Chapter 7
The Balance of Payments

- Israel's current account[1] was essentially balanced this year. The current account surplus fell steeply over the past two years, after averaging $6 billion annually—4.4 percent of GDP—during the preceding five years (2006–10).
- The decline in the current account surplus over the past two years is a result of both a steep increase in spending on imports of energy materials, due to disruptions in the supply of natural gas and the rise in global fuel prices, and a sharp downturn in exports to Europe and the US, which are mired in an economic slump.
- Exports of goods and services (excluding diamonds and start-ups) grew by 3.6 percent in real terms this year, which is less than the long-term trend. Exports fell during the second half of the year.
- During the period between the second quarter of 2011 and the third quarter of 2012, foreign investors sold most of their investments in short-term instruments, following the narrowing of the gap between short-term yields in Israel and those overseas. The sale of investments by nonresidents came to a halt in the second half of the year, against the background of a decline in Israel's risk premium and with quantitative expansion in the US.
- Financial capital flows to and from Israel were down steeply in the second quarter of the year, when concern about the debt crisis in Europe grew. This concern was alleviated in the third quarter, and financial capital flows increased again.
- The gross overseas debt of Israel's economy dropped precipitously, due to the sale of nonresidents' *makam* holdings.
- The discoveries of major natural gas reserves off Israel's shores are expected to reduce Israel's dependence on foreign energy sources, and to boost and stabilize its current account surplus.
- The domestic value added of exports amounts to one quarter of Israel's GDP. Productivity in the export industries is much higher than the average productivity in Israel.
- Exports of goods to developing countries in Asia have shown healthy growth in recent years, owing to rapid growth in these markets and Israel's larger market share in them.
- The principal competitors against exports of Israel's goods are exporters from developed countries, because Israel's export profile resembles that of the developed countries.

[1] The components of the current account are: the goods and services account, which lists Israel's proceeds from exports and its spending on imports; the income account, which lists the proceeds from capital and labor of Israelis abroad (and the payments to overseas residents for their investments and labor in Israel); and the current transfers account, which lists the grants received from (and given to) governments and individuals overseas.

1. MAIN DEVELOPMENTS IN 2012

Israel's current account surplus declined markedly in the past two years.

Israel's current account surplus was down this year, due to a marked increase in spending on imports of energy materials and slower growth in exports. Higher spending on imports of energy materials resulted from the halt in imports of Egyptian gas, which required the use of much more expensive alternative imported fuels. The slowdown in exports was a direct consequence of the global downturn in economic activity, particularly the severe crisis in Europe, the destination for a third of Israel's goods exports. Concern about the global economic crisis slowed growth in domestic demand, including imports of investment and consumer goods. To some extent, the slump in imports moderated the decline in the current account surplus.

Table 7.1
The Balance of Payments, Main Indicators, 2003–12

	2003–09	2010	2011	2012
	(Rates of change in dollars, in annual terms)			
Goods exports	7	20	12	-4
World trade in goods	9	22	19	2
Services exports	9	15	11	10
Goods and services imports	6	21	21	0
	(Real annual rates of change)			
Goods exports (excluding diamonds)	4	12	4	3
World trade in goods	3	15	7	2
Services exports (excluding startups)	7	8	5	6
Goods and services imports (excluding diamonds)	3	9	9	7
	(Annual rates of change)			
Terms of trade	1	-4	-6	5
Prices of energy materials	13	25	39	-5
Real exchange rate	0	5	1	-5
	($ billion)			
	2003–09	2010	2011	2012
The current account	4	8	3	-0.2
Goods and services balance sheet	0	5	-1	-1
Net revenue account	-3	-5	-5	-8
Net current transfers	7	8	9	8
Capital account	1	1	1	1
Financial account	-6	-11	-4	-8
Net direct investments	1	-4	-8	-5
Net investment in securities	-1	0	-9	-11
Of which: makam	0	9	-7	-4
Other net investment + derivatives	0	5	2	-5
Change in foreign exchange reserves	-5	-12	-5	0
Statistical discrepancies	0.8	1.5	0	7

SOURCE: Central Bureau of Statistics and IMF.

Foreign investors sold most of their investments in short-term securities in Israel.

The most prominent development in the financial account this year was the selling off of short-term investments in Israel by foreigners. These investments accumulated in 2010 and the first half of 2011 because the interest rate in Israel at that time was higher than that in other advanced economies. Because of the large volume of short-term investments and the appreciation of the shekel, the tax exemption for foreign investors on their interest income and capital gains on short-term investments was revoked and reporting and reserve requirements were imposed on them. These measures, combined with the lowering of the Bank of Israel interest rate and the rise in the economy's risk premium, led foreigners to sell most of their investments in these instruments. The liquidation of nonresidents' investments in the second half of 2011 and the first half of 2012 caused a depreciation of the shekel.

a. The Current Account

The slowdown in imports in the US and Europe lead to a similar slowdown in Israel's exports to them and to a decline in Israel's current account surplus.

The severe economic crisis experienced by Israel's main trading partners, especially the US and some EU countries, had a negative impact on Israel's current account surplus. The crisis in these countries was principally an internal financial crisis, which originated in a rapid growth in credit and demand, but was also linked to development of the current account deficit in these countries. The current account deficit reached 5 percent of GDP in the US and over 10 percent of GDP in Spain, Greece, and Portugal (in 2007). These large deficits, which were financed by the current account surpluses accumulated by China, the fuel exporters, and a number of European countries, including Germany and the Netherlands, were reflected in growth in credit, private consumption, and investment. The outbreak of the global financial crisis forced all those who had taken large amounts of credit to choose between a rapid return to low leverage rates and paying an especially high risk premium for recycling debt. Countries with a large current account deficit found themselves in difficult circumstances; their domestic demand plummeted, which helped drag down global growth and trade. A comparison of the current account deficit during the past two years with the pre-crisis situation (in 2005–07) shows a marked decline in the deficits of the US, Spain, Greece, Portugal, and Ireland, and a definite decline in the surpluses of China, Germany, and Japan (2011–12). The balance of payments

Table 7.2
Surplus in the Current Account of Selected Countries

(percent of GDP)

Country	2005–07	2011–12
United States	-5.7	-3.1
Spain	-8.8	-2.7
Ireland	-4.1	1.5
Greece	-11.2	-7.8
China	8.2	2.5
Germany	6.3	5.5
Japan	4.1	1.8
Petroleum Exporters	2008–10	2011–12
United Arab Emirates	4.9	9.5
Saudi Arabia	16	26.3

SOURCE: IMF.

deficits (or surpluses) also declined in the other countries, although more moderately: over the past two years, the average current account surplus (deficit) in all countries was down by 25 percent, compared with the pre-crisis period.[2] In 14 countries having a surplus of the same magnitude as that of Israel, the surplus fell by 1.5 percent of GDP. This decline reflected a drop in imports by the countries in crisis, combined with a rise in their exports, due to a real devaluation, among other reasons. The drop in imports by the US and Europe caused a corresponding drop in the exports from all countries to them, thereby detracting from the current account surplus of most of these countries, including Israel.

Expansionary monetary policy in other parts of the world contributed to an increase in investment in Israel and a decline in the current account surplus.

The decline in Israel's current account surplus was steeper than in most of the countries with a similar pre-crisis surplus, because in Israel there were also domestic reasons for the decrease: the current account surplus is the same as the difference between savings and investment in the economy, and the decline in the surplus reflected mainly an increase in investment in Israel, following a cut in global interest rates. The effect of the low interest rate boosted investment in all countries, but its effect on countries that did not experience a crisis in the financial system and in the real estate sector (and which do not restrict the inflow of financial capital) was greater. Over the past two years, the volume of investment in residential construction and in principal industries grew by about 1 percent and 1.5 percent of GDP, respectively, while the current account surplus shrank by 2 percent of GDP. In contrast, in the second half of the last decade, when the economy's current account surplus grew by an annual average of 3 percent of GDP, the relatively small volume of investment in residential construction contributed to a temporary rise in the surplus. Together with savings, a relatively large government deficit stood out, fueled mainly by a drop in tax revenues, and also contributed to the slide in the current account (see Chapter 6).

The rise in spending on imports of energy materials was the main factor in the drop in Israel's current account surplus over the past two years. The rise in global fuel prices

Table 7.3
Savings, Investments and the Current Account as a Percentage of National Income, 2001-12

	Gross National Savings			Gross Investments				Current Account
	Total	Public	Private	Total	In inventory	In selected industries	In housing	Net
2001–04	17.3	-2.0	19.3	17.5	1.1	11.9	4.5	-0.1
2005–08	20.5	0.8	19.7	17.7	1.2	12.1	4.4	2.8
2009–10	18.6	-2.0	20.6	14.9	-1.5	11.3	5.1	3.7
2011	18.2	-1.0	19.2	17.4	-1.1	12.7	5.8	0.8
2012	18.3	-2.0	20.3	19.2	0.1	13.0	6.0	-0.9

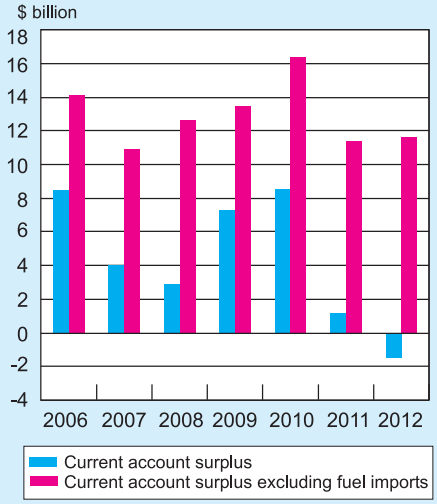
SOURCE: Central Bureau of Statistics.

[2] The slope of the regression line of the deficit in the past two years, compared with the deficit in the years preceding the crisis (in percentages of GDP for 174 countries, without an interceptor) is 0.8, and drops to 0.7 when outlier observations are omitted.

last year, the disruptions in imports of Egyptian gas, and the dwindling of Israel's gas reserves boosted spending on this item from $10.5 billion in 2010 to $13.8 billion in 2011 and $16.3 billion in 2012 – a rise equivalent to 2 percent of GDP, which the economy had to send overseas.[3] Some of the increased spending on imports of energy materials is temporary, and is expected to shrink significantly already in 2013, when the supply of gas from the Tamar reservoir begins (a savings of $800 million per quarter). The disruption in the gas supply had only a moderate effect on demand, principally because it was largely absorbed by increasing the debt of the Israel Electric Corporation (IEC).[4] Most of the effect was therefore reflected in a direct decrease in the current account surplus and a rise in the economy's debt

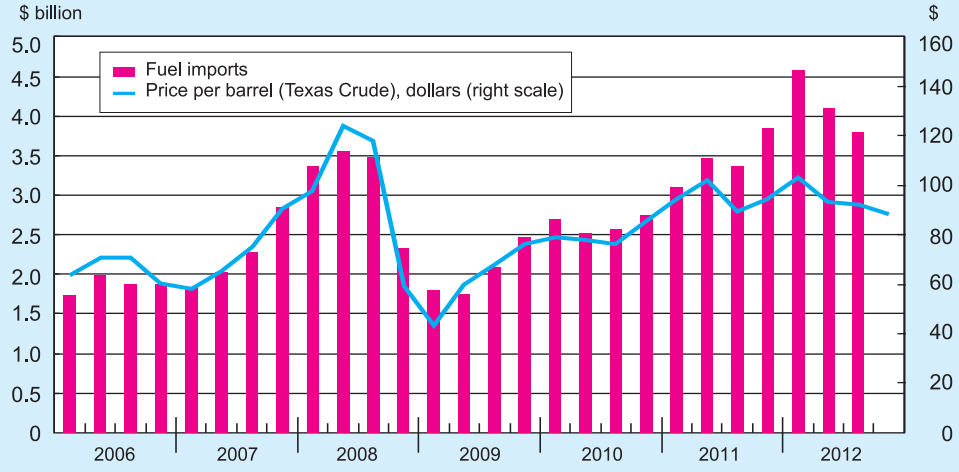
Interruptions in the import of gas from Egypt and the dwindling of Israeli gas reserves led to a marked increase in expenditures for the import of energy products and to a sharp decline in the current account surplus.

Figure 7.1
The Current Account Surplus and the Current Account Surplus Excluding Fuel Imports, 2006-12



SOURCE: Based on Central Bureau of Statistics.

Figure 7.2
Fuel Imports and Price per Barrel (Texas Crude), 2006-12
($ billions, seasonally adjusted)



SOURCE: Based on Central Bureau of Statistics.

[3] The current account surplus of the oil exporters (Table 7.2) surged over the past two years, owing to higher oil prices.

[4] To be more precise, in the first three quarters of the year, the IEC reported NIS 4.5 billion as a transfer of fuel to a regulatory asset, because the Public Utilities Authority—Electricity undertook to set higher electricity prices in the future in order to compensate the IEC for this year's higher fuel costs.

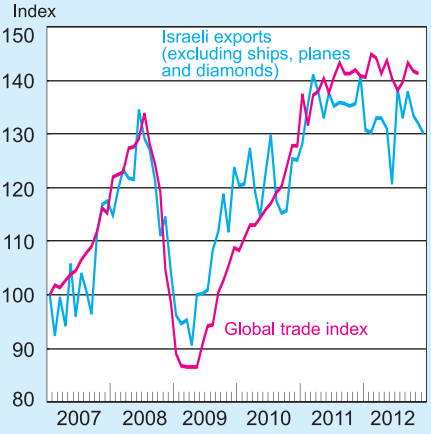
to abroad. The bulk of the price increases in fuel (and electricity) were also reflected in a smaller current account surplus, because in the short term, the demand for energy inputs is inelastic, and because the higher fuel prices do not divert much demand to other import goods; they mostly act to reduce domestic demand[5] and savings. The economic slowdown this year hints that the steep rise in energy prices was a dominant cause of the decline in the current account, unlike last year's decline, which was mainly due to an increase in investments, following the low level of global interest rates. (The surge in energy prices restrains demand, while a rise in investments, especially investments in housing, accelerates it.)[6]

(1) Exports of Goods and Services

Exports in general grew only moderately. Goods exports to Asia and services exports experienced healthy growth rates.

Exports of goods and services (excluding diamonds and start-ups) grew 3.6 percent in real terms this year. Exports of goods (excluding diamonds) were up only 3.3 percent, less than the trend, despite a sharp increase in exports by the new Intel plant. Exports of services (excluding start-ups), which account for one-third of exports, were up 4.4 percent, owing to a rapid rise in exports of computer and R&D services. The dip in goods exports reflected a steep decline in exports to Europe and the US. Exports of goods to the EU (excluding the UK), which account for a quarter of Israel's exports of goods, were down 7 percent in dollar terms[7] this year, similar to the drop in the imports by the EU from the rest of the world. Exports to southern European countries, which are in crisis – Italy, Spain, Greece, and Portugal – plunged 13 percent, while exports to Germany and Belgium fell by a similar rate. The impact was

Figure 7.3
Israeli Exports and Global Trade[a] in Goods, 2007-12
(January 2007 = 100)



[a] Developed economies (United States, European Union and Japan) were given a weight of 7 percent, and emerging economies (Brazil, India, Turkey, Mexico and China) were given a weight of 21 percent.
SOURCE: Bank of Israel.

[5] Increased spending on imports of energy materials eroded the consumers' purchasing power, and lowered their demand for other (less essential) goods. Since, however, only a small proportion of the basket of consumer goods consists of imports, the direct drop in imports was relatively small.

[6] Another factor that may have had a negative impact on the current account surplus in recent years is the effect of the expected income from the Tamar and Leviathan natural gas reserves, which is likely to promote a feeling of well being among the public, even before the income is actually received, thereby increasing private consumption and decreasing private savings and the current account surplus.

[7] The decline in exports in euro terms was a more moderate 2 percent. Exports by industries and countries are based on customs duties data, which were underreported this year, mainly because Intel's exports were only partially listed. Exports of goods by countries and industries according to customs duties data were down 3 percent, while they actually (especially when data for Intel are included) rose 2 percent.

Table 7.4
Distribution of Israel's Goods Exports by Destination, 2005–12

(percent)

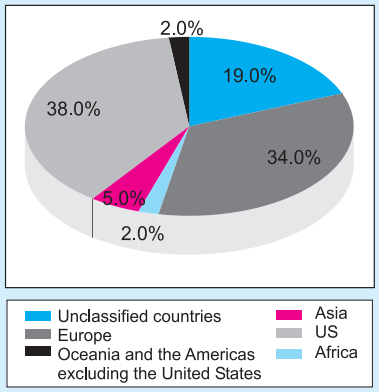
	2005–06	2007–08	2009	2010	2011	2012
European Union	34	34	29	30	33	31
Asia	15	15	16	20	19	21
United States	30	28	33	28	24	24
Other	21	23	22	22	24	24
Total	100	100	100	100	100	100

SOURCE: Central Bureau of Statistics.

particularly severe in sectors not considered to be high tech sectors, in which exports are dependent on the large European market: industrial exports, excluding electronics, pharmaceuticals, machinery, and equipment, declined by 6 percent this year (in dollar terms, to all destinations). Exports to the US, the destination of a quarter of Israel's goods exports, were also down 6 percent, reflecting lower exports of pharmaceuticals, which are mainly to the US. There were, however, two bright spots in exports of Israeli goods this year. The first was exports to Asian countries, which grew 5 percent, continuing their healthy growth of the preceding years, with rapid growth in exports to emerging Asian nations (see Section 2.3 later in this chapter). The second was Intel, which reported a doubling of its exports (from $2.2 billion to $4.6 billion), following the opening of its new Kiryat Gat plant in the second quarter.[8] Exports this year benefited from better terms of trade: Despite the global recession, export prices rose 1 percent in dollar terms in the economy's two principle industries—chemicals and electronics—while the price of raw materials for these two industries fell 1 percent, constituting a 2 percent improvement in the terms of trade.

Services exports grew by 10 percent this year (in dollar terms). Growth in exports of high tech services over the past two years was particularly impressive, following a number of years in which the growth trend for these services came to a halt and their proportion of Israel's total exports did not rise. Exports of high tech intensive services account for 40 percent of Israel's total exports of services, and the lion's share of it comes from exports of computer and R&D services, which followed last year's 18 percent growth with even more impressive growth of 25 percent this year. World Bank

Figure 7.4
Distribution of Export of Business Services, by Continent, 2011



Computer services and research and development imports grew rapidly over the past decade, similar to the rapid growth of international trade in these industries.

[8] These exports are not fully reported in exports according to countries and according to industries as listed here.

figures show that global trade in the computer and communications services industry rose steeply even during the crisis years: US annual imports were up 10 percent in dollar terms in 2007–11, and EU annual imports grew 5 percent. Israel's exports grew by an annual 8 percent during this period, and by nearly 9 percent since 2004. Due to Israel's specialization in this sector, it benefited from the better state of global demand for computer services (at a time when global trade in most industries was stagnating). From 2004 until the present time, Israeli exports have maintained their market share in this growing industry, in which the principal input is highly educated personnel in the fields of computers and science.

Table 7.5
Trade in Computer and Communications Services, 2004–11

(current, $ million)

Country	2004	2005	2006	2007	2008	2009	2010	2011	Rate of change
EU and US imports	474	522	582	699	786	778	792	872	9.1%
EU and US exports	628	710	787	953	1,072	1,039	1,093	1,215	9.9%
Israeli exports	10	10	12	13	14	14	15	17	8.8%
Weight of Israeli exports in EU and US imports	2.0	1.9	1.9	1.8	1.8	2.0	2.0	2.0	

SOURCE: World Bank.

(2) Imports

The decline in imports is attributable to the completion of large one-time investment ventures and the general slowdown of demand in the economy.

Imports of investment goods and consumer goods fell in real terms this year (both by 3 percent), following a very steep rise last year (40 percent in imports of investment goods and 7 percent in imports of consumer goods). The decline was particularly prominent in both imports of machinery and equipment, which declined 22 percent last year, and imports of durable goods, which were down 17 percent (in real terms, in the third quarter, compared with the corresponding quarter last year). The drop also extended to imports of vehicles, electrical goods, and furniture. Imports of services also fell this year, after a healthy rise last year, with a noticeable drop in imports of business services. The decline in imports of investment goods is attributable to the completion of large one-time investment ventures, reflected in last year's steep increase in investments (construction of the Intel plant and upgrading of the oil refineries). Another cause of the fall in imports of investment and consumer goods was the general slowing of domestic demand: since investment and durable consumer goods, which account for a large proportion of imports, are sensitive to business cycles, the economic slump brought about a significant drop in imports this year (just as rapid growth caused last year's steep rise). The devaluation in the real exchange rate pushed up import prices in comparison with domestic output (just as appreciation contributed to last year's steep increase), thereby offsetting the 4 percent drop in the dollar price of imports; import prices were up 1 percent in shekel terms, and the slight change in their relative price does not explain the decreased weight of imports in other uses.

Table 7.6
Import Data by Economic Destination, 2010–12

($ billion)

		2010		2011		2012	
		First half	Second half	First half	Second half	First half	Second half
Import of investment products:	Machinery, equipment	2.1	2.4	3.5	3.8	3.7	3.1
	Other	1.4	1.9	1.7	1.7	1.6	1.9
Import of consumer goods:	Durables	2.2	2.4	2.6	2.5	2.3	2.1
	Other	2.6	2.7	3.1	3.0	3.1	3.0
Import of manufacturing inputs[a]		11.1	11.9	13.8	13.6	13.8	13.7
Net imports[b]		24.6	26.3	31.4	31.6	33.2	30.9

[a] Excluding fuel and diamonds.
[b] Excluding ships, planes and diamonds.
SOURCE: Central Bureau of Statistics.

b. The Financial Account[9]

In the past 18 months, foreign investors sold the bulk of the investments in short-term shekel instruments that they had accumulated in the two preceding years.

In the past 18 months, foreign investors sold the bulk of the investments in short-term shekel instruments that they had accumulated in the two preceding years. During 2010 and the first half of 2011, investors poured large amounts of capital into the economy in order to take advantage of the higher interest rate in Israel for short-term investment instruments. These capital movements were reflected in the shekel's appreciation, which reached a peak in the second quarter of 2011. This capital left the economy during the ensuing year, following the Bank of Israel's interest rate cut, the levying of a tax on foreign investors, and the increase in the economy's risk premium in comparison with that of other economies. This flight of short-term capital caused a depreciation of the shekel, which made medium and long-term investments in the economy more worthwhile.[10] During the past 18 months, however, the risk attributed by foreign investors to investments in Israel rose[11], thereby halting the increase in their direct investments and investments in shares; the response of foreign medium and long-term investments to the devaluation was accordingly muted. Israeli investors were less sensitive to a rise in the economy's risks than their foreign counterparts,

[9] The balance of payments includes the current account and the financial account (as well as the capital account). These accounts cancel each other out, leading to a sum of zero. For example, the surplus in the current account is balanced by a surplus in the economy's overseas investments (in the financial account). This year, however, there was a very large gap—$6 billion—in the sum of the various accounts. Errors and omissions on this scale can cause faulty analysis of the balance of payments.

[10] A depreciation of the shekel makes investment in export industries more worthwhile, and a temporary depreciation makes investment in all the economy's assets more worthwhile.

[11] Israel's risk premium fell in September 2012, following a lull in the geopolitical tension.

and they therefore mainly shifted their investments from overseas to Israel. Net investments abroad by Israelis in the first half of the year totaled only $1 billion, compared with $6 billion in the corresponding quarter last year. During the second half of the year, when the risk premium went back down and sales of investments by foreigners were lower, the volume of overseas investments by Israelis again rose, reaching $3 billion.

The sale by foreign investors of investments in short-term shekel instruments resulted from the reduction of the Bank of Israel interest rate, the cancellation of the tax exemption for foreign investors, and the increase in Israel's risk premium compared to other countries with similar credit ratings.

(1) Short-Term Capital Flows

Foreign investors sold a very large volume of short-term investments during the second half of 2011 and the first half of 2012 (see Table 7.7 for nonresidents' investments in Israel in *makam*, government bonds, and bank deposits). Figure 7.5 displays the development of yield gaps, capital movements, and the exchange rate. The gap in yields refers to the interest rate gap between a one-year bill issued by the Bank of Israel (*makam*) and a one-year bill issued by the US Treasury (TB), when the relevant risk premium for the country (the five-year CDS) is deducted from each of

Table 7.7
The Financial Account, 2011 and 2012

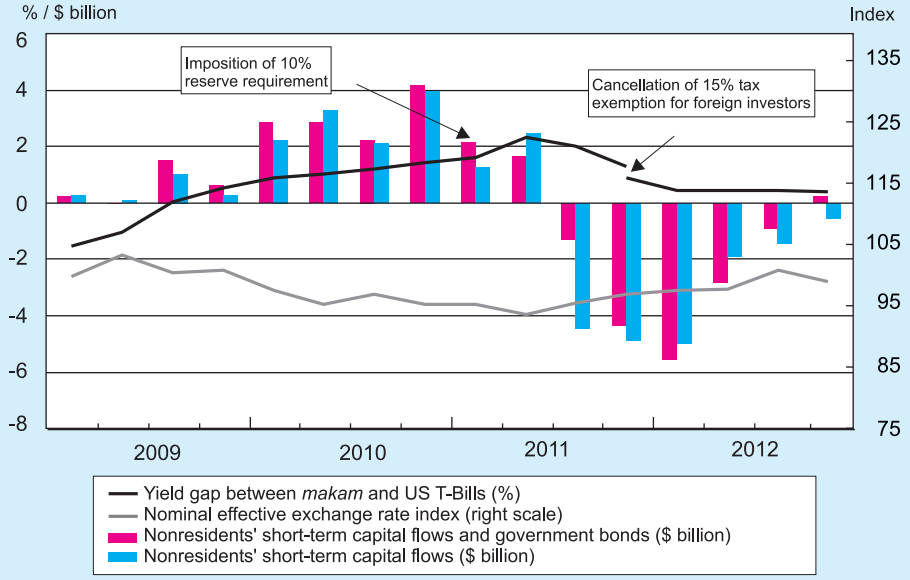
($ billion)

	2011		2012	
	First half	Second half	First half	Second half
Israelis' investments abroad	12.4	-1.0	0.8	7.0
Direct investments	4.2	-0.9	2.3	0.9
Investments in tradable securities	1.0	2.0	2.1	5.0
Other investments[a]	2.9	-2.4	-4.1	2.1
Foreign exchange reserves	4.3	0.2	0.6	-0.8
Nonresidents' investments in Israel	9.8	-2.4	-1.4	2.2
Direct investments	3.1	8.0	5.0	5.4
Investments in tradable securities, excluding *makam* and government bonds	1.1	-3.7	1.6	-1.3
Investments in tradable securities, *makam* and government bonds	1.2	-4.3	-4.8	0.9
Investments in banks (deposits)	2.6	-1.4	-3.6	-1.6
Other investments[a] (other than bank deposits)	1.9	-1.0	0.4	-1.3
Net financial flows (net investments abroad)	2.6	1.4	2.2	4.8
Direct investments	1.1	-8.9	-2.7	-4.5
Financial investments in tradable securities	-1.2	10.0	5.3	5.3
Other investments	-1.6	0	-0.9	5.0
Foreign exchange reserves	4.3	0.2	0.6	-0.8

[a] Loans, cash and tradable credit.

SOURCE: Central Bureau of Statistics.

Figure 7.5
Nonresidents' Short-Term Capital Flows[a], the Yield Gap and the Nominal Effective Exchange Rate (Index), 2009-12



[a] Including *makam* and deposits in Israeli banks
SOURCE: Bank of Israel.

the interest rates. The yield gaps also include the effect of canceling the tax exemption for nonresident investors on interest income from short-term investments[12] and the reserve requirement imposed on them in January 2011.[13] The figure shows a correlation between the yield gaps and the movements of capital and the exchange rate trend from the beginning of 2010 until June of this year: a rise in the yield gaps at the beginning of the period was accompanied by an appreciation in the exchange rate, and a decline in the yield gaps was accompanied by a trend towards depreciation. A widening of the yield gaps caused a steep rise in the volume of investments by nonresidents in *makam* (central bank bills) and government bonds in Israel in 2010. In the first half of 2011, when the yield gaps reached a peak, imports of capital were relatively small, due to the tougher restrictions on short-term capital movements, and some of the imported

[12] The tax exemption for nonresidents on capital gains from state loans for periods of less than one year was canceled in July 2011, and the tax exemption on interest income from these securities was canceled in November 2011. Cancellation of the tax exemption did not affect all investors, because the treaty for the prevention of double taxation allows a large proportion of them to pay capital gains tax only in their home countries.

[13] A 10-percent reserve requirement was imposed on transactions by foreign residents in *makam* (central bank bills) and short-term government bonds, and also on future transactions and swap deals that enable them to benefit from interest rate gaps. We have assumed that this is equivalent to a 10-percent drop in the interest rate in Israel (from 2 percent to 1.8 percent, for example).

capital was diverted to alternative short-term shekel instruments.[14] A turnaround in short-term capital flows and the interest rate began in the third quarter of 2011, following heightened concern about the intactness of the euro bloc, which was also reflected in the devaluing of the developing countries' currencies. The capital flight still continued, however, even when anxiety about a crisis in Europe subsided, due to local factors: a lower interest rate in Israel, rescinding of the tax exemption for foreign investors, and a rise in Israel's risk premium compared with that of countries with the same credit rating, narrowed the yield gaps. As a result of the smaller yield gaps, foreigners cashed in investments totaling $17 billion (during the period including the second half of 2011 and the first three quarters of this year), after having accumulated assets totaling $23 billion.

In the fourth quarter of the year, foreign investors returned to accumulating a small volume of government bonds, due to a drop in the geopolitical risk and additional quantitative expansion by the US Federal Reserve.

In the fourth quarter, nonresident investors returned to accumulating a small volume of government bonds ($500 million), against the background of a drop in the geopolitical risk, following the Prime Minister's UN speech in late September and the large quantitative easing undertaken in the US. The Federal Reserve declared quantitative easing in September and more in December—the purchase of $85 billion per month of mortgage-backed bonds and long-term bonds—and undertook to continue maintaining a low interest rate until unemployment falls to 6.5 percent, or until inflation expectations rise above 2.5 percent. The expansionary monetary policy in the US and the lower geopolitical risk in Israel made investment in the short-term shekel instrument more worthwhile (despite two interest rate cuts by the Bank of Israel totaling 0.5 percentage points), as reflected in the appreciation of the shekel exchange rate.

(2) Nonresidents' Direct Investments in Israel

The volume of foreign investments in shares listed on the Tel Aviv Stock Exchange is still low, despite the impressive growth of investment by Israeli residents in foreign shares and bonds and the completion of the liberalization in captail movements during the previous decade.

The volume of direct investments in Israel by foreigners totaled $2.6 billion per quarter, compared with an average of $1.8 billion per quarter during the three preceding years. Most of this increase was due to a rise in accumulated profits (and in reinvestments), a result of the increase in profit achieved by foreign companies operating in Israel. Excluding the accumulated profits, direct investments totaled $1.1 billion per quarter, compared with an average of $1 billion per quarter during the three preceding years. After the global crisis set in, growth in direct global investments fell to 3 percent a year (annual average in 2007–11), compared with 18 percent average annual growth in the four years preceding the crisis. During the crisis years, the proportion of direct investments in the developed countries fell from 63 percent to 51 percent, while the proportion of investments in the developing countries increased, especially in countries with low and medium per capita income. Most of the world's direct investments are actually in placing production activity in countries where wages are

[14] Foreign investors reduced their investments in *makam*, and increased their investments in government bonds and deposits of overseas banks.

lower.[15] In contrast, direct investments in Israel are mainly in high tech companies, and their purpose is the acquisition of know-how. The balance of direct investments in the computer, R&D, and high-tech industries totaled $30 billion in 2011 – half of the total direct investments grouped according to industry.[16]

Four direct investments in the Israeli economy stood out this year, three of them sharing similar characteristics[17]: investments in knowledge-intensive companies conducting research and development in the natural sciences and production of medical equipment, amounting to $300-370 million per transaction, which gave the foreign investors ownership of 92-100 percent of a company's share capital. In the fourth transaction, which had a similar price, foreign investors acquired 50 percent of Clal Industries, which has holdings in more conventional commercial and industrial companies. In contrast, in a prominent transaction in October 2012, a foreign company sold all its holdings (68 percent of the share capital) in a public insurance and finance company for $910 million. The shares were sold to an Israeli insurance company.

The volume of direct investments by foreigners in real estate this year was about the same as in the past - $250 million per quarter – and its development during the year resembled the general development in the residential real estate market: foreign investments were lower in the first quarter of the year and the quarter preceding it, then recovered in the second and third quarters of 2012.

(3) Securities Portfolio Investments by Nonresidents

Most direct investments in Israel are in high-tech companies, and their purpose is the acquisition of know-how.

The volume of nonresidents' investments in shares listed on the Tel Aviv Stock Exchange (TASE) totaled $400 million this year, slightly lower than the $500 million average over the three preceding years. Nonresidents sold TASE investments in the second quarter (a negative investment), against the background of concern about the consequences of the crisis in Europe.

The volume of investments by nonresidents in a securities portfolio consisting of shares in Israeli companies has been rather low in recent years. The value of the nonresidents' portfolio in TASE-traded securities is estimated at $20 billion, about the same level as in early 2007. Over the past three years, investments by nonresidents in Israeli companies listed on the TASE and on foreign stock exchanges (including dual-listed shares) totaled about $1 billion—far less than the volume of corresponding overseas investments by Israelis, which totaled $24 billion during the same period. Financial liberalization in Israel led to simultaneous increases in overseas investments by Israelis and investments by overseas residents in Israel, but as of now, little foreign

[15] Even though a number of American companies reported this year that they had brought some of their production activity back to the US, due to the lowering of labor costs there and the beginning of a downsizing in the Chinese labor force, but also as a result of more structural factors – higher shipping costs and technological improvements in production and robotics.

[16] The sector of 22 percent of the other investments is not specified.

[17] With thanks to Eli Kadosh of the Bank of Israel Information and Statistics Department, who collected and supplied these figures.

investment in Israel is being directed to the stock exchange in Israel. Companies listed on the TASE have yet to take full advantage of the benefits in increased integration into the global capital markets – integration that could contribute to lowering the cost of capital for them (by dispersing their own special risk over a broad index). Israel's accession to the European MSCI shares index, if and when it actually occurs[18], will bring a stream of foreign capital to the TASE, and increase trading volume. It would provide foreign investors with exposure to the Israeli economy through investment in companies aiming most of their output at the domestic market (and not only leading Israeli export companies like Teva and Israel Chemicals). We note that in May 2010, Israel was switched from the MSCI index for developing countries to a much less popular index of European and Middle Eastern countries, in which Israel's weight is much lower. The contribution of this event and other factors to the drop in trading volumes on the TASE is analyzed in Box 4.1 in Chapter 4.

(4) Investments Abroad by Israelis

The withdrawal of capital by foreign investors in the first half of the year was balanced primarily by large capital movements by Israeli investors.

The withdrawal of capital by foreign investors in the first half of the year was balanced primarily by large capital flows by Israeli investors: (a) institutional investors reduced the volume of their investment abroad—pension funds and insurance companies that used to regularly send abroad $1 billion or more in investments quarterly, stopped investing overseas in the first half of the year; (b) many medium and small-sized companies in the business sector cashed in deposits in overseas banks—these withdrawals were on a large scale, a development probably indicating that exporters were taking advantage of the shekel's depreciation to cash in the proceeds of their exports accumulated in foreign banks, bring them to Israel, and convert them into shekels. The shekel depreciation thereby diverted the flow of Israelis' capital from overseas to Israel. On the other hand, foreign investors did not enlarge their securities portfolio holdings or their direct investments in Israel, despite the devaluation, because of increased anxiety about the outbreak of a crisis in Europe and the geopolitical risk in Israel. During the third quarter, when Israel's risk premium declined and the shekel strengthened against other currencies, the flow of overseas investments by Israelis resumed, reaching the same level as in the preceding years.

The ability shown by Israeli investors and the Israeli economy to withstand the major withdrawal of capital by foreigners is a sign of the economy's strength and the depth of the shekel/foreign currency market. The capital flight was not accompanied by upheaval, because it was due mainly to a gradual and graduated narrowing of the interest rate gaps, not to a sharp increase in the risk premium. At the same time, the rapid exit of capital highlights the unstable character of short-term capital flows, and indicates that at a time when capital is being withdrawn, it is difficult to replace it

[18] The MSCI indices company announced this year that it was considering adding Israel to its index for European countries. It is believed that this will take place in late 2013.

with other incoming foreign capital—direct investments or the securities portfolio—especially when the security risk has increased.

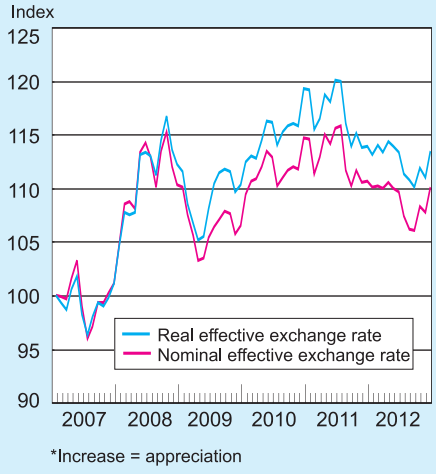
c. The Exchange Rate

The decline in the exchange rate during the first half of the year resulted from the withdrawal of foreign capital from the economy due to a decline in yield gaps compared with other countries, and from an increase in foreign currency needs in the economy as a result of the rise in energy product import prices.

The recession in the Western countries is depreciating the currencies of the countries in crisis against the currencies in the rest of the world, including Israel. This happened in Israel from the beginning of the crisis until mid-2011. Between that time and August 2012, however, the shekel depreciated against the currencies of the countries in crisis. The shekel's depreciation against these currencies and the dollar continued for about a year, reaching a peak in August 2012. During the same period, the dollar appreciated by similar rates against the shekel and the currencies of the developing countries, meaning that the shekel's devaluation against the dollar reflects chiefly global factors, including the American currency's status as a safe haven for investors concerned about the eurozone crisis. Domestic factors also affected the development of the exchange rate, and were reflected in the volatility of short-term capital flows; the Bank of Israel interest rate cuts, the rescinding of the tax exemption for nonresident investors on interest income, and the rise in the economy's risk premium compared with that of economies with the same credit rating, contributed to the flight of capital from the economy and depreciation in the shekel exchange rate against the basket of currencies. Another important local factor that contributed to the shekel's depreciation against the basket of currencies was the sharp increase in energy costs, which meant a drop in the current account surplus.

The real exchange rate depreciation this year is quite in line with the development of the real variables—slower economic growth, higher prices of energy materials, and Israel's increased risk premium compared with other countries. These external factors eventually reversed the movements of capital and the exchange rate depreciation. Economic activity in Israel lost its momentum, and the growth rate this year was 1.5 percentage points lower than last year. The drop in global growth was much more moderate (only 0.5 percentage points), and GDP growth in the US was actually 0.4 percentage points higher than last year. Slower growth in Israel was a basic factor supporting the depreciation. Among other things, the action mechanism was through an interest rate cut, which reversed the direction of capital flows. The rise in Israel's risk premium compared with other economies was a direct cause of narrower yield gaps,

Figure 7.6
Nominal Effective Exchange Rate and Real Effective Exchange Rate, 2007-12
(January 2007 = 100)



the flight of capital, and the depreciation. With respect to energy prices, according to the standard measure, based on a fixed basket of fuels, prices fell somewhat, but in reality, the economy was forced to alter the composition of its fuels by reducing its use of inexpensive natural gas, while increasing its use of more expensive diesel fuel and crude oil – a change that was equivalent to higher energy prices. This rise in energy costs eroded the current account surplus and caused exchange rate depreciation.

d. The Composition of the Economy's Assets and Liabilities vis-à-vis the Rest of the World[19]

The crisis in Europe did not cause capital losses in the overseas investment portfolios of Israelis in shares and bonds (on average), which had the effect of blocking the main channel through which the global recession could have spread to Israel.

Since the beginning of 2012, the economy's surplus of assets vis-à-vis the rest of the world grew by $12 billion, to $46 billion. The main reason was that the capital gains obtained by Israeli residents on their overseas investments (a dollar yield of 2.3 percent) were higher than those obtained by foreign investors in Israel (0.7 percent). In theory, the increase in the economy's surplus of assets in comparison with overseas was due the sum of the current account surplus and net capital gains. In practice, the rise in the surplus of assets this year was also influenced by errors and omissions in the balance of payments, and this increase was therefore larger than that of the current account surplus and capital gains.[20] The value of investments by Israelis in shares abroad rose because the share indices around the world increased, despite the global economic slump. On the other hand, the value of investments in shares in Israel by nonresidents dropped slightly, due to the shekel's depreciation and stagnation in the leading Israeli shares in foreigners' investment portfolios.[21] Note that in addition to capital gains, the yield on foreigners' investments in Israel, and on overseas investments by Israelis, includes income from interest and dividends, which are part of the current account. These were higher this year on nonresidents' investments in Israel, making the overall yield on nonresidents' investments in Israel about the same as that on overseas investments by Israelis (4.0 percent and 4.2 percent, respectively). It is important to emphasize that the crisis in Europe did not cause capital losses in the overseas investment portfolios of Israelis in stocks and bonds (on average), which had the effect of blocking the main channel through which the global recession could have spread to Israel.

[19] The economy's inventory of assets and liabilities measures the inventory at a given moment, while the balance of payments measures the flow of capital over a period.

[20] Growth in the economy's inventory of net overseas assets results from the revaluing of the inventory of net assets last year, and from the current account surplus. The current account surplus equals the financial account deficit, but the measuring errors this year were particularly large, reflecting a $6 billion difference between the two. The rise in the economy's overseas assets therefore basically reflected a $6 billion rise in the current account – which was almost definitely incorrect. It is more likely that the source of the omissions was in the financial account – in the underestimate of foreign investments in Israel – so that the rise in the inventory of Israel's assets was smaller than reported.

[21] The most common shares in foreigners' stock portfolios were Teva, which treaded water this year; Bezeq, which plunged; the shares of the two largest banks, which were on a downtrend until late September; and Israel Chemicals, whose value rose this year.

The composition of assets held by foreigners in Israel appears riskier than that held overseas by Israeli residents: 60 percent of nonresidents' assets in Israel are held in direct investments and shares, compared with only 45 percent of the assets abroad held by Israeli residents (the balance is held primarily in debt instruments).[22] This composition helps moderate the local shocks in the economy, while the exposure to global shocks rose only slightly.

Israel's gross external debt dropped sharply this year, following the sale of foreigners' investments in *makam* and bonds. An accumulation of external debt is a source of economic shocks, and the fact that debt in Israel is low by international standards, and that part of it is shekel-denominated, contributes to economic stability.

2. SELECTED ISSUES IN THE CURRENT ACCOUNT AND FOREIGN TRADE

a. The Natural Gas Reserves and Their Effect on the Current Account

The discovery of large natural gas reserves off Israel's coast will reduce Israel's dependence on foreign energy sources, boost its current account surplus, and restrain current account fluctuations.

Spending on imports of energy materials is very volatile, and has played havoc with Israel's current account surplus in recent years. The discovery of large natural gas reserves off Israel's coast, combined with improvements in energy technology, will reduce Israel's dependence on foreign energy sources, boost its current account surplus, and restrain current account fluctuations. The rise in spending on imports of energy materials from $13.8 billion last year to $16.3 billion this year resulted from a radical change in the composition of the fuel used to produce electricity. The use of diesel fuel rose sharply (Table 7.8), while the use of gas dropped precipitously, following the exhaustion of the Yam Tethys reservoir and the halt in the supply of gas from Egypt. Looking to the future, however, it can be stated with confidence that Israel's spending on imports of energy materials peaked in 2012, because the use of domestic gas in electricity production for industry and transportation can be expected to grow in the coming years. In addition, at the beginning of the next decade, the economy is expected to enjoy large-scale income from gas exports. Under conservative assumptions, the energy balance sheet deficit is expected to be $5 billion less in 2020 than in 2011. Income from gas exports will total $4 billion (annual exports of 20 BCM), and the use of coal will drop by 60 percent, while the use of fuel will remain unchanged (higher imports of fuel for transportation will be offset by the drop in the use of fuel for the production of electricity and for industry). All this assumes that fuel prices will remain at their current level.[23]

[22] In addition, it appears that foreigners hold riskier shares, because in the second quarter of the year, when the global crisis worsened, the decrease in the value of foreigners' shares in Israel was much steeper than that of the Israelis' overseas shares.

[23] The report by the International Energy Agency forecasts that the price of a barrel of fuel will rise to $125 in 2035 (a 35 percent real increase in 2011 prices). Global energy demand is projected to grow by one third by 2035, due to greater demand in the developing countries, while only negligible growth in demand is expected in the developed countries. Demand for fuel will rise by only 14 percent, and the use of gas and renewable energy will increase. 30 percent of global electricity production will be based on renewable energy.

Table 7.8
The Distribution of Fuel Uses, Other Than Natural Gas, in Israel (Including Allocations to the Palestinian Authority), 2005–12

(percent)

	2005–06	2007–08	2009–10	2011	2012
Fuel oil and diesel for electricity prodution	13	11	4	6	26
Gasoline and diesel for vehicles	45	47	53	53	43
Ship and plane fuel	9	11	11	12	9
Self-use by Oil Refineries Ltd.	8	6	6	5	4
Petrochemicals	7	9	9	11	8
Diesel for heating	2	2	1	0	0
Other (for use in various industries)	16	14	16	13	10
				Millions of tons	
Use of fuels other than natural gas	10.8	10.8	9.9	8.4	12.7
Total use of fuels in Israel, including natural gas	11.5	11.6	10.6	9	13.5

SOURCE: Ministry of Energy and Water Resources, Fuel Administration.

The use of fuels other than natural gas in Israel is expected to decline in the second half of 2013 and return to its level from before the interruptions in natural gas imports from Egypt, stabilizing at that level in the coming years.

The flow of gas from the Tamar reservoir is expected to begin as early as April 2013, thereby making it possible to revert to the same fuel composition as in 2010. The Tzemach Committee predicts that the use of gas in electricity production will continue to rise at a fairly rapid pace[24]; by 2020, electricity production is expected to be based on locally produced gas (60-70 percent) and renewable energy sources (10 percent). Spending on coal imports, which reached $1.6 billion in 2011, is projected to decline by 60 percent by 2020. Coal, however, accounts for only 15 percent of total imports of energy materials; the big improvement in the current account (compared with last year) will come from the substitution of local gas for imported oil products. Over the past decade, the use of oil products has become significantly more efficient: per capita consumption of oil products dropped 20 percent in 1999-2010, following the oil price hikes and the availability of gas. Starting in 2005, the proportion of oil products used in electricity production, oil refineries, economic activity, and home heating fell. This substitution process has not yet peaked; it is expected to continue in industry. The Tzemach Committee assumed that the use of gas in industry would grow from 1.3 BCM in 2013 to 3.8 BCM in 2020. This growth is equivalent to the entire current energy consumption in economic sectors and the petrochemicals industry – about one quarter of the economy's total use of oil products. It can be assumed that the substitution in the economy's industries will not be so drastic, but a large drop in the use of oil products in industries in the coming years is feasible.

The process of making fuel use more efficient involved an increasing proportion of uses for which fuel has no good substitute. Land and other transportation accounted for 65 percent of fuel use this year, compared with 54 percent in 2005. Under a conservative scenario for gradual technological improvements, it can be predicted that the use of gasoline and diesel in land transportation will continue to rise in the

[24] From 6.3 BCM in 2013 to 9 BCM in 2020 (compared with 5.3 BCM in 2010).

coming years, albeit at a moderate pace that matches growth in population, as it has in recent years. This is a result of greater energy efficiency in gasoline and diesel powered motor vehicles and the growing use of vehicles combining electrical ignition with natural gas and electrical engines. According to the Tzemach Committee's forecast, one-quarter of Israel's vehicle fleet will be powered by natural gas and electricity by 2030.[25] A faster transition from gasoline to natural gas is possible in public transportation: conversion of buses to natural gas power is being successfully accomplished in several places around the world, and the technology is considered economical and environmentally clean. Its use in Israel depends on the ability of these buses to withstand terrorist attacks, which will be tested in April 2013 (in the previous trial, the buses failed to fulfill the requirements). The electrified railway project, if and when it is completed, will make a further contribution.

(1) The Consequences for the Current Account Surplus

The discovery of gas has many advantages for the economy. The gas reservoirs will bring down energy prices and bolster Israelis' purchasing power. It will stabilize energy prices and render improbable a major shock in them—a shock that would involve inflation and slower growth—thereby evening out fluctuations in economic activity. Natural gas exports will diversify the composition of Israel's exports, and the income from them will improve the government's financial position and reduce Israel's risk premium, thereby boosting investment and growth. Concern exists that the gas discovery could have a negative impact on Israel's exports (the natural resources curse). There is also worry about an economic shock when the reservoirs are exhausted, but careful and responsible behavior by the government will make it possible to neutralize these risks.

The gas discovery will reduce the economy's need for foreign currency to buy energy materials.[26] Together with gas export revenues, this could cause an appreciation of the shekel, which might also have a negative impact on exports. Since exports are a leading sector in innovation and boosting productivity, this is liable to eventually affect GDP. A Bank of Israel study examined the extent of the damage to exports caused by similar cases of gas field discoveries around the world. The study, which looked at figures for 94 countries over 40 years, found that large-scale discoveries of gas had a significant negative effect on exports. Where the effect of natural resources on growth is concerned, most of the research literature holds that no such effect is visible in countries with high-quality governmental institutions; the discovery of

[25] The large supply of natural gas in the US is expected to boost the auto industry's efforts to produce efficient natural gas powered and electrically powered vehicles, which will accelerate the transition from gasoline to natural gas for transportation.

[26] No exogenous force can be identified that is expected to offset the effect of the gas discovery on the balance of payments. While the aging of the population in Israel is having the effect of enlarging the balance of payments deficit, this effect is neutralized, because Israel's trading partners, especially the Western countries, also suffer from rapid aging of their populations.

resources harms growth in countries whose governmental institutions are poor[27], in which the quality of the institutions themselves is liable to suffer damage. It therefore follows that the effect of the gas discovery depends to a large extent on government policy. A responsible policy that avoids rapid and wasteful use of the gas proceeds will prevent harm to growth. A responsible policy includes first and foremost a government decision to channel state revenue from the oil windfall profit tax to future use through a sovereign wealth fund. Beyond this, wasteful use of the gas in the domestic economy should be avoided, as should exports of large quantities of gas, which would cause a steep, but short-term, rise in government revenues and the economy's foreign currency income. It is also best to keep revenues from natural resources from reducing exports and interfering with economic integration with the rest of the world. Since income from gas exports should sooner or later increase the economy's import surplus (excluding energy), this should take place through an increase in imports, not a decrease in exports, because of the importance of maintaining the relative advantage of exports, the development of which is a long and gradual process resulting from intense effort and accumulation of know-how. The removal of customs duties and other trade barriers will increase imports, maintain exports, and enable the economy to continue exploiting its relative advantage in the high tech sectors.

Assuming that the Tzemach Committee's recommendations are accepted and implemented, Israel's natural gas fields are projected to be depleted in 2038, when the economy's current account surplus is projected to drop by $8–10 billion (unless new gas fields are discovered). The decline will not be steep, since from a technical standpoint, the drop in the production capability of the reservoirs will be gradual, which will moderate the anticipated economic shock. On the other hand, the slide in the current account surplus is liable to worsen if gas imports from remote sources involving major transport costs and liquefication are needed that could make the price twice as expensive or more. The economy will more easily weather the expected current account storm when the reservoirs run dry if energy prices do not skyrocket, and if a current account surplus is ensured (by accumulating revenues in a sovereign wealth fund). Spreading gas exports over more years will make it easier to avoid the current account pitfall. Another measure could be a halt in gas exports several years before the reservoirs for domestic use are exhausted, which would divide the current account shock among two events.

The domestic value added embodied in exports accounts for about one-quarter of Israel's GDP, and is characterized by much higher productivity than the average in the economy.

b. Characteristics of Israeli Exports

The domestic value added embodied in exports accounts for 26 percent of Israel's GDP, indicating the importance and centrality of exports for the economy. The ratio of exports (excluding diamonds) to GDP is 34 percent, but exports also include imported inputs that are not part of their value added. Israeli exports are high tech and human

[27] Mehlum H., Moene K., and Torvik R. (2006), "Institutions and the Resource Curse," *The Economic Journal*, Vol. 116, pp. 1-20.

capital intensive, and feature very high output per employee, compared with other economic sectors. Most export activity is concentrated in a limited number of large companies, most of which are multinational. The high tech intensity is reflected in the fact that half of goods exports and 40 percent of services exports come from activity in the high tech sectors – a very high proportion by international standards. Output per employee in the export sector is significantly higher (by 45 percent) than the business sector average. Export activity itself features an even higher output per employee, a reflection of the human and physical capital in the export sectors (Table 7.9). Another indication of the high quality of the human capital in the export sectors is the wage per employee post, which is 85 percent higher than the business sector average.[28] 56 percent of Israel's goods exports are by Israeli companies having overseas subsidiaries (Teva and the electronics industry companies), and another one-quarter is by foreign-owned companies operating in Israel (Intel, Iscar, and research and development centers)—a sign of the global character of the Israeli export companies. The over-concentration in exports is reflected in the fact that only four companies produce a third of the goods exported from Israel. When another six companies are added, the proportion rises to almost half of exports. Another characteristic of the exports of goods is that most are aimed at markets in developed countries (Europe and the US), which have been undergoing a severe crisis in recent years. These countries are also the main competitors of Israeli exporters.

Utilization of Israel's relative advantage in human capital and technology, and its increasing integration into world trade, are contributing to the rising output per employee in Israel and the narrowing of the gap in this area between it and the other

Table 7.9
Exports, GDP, Employment and Wages in Export-Intensive Industries, 2012

	(percent)				(ratio)
	The industy's exports as a share of total exports	The industry's share in business product, 2011	Share of positions in the business sector[a]	Estimated share of export positions	Wages in relation to business sector wages
					(times)
Electronics and medications	25	7.1	4.1	3	2
Other export-intensive industries[b]	26	6.6	5.2	3	1.5
R&D and computer services	13	8.2	6.7	3	2.1
Maritime and airborne shipping	6	1.4	0.5	0.4	1.8
Total	70	23.3	16	10	1.9

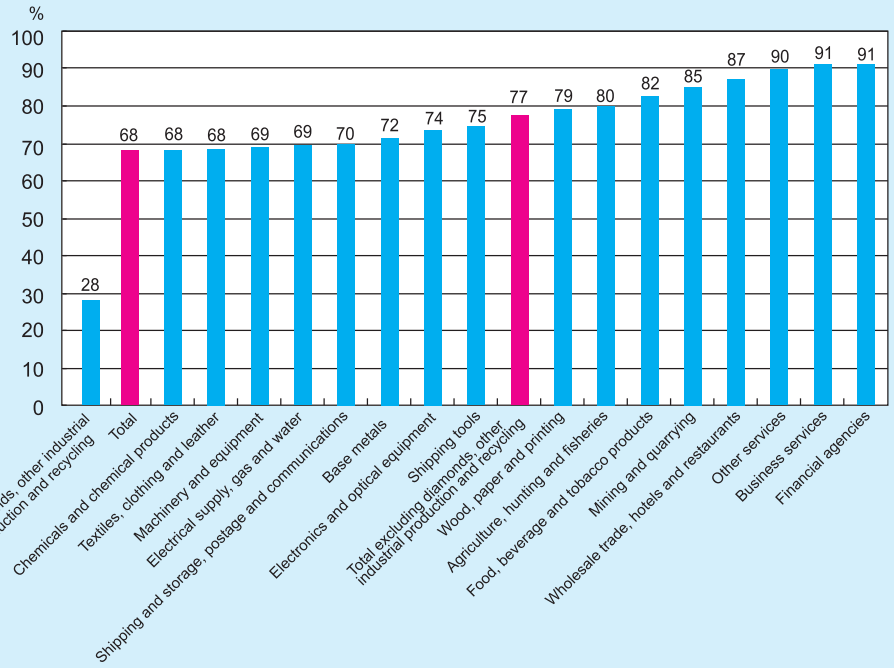
[a] All positions, excluding positions in public administration, education, health, welfare, social work and community services.

[b] Mining and quarrying, textiles and clothing, chemicals, plastics, machinery and equipment, and shipping containers.

SOURCE: Central Bureau of Statistics.

[28] All positions, except for sectors financed mostly by the government – administration, health, education, and welfare.

Figure 7.7
The Value Added of Exports, by Industry, 2009



SOURCE: Bank of Israel.

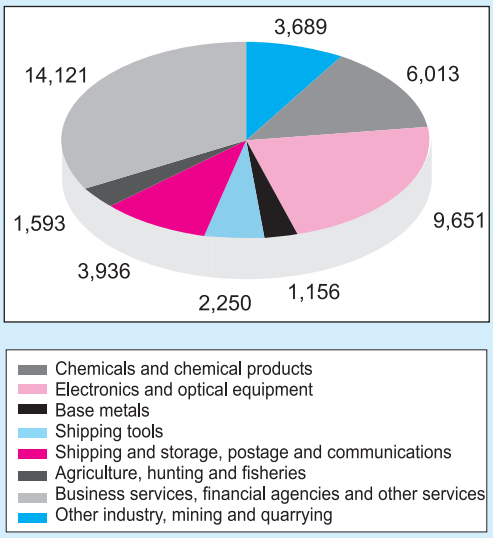
developed countries. At the same time, Israel is thereby exposed to risks from the rest of the world. One risk, which materialized in 2001, is plunging demand for products made by the high tech industry. Another possible risk, which is liable to occur in the distant future, is a prolonged decline in the return on engineering and scientific education in the global labor market: greater expertise and more education among employees in the developing countries and growing competition for jobs in Europe and the US are expected to increase the supply of employees with the relevant scientific education, a development that is liable to erode the salaries of these employees, including those in the Israeli export sector. Another aspect of the specialization in knowledge-intensive sectors results from the policy aimed at stabilizing the business cycles: the specialization in exports limits the economy's ability to divert activity and production factors from the export sectors to the domestic sectors and vice-versa, because training new employees in these sectors takes a long time, and channeling employees to other industries incurs a loss of specific human capital for the employer and a lower salary (because the alternative salary in the domestic manufacturing sectors is low).[29] Still another risk, which has also materialized in recent years, results from the high degree of dependence on US and European markets—the principal

[29] Friedman, Yoav (2012), "Information Technology Industries: Dealing with Shocks over the Past 15 Years," Discussion Paper, Bank of Israel Research Department, to be published soon.

destination for Israel's exports. In response to the crisis there, exports to China and the other Asian developing countries increased.

The proportion of domestic value added embodied in Israel's exports (excluding diamonds) in 2009 was 77 percent, with the remaining 23 percent stemming from imported inputs. Since exports account for 34 percent of GDP, the value added of exports constitutes about one quarter of the economy. The value added of Israel's exports is about the same as the average for other countries – 74 percent. Figure 7.7 shows the proportion of value added in the exports of the various sectors in Israel, and Figure 7.8 displays the distribution of the value added of exports by sector. The figures for Israel and other countries were published recently by the OECD and the World Trade Organization.

Figure 7.8
Value Added, by Industry, 2009
($ million)



SOURCE: Based on Central Bureau of Statistics.

c. Goods Exports to Asia

Exports of goods to developing countries in Asia have shown healthy growth in recent years, owing to rapid growth in these markets and Israel's larger market share in them.

Exports of goods to Asia have grown rapidly in recent years. This increase was due to the accelerated growth in these markets, and to the rising market share of Israeli exports. Table 7.10, which displays the distribution of Israel's exports of goods, indicates a drop in the proportion of exports going to the US[30] and an increase in the proportion of exports going to a number of selected Asian countries: China, India, Thailand, Taiwan, Singapore, and Hong Kong. The proportion of imports by these six Asian countries in total world imports grew from 15 percent in 2007 to 20 percent in 2012, while the proportion of imports by the US and the EU fell. Growth in Israeli exports to these countries, however, outstripped the growth in their imports: Israeli exports to these six Asian countries grew by 89 percent in 2007–11, compared with 65 percent growth in imports by these countries. This is an impressive achievement, because Israeli exports specialized in sophisticated and expensive products, such as pharmaceuticals and medical and scientific equipment, which are aimed mostly at customers in the developed countries. The great geographic distance between Israel and East Asia increases shipping costs, and has a negative impact on the volume of exports to these countries by the conventional industries (most exports by these industries are to Europe).

[30] Israel's exports by country do not include the exports by the new Intel plant, which opened this year.

Table 7.10
The Distribution of Israeli Exports by Destination, and the Ratio Between it and the Distribution of Global Imports, 2011-12

	The distribution of Israeli exports by destination (percent)					The ratio between the distribution of Israeli exports and the distribution of global imports				
	2001	2007	2008–2009	2010–2011	2012	2001	2007	2008–2009	2010–2011	2012
European Union	34	35	31	31	33	0.90	0.90	0.80	0.90	1.00
United States	30	28	30	26	22	1.60	1.90	2.30	2.00	1.70
Emerging Asian Countries[a]	6	8	10	12	13	0.52	0.55	0.58	0.63	0.67
Other countries[b]	30	29	29	31	32	0.96	0.90	0.90	0.90	0.90
Asia	26	27	28	34	36	1.00	0.91	0.87	0.95	1.00

[a] China, India, Thailand, Taiwan, Singapore and Hong Kong.

[b] All countries other than those of the European Union, United States and the emerging Asian countries.

SOURCE: Central Bureau of Statistics and United Nations data.

Tables 7.11a and 7.11b examine the development of Israeli exports to six Asian countries and imports of selected groups of goods by these countries. It was found that in 2007–11, the market share of Israeli exports in the imports by the Asian countries grew in each of Israel's main export industries. Actually, the contribution of the various sectors was quite uniform: most of them posted rises of 3-4 percent in their proportion of exports to Asia. Growth was especially rapid in sectors whose proportion of exports to Asia at the beginning of the period was low. The table shows a difference between the sectoral composition of Israeli exports and that of Asian imports: first of all, the proportion of chemical products and pharmaceuticals in Israeli exports is conspicuously high, compared with these sectors' proportion of world trade, not to mention their particularly low proportion of imports by Asian countries. Secondly, the proportion of Israeli exports in the group of miscellaneous products, which consists mainly of products made by the conventional industries, was far below their proportion of imports by Asian countries. This difference in sectoral composition did not prevent the exporters from utilizing the advantages presented by the surge in imports by Asian countries.

The rapid growth in imports by Asian countries is the result of growing demand in those countries and of those countries being main players in the global production chain.

The electronics industries played a key role in both Israel's exports and in imports by Asian countries. Imports by Asian countries grew rapidly, and the rise in Israel's exports of electronics to Asia was even steeper: the proportion of exports of communications equipment (that produces images and sound) to Asia rose from 13 percent in 2007 to 22 percent in 2012, and the proportion of medical and optical equipment exports to these destinations was up from 7 percent to 25 percent. One of the reasons for the prominence of Asian countries as a destination for Israel's electronics exports is those countries' key role in the sector's global production chain. A large proportion of exports to these countries eventually reaches a different destination: 40 percent of China's exports of electronics goods are due to imported inputs, while 60 percent are due to domestic value added.

Table 7.11a
Israeli Exports and Imports by Emerging Countries in Asia[a] in 2011 and their Rate of Change from 2007 to 2011, by Select Product Groups

	Distribution in 2011				Rate of change between 2007 and 2011			
	Global trade	Israel's exports to the world	Asia's imports from the world	Israel's exports to Asia	Global trade	Israel's exports to the world	Asia's imports from the world	Israel's exports to Asia
Chemical and pharmaceutical industry products	9	37	7	9	34	79	63	170
Machinery, electrical equipment, sound and picture generating equipment and parts	24	26	33	20	19	11	36	69
Optical, photographic, medical and measurement instruments	3	9	5	21	28	28	38	55
Vehicles, planes and boats, and transport equipment	9	5	4	4	10	17	86	2,290
Simple metals and derived items	7	5	6	10	11	10	34	64
Other	48	18	45	36	42	13	106	75
Total	100	100	100	100	29	32	65	89

[a] China, India, Thailand, Taiwan, Singapore, and Hong Kong.
SOURCE: Central Bureau of Statistics, United Nations data.

Table 7.11b
The Weight of Israeli Exports to Emerging Countries in Asia[a] by Select Product Groups, the Share of Those Countries' Imports out of Global Imports, and the Ratio Between Them

(percent)

	Share of Israeli exports to Asia out of total industry exports				Share of imports by emerging countries in Asia out of total global imports				Ratio between the share of Israeli exports to Asia and the share of imports to Asia out of total global imports			
	2001	2007	2009	2011	2001	2007	2009	2011	2001	2007	2009	2011
Chemical and pharmaceutical industry products	7	6	8	9	10	12	12	14	73	52	65	65
Machinery, electrical equipment, sound and picture generating equipment and parts	8	13	15	20	18	23	25	27	43	57	60	76
Optical, photographic, medical and measurement instruments	15	18	17	21	17	26	26	28	91	68	65	76
Vehicles, planes and boats, and transport equipment	0	0	0	4	4	5	7	8	1	4	6	45
Simple metals and derived items	4	7	10	10	13	14	18	17	30	50	60	62
Other	1	1	1	1	11	13	15	19	0	0	0	0
Total	6	8	10	12	12	15	17	20	52	55	56	61

[a] China, India, Thailand, Taiwan, Singapore, and Hong Kong.
SOURCE: Central Bureau of Statistics, United Nations data.

d. The Countries that Compete with Israeli Exports

The main competition to Israeli goods exports is from exporters from other developed countries, since Israel's export profile is similar to that of the other developed countries.

The ability of Israel's exports to increase their global market share depends on their competitiveness against manufacturers in other countries. The importance of each country as a competitor of Israel can be judged by the proportion of Israel's total exports that are exported to that country, assuming that competition in the target market is from the local manufacturers. The substitution index is based on the competing country's proportion of total world exports, assuming that exporters from the rest of the world are competing in a single global market. Another possible index is the "Industry Index", which assumes that competition depends on the composition of exports by industry: each country's degree of competition with Israeli exports is measured according to the resemblance in the composition of exports by industry between it and Israel (while taking the volume of its exports into account). According to this index, the main competition to Israeli exports comes from countries accounting for a large proportion of exports in Israel's main export industries: electronics, pharmaceuticals, and chemicals (Table 7.12).

A comparison of the first index to the two others shows that it gives too much weight to the US (and to a lesser extent to the UK and Turkey), and too little weight to China, Japan, South Korea, and the eurozone countries. This index serves as a basis for calculating the effective exchange rate published by the Bank of Israel. The effective exchange rate therefore gives too much weight to the US dollar, a bias that was obvious in the first half of 2012, following the strengthening of the dollar during that period. A comparison of the development of the exchange rate according to the three indices shows, however, that on the average, all three point to about the same

Table 7.12
Countries Competing with Israeli Exports, by their Share in Various Competitiveness Indices

(percent)

	Countries' share of Israeli exports[b]	Countries' share of world trade	Countries' share by the "Industry Index"
United States	30	13	12
Eurozone[a]	26	30	36
China	6	12	12
United Kingdom	8	4	4
Turkey	4	1	1
Japan and South Korea	4	9	9
Canada and Mexico	3	4	4
Other countries[b]	19	27	22
Total	100	100	100

[a] Including internal trade within the eurozone.
[b] The calculation includes the 38 countries included in the shekel's effective exchange rate index, other than Malaysia.
SOURCE: Based on Central Bureau of Statistics and World Bank.

degree of real shekel depreciation this year (4.0–4.2 percent). A comparison of the development of the shekel rate according to the different indices over time indicates that the differences between these indices are not large, and that past gaps between them were temporary.

The growth rate in exports of Israeli goods in 2012 was lower than that of world trade. Part of the explanation for its relative weakness this year lies in its industry composition – since other countries with an export profile similar to that of Israel also suffered from slower export growth than the rise in world trade. This is shown by the "Industry Index": trade by these countries grew by an average of 1.9 percent, compared with 2.4 percent growth in world trade.