

## Chapter 7:

# Structural Issues in Israel's Economy

### Construction and the Housing Market

- The number of housing transactions and the rate of increase in home prices temporarily declined this year, due to the wait for the Zero VAT plan and due to Operation Protective Edge.
- The supply of homes is inelastic, mainly due to three barriers, the handling of which requires considerable time: the lack of available land for housing in areas of high demand; the complex planning process, partly due to the numerous entities involved; and the high cost of investment in infrastructure.
- Thus, planning and its implementation require a systemic approach: a consistent consideration of the long term, including the growth and composition of the population; an appropriate investment budget; and coordination between the entities and their working in parallel (rather than sequentially). For this purpose, it is necessary to maintain a permanent central body with governmental authority, such as the Housing Cabinet.
- In order to increase the supply, the Housing Cabinet undertook numerous and complementary measures to remove barriers, search out land, and expedite planning. These include: advancing the intercity roads infrastructure, signing blanket agreements with local authorities, and advancing the vacating of IDF bases. However, most of these actions will only increase supply in the medium term.
- The Housing Cabinet initiated measures to lower home prices for target populations—“Target Price” and “Zero VAT” (the legislation of which was not completed, because of the dissolution of the government). The Zero VAT plan increases demand for the existing housing stock in the short term, while the Target Price plan depends on the massive marketing of new land at specific sites. Both plans involve the loss of state revenues and require supervision of prices and quality.

### The real exchange rate

- Israel's real exchange rate has developed in recent decades without an appreciation or depreciation trend, in line with the Law of One Price assumption.
- The real exchange rate of advanced economies, including Israel, is sensitive to the business cycle—appreciating in times of relative expansion and weakening in times of relative lows.
- The effect of the exchange rate on Israel's exports is greater than on imports, but these effects are not major.
- Monetary policy in most advanced economies only indirectly responds to fluctuations in the real exchange rate.

## CHAPTER 7A: CONSTRUCTION AND THE HOUSING MARKET

In 2008–14, home prices increased by 93 percent and rents rose by 43 percent, against the background of surging demand and slow growth of supply. The first part of Chapter 7 opens with a brief review of current developments, and then presents the factors in the inelasticity in the supply of homes. Later it focuses on measures that the government continued to take this year to increase the elasticity of supply: First it presents measures that support supply by removing land barriers and planning barriers; afterwards, it discusses the Zero VAT and Target Price plans, measures intended to lower home prices directly through a tax benefit and discount on the price of land, respectively.

## 1. CURRENT DEVELOPMENTS

The number of home transactions declined in the year reviewed. This decline was mainly due to waiting during discussions on the implementation of the Zero VAT plan and to the effect of Operation Protective Edge.

Home prices and rents increased in 2014, for the seventh consecutive year, but home prices increased this year by 4.5<sup>1</sup> percent, which was lower than the average rate in the previous two years (8.4 percent). Rents rose by 3.1 percent over the year, similar to their rate of increase in the previous two years. In 2014, the number of home transactions and new home transactions declined (Table 7A.1). This decline occurred among all populations of buyers—first-time homebuyers, buyers upgrading their home, and investors (not shown)—and it took place mostly in the second and third quarters; in the first quarter, the stability that prevailed in the market from the second half of 2013<sup>2</sup> continued. It seems that the decline was mainly due to waiting for implementation of the Zero VAT plan—a measure that the government announced in mid-2014, the core of which was to reduce the VAT rate to zero for eligible<sup>3</sup> first-time home buyers.<sup>4</sup> The decline was also due to the effect of Operation Protective Edge, the military campaign waged in July and August. Despite the decline in the number of transactions, there was no significant decline in mortgage volume.

The legislative process for the Zero VAT plan was halted in November, due to the dissolution of the government, but already in September there were signs of some recovery in transactions, apparently due to erosion of the public's confidence in the chances of the plan being realized, as well as the end of Operation Protective Edge.

<sup>1</sup> Annual inflation totaled -0.2 percent, which means that nominal prices are similar to real prices.

<sup>2</sup> A discussion on the factors affecting home and housing demand appears in Chapter 7A of the 2013 Bank of Israel Annual Report.

<sup>3</sup> A description of the eligible population appears in Section 3.

<sup>4</sup> This means the purchase of a new home from contractors, since VAT is due only on such homes. The announcement of a “Zero VAT” plan caused potential buyers to wait for its implementation, and since this population is usually interested in second-hand homes, the result was a reduced number of transactions for such homes as well.

**Table 7A.1**  
**Construction industry data, 2001–14**

	Level in 2014	Average annual change							
		2001- 2007	2008- 2014	2009	2010	2011	2012	2013	2014
(percent)									
<b>A. Demand variables</b>									
Population (thousands)	8,197.7	1.9	1.8	1.8	1.9	1.9	1.9	1.8	1.9
Real monthly wage per employee post (2011 prices) <sup>a</sup>	9,056.1	0.0	0.2	-2.5	0.7	0.4	0.6	1.1	1.5
GDP per capita (NIS thousands, 2010 prices)	120.6	1.2	1.7	0.1	3.8	2.3	1.1	1.3	0.8
Housing transactions	101,817	0.4	0.5	8.6	1.8	-16.9	18.8	5.7	-11.1
Sales of new homes	22,629	-3.7	3.1	13.6	20.8	-12.3	13.6	9.5	-8.9
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Unemployment rate (average level, percentage points)	5.9	11.7	7.4	9.5	8.4	7.1	6.9	6.2	5.9
Average interest rate on CPI-indexed mortgages (level, annual average)	2.3	5.3	2.8	3.0	2.4	2.9	2.6	2.3	2.3
Bank of Israel interest rate (level, annual average)	0.6	5.6	1.9	0.8	1.6	2.9	2.4	1.4	0.6
<b>B. Supply variables</b>									
Total construction output (NIS billion, 2010 prices)	97.3	-1.0	5.0	1.9	11.4	11.3	7.2	3.6	-3.9
<i>of which:</i> Residential (including renovations)	58.6	-1.1	7.1	8.0	13.0	12.1	8.6	1.2	-1.2
Nonresidential construction (buildings)	17.7	-3.7	1.6	-1.5	7.9	5.0	-3.1	12.1	-8.1
Other construction work (earthworks and security)	18.1	2.7	3.0	-5.5	5.8	12.5	11.5	3.4	-7.5
Construction product (NIS billion, 2010 prices)	47.0	-0.7	5.8	3.4	11.2	11.6	6.8	1.3	-1.7
Workers <sup>b</sup> (thousands)	260.9	-2.2	4.2	-3.0	7.5	3.8	3.9	11.0	3.3
Stock of homes under construction (thousands, year-end)	93.1	-3.8	6.5	3.6	12.0	17.3	6.6	5.1	-1.3
Home building starts (thousands, year-end)	43.6	-5.6	5.1	6.3	15.2	15.9	-7.7	9.4	-7.9
Home building completions (thousands, year-end)	44.8	-5.4	6.0	7.3	1.9	3.0	9.5	13.6	5.0
Stock of new homes available for sale initiated by the private sector (thousands, year-end)	18.2	-6.4	6.0	-23.9	36.5	35.3	7.6	5.7	1.7
Total stock of new homes available for sale (thousands, year-end)	26.2				21.7	38.1	0.2	9.1	11.0
<b>C. Prices</b>									
Home prices relative to the CPI excluding housing	--	-2.5	7.8	12.6	15.3	7.6	1.5	8.7	6.6
Rental prices relative to the CPI excluding housing	--	-0.9	3.3	11.5	2.9	3.1	2.6	1.9	2.7
Input prices relative to the CPI	--	2.6	-0.1	-3.3	-0.1	0.6	1.7	0.6	0.4

<sup>a</sup> Until 2002, derived from the wages of Israelis and non-Israelis. Since 2002, of Israelis only.

<sup>b</sup> Including an estimate of unreported foreign workers.

SOURCE: Central Bureau of Statistics, Ministry of Construction and Housing and Bank of Israel.

If the volume of building starts remains around 45,000 per year—the average level since 2011—it will meet the demand arising from natural growth.

The number of building starts declined slightly in the reporting year, from around 47,000 housing units at the end of 2013 to 44,000 (Table 7A.1). However, despite the yearly volatility, since 2011, the average level of building starts has been stable at around 45,000 housing units per year. This is a higher level than the annual increase in the number of households, approximately 40,000 per year. Therefore, if building starts stay at these levels, they will provide a response to demand arising from natural growth.

The number of the building completions continued to climb this year, to 45,000 housing units, after rising steadily since 2008 (Table 7A.1). This year, for the first time, this number equaled the average number of building starts in the past four years (since 2011). When examining building starts and completions by district, it is found that the construction time in the periphery is about two years, while in the central districts it is longer. However, the proportion of tall buildings out of total building starts is much higher in the central districts, which prolongs the construction of buildings.

The supply of new homes available for sale continued to expand in 2014, and home prices continued to rise. This fits with the assumption that contractors expected that price increases would continue.

The supply of new homes available for sale—which includes homes in the process of construction—continued to increase, reaching 26,000 housing units this year (Table 7A.1). The increase in this supply, which began in recent years, encompassed all districts. In the past three years, it has been at a ten-year high, especially in the Jerusalem and Central districts, i.e., in areas of high demand. The fact that this stock also grew in areas of high demand in recent years, along with the fact that prices continued to rise, fits in with the assumption that contractors expect the rise in prices to continue and that holding stock is possible because of the options for financing it.

## 2. BARRIERS IN PLANNING AND BUILDING PROCESSES

### a. Availability of land

State-owned land is located mostly in the periphery, and provides only a limited ability to increase supply in the center in the short and medium term.

Most of the land in Israel is owned by the state (Table 7A.2). However, the state has only limited ability to increase the supply of land for construction in areas of high demand, especially in the short and medium term, for the following reasons: (a) most land, especially state-owned land, is located outside the central districts (Table 7A.2). Almost 60 percent of households reside in the areas in high demand—the Center, Tel Aviv, and Jerusalem—but these areas account for only 13.5 percent of the country's area, which means that they have little available land. Moreover, the center also requires suitable allocations of land for public needs (including roads infrastructure), commercial space, hotels, and more—since this area also services the residents of other districts—further reducing the availability of land for residences; (b) in the central districts, especially Tel Aviv, there is a relatively high proportion of privately owned land. The realization of approved plans is complex, because it requires reparcellation<sup>5</sup>, and requires the local authority to arrange the development

<sup>5</sup> In cases of multiple owners, the borders of the property unit for planning purposes are adjusted by reparcellation.

**Table 7A.2**  
**Land<sup>a</sup>, population, density and District Committee approvals: regional distribution**

	Total	North	Haifa	Central	Tel Aviv	Jerusalem	South
<b>Land, by ownership</b>							
State owned	93.0	87.2	69.1	79.1	48.8	90.0	99.2
Privately owned	7.0	12.8	30.9	20.9	51.2	10.0	0.8
<b>Land, population and households</b>							
Land	100.0	21.3	4.7	6.2	0.8	6.5	60.5
Population	100.0	17.3	12.3	25.2	17.3	12.9	15.0
Households	100.0	14.6	13.4	25.5	22.1	11.0	13.4
<b>Density<sup>b</sup></b>							
Population	0.4	0.3	0.9	1.5	7.6	0.7	0.1
Households	0.1	0.1	0.3	0.4	2.8	0.2	0.0
<b>District Committee approvals, 2012–14, housing units</b>							
2012	63,937	9,894	15,930	17,538	3,418	5,950	11,207
2013	75,698	19,233	10,035	18,970	7,471	7,158	12,831
2014	64,340	10,472	8,904	19,034	5,153	11,732	9,045
Total	203,975	39,599	34,869	55,542	16,042	24,840	33,083
Regional distribution (%)	100.0	19.4	17.1	27.2	7.9	12.2	16.2

<sup>a</sup> Regulated land, meaning land for which ownership is recognized and recorded.

<sup>b</sup> Persons and households per dunam (1/4 acre) of land.

SOURCE: Based on Israel Land Authority, Planning Administration, and Central Bureau of Statistics.

expenses; (c) extensive state-owned land in the central districts is occupied by various entities, including the IDF, local authorities, and agricultural and industrial bodies. Vacating this land requires arrangements with the land holders, which involves legal proceedings and "migration" costs. As an illustration, to vacate IDF bases, it is first necessary to build alternative bases, and the vacated land is sometimes contaminated and must be decontaminated. As the migration costs rise, it is less worthwhile to vacate the tenants of the land and construction density must increase to cover the costs. Increasing the density requires higher investment in infrastructures, without which the planners struggle to obtain the agreement of the receiving authority and the authorities adjacent to the project.

This year, a National Planning and Building Committee for preferred housing projects was established in order to increase the availability of land (details appear in Section 3).

## b. Land planning

Between 2012 and 2014, District Committees approved 204,000 housing units, more than half of which were in the periphery and Haifa. In order to market the land, it is therefore necessary to develop employment and transport infrastructure in these areas.

Table 7A.3 shows the "production" stages of a home and an estimate of the average duration needed under the usual process.<sup>6</sup> Plans for building on state-owned land are drawn up and submitted by the Israel Land Authority (ILA) and the Ministry of Construction (and sometimes also by the local authority), and plans for building on private land also go through these stages. It is estimated that the District Committees take an average of five years to approve plans in the regular track. In 2011, the government established the National Housing Committees with the objective of shortening the duration of this work from five years to one. The National Housing Committees are a parallel process to the ordinary process, and were established for large-scale plans<sup>7</sup> for residential construction on state-owned land<sup>8</sup>. In contrast to the two previous years, this year, the National Housing Committees participated in a negligible number of approvals of plans.<sup>9</sup> Out of 204,000 housing units approved by District Committees in the previous three years (Table 7A.2), the National Housing Committees approved 28,300 housing units, of which only approximately 3,700 housing units were in the Central, Tel Aviv, and Jerusalem districts.

According to reports of the Planning Administration, the number of approvals this year totaled 64,300 housing units—similar to the number in 2012, and lower than the 75,700 in 2013<sup>10</sup> (Table 7A.2). Total approvals are in line with the government

**Table 7A.3**  
Average duration of the stages in the planning and construction of a home

Stage	Years	Responsible entity
A. Feasibility study and preparation of plans for submission to the District Committee	1	Israel Land Authority (ILA), Ministry of Construction
B. District Committee approval	5	Planning Administration (Ministry of the Interior)
C. Preparation for marketing of the land by ILA	1.5	ILA, Ministry of Construction
D. Issuing a tender and determining a winner (marketing of land)	0.5	ILA, Ministry of Construction
E. Issuing a building permit (local committees)	3	Local committees, contractors
F. From obtaining building permit until beginning of construction	0–0.5	Contractors
G. Duration of construction	2	Contractors
Total	13–13.5	

SOURCE: Bank of Israel.

<sup>6</sup> This estimate was made in 2011 on the basis of data available at the time. See the Bank of Israel Annual Reports for 2011–13.

<sup>7</sup> The National Housing Committees were established for four years by directive, and their powers were expanded in late 2013. See also the Bank of Israel Annual Report for 2011, Chapter 2.

<sup>8</sup> At least 80 percent of the plans are for construction on state-owned land.

<sup>9</sup> In 2012 and 2013, the National Housing Committees approved 10,100 and 13,600 housing units, respectively. In 2014, they approved only approximately 2,900 housing units.

<sup>10</sup> These numbers include plans submitted by the private sector, and not just by the Israel Land Authority and the Ministry of Construction.

decision taken in 2010: it set an approval target of 60,000 housing units per year in 2011–20, after the actual number of approvals amounted to 25,000 housing units per year in 2007–11.<sup>11</sup> More than half the approvals (52 percent of the housing units) by the Planning Administration were for the periphery (especially in the North) and Haifa. The share of approvals for the Tel Aviv region is less than its share of the population and households, by greater than 50 percent. This is evidence of the limited land in the Tel Aviv region, even for long-term planning, which is why population dispersal is also necessary. However, in order to spread out the population—in other words, to successfully market plans in the periphery—it is also essential to build transportation infrastructures and/or create jobs.

After the District Committee approves the plans, and before the land is marketed, the ILA draws up a plan to develop the land (in cases of state land), which includes the publication of tenders and the signing of agreements with development contractors (Stage 3 in the table). The development costs included in the land tenders published by the ILA in the fourth stage are derived from this plan. Note that in the case of privately owned land, the average duration needed for this is more than 18 months, since the local authority is responsible for developing the land and for reparcellation.

Table 7A.4 details the fourth stage in Table 7A.3. Although sale of land in the past three years (approximately 24,000 housing units per year) is relatively higher than in the past, it increased by less than the growth rate<sup>12</sup> of approvals by the Planning Administration.<sup>13</sup> A comparison of the annual average in 2009–11 shows that the sale of land mainly increased in the Haifa district, while shrinking in the Central district.

After the developer acquired the planned land sold by the ILA, it prepares and submits a detailed plan to obtain a building permit from the Local Committee (Stage five in Table 7A.3). This is the final stage in the approval process of building plans. The permits are necessary to start construction and make it possible to sell the new

The increase in approvals issued by the District Committees in the past three years is partially reflected in the volume of land sold by the Israel Land Authority.

**Table 7A.4**  
**Residential land sold by the ILA by region, 2000–14**

(Average annual quantity of housing units)

	Total	North	Haifa	Central	Tel Aviv	Jerusalem	South
2000–08	16,143	2,570	988	5,276	698	2,417	1,975
2009–11	21,799	4,123	1,728	6,399	715	4,178	3,967
2012–14	24,333	4,498	4,016	3,965	1,586	4,505	4,356

SOURCE: Based on Israel Land Authority.

<sup>11</sup> Decision Number 2019 of 15 July 2010.

<sup>12</sup> District Committees have already drawn up and approved the land marketed (by tender and otherwise). The amount sold is lower than the amount marketed since some land is not sold.

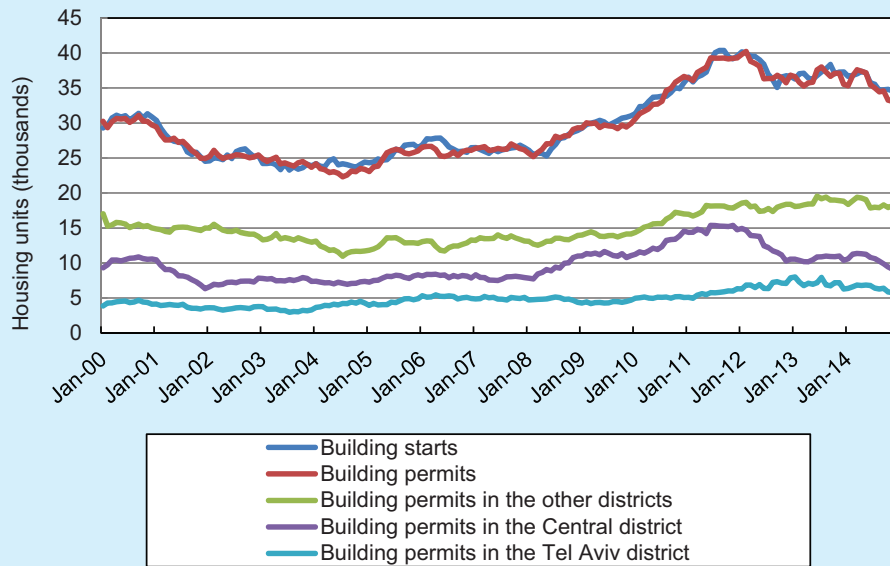
<sup>13</sup> It should be noted that the plans approved by the Planning Administration include privately owned land, while the ILA only sells state land; thus, the flow chart from the approval of plans to the sale of land is incomplete.

apartments even before construction process has begun. There are approximately 125 Local Committees (compared with six District Committees), and there are no data regarding the number of housing units for which contractors have applied for building permits, only the number of permits that the committees have issued. Figure 7A.1 shows that applications for building permits filed by the private sector have been stable in the past three years, after falling in 2012 from their record level in 2011; the same holds for home building starts initiated by the private sector. An examination by district shows that most of the decline from the 2011 peak occurred in the Central district. The Central Bureau of Statistics Business Tendency Survey shows that, in the past 18 months, the most severe constraints on the supply in the construction industry were due to the shortage of building permits and available land. This picture supports the picture described in Table 7A.2: infrastructure barriers in the Central district limit the issuing of permits.<sup>14</sup>

The rigidity of supply has a structural character. The phenomenon is not unique to Israel, and is common in larger and more thinly populated countries.

In conclusion, in the past three years, the amount of land sold by the ILA and the number of permits and home building starts have kept stable, even though the Planning Administration increased the number of approvals and despite the multiple efforts made by the current and previous governments to make the supply more elastic. This result demonstrates the structural rigidity of the supply in the short and medium terms. In this context, it should be noted that the rigidity of supply is not characteristic of

**Figure 7A.1**  
**The Private Sector: Total Building Starts and Building Permits, Permits in the Central and Tel Aviv Districts, and Permits in the Other Districts, 2000–14**  
 (yearly data)



SOURCE: Based on Central Bureau of Statistics.

<sup>14</sup> There are only data for permits for plans filed by the private sector. There are no data for building permits for plans initiated by the public sector.



Israel alone. The economic literature indicates that this matter is well known even in large and thinly populated countries. For example Maclellan (2008)<sup>15</sup> argues that the rigidity of supply exists in all OECD member countries, including the US, Australia, and New Zealand.

The structural rigidity is caused by three main factors. First, it requires system-wide and long term attention, including to the population's growth and its composition: if the state wants to significantly increase the scale of residential construction at acceptable standards, it must search out land, finance investments in infrastructures (at the urban, metropolitan, and national levels), disperse the population, and develop employment zones. All of these are long term actions by their nature. Second, the planning process is complex because numerous parties are involved in it, such as the Ministry of Transport, the Ministry of Construction, the Ministry of Environmental Protection, local authorities and the neighboring local authorities, Fire and Rescue Services, and various legal entities. Planning is also prolonged because there is usually no entity that centrally handles all the parties involved. Furthermore, the various parties can sometimes work in parallel and streamline the process, but they work sequentially (to highlight this point, the Ministry of Education only builds schools after the residential buildings are built, while the residential buildings are only built after the Ministry of Transport paves the streets). Third, the preparation and building of infrastructures requires considerable time, both due of the financing problems and due of legal problems that arise during construction.

Therefore, the challenge is to adhere to a long-term vision and make the planning and construction processes more effective. The significant contribution made by the Housing Cabinet lies in that it is a single empowered entity that concentrates and coordinates the handling of all the planning stages, which allows the parties involved to sign agreements that expedite construction<sup>16</sup>.

### 3. ACTIONS TO REMOVE BARRIERS: DECISIONS TAKEN BY THE HOUSING CABINET (GOVERNMENT) TO EXPAND SUPPLY OF HOMES AND TO REDUCE HOME PRICES

The Housing Cabinet was established to concentrate in a single body the government powers and handling of all planning stages and to coordinate between the numerous parties involved in the process. In 2013–14, the cabinet made a number of decisions intended to increase the supply of homes for sale and long-term rent and to promote urban renewal. However, to realize some of these projects, it is necessary to identify

<sup>15</sup> Maclellan, D. (2008), "Trunks, Tails and Elephants: Modernizing Housing Policies", *European Journal of Housing Policy*, Vol. 8 No. 4, 423-440.

<sup>16</sup> The government decided to establish the Housing Cabinet (the Ministerial Committee for Housing Affairs) in April 2013. Its function is to set government housing policy, approve and promote reforms in land, planning, and residential construction, and promote residential construction projects, including long-term rental projects and vacate-and-build sites.

Making supply more flexible requires systemic and consistent attention, taking into account the budget and the duration of planning and execution required to find land and build infrastructure. The complexity resulting from the involvement of many entities in the planning must also be taken into account.

The Housing Cabinet was established to concentrate the government powers and handling of all planning stages in a single body, and to coordinate between the numerous parties involved in the process.

In order to continue significantly increasing the pace of building starts, significant budgets and a few years are necessary.

appropriate land, build transportation infrastructures, vacate IDF bases<sup>17</sup>, and sign agreements with the local authorities (which are naturally actions that must also be taken to maintain the current supply). A significant increase in the supply of homes will therefore require several years and substantial budgets. Indeed, if the government's measures are credible in the eyes of the public, they also affect public expectations and can therefore moderate demand and present prices, even if the supply will only increase in a few years. However, since the supply is only expected to increase in

**Table 7A.5**  
**Housing Cabinet decisions aimed at expanding the supply of homes and lowering their prices**

Measure	Secondary Measure	Objective	Implementation
Blanket agreements		Increase supply by removing barriers	Five municipalities signed agreements to build a total of about 60,000 housing units. The tenders process has begun.
"Path to a Home"		Increase supply by removing barriers	The budget has been prepared and the process has begun.
Urban renewal	A. Build-Vacate-Build B. Establishment of a government authority	Increase supply by removing barriers	A. The secondary measure is in the searching of land stage. B. Legislation approved in First Reading by the Knesset.
National Planning and Building Committee for Preferred Housing Projects		Increase supply by identifying available land	Plans totaling about 36,000 housing units have been submitted. Discussions for deposit on 5 plans with a total of 20,000 housing units have been held.
Advancing the Planning and Building Law		Streamline the planning in the district and local committees	The law was passed by the Knesset on August 1, 2014.
Promoting rental housing	A. Establishment of the "Apartment for Rent" company B. Allocation of public land to the local authorities	Increase supply by promoting long-term residential rentals	A. The company was established and has started operating. B. The secondary measure is waiting for local authority initiatives.
Zero VAT		Reduce prices	Not legislated
Target Price		Reduce prices	The law was passed. The tender prospectus is being prepared.

SOURCE: Bank of Israel.

<sup>17</sup> At issue are 60,000 housing units, to be built in 2015–25. In the next two years, 3,800 housing units are at issue.

several years, and since there is a desire to quickly lower home prices, the government also decided to directly lower prices for part of the public through two plans: Zero VAT, a measure that does not involve increasing the supply; and Target Price, a measure which contributes little to the supply. The dissolution of the government in November halted progress in some of the cases, partly because the 2015 budget was not approved. Table 7A.5 summarizes the measures taken by the cabinet, and they will be detailed below. First the measures that support supply will be shown, followed by measures intended to directly lower prices.

### **a. Measures that support supply**

#### *(1) Blanket agreements*

Local authorities tend to oppose expanding residential construction in their jurisdictions, because this tends to load infrastructures and/or add costs to the current population. The need to build infrastructures – for transportation, education, culture, and sports – therefore delays land sales, planning, and the issue of building permits by the Local Committees. Blanket agreements are a government mechanism intended to deal with the difficulty with the help of government financing, among other things. Blanket agreements involve the Ministry of Finance, the Ministry of Construction, the Ministry of Transport, the local authority, and other relevant ministries. Blanket agreements increase the level of certainty for all the parties involved: for the local authorities – assurance of budgets; for contractors and developers – assurance of the timing of building permits; and for the buyers – assurance regarding the building of municipal infrastructures and educational and cultural institutions.

Blanket agreements are intended to encourage the local authorities to expand residential construction in their jurisdictions.

Blanket agreements have been signed with local authorities that have the potential to quickly add numerous housing units: they have the ability to market 5,000 housing units within three years, at a rate of at least 2,000 housing units per year. These agreements contain a number of principles: (a) they establish ahead of time the infrastructures development processes and their financing, which means that, after the District Committees approve the plans, the ILA can quickly publish tenders for the land, since it does not have to coordinate the tender with the local authority; (b) building permits are issued within 90 days from the date the plans are submitted to the local planning committees; (c) a bonus is awarded for each housing unit that receives a permit (including for urban renewal) when the total number exceeds the annual average in 2010–12.<sup>18</sup> Meanwhile, it has been reported that blanket agreements have been signed with five local authorities, mostly in the center, for a total of approximately

<sup>18</sup> To receive a bonus, two conditions must be met: the number of housing units that received the permit totals at least 200; and the annual growth is at least 10 percent relative to the average in 2010–12. When the annual growth rate ranges between 10 percent and 50 percent, the bonus is NIS 7,000 per permit for an ordinary housing unit and NIS 10,000 per permit for a housing unit in an urban renewal project. When the growth rate exceeds 50 percent, the grant is NIS 9,000 per housing unit and NIS 12,000 per housing unit in an urban renewal project. The total annual bonuses for each local authority will not exceed the amount of bonuses for 12,000 housing units.

60,000 housing units.<sup>19</sup> To date, several land tenders have been published on the basis of these agreements.

(2) *"Path to a Home"*

The Path to a Home program was created to plan and build an intercity transportation infrastructure to support the expansion of approvals for plans and the marketing of land.

The Path to a Home program was created to plan and build an intercity transportation infrastructure to support the expansion of approvals for plans, the marketing of land, and building permits. The Ministry of Construction, the ILA, the Ministry of Finance, and the Ministry of Transport are parties to these agreements, which are intended to settle the distribution of financing between the parties, the planning solutions, and the timetables for the various transportation projects. The projects are intended to serve approximately 190,000 housing units nationwide (including areas of vacated IDF bases), thereby enabling the planning of residential neighborhoods and industrial zones, and to market the planned land. Under the timetables, many projects usually require one to two years just for the planning.<sup>20</sup> Several projects have already received budgets for this stage and the process is underway.

(3) *Urban renewal (vacate-and-build and National Outline Plan 38)*

Vacate-and-build plans are intended to efficiently utilize land resources, and were legislated in 1998, but have not had much success to date.<sup>21</sup> Reasons for this include a lack of confidence between the parties involved in a transaction – the residents, the developers, and the municipal authorities – due to its complexity. Several decisions have been made in order to promote these important plans:

**To carry out a build-vacate-build plan:** Available land will be located in neighborhoods slated for urban renewal. The tender winner will build homes on the land, where half of the homes will be able to be sold on the open market. The government will be allowed to buy the remaining homes at a previously agreed on price. These homes will be transferred to the residents who will be vacated, and the process will begin again on the land that they vacate. It was decided that the plan will begin with a pilot of five projects. Land has been found in three cities to date.

**To establish a government urban renewal authority:** To date, the issue of urban renewal has been the responsibility of a department at the Ministry of Construction. The new urban renewal authority will also belong to the Ministry of Construction, but its head will be appointed by the government, following a recommendation by the Minister of Construction and Minister of Finance. Establishment of the authority is intended to expand the powers of the responsible body, strengthen the relationship

In order to promote urban renewal plans, the government will increase its involvement in financing and planning the process, and accompanying those involved in it.

<sup>19</sup> Blanket agreements have been signed with the following municipalities: Rishon Letzion (17,500 housing units); Modiin (11,500), Rosh Ha' Ayin (15,700), Kiryat Gat (7,500), and Kiryat Bialik (7,300).

<sup>20</sup> The list of projects appears in the minutes of the Housing Cabinet meeting of June 23, 2014. Some of the projects also appear on the Ministry of Construction's website. The budget costs of the Path to a Home program total approximately NIS 4 billion over the next three years

<sup>21</sup> According to Ministry of Construction reports, only 26 projects have been approved to date, of which only six projects have been occupied, while the remaining projects are in planning or under construction.

between the state and the residents to create confidence, help locate projects and find a suitable developer, enrich the information, and increase the efficiency of the process (for example, by assisting the process and the parties involved and by removing barriers to development). The urban renewal authority will receive a budget for the purchase of 200 apartments for residents at sites slated for urban renewal. The Knesset passed the measure in its first reading.

**Prepare urban renewal outline plans:** These plans are intended to offer an overview of the neighborhood slated for urban renewal, with the objective of providing a full response to the neighborhood needs as well. The National Housing Committees will be authorized to discuss urban renewal plans as well, with the objective of significantly shortening the time needed for their approval by the District Committees.

**To reduce VAT to 0 percent for urban renewal construction services:** Reducing VAT to 0 percent, in contrast to a VAT exemption, allows contractors to deduct construction inputs for VAT. This amendment will lower the cost of projects to retrofit buildings and build residential secured spaces under National Outline Plan 38, thereby making them more worthwhile. The measure has been legislated and is waiting for implementation instructions to be issued by the Tax Authority.

**Promote legislation for vacate-and-build plans:** To enforce implementation on the “last hold-out” in vacate-and-build projects, amend the Sale Law to protect the vacating residents and guarantee their property even if a project fails. The memorandum for the law is being written.

#### *(4) Establishment of the National Planning and Building Committee for Preferred Housing Projects*

The National Planning and Building Committee for Preferred Housing Projects was established in order to locate land with the objective of quickly increasing the supply and accelerating the government plan to build 130,000 long-term rental housing units (26,000 housing units per year over the next five years, not including housing units which will be built on vacated IDF bases). In areas of high demand, a large proportion of the land potential is owned privately or held by parties on the land (which belongs to the ILA), and compensation is required to vacate them. The worthwhileness of a project therefore depends on the profit from the land, which is derived from the number of housing units and commercial buildings that will be built on it (see Section 2a above for more information). As this involves legal arrangements as well, the process of reaching agreement on vacating the land takes time. The National Planning and Building Committee for Preferred Housing Projects was established to adapt the building plans on the land so as to make them worthwhile and also to approve the plans (under the principle “one plan, one committee, one developer”) in an expedited timetable (approximately 300 business days).

The National Planning and Building Committee for Preferred Housing Projects is a national committee, and its power supersedes that of any other plan, except for

The National Planning and Building Committee for Preferred Housing Projects was established in order to increase the supply of homes by searching out land, adapting the building plans so as to make them worthwhile, and to expedite the approvals process.

National Outline Plan 35.<sup>22</sup> The committee may change regional or national outline plans, and its decisions cannot be appealed to the National Council. The building permits for these plans will include building control institutes—independent bodies from the private sector, which were established under an amendment to the Planning and Building Law, which the Knesset passed this year (further details about the building control institutes appear in the next section).<sup>23</sup>

A preferential site will include at least 750 apartments (or at least 500 apartments in towns populated by minorities), for which a building permit can be issued without the need to approve an additional plan. The sites will be found on land of which at least 80 percent belongs to the ILA. Excluding preferred sites in minorities' towns, 30 percent of the total housing units in the plan will be designated for long-term rentals, half of which will be designated for discounted long-term rentals.<sup>24</sup> These plans will include public buildings, public spaces, and the infrastructures necessary for the residences (or housing units) on the site. They can also include business and commercial buildings both on and off-site – in other words, within the jurisdiction of the receiving local authority, due to their economic consequences to the local authority.

Entities with the right to draw up preferential housing plans and submit them to the Committee include the ILA or an entity acting on the ILA's behalf<sup>25</sup>, the Ministry of Construction or an entity acting on its behalf, and the Government Housing and Rental Company. In minorities' towns, the Ministry of the Interior or an entity acting on its behalf may also draw and submit such plans. Any person may submit objections to a plan.

The Knesset passed the National Planning and Building Committee for Preferred Housing Projects Law on July 29th, 2014, and ten preferential housing sites with 36,300 housing units have already been announced. Five of the plans have been accepted by the planning committees (20,000 housing units, all in the center), and discussions have been held on depositing the plans. (They do not include the approvals issued in 2014 and which appear in Table 7A.2.)

#### *(5) Promotion of the Planning and Building Law*

The Knesset passed an amendment to the Planning and Building Law on August 1, 2014. The amendment mainly deals with the decentralization of powers: the transfer of powers to approve small building plans (up to 20 housing units per plan) from the six District Committees to the approximately 125 Local Committees. The proportion of these plans in the district planning committees reached approximately 75 percent,

The Knesset passed an amendment to the Planning and Building Law in 2014, streamlining the approvals processes in the planning committees.

<sup>22</sup> National Outline Plan 35—the Integrated National Outline Plan For Building, Development, and Preservation.

<sup>23</sup> Amendment 91 to the Planning and Building Law passed by the Knesset this year.

<sup>24</sup> In extraordinary cases, it will be possible to approve preferential housing sites even when less than 30 percent of the housing units in the plan are designated for rentals. These cases include when there is no justification for a particular local authority, the plan cannot be implemented, and a large part of the land does not belong to the ILA.

<sup>25</sup> It is only possible to grant authorizations to act on behalf of a government ministry, a District Committee, a Local Committee, and a local authority.

at a time when the proportion of housing units in them amounted to just 2 percent, wasting precious resources of the District Committees. The District Committees can now focus on handling and advancing large building plans, and the National Planning Committee will handle overall policy.

The amendment to the law had another important contribution—the establishment of building control institutes, professional private sector bodies whose function is to concentrate at a single address the professional handling of building permits in order to speed up the rate at which they are issued; these entities will largely carry out the work of the Local Committees. The amendment also sets timeframes for the various stages of the process.

### **b. Promotion of rental housing**

As noted above, the Housing Cabinet advanced long-term rental housing as part of the National Planning and Building Committee for Preferred Housing Projects and also advanced rental housing in two other ways:

#### *(1) Allocation of state land to local authorities*

The Housing Cabinet decided to allocate public land to local authorities for the construction of rental apartments: The ILA will allocate land, at a token price (NIS 18 per square meter for a period of 49 years), in order to realize rental housing projects at a substantially lower price than the market price (“affordable rental apartments”). Implementation is waiting for the local authorities to take the initiative.

#### *(2) Creation of low-rent housing units*

The “Apartment for Rent” Company was established and a plan was drawn up with the objective of creating approximately 2,000 fair-rent housing units within two years (2015–16). Under the plan, entire buildings will be purchased in advance from developers of projects on approved land on which home building starts are spread over several years, in order to bring forward their construction. In the longer term, after the rental apartments are occupied, they will be sold to the institutional market as income-yielding properties. In order to enable the Apartment for Rent Company to carry out the plan, the state was to provide it a NIS 200 million loan in 2014. Subject to the Company meeting its milestones, the state will provide a similar loan in 2015. (The loan agreement has not yet been approved). In addition, the company will examine the possibility of adapting office buildings in city centers to long-term rentals.

#### *(3) Marketing the Gadna Compound in Tel Aviv*

The Housing Cabinet advanced an agreement with Halamish Ltd. to market the Gadna compound in the Tel Aviv. The Apartment for Rent Company will market long-term rental apartments on the site, and the proceeds will go to the Ministry of Housing to purchase apartment housing for people eligible for public housing.

The Housing Cabinet advanced long term rental housing through the establishment of the National Planning and Building Committee for Preferred Housing Projects and the “Apartment for Rent” government company, and through the expansion of financing and land allocations.

### c. Plans for directly influencing prices: Zero VAT and Target Price

The Zero VAT and Target Price plans for reducing home prices involve bureaucracy, supervision, and the loss of revenue to the state.

The Zero VAT and Target Price plans share some common features, although they embody them to different extents: their objective (reducing prices); the target population; the type of homes (new from contractors); the apartment size (60–150 square meters); and the fact that the regulation involved in them requires working with assessors in determining the price. The Zero VAT plan does not increase the stock of apartments in the short term, while the Target Price plan depends on extensive and continuous marketing of land on select sites. Both plans involve the loss of revenues to the state, albeit in different amounts. In both cases, the buyer cannot sell the apartment for five years from the date of occupancy, but can rent it out.

However, despite the common denominator, the proposals have three important differences. The first is related to the possibility of cancelling the plan: while the Target Price plan can be cancelled when market conditions change, governments are liable to find it difficult to cancel Zero VAT. The second difference is related to the possible effect of public expectations: Target Price planners seek to influence public expectations regarding the path of prices, by massive marketing of apartments at discounted prices. In contrast, Zero VAT planners do not seek to influence public expectations regarding the path of prices, but rather to reduce home prices; this plan applies to new homes nationwide and does not include massive sales. The third difference is related to the timetable: the Zero VAT plan can be implemented immediately, since it can be applied to new apartments under construction or those for which construction has been completed. Conversely, implementation of the Target Price plan is delayed because it requires land tenders and building permits. Another difference relates to supervision through assessors: the assessor in Zero VAT supervises the price set by the contractor, while in the Target Price plan, the assessor sets it.

Although both plans under discussion have numerous shared features, experts have mainly criticized Zero VAT at length. Below, the plans will be presented and discussed.

#### *(1) Zero VAT*

Before presenting the plan, it is first necessary to mention that the legislation has not been completed, which means that there is no final version. Under the plan, those eligible may purchase a new home from contractors without paying VAT and, in comparison with the rest of the population, will have obtained a discount equal to the VAT amount otherwise payable. The target population includes people without a home<sup>26</sup> who served in the army or in National Service, with at least one wage earner, and that have at least one child. The maximum home price will be NIS 1.6 million (including VAT). Completion of the legislation would have made it possible to implement the measure effective immediately, by buying new completed homes or

<sup>26</sup> "Without a home" – a family unit in which no one has ownership rights to a home or part of a home, and has had no rights on a home in the past ten years, or an individual over 35 who meets these conditions. "Family unit" – a married couple under Ministry of the Interior rules, a common law couple, or a parent of at least one child under the age of 21 under his/her guardianship.



ones that are under construction. In the long term, and on the condition that the supply barriers are insignificant, the plan will reduce home prices for eligible people relative to other consumer products, and will increase the rate of home ownership compared with the current situation. This is a values decision—the choice to award a tax break on homes to a particular population over awarding a break for other products, such as medicines.

### Criticism of the Zero VAT plan

1. Reducing VAT will increase housing demand and contractors' profits: Reducing the tax on apartments makes them cheaper compared with other products and therefore boosts demand for them. Since the housing supply is limited as described above, reducing the tax will raise prices and increase contractors' profits: without the measure, demand would be divided between new and existing homes, but instituting the plan will increase demand for new homes. However, demand is already double the relevant supply<sup>27</sup>, and demand in central districts is even greater. The Zero VAT plan will increase demand even further, since it will also create demand by eligible people who did not previously plan to buy a home, if they believe that the measure is temporary. In addition, it will also have secondary effects—on ineligible people, on the second-hand home market, and on the rental market—but it is not simple to analyze these effects.

Reducing home prices through "Zero VAT" will increase housing demand against the background of rigid supply, thereby acting to increase contractors' profits.

The plan includes a mechanism intended to prevent contractors from increasing their profits: the government assessor will set the price per square meter, and the home price will be this figure times the size in square meters. If demand exceeds the number of housing units, the state will allocate the apartments by lottery. But in a situation of rising prices, and with construction time taking about two years, it is not clear how the assessment mechanism will remove the difficulty, unless all the homes in a project are sold at around the same time. Furthermore, setting the price by square meters is liable to adversely affect the quality of construction in buildings whose construction has not yet begun, or reduce the supply within the relevant price range. There are also problems with the lottery: the contractor examines the ability of buyers to meet the payments, and may reject some lottery winners; it is unclear how this will be handled.

2. The plan widens the price differential between the center and the periphery: Prices are relatively high in areas of high demand (the Tel Aviv, Jerusalem, and Central districts), which is why there is a relatively small amount of apartments priced at less than NIS 1.6 million (including VAT). In other words, the supply is small to begin with, at a time when demand is high to begin with because of the public's preferences. Following the Zero VAT plan, demand will continue to grow, sometimes also because the value of the tax break from the plan is higher. Conversely, in the periphery, there

<sup>27</sup> To illustrate the point, total annual transactions are approximately 100,000 housing units, and approximately 30 percent of these are for new apartments. Only 60 percent of new homes cost less than NIS 1.6 million. In other words, the relevant supply amounts to 18,000 housing units. As for demand, first-time homebuyers are responsible for approximately 40 percent of home transactions, and approximately 85 percent of them bought a home for less than NIS 1.6 million. In other words, the relevant demand stands at 34,000 housing units, almost double the supply.

is a higher ratio between the relevant supply and demand. These differentials will result in the Zero VAT plan differentially raising housing prices in the center and in the periphery<sup>28</sup>: the measure will cause prices in the center to rise at a higher rate and the differential between the center and the periphery will widen.

3. The plan involves a high budget cost: Its estimated cost is NIS 2-3 billion per year.

4. The plan distorts the tax system: Reducing VAT to 0 percent negatively impacts the uniformity of the tax system and thereby distorts it. Reducing VAT on such an expensive product encourages demand and invites attempts at wide scale tax planning and evasion of tax on products related to the housing market.

5. The plan will cause a permanent loss of revenues: Past experience teaches that it is very difficult to cancel a VAT reduction, and the loss of revenues becomes permanent.

6. The plan involves bureaucracy and supervision: as for the bureaucracy, the measure requires eligibility tests. It also requires an assessment to control the home price; but homes are a heterogeneous product—even in the same building, let alone in different neighborhoods and regions—which means that in order to reach a realistic assessment it is necessary to examine each home separately in a complicated and costly process. Furthermore, since the assessment is based on the assessor's discretion, it is open to manipulation, which is an issue the State will have to deal with. The measure also requires supervision. First, the cap encourages buyers to pay contractors "under the table". Second, it creates an incentive to seek ways to belong to the eligible population.

### *(2) Target Price*

Reducing home prices through "Target Price" depends on the massive marketing of land at certain sites.

The plan is intended to reduce housing prices in areas of high demand by approximately 15 percent compared with prices in March 2014, by the massive marketing of land in a small number of sites, where the maximum home price is less than 20 percent of the prices as of the end of the first quarter of 2014.<sup>29</sup> The planners of the measure seek to change expectations regarding prices in the market and to cause prices to decline. Under the plan, 66,000 housing units will be built in 2014–19 (the determining period), 12,000 units per year. The plan is intended for all Israeli residents, whether they do not currently own a home or if they are upgrading their home, but it gives priority to people who do not own a home. The plan will market planned state land from the existing stock. The marketing of land under the Target Price plan is intended to be in addition to ordinary marketing, so that private sector home building starts will continue as usual, especially in the environs of the plan's sites. However, it is not clear in advance whether the homes in the Target Price plan will be added to the supply that the free market is creating or if they will replace part of it. The ILA will market state land by tender, without a minimum price. The tender terms also state the building will have a maximum number of apartments that will be sold at the maximum

<sup>28</sup> To illustrate the point, if an apartment in the center and an apartment in the periphery currently cost NIS 1.4 million, the price of the former is liable to quickly soar to NIS 1.6 million, while the price of the latter will rise to NIS 1.45 million.

<sup>29</sup> By January 2016, the ILA, after consulting with the Chief Government Assessor, will consider changing the assessment date.

price, a proportion that could reach 80 percent.<sup>30</sup> The target price apartments will be built under technical specifications set by the Ministry of Construction.<sup>31</sup> Some of the plan's regulatory aspects will be described below.

The target price setting mechanism: The Chief Government Assessor will set the average value per square meter of built-up space for each site included in the plan. The determining date for the assessment is March 31, 2014. The target price will be 80 percent of the price set by the assessor, which, multiplied by the apartment area in square meters, will yield the home's target price—the maximum price that the tender winner (the contractor/developer) will be allowed to demand from the homebuyer. The ILA will set the method for calculating the apartment area, in consultation with the Ministry of Construction.

The criteria for the marketing of the land in Target Price tenders: The tenders will include only land zoned for high-density construction<sup>32</sup>, and only in towns in which at least 500 Target Price housing units can be marketed in the determining period. They will also only include land for which the price per square meter does not exceed NIS 20,000 (in order to avoid a situation in which the benefit is awarded for luxury homes). Conversely, they will only include sites for which the average land value per housing unit exceeds NIS 80,000, including development costs, but after the discount. Target Price tenders will not include sites in bases that the IDF is set to vacate.

Allocation of land: The ILA will market land through “Target Price with a lottery” with no minimum price. If a bid equals zero, the bidder (contractor/developer) will append a bid to the proportion of homes he undertakes to sell at the target price, which will not exceed the maximum proportion of apartments set in the tender terms. The developer that offers the highest proportion will win, and at least two bids are required in order to choose a winner. Nonprofit organizations and buyer groups may participate in the tender and there is an option to market land under the framework of blanket agreements.

The Ministry of Construction will be responsible for oversight. Although two tenders have already been published, the filing of bids has been delayed because of the wait for the tender documents.<sup>33</sup>

<sup>30</sup> Twenty percent of the apartments will be sold on the free market to allow contractors to build special apartments (garden apartments, rooftop apartments) and to ensure high quality specifications for the common property and diverse tenants.

<sup>31</sup> The specifications include numerous elements. It relies on the building code that the Housing Cabinet initiated this year, which includes the standards for construction and accessories.

<sup>32</sup> High density construction – a building with at least six housing units per dunam, on at least two floors.

<sup>33</sup> In Rosh Ha'Ayin – 2,795 housing units (of which 1,695 housing units [60 percent] come under Target Price), and in Modiin – 700 housing units (of which 524 housing units [75 percent] come under Target Price).

### **Criticism of the Target Price plan**

1. There is a risk that the free market supply is liable to decline in the area around Target Price sites: contractors are liable to reduce home building starts in the area around Target Price sites, which is liable to increase home prices for the population which does not win the lottery.

2. The plan requires regulation: Besides the assessment issue, which was discussed above, the Target Price mechanism is far more complex than the Zero VAT mechanism, and also requires more regulation and oversight, including in the following areas: choice of land; land tender method; meticulous setting of specifications for materials and components (it is necessary to get into the fine print, including the type of faucets, tiles, doors and windows and their colors). However, the fact that there are only a small number of sites, and in standard high density construction, facilitates the construction quality supervision.

3. The plan reduces state revenues from land sales.

## 7B: THE EXCHANGE RATE

### The real exchange rate

**The development of the real exchange rate (hereinafter: the exchange rate, as well) has a powerful effect on economic activity.** In 2006–13, the shekel appreciated by 20 percent in real terms, weighing on the tradable sector. To understand the factors behind the development of the real exchange rate in Israel, the factors impacting on other countries' real exchange rates are discussed below. Section 1 discusses long term factors, Section 2 describes the effect of business cycles on the exchange rate, and Section 3 demonstrates the connection between the real exchange rate and monetary policy.

The development of the real exchange rate has a powerful effect on economic activity.

#### 1. REAL EXCHANGE RATES IN THE LONG TERM<sup>1</sup>

**Studies show that the real exchange rate is a stationary variable in the long run, consistently reverting to mean.** The real exchange rate is the ratio of two countries' price levels in same-currency terms. This ratio is volatile over time but does not establish a trend (i.e., it fluctuates around a constant mean)—a situation explained by the “Law of One Price” in its weak version<sup>2</sup>: A one-off change in the nominal exchange rate between two markets that typically exhibit constant price levels creates an arbitrage spread—the possibility of earning a profit by buying inexpensive goods from the depreciated-currency market and selling them in the other market. The increase in demand in the weak-currency market causes the prices of the relevant goods to rise until the arbitrage spread is eliminated, thus returning relative prices (i.e., the real exchange rate) between the markets to their previous levels. The weak version of the law of one price has been tested in many studies and has been confirmed in those that use very long-term databases and developed markets' exchange rates. For example, Taylor and Taylor (2004), examining the USD/GBP exchange rate over a 200-year period, found that the relative price levels in both countries do not diverge. Examining the development of price levels across a broad panel of countries over a shorter period (thirty years), they drew a similar conclusion: the price levels are correlated and do not diverge at any time in the sample period (even though the correlation is very weak

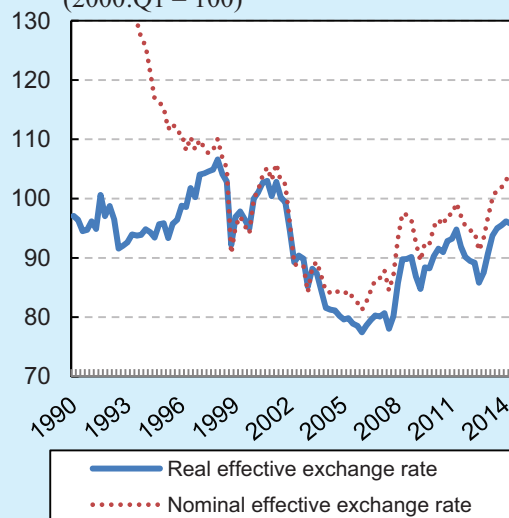
Studies show that the real exchange rate is a stationary variable in the long run, consistently reverting to mean.

<sup>1</sup> The real exchange rate is the ratio of the price of a basket of goods in a country's domestic economy to that of an identical basket in other countries, in terms of the same currency. Real appreciation in Israel occurs when the shekel-denominated price of Israel's basket rises relative to an identical basket in foreign currency terms and translated into shekel terms on the basis of the nominal exchange rate. Real depreciation occurs when Israel's basket declines in price relative to the same basket in other countries.

<sup>2</sup> According to the strong version of the law of one price, absolute price levels in two markets, measured in the same currency, consistently revert to their constant mean. In contrast, according to the weak version of the rule, absolute price levels in both markets may remain different—due to differences in taxation, shipping costs, etc.—and only the ratio of one market to the other (measured in the same currency) consistently reverts to its constant mean.

at the annual level). Another study<sup>3</sup> found that the (weak) law of one price tends to obtain in markets that are relatively open to international trade and have growth rates approximating that of the US, low inflation, and mild nominal exchange rate volatility. Accordingly, the rule tends to hold more in European and Latin American countries than in those of Asia and Africa. Israel's real exchange rate has been stationary (trending neither to depreciation nor to appreciation) in the past three decades but exhibited large and protracted deviations from the long-term mean (Figure 7B.1). The literature stresses that real exchange rate deviations subside very slowly,<sup>4</sup> challenging the belief that a law of one price exists even in the long term.

**Figure 7B.1**  
Effective exchange rate indices,  
1990–2014  
(2000:Q1 = 100)



SOURCE: Based on IMF.

Economies characterized by rapid and protracted growth may deviate from the (weak) law of one price and experience long-term real appreciation.

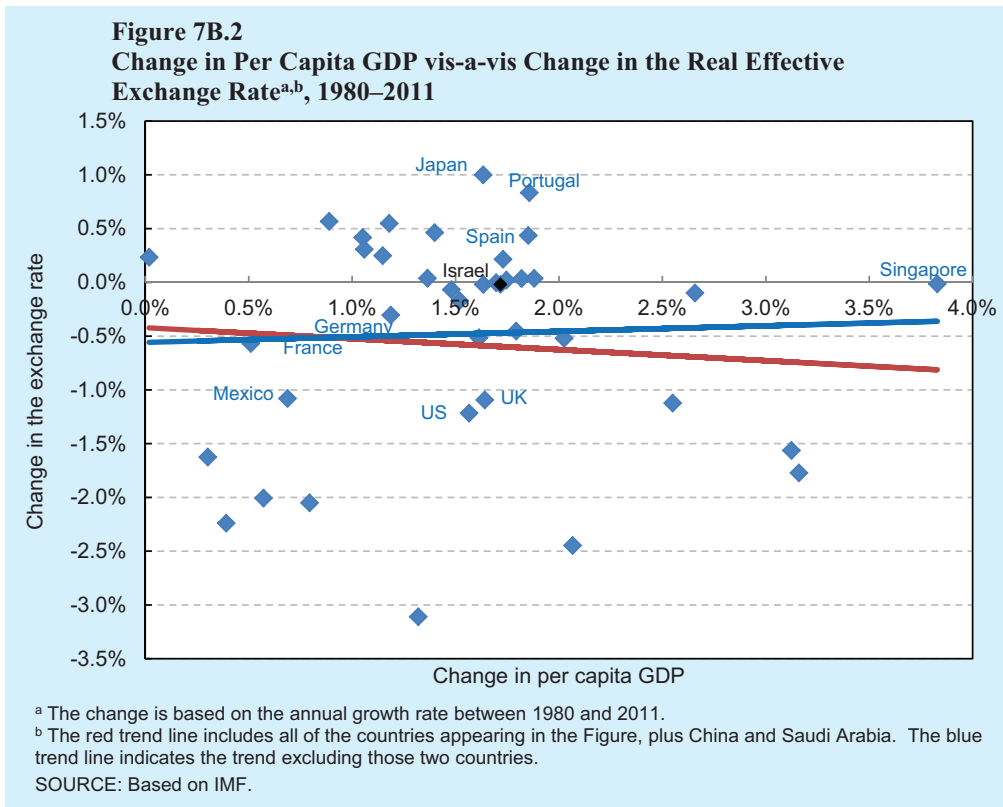
**Economies characterized by rapid and protracted growth may deviate from the (weak) law of one price and experience long-term real appreciation.** The reason is that some goods and services (housing services, education, etc.) are not traded internationally. Rapid growth of productivity in industries that produce tradable goods causes demand for labor in the tradable sector to rise and pulls up the wages of the economy's entire working labor force. The increase in wages boosts production costs in the nontradable sector, in which productivity has not improved. In response; the products of the nontradable industries (housing services, education, etc.) become more expensive relative to the rest of the world, whereas those of goods traded internationally and imported from other markets do not increase. Such a phenomenon occurred in Japan in the 1970s and 1980s.<sup>5</sup> A persistent deviation from the law of one price is thus set in motion by an anomalous upturn in productivity of the tradable sector relative to that of the nontradable sector in comparison with this ratio in the economy's trading partners. An increase in the relative productivity of

<sup>3</sup> Alba, D.J., and H.D. Papell (2007), "Purchasing Power Parity and Country Characteristics: Evidence from Panel Data Tests," *Journal of Development Economics* 84, 240–251.

<sup>4</sup> According to Rogoff (1996), it takes three to five years for half of the deviation to close.

<sup>5</sup> Several markets have attained long-term growth without real appreciation—Chile and four countries in Southeast Asia: Thailand, Malaysia, Hong Kong, and Singapore. By implication, even markets characterized by rapid and protracted growth may uphold the relative law of one price, particularly if their growth is based on an increase in capital stock and not in productivity.

the tradable sector that does not deviate from that in the market's trading partners will not induce appreciation. Most studies that test this hypothesis find support for it<sup>6</sup> but quite a few, especially panel studies, reject it.<sup>7</sup> It is generally accepted that rapid productivity growth in the tradable sector correlates with rapid productivity growth in the market at large and with an increase in per-capita GDP. As may be seen in Figure 7B.2, however, no positive relation between appreciation and increase in per-capita GDP has been found (between 1980 and 2010).



**The literature on equilibrium exchange rates offers several approaches, one of which defines the equilibrium rate as one that brings the current account into balance.** It first examines the structural deficit in the current account— i.e., the forecast deficit net of the effect of the business cycle. If a structural deficit (or surplus) is found, the change in the exchange rate needed to bring the account into balance is estimated. These models reflect the fact that a large current-account deficit often

The literature on equilibrium exchange rates offers several approaches, one of which defines the equilibrium rate as one that brings the current account into balance.

<sup>6</sup> Tica, J., and I. Druzic (2006), “The Harrod-Balassa-Samuelson Effect: A Survey of Empirical Evidence,” Working Paper 06-07/686.

<sup>7</sup> For example, it was found that a permanent increase in tradable-sector productivity does not induce permanent appreciation in any of the G7 countries. Coresti, G., L. Dedola, and S. Keduca (2006), “Productivity, External Balance and Exchange Rates: Evidence on the Transmission Mechanism among G7 Countries,” NBER.

results in steep nominal depreciation in markets that have constant exchange-rate regimes. This depreciation, if it is real (that is, not accompanied by a similar rate of price increases), brings the current account into balance.<sup>8</sup>

**Another approach in the literature estimates the equilibrium exchange rate by estimating the relation between the actual exchange rate and economic variables that, according to theory, are presumed to affect it.** An IMF study<sup>9</sup> that investigated the development of real exchange rates in forty-eight advanced and developing economies over twenty-five years found the following relations:

- A 10 percent increase in the productivity of the tradable sector (relative to that of the nontradable sector) triggers 2 percent appreciation.
- A 10 percent increase in the terms-of-trade index (the ratio of export prices to import prices) triggers 5.5 percent appreciation.
- An increase in the economy's surplus of assets vis-à-vis the rest of the world causes appreciation; the accumulation of assets abroad at a pace equal to exports induces 4 percent appreciation.
- An increase of 1 percentage point in the share of public consumption in GDP appreciates the currency by 3 percent.
- Elimination of cross-border tariff and trade barriers leads to real depreciation.

**The IMF study indicates that Israel's estimated 'equilibrium real exchange rate' has shown only moderate appreciation in the past decade, while the actual real exchange rate has shown considerable appreciation between 2006-2014.** The share of public consumption (excluding defense imports) in GDP was unchanged, the increase in the surplus of assets vis-à-vis the rest of the world explains appreciation of 4 percent; and the productivity gap may explain a 2 percent appreciation (or, perhaps, slightly more)<sup>10</sup>, whereas the deterioration in the terms-of-trade index contributed 2 percent depreciation. The real exchange rate estimate derived from Israel's economic fundamentals is quite stable. Real exchange rate estimates derived from fundamentals usually yield rather steady estimates of exchange rates between two advanced economies over time, since advanced economies do not exhibit large differences in their growth rates of relative productivity, their share of public consumption in GDP is stable over time, and most advanced economies' terms of trade are influenced more-or-less identically by fluctuations in the global prices of energy and other raw materials (with the exception of advanced economies that are rich in natural resources—Norway, Chile, Mexico, Australia, and Canada). An equilibrium exchange rate based on an estimation of the actual exchange rate (as in the aforementioned IMF study) tends to act toward balancing the current account. Consequently, models that estimate

<sup>8</sup> Appreciation makes imports more expensive in domestic-currency terms and, for this reason, reduces import quantity. By enhancing exporters' profitability, it also boosts exports.

<sup>9</sup> Ricci Antonio Luca, Milesi-Ferretti Gian Maria, and Lee Jaewoo (2008), "Real Exchange Rates and Fundamentals: A Cross-Country Perspective," IMF Working Paper 08/13.

<sup>10</sup> In 2006–14, output per employee in manufacturing increased by 12 percent and GDP product per employed person countrywide gained 7 percent.

On the basis of an IMF study, it is found that Israel's equilibrium real exchange rate has shown only mild appreciation in the past decade.



the equilibrium exchange rate on the basis of actual exchange-rate behavior do not contradict those that estimate an equilibrium exchange rate that corresponds to long-term balance in the current account.

**The Israeli economy has transitioned from protracted current-account deficits to surpluses.** Israel's current account has been in surplus since 2003 and has run sizable surpluses since 2005. The improvement stems from a structural change in Israel's export industries and the consolidation of exports in high tech industries—the share of high tech in total exports doubled in only two decades (1990–2010). The sectoral composition of Israeli exports moved into line with that of the world's most advanced economies: intensive in electronics, pharmaceuticals, aircraft, software, and R&D. This recomposition stems from several factors in concert: an increase in number of years of schooling and human capital of persons employed, liberalization of imports from labor-intensive countries, etc. As a result, average output per worker in export industries grew, as did the productivity of the tradable sector (relative to that of the nontradable sector). The upturn in productivity first reduced the current-account deficit and then shifted the account into surplus—a process that is expected to continue (due to natural gas discoveries) and may even affect the real exchange rate. Below, the development of real exchange rates will be examined for countries that had large and long-lasting current-account surpluses and others that showed major long-term improvement.

**A large current-account surplus tends to persist and to induce only moderate real appreciation.** To test the effect of a large current account surplus, we used a broad panel of data including data on the surplus in 1980–2011.<sup>11</sup> Calculating each country's average surplus in four-year periods (1980–1983, 1984–1987, etc.), we found that in about 20 percent of cases, the average four-year surplus was 2.5 percent of GDP or more—a level that we defined as “large.” Studying the period after each large surplus, we found the recurrence of a large surplus in 72 percent of cases (Table 7B.1; that is, the average surplus in the succeeding four years exceeded 2.5 percent of GDP). In only 28 percent of cases did the surplus fall short of the bound that we had set. Among the countries that posted large current account surpluses in many periods, three clusters stood out: those intensive in natural resources (Saudi Arabia, Qatar, Kuwait, UAE, and Oman), the East Asian growth markets (Japan, Singapore, Hong Kong, Taiwan, and Malaysia), and several western European countries (the Netherlands, Switzerland, Germany, Austria, and the Scandinavian countries). In the resource-rich countries, the surplus contracted in the succeeding period. One cannot, however, extrapolate from this to the Israeli case because these countries had especially large current account surpluses and were strongly affected by commodity price volatility. Among resource-scarce markets, the succeeding period saw another large current account surplus in most cases (70 percent). The average current account surplus fell rather mildly (by

The Israeli economy has transitioned from protracted current-account deficits to surpluses.

A large current-account surplus tends to persist and to induce only moderate real appreciation.

<sup>11</sup> The file includes 150 countries; for some of them, however, current account data for some years are missing. The coverage rate is 88 percent.

**Table 7B.1****Developments in the current account and the real exchange rate<sup>a</sup> due to large surpluses in the current account<sup>b</sup>, 1980–2011**

Countries	Number of surplus events	Large surplus in the following period (%)	Current account			Real exchange rate
			Surplus at the zero period	Surplus in the following period	Change in percentage points	Change between periods
All countries	124	72	9.2	6.8	-2.3	2.4
Resource rich	42	76	14.8	8.9	-5.9	6.7
Not resource rich	82	70	6.3	5.8	-0.5	0.7
East Asia	34	71	7.9	7.6	-0.3	2.0
OECD excluding Norway	38	71	4.6	4.4	-0.2	0.5

<sup>a</sup> IMF real exchange rate vis-à-vis trading partners.

<sup>b</sup> Japan and South Korea are included in both the OECD and East Asia.

SOURCE: Based on International Monetary Fund.

0.5 percent of GDP) and the real exchange rate hardly changed.<sup>12</sup> Changes of similar magnitudes were found among a subsample of industrialized markets (excluding oil- and gas-intensive Norway) that resemble Israel more closely in their attributes. In another examination, we identified all the industrialized countries that saw sizable increases in their current account surpluses over the past three decades. The increase in surplus was accompanied by appreciation in only two of the eleven markets that we singled out (Table 7B.2).

**The effect of the forces acting to balance the current account is much clearer in cases of large current-account deficits than in cases of large surpluses.** Consulting the data panel, we calculated and tracked each country's average four-year deficit (1980–1983, 1984–1987, etc.), defining an average four-year deficit of 4.0 percent of GDP or more as a “large” one. In the period succeeding the one first observed, the current account deficit was much smaller (by 3.3 percent of GDP, on average). In 44 percent of cases, the deficit in the succeeding period was not “large,” i.e., smaller than 4 percent of GDP. A “large” deficit triggered depreciation of 7.7 percent, on average, and, in one-third of the cases, a sharp depreciation of more than 10 percent. Large current account deficits tended to narrow rather quickly and were accompanied by vigorous real depreciation. Large current account surpluses were more persistent and were followed by only mild real appreciation. The difference between the effect of a current account deficit on the exchange rate and that of a surplus originates in difficulty in raising sources to finance the external debt, which swells steadily when the current account is in deficit, because nonresident debt-holders demand a risk premium that grows in tandem with the debt. When foreign investors start to get jittery about the

<sup>12</sup> Successive exchange-rate data were available for only fifty-three of the eighty-two episodes.

The effect of the forces acting to balance the current account is much clearer in cases of large current-account deficits than in cases of large surpluses.

possibility of default, they withdraw their money from the country and convert it into foreign currency. This induces depreciation, sometimes so severe as to undermine the country's economic stability. Since current account surpluses and the accumulation of assets abroad do not bring on such a development, a surplus can persist for much time before it causes major appreciation. Appreciation may be deferred until the flow of interest and dividend income originating in the accrual of foreign assets accelerates and attains major magnitudes.

**Table 7B.2**  
**Development of the real exchange rate during significant increases in the current account surplus<sup>a</sup>**

	The reviewed period	Increase of the surplus between periods (percentage points)	The current account in the earlier period (percent of GDP)	The current account in the later period (percent of GDP)	Appreciation of the real exchange rate between the periods (average percent)	Annual rate of change in exports during the reviewed period (percent)
Austria	1992–2011	4.7	-1.8	2.9	-2	6.4
Belgium	1980–1999	6.1	-0.8	5.3	1	4.1
Canada	1988–2007	4.8	-3	1.7	-12	5.9
Chile	1992–2011	4.6	-3.1	1.5	-3	7.9
Denmark	1980–1999	4.8	-3.6	1.3	8	5.8
Finland	1984–2003	9	-2.7	6.2	-21	6.3
Germany	1992–2011	7.0	-1.0	6.0	-7	6.6
Ireland	1980–1999	9.2	-6.7	2.5	-1	9.8
Norway	1984–2003	9.1	0.2	9.3	-6	5.8
Sweden	1984–2003	5.3	-0.7	4.5	-15	5.7
Switzerland	1984–2003	5.5	4.1	9.6	4	4.1
Average of the 11 countries		6.4	-1.7	4.6		6.2
Israel	1992–2011	5.7	-2.9	2.8	-13	6.4 <sup>b</sup>

<sup>a</sup> The earlier period is the first years in the reviewed period, and the later period is the last eight years in the reviewed period. The change in the real exchange rate is the change in the average rate during the later period compared with the average in the earlier period. An increase denotes appreciation.

<sup>b</sup> Increase in exports between 1995 and 2011.

SOURCE: Based on International Monetary Fund.

**In conclusion, most countries' exchange rates are stable and stationary (that is, lacking a long-term trend), as the weak law of one price predicts.** Most advanced economies' real exchange rates are stationary in the long term. The main fundamental that affects the exchange rate in the long run is relative productivity—of the tradable sector as against the nontradable sector—as compared with relative productivity in the country's trading partners. Namely, most markets that grew particularly slowly (Venezuela, Bolivia, and Paraguay) experienced real depreciation, whereas fast-growing markets rarely saw real appreciation (Malaysia and Chile). A similar asymmetry was encountered in the effect of a current account deficit: a large deficit induces steep real depreciation whereas a large surplus does not necessarily

*In conclusion, most countries' exchange rates are stable and stationary (that is, lacking a long-term trend), as the weak law of one price predicts.*

trigger appreciation. Israel's real exchange rate has been stationary in the past two decades; its fluctuations during this time were attributable mainly to business cycles and transitory factors. The rapid increase in Israel's relative productivity (i.e., of its tradable sector as against that of its nontradable sector) as compared with other countries' relative productivity, and the increase in its current account surplus were indeed cardinal factors in the appreciation of the shekel. However, they were not strong enough to bring on an appreciation trend and a deviation from the (weak) law of one price.

## 2. THE REAL EXCHANGE RATE IN BUSINESS CYCLES

Israel's real exchange rate and business cycle are found to be correlated—i.e., the shekel appreciates during relative “expansion” and depreciates at times of relative slower growth.

**Israel's real exchange rate and business cycle are found to be correlated—i.e., the shekel appreciates during relative expansion and depreciates at times of relatively slower growth.** Over the past two decades, Israel's rate of per-capita GDP growth has resembled that of the US. Between 1995 and 2004, however, Israel's per capita GDP grew more slowly than the latter, whereas in 2004–14 Israel's per capita GDP grew more rapidly than in the US.<sup>13</sup> In years when per-capita GDP in Israel was at a low compared with the US (2003–2004), Israel's real exchange rate was depreciated relative to its long-term average, and in years when the Israeli business cycle crested relative to the American cycle (1995–96 and 2012–14), the shekel was stronger than its long-term average. Statistical estimation indicates that a 1 percent increase in Israel's per-capita GDP relative to that in the US correlates with 1.2 percent appreciation in terms of Israel's real exchange rate. As shown below, this elasticity is not exceptional among advanced economies that do not restrict capital flows.

The real exchange rates of OECD countries are sensitive to business cycles and much more elastic today than in the past.

**The real exchange rates of OECD countries are sensitive to business cycles and much more elastic today than in the past.** The elasticity of the OECD countries' real exchange rates to relative per-capita GDP is unitary. That is, a 1 percent increase in per-capita GDP beyond that of the US correlates with 1 percent appreciation in the real exchange rate (1990–2011, in PPP terms). This elasticity has grown over time: During the sample period, which included the 1980s (1980–2011), it was estimated at only 0.3 percent, whereas from 1995 on (until 2011) it exceeded unitary, at 1.2 percent. In non-OECD countries, real exchange rate elasticity to the business cycle was weaker: 0.3 percent in 1980–2011 and 0.41 percent in 1995–2011. The increase in elasticity of the real exchange rate to the business cycle is affected by an upturn in openness to capital flows: it was higher in countries that allow such flows than in the others<sup>14</sup> and it grew in tandem with openness to capital flows.

<sup>13</sup> Per capita GDP in Israel has increased since 1995 by 3.5 percent more, in cumulative terms, than that of the US (0.17 percent per year). In 1995–2004, Israel lost ground to the US by 11 percent; in 2004–14, it gained 16.5 percent.

<sup>14</sup> The differentiation is based on the Chinn-Ito Financial Openness Index, derived from IMF data. Chinn, M., and H. Ito (2005), “What Matters for Financial Development? Capital Controls, Institutions and Interactions,” *Journal of Development Economics* 81, 163–192.

**The increase in real exchange rate elasticity to the business cycle traces to growing openness to capital flows.** When domestic demand grows in a market that welcomes capital flows and trade, imports increase (current account deficit) and prices of goods that cannot be imported rise (real appreciation). The import surplus is financed by borrowing abroad without a substantive increase in the real domestic interest rate. The growth of demand and easy access to foreign credit are reflected in higher prices of nontradable goods, which are in limited supply. In a market that does not allow capital flows (that is, which cannot borrow abroad), in contrast, excess demand pushes the real domestic interest rate up; this, in turn, restrains demand for both tradable and non-tradable goods. The increase in interest and the dampening of demand attenuate the increase in prices of nontradable goods. In sum—the expansion of capital flows worldwide is making the real exchange rate more elastic to business cycles.

The increase in real exchange rate elasticity to the business cycle traces to growing openness to capital flows.

**In Israel, upturns in business cycles are not always accompanied by concurrent real appreciation.** During mass immigration from the former Soviet Union, appreciation was mild relative to the vigor of the spurt in the business cycle: The wave of immigration powered a major increase in investment demand, which means growth of the current account deficit (the surplus of investment over savings) i.e., excess demand for foreign currency. The shortage of foreign currency thwarted more significant appreciation because Israel was not open to capital flows at that time. The appreciation accelerated at the end of this business cycle, after which the rates of investment and GDP growth slowed. Another surge took place in 1999–2000, amid the euphoria that swept US investors in regard to the future of high tech industries generally and Internet companies particularly (the “dot-com bubble”). The heady climate brought on an increase in foreign investments in Israel’s high-tech industries, a boom in activity, and real appreciation. These effects, however, originated not in a real improvement in the economy’s productive capacity (higher productivity in the tradable sector) but in expectations of a future increase in productivity. The bursting of America’s dot-com bubble and the eruption of the Second Intifada in late 2000 precipitated an acute recession that lasted until early 2004. The currency depreciated considerably during this business cycle but responded to the development of the cycle with a considerable lag: steep depreciation followed the drop in GDP growth at a two-year delay and bottomed out five full years after the growth rate rebounded (during 2004). The concurrence of the waning of depreciation and the onset of slowing in the US (in 2008) supports the hypothesis that it is the relative business cycle that influences the real exchange rate. The persistence of Israel’s depreciation may also have been caused by the liberalization process that was under way at the time, allowing Israelis to invest abroad more easily (thereby generating more demand for foreign exchange).

In Israel, upturns in business cycles are not always accompanied by concurrent real appreciation.

**Israel’s imports and exports are not very sensitive to real exchange rate changes.** The significant real depreciation in 2001–04 did not cause the growth rate of imports to slow aberrantly. Thus, in 1999–2005 imports and GDP expanded at similar (real) rates. The marked appreciation in 2007–10 did not trigger an unusual increase in imports either: in 2005–12, imports and GDP grew at similar (real) rates.

Israel’s imports and exports are not very sensitive to real exchange rate changes.

**Table 7B.3**  
**Development of the real exchange rate, imports, exports, consumption**  
**and investment relative to GDP in Israel<sup>a</sup>**

	Exchange rate	Imports	Consumption	Investment	Exports
1995-2001	100	34	57	22	29
2003-2009	120	35	59	18	35
2010-2014	107	34	57	20	35

<sup>a</sup> Imports, exports, consumption and investment as weighted shares of GDP, in 2010 fixed prices.  
 SOURCE: Central Bureau of Statistics.

By implication, exchange-rate volatilities are limited in their ability to divert domestic demand from the domestic market to abroad. The development of exports, in turn, is aligned with the real exchange rate. In 1997–2007, exports grew much more rapidly than GDP, against the background of marked real depreciation but also amid rapid growth of world trade. Since then, the growth rate of exports has converged back to the pace of GDP growth; in this case, the background factors were appreciation in 2007–10 and a slowdown of growth in world trade. Estimating the elasticities of exports and imports to GDP, world trade (all variables in constant prices), and the real exchange, it is found that the last-mentioned factor has a mild effect on exports: 10 percent depreciation boosts exports by 2 percent at a one-year lag (followed by a diminishing effect). The real exchange rate had no (concurrent) significant effect on imports. Estimates of similar magnitudes have been obtained in estimations of short-term price elasticity relative to exports and imports of the G7 countries.<sup>15</sup> The conclusion: in Israel's case, the income effect is the dominant one on both imports and exports: domestic income (derived mainly from Israel's GDP) dictates imports and global income (tantamount to global GDP) dictates exports.

**Exchange rate change has substitution effects and income effects on imports. These forces act in the same direction but their co-effect is minor.**

**The substitution effect:** Appreciation reduces import prices, encouraging consumers to switch from domestic manufacture to similar goods produced abroad. Notably, the substitution effect is operative mainly in industries where imports and domestic manufacture compete with each other directly (food, recreation services, international transport, etc.); most imported consumer products and capital goods, in contrast, do not face domestic competition. Similarly, there are very few imports that compete with service industries (business and financial services, trade, telecommunications,

<sup>15</sup> These elasticities ranged from 0 to -0.2 for imports and -0.1 to -0.5 for exports (goods and services, quantities); the long-term elasticities were greater: -0.1 to -0.9 for imports and -0.3 to -1.6 for exports. Hooper, P., K. Johanson, and J. Marquez (1998), "Trade Elasticities for G-7 Countries," International Finance Discussion Papers.

Exchange rate change has substitution effects and income effects on imports. These forces act in the same direction but their co-effect is minor.

etc.).<sup>16</sup> The economy's specialization in the production of specific goods reduces the substitution effect. **The income effect:** Given that export value and import value are similar in the Israeli economy, a change in the real exchange rate has no effect on total current national income. Appreciation does lower import prices and bolster the domestic consumer's disposable income; however, it lowers the disposable income of those in the export sector—labor and capital alike. Appreciation has the further effect of increasing the value of the public's property, most of which is domestic (capital gains in foreign-currency terms). This effect, however, is eroding gradually as Israelis accumulate assets abroad.<sup>17</sup>

**Israel's main export industries (software, electronics, and pharmaceuticals) are typified by high levels of productivity, human capital, and expertise.** Real depreciation increases export profitability and acts to increase export volume; the adjustment process, however, may be relatively slow because these industries need labor that has high educational attainment and specific knowledge acquired on the job.<sup>18</sup> Once these jobs are created, the firms and workers at issue are in no rush to relinquish them in response to currency appreciation (sunk human capital). Given the export industries' specialization and lengthy development and production processes, it stands to reason that the exchange rate is found to have a relatively mild effect on export volume. The exchange rate has a greater impact on the export volume of low technology industries and on activity in tradable industries that compete with import substitutes. Since these industries have low profit margins, temporary appreciation may lead to the closure of production lines and layoffs of staff. In sum, the exchange rate affects exports more than it does imports, but by and large these effects are not very great; a strong stage in the domestic economy's business cycle usually leads to marked appreciation in the real exchange rate; occurrences of meaningful and rapid appreciation may inflict long-term damage on the tradable sector, particularly in low technology and labor-intensive tradable industries.

Israel's main export industries (software, electronics, and pharmaceuticals) are typified by high levels of productivity, human capital, and expertise.

### 3. MONETARY POLICY AND THE REAL EXCHANGE RATE

**The difficulty of stabilizing the business cycle is especially notable during slowdowns deriving from global economic activity.** At those times, export industries are adversely impacted in two ways—a direct decrease in global demand, and real appreciation due to capital inflows. Export industries may be able to avoid damage, however, because the economy has unutilized production factors that can be used

The difficulty of stabilizing the business cycle is especially notable during slowdowns deriving from a negative impact on global economic activity.

<sup>16</sup> Capital goods account for much of Israel's imports. Such imports are highly sensitive to business cycles, as opposed to imported fuels and services.

<sup>17</sup> Israelis hold 10 percent of their total net assets in foreign assets. Since this proportion is still low relative to the share of imports in private and public consumption, real depreciation erodes the value of the public's property in consumption terms.

<sup>18</sup> Yoav Friedmann (2013), "The Information Technology Industries—Workers, Wages and Dealing with Shocks," Bank of Israel Research Department, 2013.07 (in Hebrew).

to increase exports. From the domestic economy's perspective, then, appreciation is unnecessary because the economy is not benefiting from full employment, but rather only from strength relative to the recession-plagued rest of the world. Appreciation would drag the economy toward the global slowdown. To blunt the blow to the export industries and avoid recession, fiscal policy measures may be taken to encourage export industries<sup>19</sup>; alternatively, accommodative monetary policy, affecting all industries, may be applied. Another option is to apply a monetary policy focused on stimulating industries that export and that manufacture import substitutes. Such a policy aims to moderate the effect of the real appreciation and avoid a contraction of export activity until the global recession passes. This type of monetary policy affects the real exchange rate (and real interest rate) mainly in the short term and the effect diminishes over time.

In the literature, there is a dispute about the desired response function of a central bank in a small and open economy.

**In the literature, there is a dispute about the desired response function of a central bank in a small and open economy.** Ball<sup>20</sup> and other economists<sup>21</sup> claim that a central bank's optimal response function includes the stabilization of real exchange-rate volatility. According to the dominant approach, however, monetary policy should respond only to deviations from the inflation target and the output gap<sup>22</sup> (the difference between the actual unemployment rate and the natural unemployment rate) because such a response would address exchange rate volatility commensurate with its impact on policy targets. Another direct response to exchange rate volatility would not help to stabilize prices and GDP—the only two policy targets of the central bank; this approach, as stated, ascribes no importance to the composition of GDP (i.e., tradable versus non tradable).<sup>23</sup> The outcomes of the empirical estimation are also disputed: Ball, estimating a response function that includes the two accepted policy targets— inflation and output gap—and the real exchange rate (lagged and contemporaneous), found that the central bank reduces its interest rate in response to real appreciation. Svensson,<sup>24</sup> estimating a similar response function, found that real appreciation triggers only a temporary interest rate reduction: the rate declines for one period and bounces back the next. A more recent study<sup>25</sup> reported that the response function of the English, Norwegian, and Swedish central banks omitted the real exchange rate, whereas that of Canada, Australia, and New Zealand included it. Even in the three

<sup>19</sup> By and large, however, fiscal changes are not flexible and fast enough to cope with business cycles in time.

<sup>20</sup> Ball, L. (1999), "Policy Rules for Open Economies," in B.J. Taylor (ed.), *Monetary Policy Rules*, University of Chicago Press.

<sup>21</sup> Obstfeld, M., and K. Rogoff (1995), "The Mirage of Fixed Exchange Rates." *Journal of Economic Perspectives*, 9, 73–96.

<sup>22</sup> Gali, J., and T. Monacelli (2005), "Monetary Policy and Exchange Rate Volatility in a Small Open Economy," *Review of Economic Studies*, 72, 707–734.

<sup>23</sup> Taylor, B.J. (2001), "The Role of the Exchange Rate in Monetary Policy Rules," *The American Economic Review*, 91, 263–267.

<sup>24</sup> Svensson, L. (2000), "Open-Economy Inflation Targeting," *Journal of International Economics*, 50, 155–183.

<sup>25</sup> Sgherri, S. (2008), "Explicit and Implicit Targets in Open Economies," *Applied Economics*, 40, 969–980.



last-mentioned countries, however, the effect of the real exchange rate has diminished in the past decade and the effect of inflation expectations on the three central banks' interest rates grew. As for Israel, it has been found that the Bank of Israel's response function includes the real exchange rate, attesting to a wish to stabilize this rate and the composition of GDP. Switzerland's central bank applies a similar response function. In conclusion, a basis for a monetary policy that strives to protect the tradable sector exists in economic theory. The dominant approach toward central-bank behavior and economic theory, however, (still) attributes little importance to the composition of GDP and leaves the real exchange rate out of the response function.