

# Chapter 6

## Defense and the Economy, 1990-2016

Esteban F. Klor and Asaf Zussman\*

This chapter examines the link between defense and the economy in Israel during the period 1990-2016. Since grave security threats have faced the State of Israel since its establishment, it is hardly surprising that Israeli economists have also devoted considerable attention to this topic.<sup>1</sup>

In the first of a series of books on the Israeli economy published by The Maurice Falk Institute for Economic Research in Israel (Ben-Porath, 1986), a chapter was devoted to the issue of defense and the economy. The chapter, written by Eitan Berglas (1986), focused on the

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\* Esteban F. Klor and Asaf Zussman are professors in the Department of Economics at the Hebrew University of Jerusalem. The authors are grateful to Avi Ben-Bassat, Claude Berrebi, Reuben Gronau, Rafi Melnick and participants in conferences where drafts of this chapter were presented for their helpful comments and suggestions. They are also grateful to Nathaniel Sarfati for his excellent research assistance.

<sup>1</sup> Lifshitz (2003), who provides an overview of the development of defense economics as a sub-discipline in economics, provides a comprehensive treatment of defense-economy issues in the Israeli context and summarizes the relevant academic literature.

economic burden of defense during the period 1950-1980. The simplest and most direct measure of this burden is defense expenditure as a share of GNP.

Figure 6.1 extends the series shown by Berglas (1986) and displays the development of defense expenditure (consumption) as a share of GNP from 1950 to 2015. Several interesting conclusions can be drawn from the figure. The period that preceded the Six-Day War (1967) was characterized by a gradual, though relatively moderate, rise in the defense burden, from 6 percent in 1952 to 10 percent in 1966. The Six-Day War was a turning-point: the defense burden surged to 17 percent in 1967, and continued to rise during the War of Attrition period (1969-1970). Another sharp jump, of nearly 10 percentage points, occurred in the wake of the Yom Kippur War (1973). During the years immediately following the war, defense consumption peaked at slightly over 30 percent of GNP. Since the mid-1970s, the defense burden has declined steadily. In 2015, the last year for which data were available at the time of writing, it amounted to 5.5 percent of GNP, the lowest level since the founding of the state.<sup>2</sup>

### **[Figure 6.1]**

It is commonly believed that the decline in the defense burden since the late 1970s can be attributed to processes that substantially reduced the severity of the security threats faced

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<sup>2</sup> It is worth noting that despite the steep and continued decline in Israel's defense burden, it is still high compared with that of other countries. According to data from the Stockholm International Peace Research Institute, Israel ranked seventh of 148 nations in 2015 for reported military expenditure as a share of output. The Israeli figure was 5.6%, while the median share among all countries was 1.5%. A more relevant reference group for Israel is the OECD and here Israel ranked first. Greece ranked second in the OECD with a share of 2.5%. (The median share was 1.2%).

by Israel. A turning-point in this regard was the 1979 peace agreement with Egypt. From Israel's perspective, the agreement not only eliminated the chance of another war with a country that until then was Israel's most important enemy, but also greatly reduced the likelihood of war with other Arab countries. Other developments that were expected to decrease the threat to Israel included the 1993 Oslo Accords between Israel and the Palestinians, the 1994 peace treaty with Jordan, the fall of the Saddam Hussein regime in Iraq in 2003, and the Syrian civil war that began in 2011. This period has also featured a number of negative developments – including the emergence of the Iranian nuclear threat and the threat posed by fundamentalist Islam – but, taken as a whole, it seems that the strategic environment facing Israel in recent years is much less menacing than the corresponding environment four decades earlier.

The present chapter is concerned with the link between defense and the economy in Israel since the 1990s. From among the wide variety of topics that we could have addressed, we chose to examine in depth one important and interesting aspect of the defense-economy link: the impact of security-related shocks on the Israeli economy during the period 1990-2016. This period encompassed a number of significant events and processes – including the Oslo Accords, the Second Intifada, the disengagement from Gaza, the Second Lebanon War, and the military operations in Gaza, which were accompanied by massive rocket attacks on Israeli territory. We provide an asset market perspective on the impact of these shocks to the Israeli economy. Specifically, our analysis compares the impact of security shocks with that of domestic-political and economic shocks. Within the first category, we distinguish between security events directly related to the Israeli-Palestinian conflict, and other security events that took place in the Middle East.

The chapter has three main parts. In the first part, we discuss turning points in major Tel Aviv Stock Exchange indices and in the shekel-dollar and shekel-euro exchange rates during the period 1990-2016. This analysis is based on a method for identifying turning points in asset markets that was developed by Zussman et al. (2008).

Analyzing historical turning points via asset market data has several advantages over other methodologies, such as historical analysis and surveys. Firstly, at any given point in time, asset markets reflect investor perceptions toward future developments; by contrast, the attitudes of experts (such as historians) are influenced retrospectively by processes that could not have been accurately predicted, i.e., they constitute hindsight. Secondly, investors are supposed to carefully consider all present and future developments, since mistakes could potentially entail financial loss, and it is therefore reasonable to assume that they are not influenced (at least not consciously) by their political outlooks. By contrast, other sources of information, such as surveys, may be affected by their participants' political views. Thirdly, asset markets' reactions to security and political events take into account a broad range of factors that influence the economy.

Our analysis yields a number of interesting findings. In the analysis of the Tel Aviv stock market, we find that both during the period January 1990 to May 2005, examined by Zussman et al. (2008), and from the end of that period until 2016, the number of turning points attributable to political shocks is similar to the number of turning points attributable to economic shocks. However, two major differences can be seen between the two periods: Firstly, the share of turning points related to the Israeli-Palestinian conflict among all of the turning points attributed to political shocks fell dramatically between the two periods.

Secondly, the share of turning points stemming from external economic shocks – cases of "contagion" – among all of the turning points attributed to economic shocks rose substantially.<sup>3</sup>

Our analysis of the foreign exchange market also points to significant differences between the two periods. In the earlier period, most of the turning points were attributed to events related to the Israeli-Palestinian conflict, while none of the turning points in the later period were attributed to this conflict. We also find that the share of the turning points stemming from external economic shocks rose dramatically between the two periods.

One possible argument against our use of asset market data to identify historical turning points is that it reflects a very narrow, even biased, view of the impact of security shocks on the Israeli economy. For example, it is conceivable that the Israeli-Palestinian conflict, even if it has not influenced asset markets since mid-2005, has nevertheless significantly affected real activity in the economy.

The second part of the chapter addresses this methodological criticism. In this section, we examine the behavior of several real economic variables across time, the first and most important being the Bank of Israel's Composite State-of-the-Economy Index. Another important variable is the unemployment rate. Our analysis suggests that the behavior of these two variables is consistent with the results of the asset market analysis. Thus we find, for example, that the Second Intifada, which erupted in late 2000, was accompanied by a

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<sup>3</sup> In international macroeconomics, the term "contagion" refers to the spread of market changes or disturbances from one regional market to others.

dramatic economic slowdown and a sharp rise in unemployment. By contrast, the three big military campaigns waged in Gaza since 2008 had very little economic impact, if any. However, it should be emphasized that the impact of security events is not necessarily uniform across sectors. One sector that is particularly sensitive to security events is tourism, and indeed, our analysis of data on tourism bears this out.

In the third section of the chapter we offer a possible explanation for the fact that, since the mid-2000s, the Israeli-Palestinian conflict ceased to affect asset markets. We argue that after the signing of the Oslo Accords in the early-mid 1990s, and despite the strong and violent opposition sparked by the Accords, a large proportion of the Israeli public anticipated that the conflict with the Palestinians would be resolved within the foreseeable future. The failure of the Camp David Summit in the summer of 2000, and the Second Intifada's eruption that autumn, constituted a turning point. These events undermined expectations of a potential end to the conflict, and caused the view that there is no negotiating "partner" on the Palestinian side to become deeply entrenched within the Israeli public. These attitudes were reinforced during the years following the end of the Second Intifada, due to Hamas' takeover of the Gaza Strip in 2007, the rocket attacks on Israel from Gaza, and the failed rounds of negotiations between Israel and the Palestinians.

We test our hypothesis against data from the Peace Index, a monthly survey initiated by the Tami Steinmetz Center for Peace Research at Tel Aviv University in the early 1990s. Our analysis shows that the Second Intifada sparked a turnaround in public attitudes toward the Oslo Accords. Before the Second Intifada, support for the Accords and faith that they would bring peace were fairly widespread among Israelis, while immediately after the Intifada

broke out, support for the Accords dropped precipitously, and confidence that they would lead to peace declined even more sharply. From the time the Second Intifada erupted until 2008 – the year when the Institute ceased asking questions about the Oslo Accords – only a sixth of the Israeli population believed that the Accords would bring about an end to the conflict with the Palestinians. A similar pattern can be seen in answers to questions about negotiations with the Palestinian Authority from the period 2001-2016. Throughout this period, the share of those who supported negotiations with the Palestinian Authority was substantially higher than the share of those who believed that negotiations would bring peace. The data show that, since 2001, less than a third of the Israeli public believes that negotiations with the Palestinians will lead to a resolution of the conflict.

Thus, our findings suggest that Israelis do not believe peace can be achieved in the foreseeable future, and that they factor the possibility of additional rounds of violence into their expectations. These expectations would seem to explain the lack of asset-market response when rounds of violence do occur.

## **6.1 Related Literature**

This chapter contributes to an extensive literature studying how violent conflict affects economic variables generally, and financial asset prices specifically. Some studies examine the impact of civil wars. For example, Willard et al. (1996) examined how developments in the American Civil War affected the greenback, a currency whose value fluctuated relative to gold, while Guidolin and La Ferrara (2007) showed how developments in the Angolan civil war affected the values of stocks of companies involved in diamond mining in that country. Other papers have investigated terrorism's impact on real economic activity and on financial

markets. Perhaps the most well-known of these studies is by Abadie and Gardeazabal (2003), who examined the economic effects of the terrorist campaign waged by ETA in Spain's Basque Country.

A number of papers have studied terrorism's impact on the Israeli economy. For example, Fielding (2003a) found that Palestinian terrorist activity from the late 1980s to the late 1990s had a negative effect on investment in Israel and Fielding (2003b) showed that terrorism during this period negatively affected the savings rate in Israel. A study by Eckstein and Tsiddon (2004) found that the first three years of the Second Intifada caused a 10 percent decrease in Israel's GDP per capita.

Other studies focused on financial markets. Eldor and Melnick (2004) found that Palestinian terrorism during the years 1990-2003 negatively affected prices in the stock and foreign exchange markets in Israel; in a follow-up study, Eldor and Melnick (2010) showed that terrorism's impact on stock prices is mediated by media coverage of terrorist attacks. Berrebi and Klor (2010) demonstrated that terrorism's effects on stock prices are sector-dependent: stock prices in most sectors are negatively influenced by terrorism, but those of defense-related companies show a positive impact. A study by Zussman and Zussman (2006) assessed, through the prism of stock prices, the effectiveness of the "targeted assassination" policy that Israel adopted during the Second Intifada against members of Palestinian terrorist organizations. Their analysis showed that the targeted assassination of leaders in the terrorist organizations' military wings had a positive effect (i.e., investors perceived the measure as effective), while the assassination of leaders in the organizations' political wings had a negative impact.

What sets the present study apart from earlier research on terrorism and its effect on Israel's economy and asset markets, is our finding that the negative impact of security incidents on these markets weakened greatly over the past decade. As noted above, one potential explanation for this desensitization of the markets is that public expectations already take into account the likelihood of additional rounds of violence.

## **6.2 Empirical Methodology**

The analysis in this chapter is based on an econometric methodology for locating turning points in asset markets that was developed by Zussman et al. (2008). We present below a brief description of that methodology, which is fully described in Zussman et al. (2008).

The methodology we employ assumes that the dates of turning-points in asset markets are unknown. This assumption is diametrically opposed to the underlying premise of the event-study methodology – the most popular approach used in the finance literature to estimate the effect of events on asset prices. In an event study approach, the researcher first defines events of a certain type (e.g., terrorist attacks) that could potentially affect asset prices. The dates when these events occurred are known to the investigator, and she uses them to determine whether the events in question actually affected asset prices. Our approach reverses this order: first an algorithm statistically identifies dates that constitute turning points in asset markets and then we try to understand which events could have generated these turning points. The conclusions arrived at in the second stage are, of course, subjective, but experience suggests that, in the vast majority of cases, they arise naturally from the historical record.

It is important to note that the turning points we identify are not necessarily identical to the major economic or political events of the relevant period, as currently perceived by experts or by the general public. A number of factors could account for this lack of correspondence. Firstly, in accordance with prevailing asset-price theory, our method can identify only the impact of unexpected events; important but anticipated events will not be identified as turning points. Secondly, our analysis reflects the impact of events on the perceptions of asset-market participants at the time they took place; events that today seem highly significant might have appeared unimportant in the past, and vice versa.

Having made these clarifications, we can now proceed to discuss our methodology. According to prevailing asset price theory, let us assume that the (log) of the price of a certain asset behaves as a random walk with a trend. This means that the change in the asset's price is unanticipated: today's forecast for tomorrow's price is today's price plus the effect of the trend. The trend can be thought of as reflecting long-term inflation or a similar factor. Alternatively, we can say that we assume that the return on the asset between two consecutive dates – the difference between the log of the price on a given day and the log of the price on the previous day – is a fixed value plus an unanticipated component. This component is identically and independently distributed and has an expected value of zero.

Unexpected news on a given date may affect the price of the asset and cause a structural break (or turning point). This turning point can be expressed in one of the two following ways, or both simultaneously: (1) an upward or a downward shift in the price of the asset; (2) an upward or a downward shift in the slope of the trend line. For example: let us assume that new information comes to the market on a certain date and causes a sudden and

unanticipated rise in the asset price. News reaching the market later on may: reinforce the effect of the original information (rise in the slope of the trend line); be uninformative (no change in the slope of the trend line); or gradually weaken the original information's impact (decline in the slope of the trend line). By allowing both a shift in the asset price and a shift in the slope of the trend line, we avoid limiting the model to only one type of an "economic turning point."

Because we are interested in finding many potential turning points in the same time series, none of which necessarily has a permanent impact, we use a rolling-windows methodology. A "window" is a period of a certain length, such as sixty trading days. The "rolling" of the window refers to the window being moved each time by one day, beginning with the first day of the relevant period, e.g., the start of 1990, to its end, mid-2016. For each window we then test whether there is a break point in the middle of the window. In this way we identify all of the turning point dates.<sup>4</sup> It must be emphasized, again, that the methodology does not assume the effect of a turning point will persist forever. Rather, our assumption is that the impact continues at least until the end of the window. This assumption allows us to locate turning points that are not only statistically significant but are also economically important, even if their impact does not persist until the end of the period in question.

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<sup>4</sup> Because the distribution of the test statistic values in the present context is not standard, we estimate critical values via Monte Carlo simulation.

## **6.3 Turning points in financial markets**

In this section we identify and classify turning points in the stock and foreign exchange markets in Israel. Our stock market analysis focuses on the three major Tel Aviv Stock Exchange indices during the period from January 1990 to May 2016. We will compare the results with those obtained by Zussman et al. (2008), who covered the period from 1988 to May 2005. In the foreign exchange market, we will identify turning points in the shekel-dollar and shekel-euro exchange rates. This analysis covers the period from January 2000 to May 2016. Our analysis of the foreign exchange market starts only in 2000 since in the 1990s the exchange rate was not determined by market forces; rather, it was heavily managed by the Bank of Israel. By contrast, during the period analyzed herein, the Bank of Israel allowed the exchange rate to move more freely, though it sometimes intervened by buying or selling foreign currency. The analysis of the foreign exchange market in Zussman et al. (2008) also started in January 2000 and ended in May 2005. It should be noted that the choice of May 2005 as the dividing point between the two sub-periods follows from the fact that this was the last month analyzed by Zussman et al. (2008); however, the division also has a more fundamental justification, in that the Second Intifada is widely considered to have ended around mid-2005.

### **6.3.1 The stock market**

We identify turning points in daily data for three Tel Aviv Stock Exchange aggregate indices: (1) the General Shares Index, which reflects the prices of all stocks traded on the TASE; (2) the TA-100 Index, reflecting the prices of the one hundred most highly capitalized companies; (3) the TA-25 Index, which tracks the prices of the twenty five most highly

capitalized companies. For the first of these indices, the search was conducted for the period from January 2, 1990 to May 31, 2016. The TA-25 Index was created on January 3, 1992, so the identification of turning points for this index (and for the TA-100) starts on this date. For all of the series, we make use of windows of five different lengths: 60, 120, 240, 360, and 480 trading days. Thus, the length of the windows we use ranges from three to twenty four months. The data on the indices were obtained from the Bank of Israel.

Figure 6.2 displays the three indices' values for the relevant periods. The three indices exhibit a continuous upward trend, but with great volatility, and one can discern four significant protracted declines. The first started in late 2000 and ended in 2003, and was related to the Second Intifada. The second downturn, an especially sharp one, took place in 2008 and was related to the global financial crisis that had started in the US. The third decline, also a dramatic one, occurred in 2011 and was associated with the debt crisis in Europe. The fourth decline started in mid-2015 and continued until the end of the period examined here. This decline appears to have been triggered by global developments, including a slowdown in Chinese growth.

### **[Figure 6.2]**

Table 6.1 summarizes the findings of our turning points analysis. Column 1 reports the turning point date, while Column 2 provides our explanation for the turning point's occurrence. Column 3 classifies the explanations provided in terms of five categories: (1) the Israeli-Palestinian conflict; (2) Political shocks in the Middle East; (3) Domestic politics; (4) Domestic economic shock; (5) External economic shock (we regard all cases in this category as instances of "contagion," that is, as manifestations of the spread of economic shocks from

other countries to Israel.). The following columns report, for each window length (60, 120, 240, 360, and 480 trading days) and each stock index (TASE General, TA-100, TA-25) the direction of the effect manifested at the turning point: In these columns the plus (+) sign indicates that the relevant index increased in value on that day, while the minus (-) sign indicates that the relevant index decreased in value. All of the turning points reported are statistically significant at a level of at least 10 percent.

**Table 6.1**  
**Turning Points in the Tel Aviv Stock Exchange, 1990-2016**

Date	Possible explanation	Type of event	60 days			120 days			240 days			360 days			480 days		
			Gene ral	100	25	Gene ral	100	25	Gene ral	100	25	Gene ral	100	25	Gene ral	100	25
August 19, 1990	Iraq invades Kuwait	Political shocks in the Middle East							-								
January 22,1991	Frist Gulf War breaks out	Political shocks in the Middle East	+			+											
August 19, 1991	Contagion	External economic shock	-						-								
June 24, 1992	Rabin elected Prime Minister	Domestic politics				+	+		+								
June 19, 1993	Oslo Accords	Israeli-Palestinian conflict							+								
August 21, 1994	Capital tax plan presented	Domestic economic shock	-	-					-	-	-						
January 31, 1995	Capital tax plan cancelled	Domestic economic shock				+											
November 5, 1995	Rabin assassinated	Domestic politics	-														
May 30, 1996	Netanyahu elected Prime Minister	Domestic politics	-	-	-												
July 16, 1996	Contagion	External economic shock									-						
October 28, 1997	Contagion	External economic shock	-	-	-				-	-	-						
August 9, 1998	Bank of Israel lowers interest rate	Domestic economic shock							+	+							
April 16, 2000	Contagion	External economic shock	-						-	-							
October 12, 2000	Second Intifada breaks out	Israeli-Palestinian conflict									-						
September 24, 2001	9/11 terrorist attacks in US	External economic shock	+														
December 23, 2001	Bank of Israel lowers interest rate	Domestic economic shock							+	+							
May 25, 2003	Government adopts "Road Map"	Israeli-Palestinian conflict							+	+				+	+	+	+
August 7, 2005	Netanyahu resigns as Finance Minister	Domestic politics			-				-	-				-	-		
January 5, 2006	Prime Minister Sharon suffers stroke	Domestic politics			-				-	-							
July 13, 2006	Second Lebanon War breaks out	Political shocks in the Middle East															
July 29, 2007	Contagion	External economic shock															
September 21, 2008	Contagion	External economic shock								+				+		+	
November 23, 2008	Contagion	External economic shock															
January 30,2011	Revolution in Egypt	Political shocks in the Middle East	-	-					-	-							
August 7, 2011	Contagion	External economic shock															
August 27, 2013	Chemical attack in Syria	Political shocks in the Middle East															
October 12, 2014	Contagion	External economic shock			-												
April 12, 2015	Struggle over Perrigo acquisition	Domestic economic shock				+											
August 23, 2015	Contagion	External economic shock															
<b>Total points</b>			<b>9</b>	<b>6</b>	<b>5</b>	<b>12</b>	<b>7</b>	<b>6</b>	<b>15</b>	<b>12</b>	<b>9</b>	<b>7</b>	<b>10</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>

Source: Bank of Israel and authors' calculations.

The results presented in Table 6.1 are based on analysis conducted for the entire period, that is, from 1990 to 2016 for the TASE General Shares Index and from 1992 to 2016 for the other stock indices. However, we will be distinguishing in our presentation between the turning points found in the period investigated by Zussman et al. (2008), that is, from January 1988 (TASE General) or January 1992 (the other indices) to May 2005, and those found in the period from June 2005 to May 2016. The distinction enables us to illustrate the differences between the periods in the types of events that generated turning points.<sup>5</sup>

A detailed description of the turning points up to May 2005 is provided by Zussman et al. (2008). We will, therefore, discuss here only those tuning points located during the later

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<sup>5</sup> There is almost perfect overlap between the turning points found by Zussman et al. (2008) in the period from January 1990 to May 2005, and those found for this period by the present study. Such an outcome is not trivial, as relative to the period covered by Zussman et al. (2008), the average return and its variance changed during the period ending in 2016. We find only two differences between the results of the two analyses: one turning point that was found in the past no longer appears, but a new turning point was identified. The turning point that no longer appears as statistically significant was recorded in March 1990 and was related to the Labor Party's withdrawal from the national unity government. This turning point was significant only within a 120-day window for the General Shares Index. Because the present analysis of the General Shares Index starts only in January 1990 and not in January 1988 (as in the earlier work), it is not technically possible to locate a turning point in a 120-day window before April 1990. The new turning point was located on November 5, 1995. This date is the first trading day after the murder of Prime Minister Yitzhak Rabin.

period – from June 2005 to May 2016. Our discussion is organized in terms of the type of explanation offered for each, rather than chronologically.

**Political shocks in the Middle East:** We located three turning points related directly to political shocks in the Middle East:

A. *July 13, 2006 (outbreak of the Second Lebanon War) – downturn:* The war erupted after a Hezbollah force attacked (on July 12) an IDF patrol within Israeli territory, near the Lebanese border fence. Three servicemen were killed in the attack, two were abducted, and three were critically injured. Israel responded to the incident with a massive offensive, first from the air and then via ground units, which fought the Hezbollah forces in Southern Lebanon. The war lasted thirty-four days, during which Hezbollah launched 4,000 rockets and mortars at northern Israeli localities and army bases. The rocket barrages caused the residents of northern Israeli localities to leave in masse, and disrupted the country's economic activity. The war ended with a ceasefire agreement on August 14, 2006.<sup>6</sup>

B. *January 30, 2011 (revolution in Egypt) – downturn:* On January 25, 2011 street demonstrations and mass protest activities broke out against President Hosni Mubarak and his regime. These events were part of a wave of uprisings in the Arab world that came to be known as "the Arab spring." In the wake of these demonstrations, Mubarak resigned on February 11, handing the reins of government over to the military. When trading started on Sunday, January 30, the TA-25 Index dropped by 2.3 percent, due, apparently, to the major escalation of events at the end of the previous week. When trading closed

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<sup>6</sup> For a detailed review of the events of this war, see Harel and Issacharoff (2008).

for the day, the Index had dropped by 3.8 percent, relative to the end of the previous trading day. According to a report in the newspaper *Globes*, the stock indices declined on January 30 due to concerns that the events in Egypt would spread to other Middle Eastern countries, and increase instability in the region.

- C. *August 27, 2013 (chemical attack in Syria) – downturn*: In March 2011, civil war erupted in Syria, as part of the Arab Spring events. The confrontation was between forces loyal to the Ba'athist government headed by Bashar al-Assad and those seeking to oust Assad. On August 21, 2013 a series of apparent chemical attacks were carried out in areas under rebel control. These attacks were estimated to have caused the deaths of over a thousand people. The offensive took place nearly a year after US President Barak Obama's August 2012 warning that the use of chemical weapons in the Syrian Civil War would constitute the crossing of a red line, leading to American military intervention. At a press conference held on August 26, 2013, US Secretary of State John Kerry affirmed that an "unforgivable" chemical attack had taken place on August 21, and that the Obama administration believed that the Syrian government was responsible for the attack. This announcement fueled fears within the financial markets of prolonged intervention by the US and its allies in the Syrian Civil War.

**Domestic politics.** We located two turning points related to domestic political shocks:

- A. *August 7, 2005 (Netanyahu resigns as Minister of Finance) – downturn*: Netanyahu's resignation from the government expressed his opposition to the disengagement from the Gaza Strip that was being promoted by Prime Minister Ariel Sharon. Netanyahu announced his resignation an hour before trading closed for the day. During that hour,

the value of the TA-100 dropped by 4 percent. This strong reaction appears to have been driven by concerns about increased political instability, and cessation of the economic reforms spearheaded by Netanyahu.

- B. *January 5, 2006 (Prime Minister Sharon suffers a stroke) – downturn:* On the evening of January 4, 2006, Sharon suffered a massive stroke, and lost consciousness. His powers as Prime Minister were immediately transferred to Acting Prime Minister Ehud Olmert. On January 5, the TA-25 and TA-100 indices fell by 4 percent, due to investor fears of political, diplomatic, and economic instability.

**Domestic economic shock.** We located one turning point directly resulting from a domestic economic shock:

- A. *April 12, 2015 (struggle over Perrigo acquisition) – upturn:* On Wednesday, April 8, Mylan, a major pharmaceuticals firm, made a takeover bid for the drug company Perrigo, whose stocks were traded on the Tel Aviv Stock Exchange and in the US. The offer reflected a 25 percent premium on the stock's value at that time, and was made after Tel Aviv trading hours had ended. Because of the Passover holiday, the Tel Aviv Stock Exchange could react to the news only on Sunday, April 12. On that day, the closing of the arbitrage gap, along with the fact that Perrigo then accounted for 10 percent of the TA-25, caused a sharp rise in the TA-25 and the other indices (*Globes*, April 12, 2015).

**External economic shock.** In six cases, the most likely explanation for the turning point was a shock originating in the international financial markets. These were instances of "contagion." The Israeli stock market is closely linked to markets abroad, especially to those of the US. Many Israeli companies, especially those in the high-tech industry, are traded both

in Israel and the US, particularly on NASDAQ. A look at the Israeli press (*Globes*) and leading international papers (*Financial Times* and *The New York Times*) testifies to major changes in foreign stock exchanges around the dates we identified.

- A. *July 29, 2007 – downturn:* This turning point, which occurred on a Sunday, originated in sharp declines in the US stock markets. During the trading week that ended on Friday, July 27, the S&P 500 Index dropped by 5 percent. That week witnessed the sharpest drops in five years in stock markets in the US. The declines were due to fears of an economic slowdown and problems in the American housing and credit markets (*New York Times*, July 28, 2007).
- B. *September 21, 2008 – upturn:* On Friday, September 19, the US government and the Federal Reserve Board announced an emergency plan in response to the prevailing economic crisis, with 700 billion dollars being made available to US banks. The financial markets rose dramatically in response to this announcement. For example, the S&P 500 climbed by 4 percent (*New York Times*, September 20, 2008). The Tel Aviv Stock Exchange reacted to these developments with an upturn as trading opened on Sunday, September 21.
- C. *November 23, 2008 – downturn:* This turning point occurred against the background of the global financial crisis and investor fears of a prolonged economic depression. In the US, the trading week that ended on Friday, November 21 was highly volatile, with the Dow Jones Industrial Average falling to its lowest level since early 2003 (*New York Times*, November 20, 2008). The Tel Aviv Stock Exchange reacted to these developments with a decline as trading opened on Sunday.

- D. *August 7, 2011 – downturn*: This turning point was sparked by signs of a slowdown in the US economy and a worsening of the European debt crisis. During the trading week that ended on Friday, August 5, the S&P 500 dropped by 7 percent, the steepest weekly decline since November 2008. Moreover, on Friday evening, after trading closed on the stock exchanges in the US, Standard and Poor, for the first time in history, downgraded the credit rating of US treasury bonds from AAA to AA+ (*New York Times*, August 8, 2011). As a result, the TA-25 Index fell on Sunday, August 7 by 7percent, its most dramatic daily downturn since 2000.
- E. *October 12, 2014 – downturn*: This turning point was related to fears of a global economic slowdown. These fears manifested in a sharp decline in oil and financial market prices. The S&P 500 fell by 3.1 percent during the trading week that ended on Friday, October 10. The Israeli stock exchange, which had been closed since the previous Tuesday due to a religious holiday, reacted to these downturns on Sunday October 12 with a more than 2 percent decline in the TA-100 Index (*Globes*, October 12, 2014).
- F. *August 23, 2015 – downturn*: Signs of a major economic downturn in China generated turmoil in the global financial markets. The Dow Jones Industrial Average and the S&P 500 Index declined by over 3 percent on Friday, August 21. The Tel Aviv Stock Exchange reacted to these downturns on Sunday, when the TASE-25 fell by over 4 percent (*Financial Times*, August 22, 2015 and *Globes*, August 24, 2015).

Table 6.2 summarizes the turning points in the Tel Aviv Stock Exchange by event type, comparing the two periods. In Part A of the table we see that in the first period all the five categories we defined are represented. This means that the various types of political shocks, as well as domestic and external economic shocks, all had a major impact on the Tel Aviv

Stock Exchange. In Part B of the table we find that half of the turning points were attributable to political shocks, while the rest stemmed from economic shocks. Part C shows that 38 percent (three of eight) of the political shocks were connected with the Israeli-Palestinian conflict. The table also shows that five of the nine economic shocks (56 percent) originated in the international financial markets.

**Table 6.2**  
**Summary of Turning Points in the Tel Aviv Stock Exchange by Type of Event, 1990-2016**

Part	Type of Event	January 1990 – May 2005	June 2005 – May 2016
A	Israeli-Palestinian conflict	3	0
	Political shocks in the Middle East	2	3
	Domestic politics	3	2
	Domestic economic shock	4	1
	External economic shock	5	6
Total		17	12
B	Politics	8	5
	Economics	9	7
C	Israeli-Palestinian conflict out of all political shocks	3/8	0/5
	External economic shock out of all economic shocks	5/9	6/7

Source: Bank of Israel and authors' calculations.

The picture obtained for the second period, the one starting in June 2005, is as follows: Relative to the first period, the distribution of turning points between political and economic shocks remained almost unchanged (Part B of the table). However, Part C of the table shows two noticeable differences between the periods. One difference is that, in the second period, there is no longer any representation of events related to the Israeli-Palestinian conflict; all of the political shocks have to do with other conflicts in the Middle East, or with Israeli domestic politics. The other difference is that nearly all of the economic shocks (6 out of 7) originate in the international financial markets.

### **6.3.2 The foreign exchange market**

We identify turning points in the foreign exchange market using daily data for the shekel-dollar and shekel-euro exchange rates. In both cases, our search spans the period from January 3, 2000 to May 31, 2016. As with the stock market, for each of the series we make use of windows of the following lengths: 60, 120, 240, 360, and 480 trading days. The exchange rate data were obtained from the Bank of Israel.

Figure 6.3 displays the exchange rates for the period in question. The shekel weakened significantly against the dollar from early 2000 to mid-2002, when the exchange rate reached nearly five shekels to the dollar. The shekel also declined substantially from early 2000 against the euro, but this decline continued until the end of 2004, when the exchange rate reached nearly six shekels per euro. In the later period, the one we focus on, the shekel generally strengthened, with great volatility, against both currencies. From June 1, 2005 to

May 31, 2016 the shekel strengthened by 15 percent against the dollar and by 26 percent against the euro.

**[Figure 6.3]**

Table 6.3 displays the results of our analysis of turning points in the foreign exchange market. As in Table 6.1, the first column in Table 6.3 reports the date of the turning point, while the second column displays the explanation that we offer for the turning point. The third column sorts the proposed explanations into five different categories: (1) the Israeli-Palestinian conflict; (2) Political shocks in the Middle East; (3) Domestic politics; (4) Domestic economic shocks; (5) External economic shocks. The following columns report the direction of the effect manifested at the turning point. In these columns, the plus (+) sign denotes a weakening of the shekel, while the minus (-) sign denotes the shekel's strengthening. All of the turning points reported are statistically significant at a level of at least 10 percent. As in Table 6.1, we will distinguish between the turning points that were found in the period studied by Zussman et al. (2008), that is, from January 2000 to May 2005, and those that were found for the period from June 2005 to May 2016. The separation enables us to illustrate the differences between the periods in terms of the types of events that caused the turning points.

**Table 6.3**  
**Turning Points in the Foreign Exchange Market, 2000-2016**

Date	Possible Explanation	Type of event	60 days		120 days		240 days		360 days		480 days	
			Dollar	Euro								
October 12, 2000	Start of Second Intifada	Israeli-Palestinian conflict			+		+					
April 2, 2002	Escalation of violence	Israeli-Palestinian conflict			+		+		+			+
May 23, 2003	Government adopts the "road map"	Israeli-Palestinian conflict			-		-		-			-
May 10, 2004	Escalation of violence	Israeli-Palestinian conflict	+									
January 3, 2005	Contagion	External economic shock			+		+					
March 24, 2008	Bank of Israel lowers interest rate	Domestic economic shock			+		+		+			+
August 4, 2009	Bank of Israel buys foreign currency	Domestic economic shock	+	+	+	+	+	+	+	+	+	+
May 11, 2010	Contagion	External economic shock					-		-			
January 13, 2011	Contagion	External economic shock					+		+			+
May 14, 2013	Bank of Israel lowers interest rate	Domestic economic shock	+		+	+	+	+	+	+	+	+
February 24, 2015	Bank of Israel lowers interest rate	Domestic economic shock			+	+	+	+		+		+
March 24, 2015	Bank of Israel unexpectedly refrains from lowering the interest rate	Domestic economic shock							-			-
December 4, 2015	Contagion	External economic shock		+								
<b>Total points</b>			<b>3</b>	<b>2</b>	<b>8</b>	<b>5</b>	<b>8</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>4</b>

Source: Bank of Israel and authors' calculations.

A detailed description of the turning points during the period ending in May 2005 can be found in Zussman et al. (2008); we will, therefore, discuss in depth here only those turning points identified between June 2005 and May 2016. We describe the turning points in terms of the type of explanation proposed for each point, rather than chronologically.

**Domestic economic shock.** We identified five turning points related to domestic economic shocks:<sup>7</sup>

- A. *March 24, 2008 (Bank of Israel lowers the interest rate) – weakening of the shekel:* The weakening reflected the expectation that on the evening of March 24 the Bank of Israel would announce a significant lowering of the interest rate. These expectations were driven by, among other things, a lowering of the interest rate in the US by 0.75 percentage points in the previous week. The Bank of Israel in fact announced a reduction of the interest rate by 0.5 percentage points, to 3.25 percent. That day the shekel weakened by 3.5 percent against both the dollar and the euro.
- B. *August 4, 2009 (Bank of Israel buys foreign currency) – weakening of the shekel:* This weakening came in the wake of a massive Bank of Israel intervention in the foreign exchange market. According to the newspaper *Globes*, during the trading week, the Bank

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<sup>7</sup> It is important to emphasize a fundamental difference between turning points identified in the foreign exchange market that are attributed to domestic economic shocks, and other types of turning points. All turning points of the former type stemmed from Bank of Israel interest decisions, and from the Bank's intervention in the foreign exchange market. These actions are endogenous, that is, they reflect the Bank of Israel's reaction to developments in the state of the economy. By contrast, the other turning points reflect shocks that are exogenous to the state of the Israeli economy.

of Israel purchased more than a billion and a half dollars. On August 4 alone the shekel declined by over 3 percent against the dollar and the euro.

C. *May 14, 2013 (Bank of Israel lowers the interest rate) – weakening of the shekel:* On this date, in a surprise move, the Bank of Israel lowered the interest rate by a quarter of a percentage point (from 1.75 percent to 1.5 percent), and announced that it would be purchasing 2.1 billion dollars by the end of the year. As a result, the shekel weakened on May 15 by 2 percent against the dollar and the euro.

D. *February 24, 2015 (Bank of Israel lowers the interest rate) – weakening of the shekel:* On this date, the Bank of Israel unexpectedly lowered the interest rate by 0.15 percentage points, to 0.1 percent, the lowest interest rate ever recorded in Israel up to that time. As a result, the shekel weakened on February 24 by over 2 percent against the dollar and the euro.

E. *March 24, 2015 (Bank of Israel unexpectedly refrains from lowering the interest rate) – strengthening of the shekel:* On March 23, the Bank of Israel unexpectedly announced that it would not be lowering the interest rate, which would remain at 0.1 percent, and that it would avoid quantitative easing. The following day, the shekel strengthened by over two percent against the dollar and by over one percent against the euro.

**External economic shock.** We identified three turning points resulting from external economic shocks, i.e., instances of "contagion:"

A. *May 11, 2010 – strengthening of the shekel:* This turning point was linked to the developing debt crisis in Europe. On May 9, the European finance ministers announced a comprehensive 750-billion-euro aid package, to ensure financial stability across the

continent. The following days were characterized by uncertainty and great volatility in the global financial markets. For example, on May 10<sup>th</sup> the dollar weakened against the euro by 2.4 percent, while the next day it strengthened against the euro by 2.5 percent (*Globes*, May 11, 2010).

- B. *January 13, 2011 – weakening of the shekel*: This turning point appears to be linked to a statement by the president of the European Central Bank on January 13, according to which the Bank would be raising the interest rate as a means of contending with the development of inflationary pressure. That day and the next, the euro strengthened against the dollar, cumulatively, by over 3 percent (*Financial Times*, January 14, 2011).
- C. *December 4, 2015 – weakening of the shekel*: On this date, the president of the European Central Bank announced that the interest rate would be lowered by 0.1 percentage points, and that the bond purchase program would be extended. This announcement disappointed the markets, which had expected more extreme monetary expansionary measures. As a result, the euro strengthened against the dollar that day by over 3 percent (*Financial Times*, December 4, 2015).

Table 6.4 summarizes the turning points in the foreign exchange market by type of event and compares the two periods. Part A of the table shows that, during the first period, four out of five of the turning points were related to the Israeli-Palestinian conflict, while the fifth was an instance of contagion. By contrast, in the second period all eight turning points were attributable to economic shocks – three cases of "contagion" and five cases of Bank of Israel actions (taken in response to various developments, some of them external). Ultimately, the analyses presented in Tables 6.2 and 6.4 indicate that, in contrast to the first period, the

Israeli-Palestinian conflict had no impact on the financial markets (the stock market and the foreign exchange market) during the period from June 2005 to May 2016.

**Table 6.4**  
**Summary of Turning Points in the Foreign Exchange Market by Type of Event, 1990-2016**

Part	Type of Event	Jan 1990 – May 2005	June 2005 – May 2016
A	Israeli-Palestinian conflict	4	0
	Political shocks in the Middle East	0	0
	Domestic politics	0	0
	Domestic economic shock	0	5
	External economic shock	1	3
	Total	5	8
B	Politics	4	0
	Economics	1	8
C	Israeli-Palestinian conflict out of all political shocks	4/4	0/0
	External economic shock out of all economic shocks	1/1	3/8

Source: Bank of Israel and authors' calculations.

## 6.4 Real effects of the Israeli-Palestinian conflict

A potential criticism of the previous section's analysis is that the Israeli-Palestinian conflict, though it may not have affected the financial markets since mid-2005, nevertheless has had a major impact on real economic activity. The present section examines the behavior of several real variables, with a view toward addressing this criticism.

The first and most important variable is the Composite State-of-the-Economy Index – a synthetic indicator that allows a real-time assessment of the development of real economic activity. It is calculated by the Bank of Israel's Research Department once a month, on the basis of ten indicators: the industrial production index; the trade revenue index; the services revenue index; consumer goods imports; imports of manufacturing inputs; goods exports; services exports; the number of employee posts in the private sector; the job vacancy rate and the number of building starts.

Figure 6.4 displays the monthly rate of change in the Composite State-of-the-Economy Index from January 1998 (the first month for which the index is available) to May 2016, highlighting major defense-related events. In the early part of the period the index rose at a fast rate, reaching a peak of more than one percent per month in early 2000. Then growth of the index declined dramatically and became negative, reaching a low of -0.6 percent per month in June 2001. The turning point in the spring of 2000 is likely related to the bursting of the dot-com bubble in the US, which occurred at that time. The eruption of the Second Intifada at the end of September 2000 almost certainly contributed to the slowdown in growth and then to the fall in the index. This claim is consistent with the results reported by Eckstein and Tsiddon (2004) and the Bank of Israel Annual Report for 2003.

### [Figure 6.4]

Based on the Composite Index, real activity continued to contract until the spring of 2002. The reversal from contraction to growth was likely driven (or at least aided) by Operation Defensive Shield, which started in late March 2002 and brought about a sharp decline in the number of Israeli fatalities from terrorism. Positive growth continued to characterize the Composite Index until July 2008, though the growth rate slowed substantially toward the end of 2007. Interestingly, in mid-2006 there was a steep but temporary drop in the Composite Index growth rate. This drop started in May 2006, two months before the Second Lebanon War broke out. Bank of Israel analysis indicates that the fighting in the north caused only a temporary and relatively small downturn in economic activity – thanks to the country's strong economic situation prior to the military conflagration (see the Bank of Israel Annual Report for 2006).

From August 2008 to March 2009 the Composite Index's rate of change was negative, meaning that real economic activity contracted. This contraction was probably due to the global financial crisis which is generally thought to have started in September 2008. The growth rate reached a low of -0.3 percent in December 2008, before Operation Cast Lead, the first of the relevant period's large-scale armed conflicts in Gaza. The operation started on December 27 and continued for three weeks. The figure suggests that the operation had little or even no effect at all on real activity. (It is interesting that this military event is not mentioned at all in the Bank of Israel Annual Report for 2009.)

The Composite Index rose steadily from April 2009 to the final month of the period under investigation, May 2016, though its rate of increase fluctuated widely. It is clear that neither

of the military operations in Gaza that occurred during the period, Operation Pillar of Defense in November 2012 or Operation Protective Edge in July-August 2014, had a significant impact on the Composite Index's rate of change.

The effect of defense-related shocks on real economic activity should manifest itself in another key economic indicator – the unemployment rate. Examining the development of the unemployment rate (for individuals of prime working age) yields an almost mirror image of the development of the Composite Index. Specifically, the unemployment rate rose sharply after the dot-com bubble burst and the Second Intifada broke out (the average unemployment rate in the year preceding the bursting of the bubble was 9.3 percent; at the height of the Intifada it reached a level of 11.6 percent). In contrast, the second Lebanon war in 2006 and the big military operations in Gaza in 2008-2009, 2012 and 2014 had very little impact on the unemployment rate.

The picture obtained from analysis of aggregate data on real economic activity is thus similar to that obtained from analysis of asset markets. Both show that since the mid-2000s, the Israeli-Palestinian conflict has had no significant impact on economic activity.

However, this finding does not necessarily suggest that security shocks have had no effect at all on any of the economic sectors since the mid-2000s. An extensive body of research has demonstrated that the tourism industry is strongly affected by security threats, and Israel is

no exception.<sup>8</sup> This is evident in data on the number of bed-nights of local and foreign tourists in Israeli hotels. The data show that the Second Intifada dealt a crippling and persistent blow to tourism: the number of bed-nights declined from September 2000 to March 2003 by over 50 percent. At the end of the Intifada, the number of bed-nights stood at only 75 percent of their pre-Intifada level. The three Gaza operations also had a negative, though relatively limited, impact on the number of bed-nights. For example, the period surrounding Operation Protective Edge in the winter of 2008-2009 saw a 10 percent decline in the number of bed-nights. The period surrounding Operation Protective Edge in the summer of 2014 saw an even more precipitous decline in tourism: the number of bed-night fell by 21 percent.

## **6.5 Why did the Israeli-Palestinian Conflict Stop**

### **Affecting the Markets?**

In this section we will propose and examine a possible explanation for our main finding that, from the mid-2000s, the Israeli-Palestinian conflict ceased to affect financial markets in Israel. We claim that this finding is likely related to changing public expectations about the conflict being resolved by peaceful means in the foreseeable future.

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<sup>8</sup> An early study on this topic is that of Enders et al. (1992), who found that terrorism had exerted a negative impact on tourism in Greece, Italy, and Austria. The Israeli case is analyzed in Fleischer and Buccola (2002) and Eckstein and Tsiddon (2004).

The Oslo Accords, which were signed in the mid-1990s, constituted a turning point in the Israeli-Palestinian conflict. They represented an effort to resolve all the core conflict issues as part of a permanent arrangement. A central component of the Accords was the principle of land for peace: Israel would gradually withdraw from a major portion of the territories over which it had gained control in the Six-Day War, and in return, the Palestinian national movement would abandon its armed struggle and recognize Israel's right to exist in peace.

The first Oslo agreement, signed in September 1993, generated strong opposition that manifested in extreme acts of violence, including the assassination of Prime Minister Rabin in November 1995. During the latter half of the 1990s, Israel and the Palestinian Authority remained formally committed to the Oslo Accords, but progress on implementing them slowed. An unsuccessful attempt to wrest the peace process from stagnation took place at the Camp David summit of July 2000. The Second Intifada broke out in late September 2000. Violence escalated until mid-2002 and then gradually died down. Since the end of the Intifada (around mid-2005), several other attempts have been made to further the diplomatic process between Israel and the Palestinians, but none of these efforts has yielded substantial progress.

Our contention is that, in the 1990s, following the Oslo Accords, a large proportion of the Israeli public expected that the conflict with the Palestinians would be resolved peacefully in the foreseeable future. The failure of Camp David and the outbreak of the Second Intifada were turning points. These events undermined expectations of an end to the conflict and implanted the idea that there was no negotiating "partner" on the Palestinian side. A number of developments caused these attitudes to become entrenched during the years after the

Second Intifada ended. These included Hamas' takeover of the Gaza Strip following Israel's 2005 withdrawal from it, massive rocket attacks from the Gaza Strip on Israeli territory, and failed rounds of negotiations between Israel and the Palestinians. Thus, since the mid-2000 the Israeli public seems to have adopted the view that Israeli-Palestinian relations will continue to be characterized by sporadic rounds of violence.

To test this hypothesis, we use data from the Peace Index survey conducted by the Tami Steinmetz Center for Peace Research in Tel Aviv University. The survey has been carried out continuously since 1994, with about 500 Jewish participants each month.

Our focus is on the answers to four of the survey questions.<sup>9</sup> Two of the questions relate to the Oslo Accords. The first question is: "What is your stand on the agreements signed in Oslo by Israel and the PLO?" The six response options are: "Very much in favor," "Quite in favor," "So so... somewhere in the middle," "Quite opposed," "Greatly opposed," and "Don't know / no opinion." This question was included in the surveys from June 1994 to July 2008. The second question is, "Do you believe, or not believe, that the Oslo Agreements between Israel and the PLO will lead to peace between Israel and the Palestinians in the coming years?" The six possible answers to this question are: "Strongly believe," "Quite believe," "So so... somewhere in the middle," "Hardly believe," "Do not believe at all," "Don't know / no opinion." This question was included in the surveys from March 1995 to July 2008. The other two questions appeared in the surveys only from mid-2001. They are almost identical to the

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<sup>9</sup> See Gould and Klor (2010) for a similar use of surveys to analyze the effects of security shocks on Israeli citizens' political opinions.

questions about the Oslo accords, with the main differences being that they ask about "peace negotiations" rather than the "Oslo Agreements" and that the "So so" option is not available. Figure 6.5 shows the development over time of the percentage of Oslo Accords supporters ("very much in favor" or "quite in favor") and the percentage of those who believe that the Accords will lead to peace between Israel and the Palestinians ("strongly believe" or "quite believe"). The figure clearly shows that the period can be divided into two parts: before and after the start of the Second Intifada. In the first period both support for the Oslo Accords and the belief that the Accords would lead to peace were quite prevalent positions within the Israeli public: the mean values for the two series were 38 percent and 40 percent, respectively. The Intifada caused a sharp downturn in support for the Oslo Accords: the mean value for support during the second period was only 26 percent. The decline in belief that the Accords will bring peace with the Palestinians was even more dramatic: the mean value of this variable during the second period was just 16 percent. Another interesting finding is that, although violence levels dropped dramatically from mid-2002 onwards, the gap between the two series remained the same until 2008. For our purposes, the most important point is that, from the outbreak of the Second Intifada to 2008, only a sixth of the Israeli population believed that the Oslo Accords would lead to an end of the conflict with the Palestinians.

**[Figure 6.5]**

A possible problem with the Oslo-Accords questions is that support for the Accords is associated with a specific political camp, sparking concerns of bias in the responses to those questions. This problem led the Steinmetz Center researchers, in 2001, to start asking the

two alternative questions mentioned above, which are still being asked today. Figure 6.6 shows the development of support for negotiations with the Palestinians and of the belief that negotiations will lead to resolution of the conflict. Two main patterns can be seen in the figure. Firstly, both support for negotiations and the belief that the negotiations will lead to resolution of the conflict are high in comparison with the corresponding questions relating to the Oslo Accords. From 2001 to 2016 the level of support for negotiations was, on average, 65 percent. The percentage of those who believed that negotiations will result in resolution of the conflict amounted, on average, to 31 percent. Secondly, the gap between belief and support is very large (34 percentage points, on average, across the relevant period) and appears stable over time. For our purposes, what is most important is that less than a third of the public believes that negotiations with the Palestinians will lead to a resolution of the conflict.

**[Figure 6.6]**

The analysis thus yields findings which are consistent with our hypothesis regarding the factors behind the desensitization of asset markets to defense-related shocks – namely, that the Israeli public does not believe that peace is possible in the foreseeable future, and incorporates in its expectations the likelihood of further rounds of violence.

That said, it is important to note that there are alternative explanations for the reduced sensitivity of financial markets (and, more generally, the Israeli economy) to defense-related shocks. Although we cannot determine the importance of these explanations relative to the one we have focused on thus far, it is worth mentioning them. One alternative explanation is that the intensity of the security shocks declined between the two periods. One might, for

instance, argue that the Second Intifada, which caused the deaths of nearly a thousand Israelis and lasted for several years, cannot be regarded as a security shock of the same order as the past decade's rocket attacks from the Gaza Strip – attacks that caused a much lower number of Israeli fatalities and were over in a matter of weeks.<sup>10</sup> The other alternative explanation for the asset markets' reduced sensitivity to security shocks is the continued improvement in Israel's macroeconomic environment. This improvement is manifested in, among other things, a lower ratio of government debt to GDP, a shift in the current account from deficit to surplus, a dramatic expansion in foreign currency reserves, and maintenance of low levels of inflation. The improved macroeconomic environment has enabled the Israeli economy to more easily cope with various exogenous shocks, which in turn was reflected in the mild response of asset markets to these shocks.

## 6.6 Conclusion

Economists have long been interested in the link between defense and the economy. Because the State of Israel has faced particularly grave security threats since its establishment, we should not be surprised that Israeli economists have also displayed considerable interest in the defense-economy link. Taking a broad view, we can say that security issues are much less important today than they were in the past. This can be seen in the sharp and almost monotonic decline in the defense burden since mid-1970s. The decline can be attributed,

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<sup>10</sup> It should be noted that the economic implications of the rocket threat have also varied over time. See Elster et al. (2017, 2019) who study the housing market effects of rocket attacks against Israel and the introduction of the *Iron Dome* anti-rocket system.

first and foremost, to processes that have reduced the gravity of the threats facing Israel. Nevertheless, the threats have not disappeared, and it is, therefore, important to know how the economy copes with defense-related shocks.

In this chapter we have analyzed the impact of defense-related shocks on the Israeli economy during the period 1990-2016. Our analysis focused on the perspective of participants in the stock and foreign exchange markets, and employed a methodology that allows one to identify turning points in asset market data. The main finding of our analysis is that the share of turning points related the Israeli-Palestinian conflict, out of all turning points in asset markets, declined during the years 2005-2016, relative to 1990-2005. Two "optimistic" explanations for this finding are that the defense-related shocks became less severe between the two periods, and that the macroeconomic environment improved. A more "pessimistic" explanation for our finding is that, since the Second Intifada, Israelis are less inclined to believe that peace with the Palestinians is possible in the foreseeable future, and have come to expect further rounds of violence. Separating between these explanations is worthy of further study.

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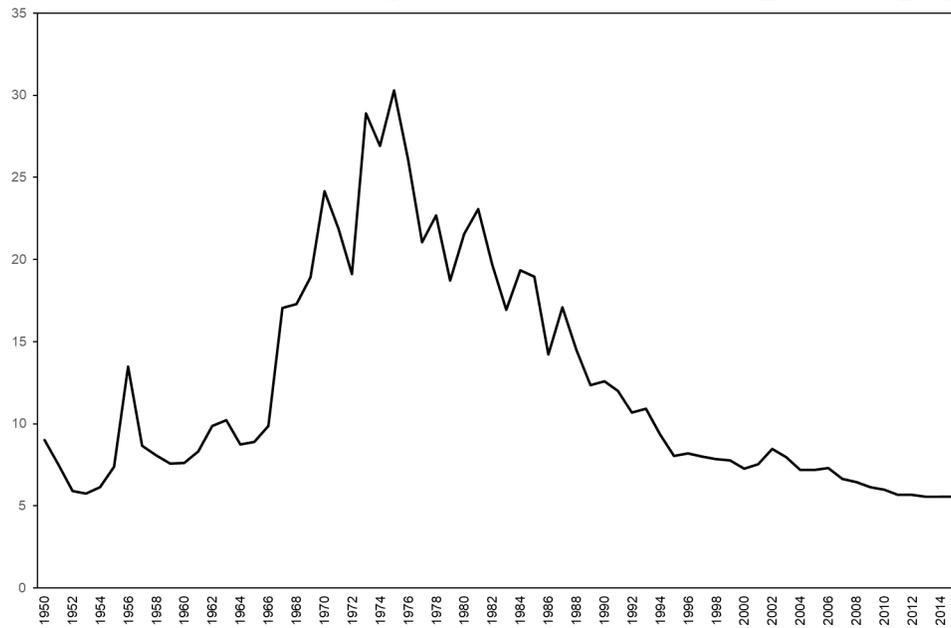
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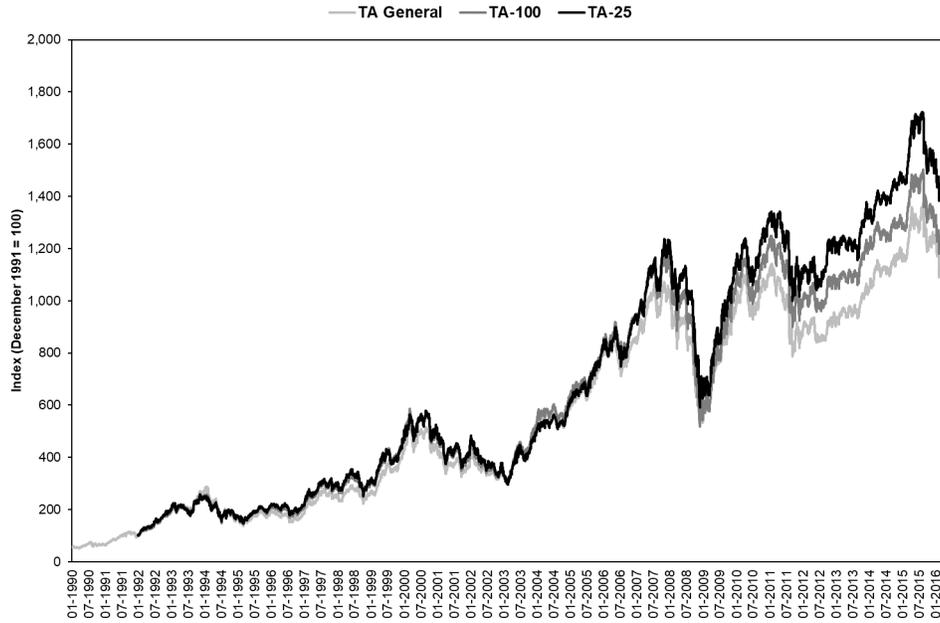
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**Figure 6.1**  
**Share of Defense Consumption in GNP, 1990-2015 (percentages)**



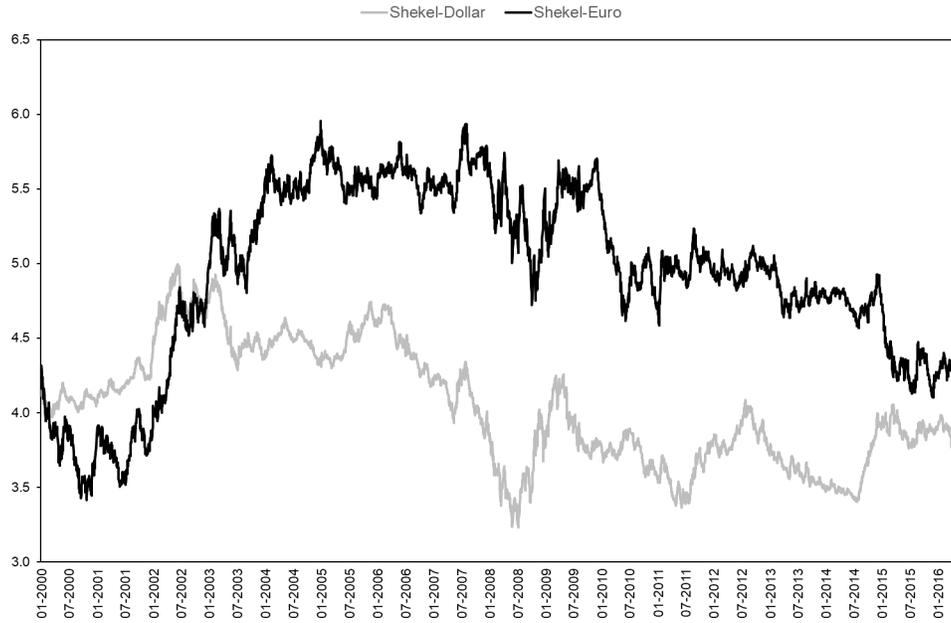
Source: Central Bureau of Statistics (2017)

**Figure 6.2**  
**Major Tel Aviv Stock Exchange Indices, 1990-2016**



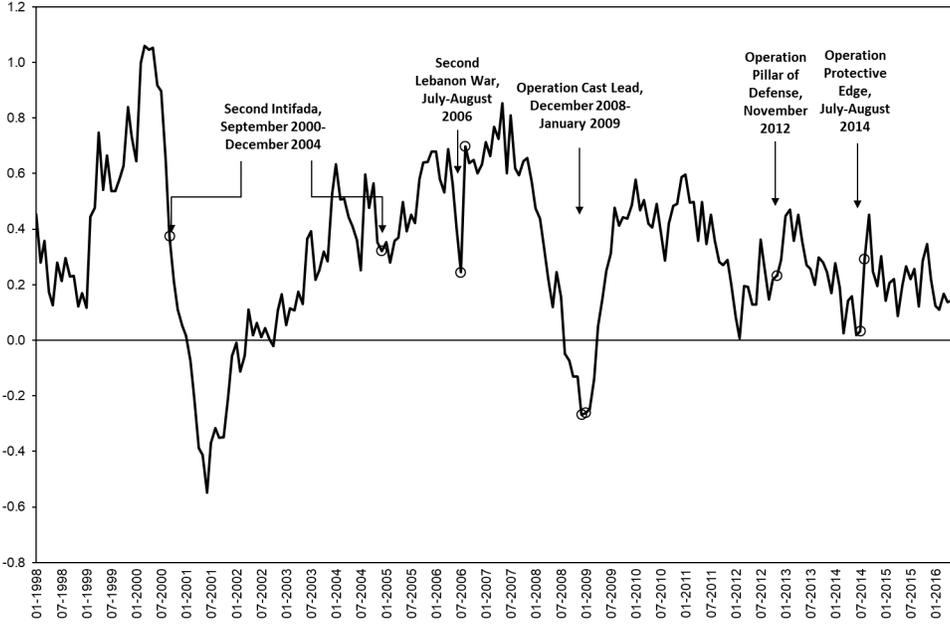
Source: Bank of Israel

**Figure 6.3**  
**Shekel-Dollar and Shekel-Euro Exchange Rates, 1990-2016**



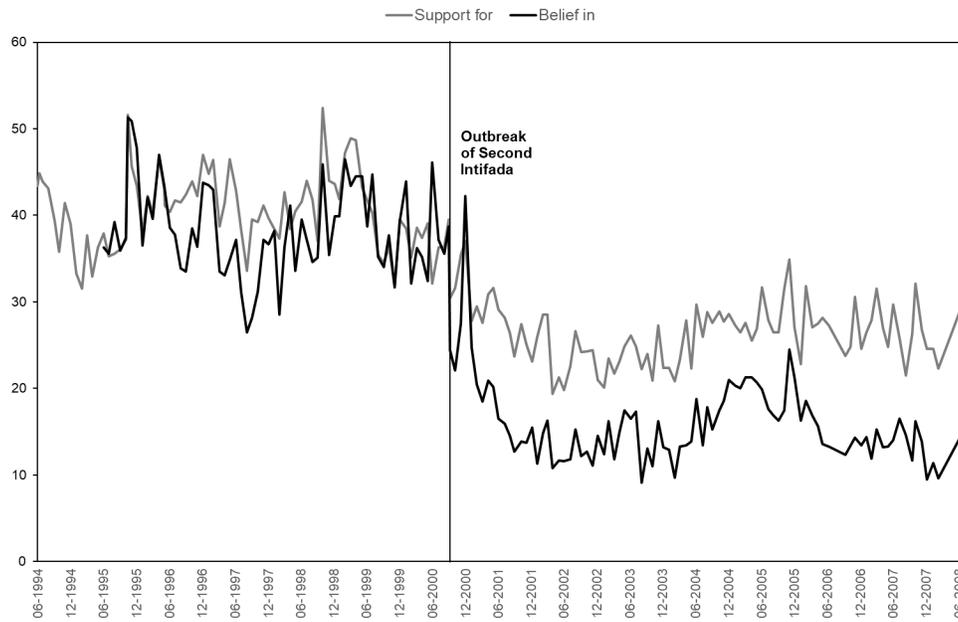
Source: Bank of Israel

**Figure 6.4**  
**Monthly Rate of Change in the Composite State-of-the-Economy Index, 1998-2016**  
**(percentages)**



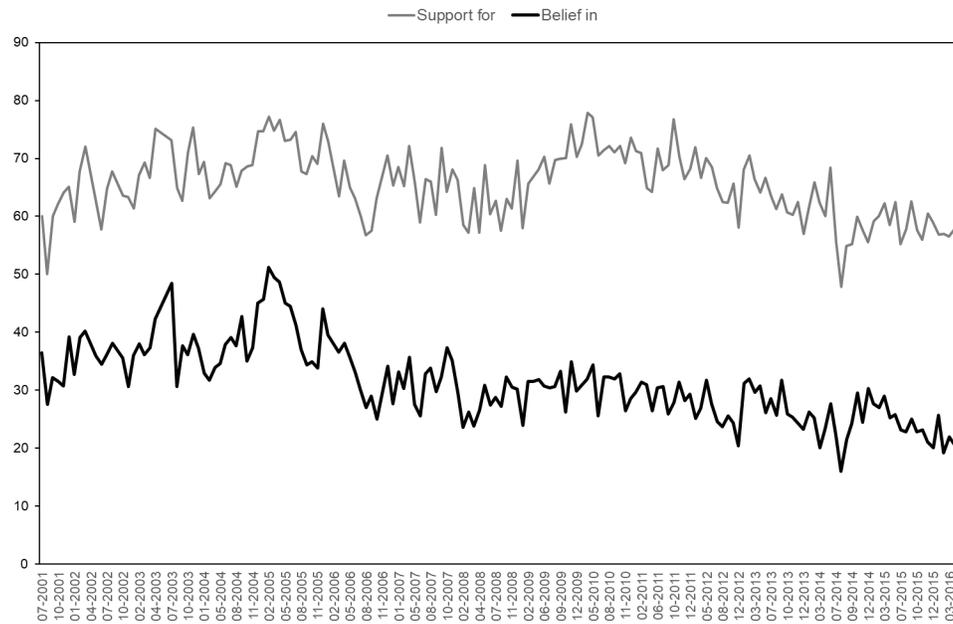
Source: Bank of Israel

**Figure 6.5**  
**Support for the Oslo Accords and Belief that they Will Lead to a Resolution of the Conflict, 1994-2008 (percentages)**



Source: Tami Steinmetz Center for Peace Research, Tel Aviv University

**Figure 6.6**  
**Support for Negotiations with the Palestinians and Belief that they Will Lead to a Resolution of the Conflict, 2001-2016 (percentages)**



Source: Tami Steinmetz Center for Peace Research, Tel Aviv University