25.3	...
Others	18.4	16.7	16.4	16.3	15.7	15.2	15.0	...
Earnings and profitability								
Return on average assets (after tax)	0.7	0.9	0.9	0.1	0.5	0.6	0.7	0.6
<i>Highest bank minus lowest bank</i>	0.8	0.7	0.4	0.9	0.2	0.3	0.4	0.4
Return on average equity (after tax)	13.0	15.1	15.6	2.3	9.0	9.4	12.0	9.7
<i>Highest bank minus lowest bank</i>	11.8	8.4	3.3	15.2	3.5	4.8	4.7	6.3
Net interest income as percent of gross income	62.5	61.9	61.1	59.0	59.0	63.5	63.4	64.9
<i>Highest bank minus lowest bank</i>	3.4	3.9	7.5	28.3	5.2	7.8	5.1	...
Trading and fee income as percent of gross income	30.2	32.0	34.6	40.0	38.5	35.3	34.6	...
<i>Highest bank minus lowest bank</i>	3.1	3.7	4.9	28.8	5.2	7.2	4.8	...
Noninterest expenses as percent of gross income	62.5	61.9	61.1	59.0	59.0	63.5	64.9	...
<i>Highest bank minus lowest bank</i>	19.8	22.7	16.1	41.8	10.0	16.2	15.4	...
Personnel expenses as percent of noninterest expenses	60.0	62.3	59.6	58.0	57.1	57.4	60.6	59.7
<i>Highest bank minus lowest bank</i>	4.2	4.5	1.0	1.0	7.6	3.7	4.4	4.2
Liquidity								
Liquid assets as percent of total assets	...	...	...	30.1	32.4	28.9	59.6	...
<i>Highest bank minus lowest bank</i>	...	...	...	4.4	7.3	7.2	24.8	...
Liquid assets as percent of short-term liabilities	...	...	...	63.6	65.6	28.8	30.4	...
<i>Highest bank minus lowest bank</i>	...	...	...	22.3	19.0	8.7	11.4	...
Customer deposits as a percent of total (non-interbank) loans	129.2	125.7	119.5	113.8	117.6	111.0	110.0	107.9
<i>Highest bank minus lowest bank</i>	45.0	40.4	26.3	15.8	22.7	15.9	18.0	...
Interbank assets to total assets	10.6	11.5	9.8	4.3	2.8	2.3	...	...
<i>Highest bank minus lowest bank</i>	1.6	4.3	2.9	2.9	2.9	1.4	...	...
Interbank liabilities to total assets	2.5	2.8	2.7	1.9	1.8	1.5	1.7	...
<i>Highest bank minus lowest bank</i>	2.6	3.2	1.9	1.5	0.9	1.0	0.9	...
Foreign exchange risk								
Foreign currency-denominated loans as percent of total loans	...	...	18.1	16.7	14.1	12.5	...	...
Foreign currency-indexed loans as percent of total loans	...	...	1.0	0.7	0.7	0.7	...	...
Foreign currency-denominated deposits as percent of total loans	...	...	31.2	28.1	26.9	24.4	...	...
<i>Of which: non-residents</i>	...	...	12.4	11.0	10.2	8.5	...	...
Foreign currency-indexed deposits as percent of total loans	...	...	0.8	0.5	0.3	0.2	...	...
Liquid foreign currency assets/short-term foreign currency liabilities	...	...	...	64.6	44.0	44.4	44.7	...

Sources: BOI, and IMF staff estimates.

1/ The five major banks hold about 95 percent of total banking system assets.

2/ From 2009, the calculation of capital base follows rules under Basel II.

Table 6. Israel: Financial Soundness Indicators: Insurance
(End period; in billions of NIS unless otherwise indicated)

	2005	2006	2007	2008	2009	2010	2011Q3
Life							
Gross premiums	15.5	16.2	17.4	19.3	19.8	21.7	17.5
Net premiums	14.7	15.6	16.7	18.5	18.7	20.6	16.6
Investment income	12.5	9.0	11.7	-15.0	33.4	18.6	-5.7
Net claims	7.1	7.7	8.0	8.1	8.8	9.8	8.3
Expenses	3.0	3.1	3.4	3.6	3.7	4.2	3.3
ROE (after tax, percent)	...	...	...	...	...	...	...
Total assets	122.2	135.3	150.0	144.8	184.1	210.2	211.8
Intangible assets	2.3	2.4	2.4	2.6	2.6	2.7	0.1
Investments	118.5	132.0	147.5	142.0	181.1	206.9	207.8
<i>of which:</i>							
Government securities	50.5	48.7	47.9	58.0	61.0	65.6	67.8
Corporate securities	21.9	25.7	33.3	30.1	39.4	43.3	45.8
Equity	16.7	23.3	26.9	12.3	23.8	31.1	26.6
Real estate and real-estate related	2.0	2.8	3.9	5.9	5.9	6.9	7.7
Receivables	0.8	0.9	1.1	1.2	1.3	1.3	1.9
Reinsurance recoverable	1.9	1.9	1.0	1.0	1.3	1.5	1.6
Other assets	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Liabilities							
<i>of which:</i>							
Technical provisions	119.8	132.3	147.8	141.3	180.6	205.6	205.9
<i>of which: related to non-term life</i>	116.5	128.7	145.3	139.0	177.9	202.0	201.5
Non-Life							
Gross premiums	15.7	17.7	18.3	18.7	19.3	20.5	16.7
Net premiums	13.7	14.2	14.9	15.0	15.2	15.7	12.8
Investment income	2.3	1.6	1.9	0.3	3.2	2.4	0.5
Net claims	9.8	9.5	10.5	11.2	12.0	11.7	8.9
Expenses	4.5	4.6	4.8	4.7	4.8	5.1	4.1
Total assets	44.5	44.7	46.7	47.6	51.7	53.2	56.4
Intangible assets	0.9	0.9	1.0	1.3	1.4	1.3	1.7
Investments	29.2	29.5	31.1	31.3	34.6	35.3	36.6
<i>of which:</i>							
Government securities	9.9	9.5	8.6	9.3	11.6	12.2	10.9
Corporate securities	7.6	8.2	11.8	9.4	11.2	10.9	11.6
Equity	1.2	1.8	1.5	1.0	1.0	0.9	0.9
Real estate and real-estate related	0.2	0.1	0.3	0.5	0.5	0.5	0.7
Receivables	3.6	3.8	4.4	4.5	4.0	4.1	5.0
Reinsurance recoverable	10.6	10.2	10.1	10.3	11.5	12.5	13.0
Other assets	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Liabilities							
<i>of which:</i>							
Technical provisions	41.1	41.9	43.3	44.5	47.1	49.3	51.9
Soudness indicators (all insurances)							
Return on equity (after tax)	27.8	22.6	29.3	-18.2	34.9	18.8	...
Return on total assets (after tax)	1.7	1.3	1.7	-1.0	2.1	1.2	...
Net premiums as percent of capital	260.8	260.6	251.9	302.6	204.1	192.5	...
Capital as percent of technical reserves	6.8	6.5	6.6	6.0	7.3	7.4	6.8
Surplus capital as percent of required solvency 1 capital	24.8	26.6	13.8	1.5	25.5	28.8	14.6
Liquid assets as percent of total assets	41.8	43.7	46.0	41.4	49.5	52.4	49.5

Source: MOF, CCMISD, and IMF staff estimates.

Table 7. Israel: Financial Soundness Indicators: Pension
(End period; in billions of NIS, unless otherwise indicated)

	2005	2006	2007	2008	2009	2010	2011
Number of pension funds							
Provident funds	104	108	101	87	66	66	63
"New" pension funds	18	13	13	13	10	10	11
"Old" pension funds	18	18	18	18	18	18	18
Number of policy holders (in thousands)							
Provident funds	7,289	7,626	7,906	8,105	9,026	8,320	8,502
"New" pension funds	1,051	1,182	1,356	1,871	2,267	2,658	3,010
"Old" pension funds	1,206	1,182	1,001	973	950	940	918
Financial indicators							
Gross contributions							
Provident funds	22.5	19.5	20.8	19.2	18.7	19.2	20.1
"New" pension funds	5.2	6.2	7.5	9.4	11.1	13.2	15.8
"Old" pension funds	15.1	8.0	6.3	6.6	6.0	6.2	6.6
Investment income	...	...	...	...	...	...	1.7
Payouts	28.6	28.6	29.8	41.8	31.3	32.6	37.0
Operating expenses	2.3	2.5	3.1	3.4	3.7	4.0	4.2
ROE (after tax)	...	...	...	...	...	...	...
Total assets	424.7	457.1	502.2	528.3	640.0	704.6	725.0
<i>of which:</i>							
Provident funds	237.3	255.6	278.4	220.1	279.8	306.0	294.0
"New" pension funds	30.8	38.0	47.3	49.0	71.1	90.0	102.0
"Old" pension funds	156.6	163.5	176.6	259.2	289.1	308.6	329.0
<i>of which:</i>							
Government securities	231.0	217.0	194.0	296.0	319.0	342.0	377.7
Corporate securities	82.9	107.9	151.1	105.3	127.2	132.4	130.8
Equity	54.4	62.2	75.1	34.0	91.9	115.1	100.2
Real estate and real-estate related	1.3	1.5	1.6	1.9	2.2	2.4	3.0

Source: MOF, CCMISD, and IMF staff estimates.

Table 8. Israel: Financial Soundness Indicators: Nonfinancial Sector
(End period; in percentage points, unless otherwise indicated)

	2005	2006	2007	2008	2009	2010	2011
Households							
Household assets as percent of disposable income	615	577	650	541	626	...	...
Of which: residential buildings	155	152	150	150	140	...	...
Household debt as percent of disposable income 1/	62	58	59	61	60	62	62
Corporate sector							
Non-financial sector borrowing (NIS billions)	97	97	104	103	96	94	89 2/
From residents	79	79	86	85	79	78	74 2/
From non-residents	18	19	18	17	17	16	15 2/
Debt to equity ratio							
All nonfinancial corporate	197	188	221	265	226	230	235 3/
Of which: Manufacturing sector	124	118	118	130	111	112	112 3/
Construction corporate	299	275	278	411	374	296	289 3/
Net income to equity ratio							...
All nonfinancial corporate	12	12	14	-1	9	12	...
Of which: Manufacturing sector	11	10	13	9	12	13	...
Construction corporate	15	19	25	-41	-2	15	...
Earning before interest and tax to equity ratio							...
All nonfinancial corporate	21	19	23	11	14	21	...
Of which: Manufacturing sector	20	19	17	14	14	17	...
Construction corporate	24	18	44	-9	13	32	...
Equity markets							
Tel Aviv Stock Exchange Index 75 (annual percent change)	19	19	6	-68	150	16	-26
Equity prices of financial institutions (annual percent change)	36	8	0	-56	127	9	-34
Equity prices of real estate firms (annual percent change)	41	68	1	-80	125	15	-23
Equity prices of banks (annual percent change)	55	4	6	-56	114	7	-35
Market capitalization in percent of GDP	94	105	132	56	93	99	69
Corporate bond markets							
Corporate bond yields over government bond yields (percentage points)							
Real estate and construction	1.9	1.8	3.5	17.1	8.3	4.4	6.8 2/
Manufacturing	2.7	1.9	2.2	6.8	3.2	3.0	4.3 2/
Corporate bond outstanding (in billions of NIS)	73	109	188	202	235	256	276 2/
Average daily turnover (in millions of NIS)	215	274	673	924	899	882	892
Real estate markets (prices; annual percent change)							
Average prices of owner occupied dwellings	11.3	-3.2	2.5	6.5	22.4	17.0	-1.2
Jerusalem	5.9	7.3	3.7	13.3	15.5	14.7	7.1
Tel Aviv	14.5	-7.9	14.9	10.7	34.1	16.9	-8.1

Sources: BOI, and IMF staff estimates.

1/ Includes bank and nonbank debt.

2/ 2011 Q3.

3/ 2011 Q2.

Table 9. Israel: Payment System Transactions

	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
	Value (in billions of NIS)				In volume (thousands)				Average value (in NIS thousands)			
ZAHAV (RTGS)												
Interbank	5,894	3,809	4,575	5,897	186	156	218	305	31,688	24,417	20,986	19,334
Continuous Linked Settlement	508	933	1,097	1,408	8	10	11	11	63,500	93,300	99,727	128,000
Banks' clearing house	7,506	4,831	4,294	4,066	9	9	11	11	834,000	536,778	390,364	369,636
Bank of Israel	7,966	52,731	65,818	77,573	14	21	22	23	569,000	2,511,000	2,991,727	3,372,739
Total	21,874	62,304	75,784	88,944	217	196	262	350	100,802	317,878	289,252	254,126
In multiples of GDP	30.2	81.3	93.2	102.9	...	...	...	...	...	...	...	...
MASAV (automated clearing house)												
Debits and credits	...	1,779	1,958	2,100	...	260,622	276,542	289,734	...	7	7	7
BCH (paper based clearing house)												
Checks and other papers	...	858	787	876	...	125,006	125,039	123,683	...	7	6	7
Tel Aviv Stock Exchange Clearing Houses												
Gross payment value	...	1,596	1,586	1,628	...	94,925	106,292	...	...	17	15	...

Source: BOI and TASE.

APPENDIX I. 2001 FSAP RECOMMENDATIONS AND THEIR IMPLEMENTATION STATUS

Recommendation	Implementation Status
<p>To the BOI: Monetary Policy</p> <ul style="list-style-type: none"> • adjust the design and use of monetary policy instruments to improve the implementation of monetary policy and to boost money market development (standing facilities, reserve requirement, open market operations) <p>Banking supervision and policies</p> <ul style="list-style-type: none"> • allow banks to broaden scope but with prudential and customer protection restrictions • improve bank reporting on collateral • encourage banks to adopt uniform credit rating categories • adopt explicit deposit insurance <p>Payment system</p> <ul style="list-style-type: none"> • establish clear BOI oversight of payment systems • develop a large value system compliant with the Core Principles • establish a National Payments Council <p>To the Ministry of Finance: Securities</p> <ul style="list-style-type: none"> • remove limits on issuance of “Makam” monetary policy bills <p>Capital controls</p> <ul style="list-style-type: none"> • phase out remaining controls <p>Insurance and pension supervision</p> <ul style="list-style-type: none"> • transfer supervision of provident funds for short to medium term savings to ISA • phase out use of non-tradable fixed real return government securities and liberalize investment options • strengthen supervision staff and capabilities • give Commissioner of insurance more independence and more flexible intervention powers • separate the governance overview and management of pension funds 	<ul style="list-style-type: none"> • 2005: Introduction of new monetary instruments - monetary loan window, monetary deposit window; 2009: Start of open market operations in the secondary market with government debt of various types and maturities; numerous other reforms, such as the introduction of primary dealers and the expansion of the Treasury bill market • From 2005, banks’ activities are effectively restricted to traditional banking, with limited ancillary services such as financial investment advisory services; the BOI is responsible for prudential supervision and consumer protection • Quarterly Report on Large Exposures that elaborates on the collateral of large borrowers by types • Not done • Explicit deposit insurance considered and not adopted • Legal basis provided and in process of operationalization • RTGS introduced in 2007 (see main text and detailed assessment report) • The Council for Payment and Settlement Systems was established during 2009 • Done • Done • Provident funds are supervised by the CMISD (they are now more like pension funds) • Done • Done (see main text and detailed assessment report) • Laws amended to this end • Done

Recommendation	Implementation Status
<p>To the Israel Securities Authority:</p> <ul style="list-style-type: none"> • obtain the authority to impose civil sanctions • stop providing financial support for class action suits <p>To the Government:</p> <ul style="list-style-type: none"> • establish a council to coordinate financial sector supervision • relevant laws should be amended to allow sharing of supervisory information among supervisors • adopt tax reforms leveling the playing field in financial instruments • strengthen BOI independence and accountability by adopting a new central bank law that reflects Maastricht principles as recommended by the Levin Committee report of December 1998 • strengthen legal basis of banking supervision and bank exit • adopt a modern payment law 	<ul style="list-style-type: none"> • The ISA now possesses both administrative and criminal enforcement powers • The ISA policy is that the ISA should support and incentivize private enforcement actions • Done • Done • Largely done; provident funds for education enjoy particular advantages • Done in 2010 • Legal basis for banking supervision and, to a lesser extent, bank exit established through the new BOI law and amendments to the Banking Ordinance • Done in 2008 in the context of the establishment of the RTGS

APPENDIX II. RISK ASSESSMENT MATRIX

Nature/Source of Main Threats	Likelihood of Severe Realization in the Next Three Years	Expected Impact on Financial Stability if Threat is Realized
<p>Sharp global growth slowdown</p>	<p>Staff assessment: High</p> <p>Global growth momentum, notably in the United States and the euro area, could deteriorate sharply, leading to a decline in trade.</p> <p>The financial turmoil in the currently most vulnerable European countries could spread to larger euro area countries. A Europe-wide recession is now relatively likely. Activity in the United States, already softening, might suffer a further blow from a political impasse over fiscal consolidation and a weak housing market.</p>	<p>Staff assessment: Medium</p> <p>As a small open economy, Israel's growth is highly dependent on the performance of the global economy, and especially that of Europe and the U.S. Possibly, Israel could receive "search for yield" capital inflows, leading to appreciation and loss of price competitiveness.</p> <p>Lower GDP growth would dampen corporate profits, household income, and reduce employment, thereby weakening credit quality and financial institutions' profits.</p> <p>Funding conditions may become more difficult, with higher risk premia on private and sovereign debt. Funding difficulties of highly-leveraged conglomerates may spread the impact across the economy.</p> <p>Direct exposure to the most vulnerable European countries is limited. Israel's performance during the recent global crisis was reassuring. Since then, prudential measures have been tightened, and banks no longer have substantial exposure to U.S. "toxic assets."</p>
<p>Severe escalation in regional geopolitical security concerns</p>	<p>Staff assessment: Low/Medium</p> <p>The political and security situation in the Middle East and North Africa region remains highly uncertain.</p> <p>Turmoil in nearby countries could have significant economic ramifications, for example, through a large increase in energy prices, which would provoke stagflation in advanced economies and a tightening of monetary policy in response to the inflationary threat.</p>	<p>Staff assessment: Medium/High</p> <p>Severe escalation in regional security concerns could hit the Israeli tourism sector, consumer confidence, and possibly capital inflows. In the extreme, banks could face deposit withdrawals.</p> <p>The impact would be greater if heightened regional tensions provoke stagflation in Israel's main trading partners and, in Israel, higher inflation and much tighter monetary policy.</p> <p>The Israeli economy has proven resilient to past episodes of heightened regional tensions.</p>

Nature/Source of Main Threats	Likelihood of Severe Realization in the Next Three Years	Expected Impact on Financial Stability if Threat is Realized
<p>Failure of an individually important institution or conglomerate</p>	<p>Staff assessment: Low</p> <p>Sudden failure of one bank for idiosyncratic reasons, while unlikely, cannot be ruled out.</p> <p>Performance of insurers and pension funds remains sensitive to financial market developments, and the corporate sector.</p> <p>Large conglomerates connect different sectors through complex financing, ownership, and supply-chain linkages. Corporate bond risk premia have recently been rising, especially for the highly-leveraged holding companies. Projected rollover volumes in 2012-13 are substantial, while bank lending cannot fully substitute for corporate bonds.</p>	<p>Staff assessment: Medium/Low</p> <p>Each one of the major banks is important, and confidence effects could lead to spillovers. However, banks have limited interconnectedness through the interbank market.</p> <p>Insurers and pension funds are not prone to acute liquidity crises, and solvency requirements for insurers are being tightened.</p> <p>Difficulties in a major conglomerate would have an economy-wide impact, and create uncertainty over where the ultimate impact will be felt. The resultant higher risk premia and possible illiquidity in financial markets would have a knock-on effect on other financial and nonfinancial firms.</p>
<p>Sharp reversal of a housing boom</p>	<p>Staff assessment: Low</p> <p>House prices have risen substantially since 2008 under conditions of low interest rates. Residential construction has been booming, and mortgage lending has increased rapidly.</p> <p>Recently, housing prices have leveled off, and the high construction volume can be viewed as partly making up for low activity in past years. The authorities have taken measures to cool the housing market and limit associated credit risk.</p>	<p>Staff assessment: Medium/Low</p> <p>Although households' indebtedness is relatively low and stable (about 60 percent of disposable income), their debt service capacity would deteriorate if interest rates rise sharply, as a substantial share of mortgages carry variable interest rates.</p> <p>Banks have significantly increased their exposures to mortgages and construction sectors (about 25 and 15 percent of total loans, respectively). A sharp correction in housing markets would increase banks' loan losses through: (i) the direct impact of an increase in NPLs to households and the construction sector; and (ii) an indirect impact through weaker economic growth. However, historically, defaults on residential mortgages have been very low, and recoveries relatively high.</p>

APPENDIX III. STRESS TESTING FRAMEWORK**BANKING****Solvency tests**

60. **The banking sector solvency risk assessment includes a top-down balance sheet stress test and single factor tests carried out by the BSD and a contingent claims analysis (CCA) stress test carried out by BOI and IMF staff.** The coverage of the stress tests was the five largest banks, which constitute 93 percent of assets and 95 percent of total sector lending. End-June 2011 data provide the starting point and the projection period extends through end-2014, a time horizon that encompasses the medium-term impact of the shocks.

61. **Balance sheet stress tests used supervisory data.** Satellite models cover separately housing and corporate credit, household non-housing credit, profit components, profit retention behavior, and haircuts on government and foreign financial institution bonds. The models were designed and calibrated so as to ensuring the robustness of results, for example, by incorporating strong sensitivity of credit quality to macro variables. Single factor tests were conducted to estimate vulnerabilities to market risk (interest rate, exchange rate, and stock market shocks), and an idiosyncratic credit shock from exposures to largest borrower group and three largest corporate borrowers. The metric is based on current Israeli capital requirements for total capital adequacy ratio (CAR) of 9 percent. Core Tier 1 (CT1) capital ratio of 5 percent and profitability were used as a metrics. The stress tests cover the five major banks.

62. **The CCA stress tests used bank-by-bank CCA models together with a macroeconomic factor model to project bank default probabilities and spreads for the three ST scenarios.** The CCA uses risk-adjusted balance sheets of banks based on market plus accounting information, to capture the relationships between changes in market capital, bank assets, and bank credit risk (default risk, expected losses to creditors, and spreads). A time series of expected default probabilities for each bank (from the Moody's KMV CCA model) were used with past macroeconomic variables to estimate a macro econometric model. The estimated regression parameters were then used with the three stress test scenarios to project bank expected default frequencies and additional risk indicators (market capitalization and bank credit spreads, including the effect of changes in risk appetite in the most severe scenario).

63. **Solvency stress test results come with some caveats, for example, because of model risk and reliance on historical data, which may not be representative of future developments.** However, the projections used conservative estimates of the satellite models.

Macro scenarios

GDP growth

64. **The GDP growth values for the baseline scenario are the output of the BOI's dynamic stochastic general equilibrium model and fit the baseline scenario of the BOI Research Department (RD) Staff Forecast.** The values for Adverse scenario 1 were set by the IMF, the RD, and the BSD, as were the values for Adverse scenario 2. The Adverse scenario 2 was defined to be a very severe negative shock to growth; the first six quarters of (2011Q4–2013Q1) are based on the growth path observed in the 2008 crisis with the two quarters of GDP contraction seen in the 2008–2009 crisis being extended to four quarters of contraction, thereby doubling the size and term of the GDP contraction.

Inflation, exchange rate depreciation, BOI short interest rate, and unemployment

65. **Scenarios for the macro variables (inflation, exchange rate depreciation, BOI short interest rate, and unemployment) are the output of the BOI staff forecast after setting the GDP growth path and the relevant shocks (risk premium, global recession).**

TA100 stock index

66. **In the baseline scenario, for the TA100 stock index, a vector autoregression model that includes domestic (growth, inflation, depreciation, BOI interest rate, and changes in TA100) and foreign variables is used.** For Adverse scenario 1, the BOI used the changes observed in the stock index in the 2001 recession, which was mainly a domestic one. For Adverse scenario 2, the changes observed at the 2008 crisis are used.

Long-term/short-term yield spread

67. **This variable was constructed using historical data.** For the baseline scenario, the BOI set the long-term yield on government bonds on an average rate (5 percent). For Adverse scenario 1, the historical spreads observed at the 2001 recession were used, and assumed a convergence of the long-term yield towards the above-mentioned average rate in the last six quarters of the scenario. For Adverse scenario 2, the BOI took the historical spreads observed at the 2008 crisis, extending the highest long interest rate for a year (2012).

The full set of scenario parameters are below:

Table 10. Israel: Stress Testing Scenario Parameters
(In percent)

		2011	2012	2013	2014
Real GDP growth	Base	3.6	3.1	3.4	3.7
	Adv. 1	3.4	1.2	2.5	2.8
	Adv. 2	1.9	-2.8	1.2	2.5
Inflation	Base	3.0	2.3	2.2	1.8
	Adv. 1	3.1	3.2	2.8	3.1
	Adv. 2	2.8	0.6	-1.4	-4.8
Exchange rate depreciation	Base	3.0	1.7	1.3	-0.4
	Adv. 1	4.1	6.8	3.6	1.2
	Adv. 2	3.6	12.0	-1.2	-8.3
Bank of Israel interest rate	Base	3.0	3.0	2.8	2.3
	Adv. 1	3.1	3.6	2.6	2.1
	Adv. 2	2.9	1.0	0.5	0.5
Unemployment	Base	5.6	5.7	5.9	6.1
	Adv. 1	5.7	6.5	7.3	7.3
	Adv. 2	5.9	9.9	11.1	10.8
Change in TA100 Index	Base	-24.9	-1.6	-0.2	7.5
	Adv. 1	-30.7	-8.7	-25.6	7.5
	Adv. 2	-36.4	-57.3	33.9	21.7
Long-term/short-term yield spread	Base	1.9	2.0	2.2	2.7
	Adv. 1	2.2	3.3	3.2	3.0
	Adv. 2	2.2	5.6	4.7	4.1
AA rated bonds spread	Base	1.1	1.2	1.2	1.2
	Adv. 1	1.1	2.2	1.7	1.7
	Adv. 2	1.3	3.1	2.2	1.7
A rated bonds spread	Base	2.7	3.4	3.4	3.4
	Adv. 1	2.7	6.8	4.8	4.8
	Adv. 2	3.3	12.3	6.8	4.8
BBB rated bonds spread	Base	6.1	7.8	7.8	7.8
	Adv. 1	6.1	16.0	12.5	12.5
	Adv. 2	7.7	25.7	16.0	12.5
Non-rated bonds spread	Base	7.7	8.9	8.9	8.9
	Adv. 1	7.7	17.3	16.5	16.5
	Adv. 2	9.7	22.7	17.3	16.5
Real estate sector bonds spread	Base	4.7	5.6	5.6	5.6
	Adv. 1	4.7	9.6	9.0	9.0
	Adv. 2	5.2	15.7	9.6	9.0

Source: Bank of Israel

Israel: Stress Test Matrix for the Banking Sector: Solvency Risk

Domain	Assumptions	
	Top-Down Balance Sheet ST by Authorities	Top-down Contingent Claims Analysis ST by Authorities and FSAP Team
Institutions included	5 largest institutions	5 largest institutions
Market share	93 percent of assets 95 percent of total sector lending	93 percent of assets 95 of total sector lending
Data and baseline date	Supervisory data End-June 2011 Consolidated banking group.	Balance sheet data (public) plus market data (MKMV inputs) End-June 2011 Banks have quoted market capitalization.
Methodology	Banking Supervision Department's models: corporate sector, household and government debt solvency models.	Macro-econometric factor model combined with MKMV data on expected default frequency (EDFs) and market value of bank assets.
Stress test horizon	End-June 2011 to end 2014	End-June 2011 to end 2014
Shocks	<p>Scenario analysis Base, Adverse 1 (domestic shock), Adverse 2 (serious international shock) Macro scenarios are shocks conditioned upon GDP, inflation, interest rates, exchange rate, unemployment, short and long-term interest rates, equity prices, bond prices (AA, A, BBB, unrated, and real estate bond spreads). Adverse 1 is 1.9 percent GDP decline and Adverse 2 is 5.9 percent decline from Base scenario GDP growth of 3.1 percent in 2012 (see table).</p> <p>Sensitivity (single shock) analysis applied in the balance sheet</p> <ul style="list-style-type: none"> • Credit shock to largest corporate group and largest three borrowers • 25 percent decline in stock market value • 15 percent change in exchange rate • 200 bp. change in interest rates • Vulnerable European government debt shock: 30 and 10 percent write off 	
Risks/factors assessed	Credit losses, profitability, fixed income holdings of banks/sovereigns, exchange rate, dividends, and taxes.	Changes in market value of assets, EDFs, expected losses to creditors, implied credit spread and CCA capital ratio.
Calibration of risk parameters	Loan Loss Provisions and quasi-PDs linked to satellite model of macro factors—for housing credit, household non-housing credit, corporate credit (using PDs and LGDs), market risk estimates government debt and foreign financial institution bond holdings	EDF and market value of asset projections based on historical macro-econometric relationships. EDF projections for the three scenarios used to calculate additional risk indicators (expected losses and credit spreads, using market price of risk parameters, as well as market capitalization and CCA capital ratios)
Behavioral adjustments (e.g., nature of balance sheet growth, zero profit, dividend payout, asset disposal, lending standards, portfolio allocation)	Constant balance sheet If ROE > 6 percent and CT1 between 8 to 8.5 percent then dividends are 35 percent; if ROE is > 6 percent and CT1 is > 8.5 percent dividends are 50 percent; if ROE < 6 percent dividends are 0 RWAs changed according to standardized approach rules (only exchange rate affects RWA)	Constant CCA balance sheet (i.e., constant debt default point)
Regulatory standards and	Total Capital hurdle rate is 9 percent CAR; Core Tier 1 threshold of 5 percent;	Comparison of CCA capital ratio under scenarios to the 2008/2008 crisis

Domain	Assumptions	
	Top-Down Balance Sheet ST by Authorities	Top-down Contingent Claims Analysis ST by Authorities and FSAP Team
hurdle rates	Return on equity reported; The range of results is reported	Number of banks that have credit risk indicators above various thresholds
Results	<p>Scenario analysis CAR for all banks is above 9 percent hurdle rate One bank has CT1 of 6.9 percent under Adv. 2 scenario in 2012</p> <p>Sensitivity analysis – Single Factor Credit Shock largest borrower group: Impact is 8.5 to 12.6 percent of CT1 Credit shock largest three borrowers: Impact is 4.3 to 6.6 percent of CT1 Stock market decline of 25 percent: Impact is 0.3 to 3.8 percent of CT1 Exchange rate depreciation of 15 percent: Impact is 0.2 to 3.1 percent of CT1 Interest rate increase of 200 bps.: Impact is -5.0 to 5.0 percent of CT1 European peripheral exposures: Impact is 0.4 to 1.4 percent of CT1</p>	<p>Scenario analysis CCA capital ratios, expected losses and implied spreads are higher than 2008/2009 crisis under Adverse 2 If a threshold of 300 bps. for the implied credit spread is used, spreads for two banks go above or are very close to this threshold in 2012</p>

Liquidity tests

68. **Liquidity risk stress tests focused the change in short-term assets and liabilities based on the BOI’s supervisory model.** Liquidity stress tests were carried out by the BSD for four severe stress scenarios, by total currency positions and foreign currency positions, separately. The metric of these tests is the regulatory ratio of a bank’s unencumbered and high quality liquid assets to its expected liquidity needs over a one month horizon, which is meant to exceed unity. The base period is end-2011.

INSURERS AND LTS PROVIDERS

69. Tests were carried out by the authorities in cooperation with Fund staff, and by the companies themselves (Appendix III). First, the investment risk on over 60 percent of the life and other LTS products is born by the policyholders, so any shock may have a large impact on households and thus the macroeconomy. Hence, stress tests were run on the LTS portfolios of life insurers, pension funds, and provident fund excluding the guaranteed return government bonds that are deemed risk free. These tests capture household exposure via their LTS. Second, nonlife and pure risk life business’ vulnerability to market risks and insurance risks impacting the claims ratio in different lines of business was assessed. Finally, results of the recent “QIS-5” exercise conducted by the insurance market were reviewed in order to evaluate companies’ stress testing capacity.

Israel: Stress Test Matrix for Long-Term Savings Providers

Domain	Element	Assumptions for top-down stress tests
Institutions	Life insurers, pension funds and provident funds	<ul style="list-style-type: none"> • The whole market of long-term savings is included, differentiated by type of provider
Market share	Assets, reserves, premia	<ul style="list-style-type: none"> • 100 percent of the market • NIS 140 billion insurance providers • NIS 300 billion, provident funds • NIS 95 billion, new pension funds
Data	Source	<ul style="list-style-type: none"> • Regulatory data as of June 2011
Methodology	supervisory models	<ul style="list-style-type: none"> • Immediate shock on the value of the portfolio
Stress test horizon	Duration	<ul style="list-style-type: none"> • Immediate shock on the value of the portfolio
Shocks	Scenario analysis Single factor shocks	<ul style="list-style-type: none"> • Historic based scenario: 4th Quarter 2008 <ul style="list-style-type: none"> ○ Foreign investments -15% ○ Loans -4.4 % ○ Corporate bonds -9.4% ○ Government bonds and deposits 4.6% ○ Equity -29.8% • Simulated local shock scenario: <ul style="list-style-type: none"> ○ FX depreciation -20 % ○ Corporate spread 200 bp ○ Risk free interest + 20 % ○ Equity -30 %
Risk factors	(e.g., equity prices, yield curve, production, lapses, etc.)	<ul style="list-style-type: none"> • (See above)
Behavioral adjustments	Managerial and policyholders' reactions (none for one-year horizon)	<ul style="list-style-type: none"> • None
Regulatory standards	Definition of solvency (risk-sensitive regime is necessary)	<ul style="list-style-type: none"> • No capital impact since focus on depreciation of portfolio value
	Accounting requirements (mark-to-market valuation is preferable)	<ul style="list-style-type: none"> • Mark to market valuation
Results	Asset losses	<ul style="list-style-type: none"> • Historic based scenario: 4th Quarter 2008 <ul style="list-style-type: none"> ○ 9.45% loss in LTS provided by insurers ○ 7.47% loss in LTS provided by provident funds ○ 5.58% loss in LTS provided by pension funds ○ Weighted average 7.70% loss • Simulated local shock scenario: <ul style="list-style-type: none"> ○ 3.28% loss in LTS provided by insurers ○ 5.43% loss in LTS provided by provident funds ○ 2.55% loss in LTS provided by pension funds ○ Weighted average 4.43% loss

Israel: Stress Test Matrix for the Insurance Sector

Domain	Element	Assumptions for top-down stress tests and sensitivity analysis
Institutions	The own funds of the largest insurers	<ul style="list-style-type: none"> • Top 6 insurers
Market share	Assets, reserves, premia	<ul style="list-style-type: none"> • 70 percent in non life and 99 percent in life premium • The own funds, nonlife, capital, and life excluding unit linked products amount to NIS 100 billion
Data	Source	<ul style="list-style-type: none"> • Regulatory data are as of June 2011.
Methodology	Model: supervisory models, supplemented with IMF suggestions	<ul style="list-style-type: none"> • The insurers own funds in nonlife and life excluding LTS, as well as their capital were stressed and the new surplus position determined • Due to the characteristics of the short duration of the policies in nonlife and in risk life, the liabilities were assumed unchanged in the case of the scenario analysis but will change with the deterioration of claims in life, motor and property portfolios • It is important to note that the capital is used to top-up the own funds reduction to assess the new solvency position • All claims are net of reinsurance • Mortality Life includes mortality and morbidity • Motor is compulsory Body injury liability • Property is motor, business interruption and home owners insurance • Value changes are after tax adjustments • Lower assets value reduces capital requirements • Earmarked bonds are treated as regular government bonds
Stress test horizon	1 quarter	<ul style="list-style-type: none"> • Immediate shocks on the capital and own funds
Shocks	Scenario analysis determined by the historic last quarter in 2008 In addition single insurance shocks in mortality and claims increments were considered	<p>The following stress tests were run:</p> <ul style="list-style-type: none"> • A scenario Q4-2008 • Mortality insurance claims up by 10 percent • Motor insurance claims up by 10 percent • Property insurance claims up by 10 percent • Mortality insurance claims and motor insurance claims up by 10 percent • Mortality insurance claims, motor and property insurance claims up by 10 percent • A scenario Q4-2008 plus increment in mortality claims by 10 percent • A scenario Q4-2008 plus increment in motor insurance claims by 10 percent • A scenario Q4-2008 plus increment in property insurance claims by 10 percent • A scenario Q4-2008 plus increment in motor insurance claims and property insurance claims by 10 percent • A scenario Q4-2008 plus increment in mortality

Domain	Element	Assumptions for top-down stress tests and sensitivity analysis
		<ul style="list-style-type: none"> claims and motor insurance claims by 10 percent A scenario Q4-2008 plus increment in mortality claims and motor insurance claims and property insurance claims by 10 percent
Risk factors	Equity prices, yield curve, mortality, claims motor and property	<ul style="list-style-type: none"> 4th quarter 2008 historical market shock. Insurance shocks: risk life claims, Motor insurance claims, and property insurance claims increase by 10 percent
Behavioral adjustments	Managerial and policyholders' reactions (none for one-year horizon)	<ul style="list-style-type: none"> None
Regulatory standards	Definition of solvency (risk-sensitive regime is necessary)	<ul style="list-style-type: none"> The impact of the shocks were applied to the reported capital and own funds as of June 2011
	Accounting requirements (mark-to-market valuation is preferable)	<ul style="list-style-type: none"> IFRS accounting is used. The liabilities are short in this case and were not discounted
Results	Solvency position	<ul style="list-style-type: none"> The most severe scenario that includes a deterioration of all main lines of business during a market shock similar to the 4th quarter of 2011 resulted in capital surplus changes that varied across insurers from 131 bps to no change after the own funds are topped up to cover the existing new liabilities