Bank of Israel **Research Department**

Asset Market Perspectives on the Israeli-Palestinian Conflict[1]

by

Asaf Zussman[♣] **Noam Zussman**[♦] **Morten Ørregaard Nielsen**[♣]

Discussion Paper No. 2006.02
February 2006

[1] We are indebted to Esteban Klor, Assaf Razin, Arnon Regular, Danny Rubinstein, Tim Vogelsang, Joachim Voth, Amos Zehavi and participants of presentations at the 2006 American Economic Association meeting, Bank of Israel, Cornell University, and the Economic of National Security Program (held in Tel Aviv University) for their advice and useful comments. We thanks Mohammad Hijaz of the Palestinian Securities Exchanges for his help with the data.

♣ Economics Department, Cornell University.
♦ Research Department, Bank of Israel.

מחלקת המחקר, בנק ישראל ת"ד 780, ירושלים 91007
Research Department, Bank of Israel, POB 780, Jerusalem 91007, Israel

Abstract

The Israeli-Palestinian conflict has played a salient role in world affairs in recent decades. This paper locates turning points in the conflict since the late 1980s using asset market data from Israel and Palestinian Authority (PA). We find that major escalations in violence, such as the outbreak of the Intifada in 2000, lead to significant declines in asset prices in both Israel and the PA. Conversely, major peace initiatives, such as the Oslo accords in 1993 and the Road Map plan in 2003, lead to substantial increases in asset prices on both sides of the conflict. An additional novel finding is that asset markets respond positively to the success of politicians who favor a negotiated settlement to the conflict.

JEL classification codes: G14, H56

Keywords: Foreign Exchange Market, Israeli-Palestinian Conflict, Stock Market, Structural Breaks, Turning Points

1 Introduction

The Israeli-Palestinian conflict has played a salient role in world affairs in recent decades. This paper examines developments in the conflict since the late 1980s from the perspective of participants in asset markets. By applying an econometric search for breakpoints to asset market time series data we are able to identify crucial events in the conflict. We then describe and analyze these turning points.

Our approach follows in spirit the pioneering study of Willard, Guinnane, and Rosen (1996) who attempted to identify turning points in the US Civil War. They did so by examining the behavior of the Greenback – an inconvertible currency issued by the Union government. Willard, Guinnane, and Rosen demonstrated that the Greenback's value in gold was highly sensitive to political, military, and economic news. Their methodology has since been applied to the same conflict (using other data sources) as well as to other conflicts, such as the Second World War.[1] Although our analysis is related to these studies we argue that the methodology used in them to locate turning points suffers from several weaknesses and propose a more robust alternative.

The use of financial market data to analyze turning points in a conflict has several advantages relative to alternative methodologies.[2] First, it allows us to examine how developments in the conflict were evaluated in the past. Financial markets reflect perceptions of investors at the given point in time regarding expected future developments. In contrast, the views of historians are colored by ex-post developments. Second, investors are likely to evaluate carefully any current and future developments because errors directly affect them financially. Investors would therefore not (consciously) allow their own political preferences to enter into the calculations they make. This distinguishes financial market data from other sources of data, in particular surveys and questionnaires. On the other hand, the asset market history approach suffers from a relatively narrow focus: investors are only interested in political events to the extent that they affect economic outcomes. One may also argue that the views of investors are not representative of the population as a whole. Overall it seems to us that the asset

[1] Additional studies of turning points in the US Civil War include Brown and Burdekin (2000) and Weidenmier (2002). Turning points in the Second World War were studied by Frey and Kucher (2000a, 2000b, 2001), Frey and Waldenstrom (2004), Oosterlinck (2003), and Waldenstrom and Frey (2002). Analyses of the response of asset markets to political and military events have been conducted using other methodologies. See, for example, McCandless (1996) on the US Civil War; Sussman and Yafeh (2000) and Mauro, Sussman, and Yafeh (2002) on conflicts involving emerging markets before the First World War; Hall (2004) on the First World War; Amihud and Wohl (2004), Leigh, Wolfers and Zitzewitz (2003), and Rigobon and Sack (2005) on the 2003 Iraq War. For related research on asset markets and terrorism, see Abadie and Gardeazabal (2003), Berrebi and Klor (2005), and Eldor and Melnick (2004).

[2] See Frey and Kucher (2000) for a detailed evaluation of this issue.

market based historical analysis we employ has the potential to contribute to the understanding of the Israeli-Palestinian conflict.

In contrast to the conflicts that have been studied with the financial market approach previously - such as the US Civil War and the Second World War - the Israeli-Palestinian conflict is characterized by low intensity. It does not involve massive troop movements, large scale aerial bombardments and the like. Instead the Israeli-Palestinian conflict features terrorism and guerilla warfare on the one hand and military action to curb such forms of warfare on the other. The conflict also involves diplomatic negotiations aimed at resolving it peacefully. In such a conflict we cannot expect to find decisive victories such as Gettysburg in the US Civil War or Stalingrad in the Second World War but rather waves of escalation and de-escalation. This feature of the conflict means that it may be more difficult for us to isolate and highlight important events. Despite this difficulty, however, we believe that our analysis proves quite successful in achieving this goal.

Our empirical investigation offers several improvements over previous research on turning points as far as the use of data is concerned. Whereas previous research has typically analyzed one financial market we examine three: the Israeli stock exchange, the Israeli foreign exchange market, and the Palestinian stock exchange.[3] We are thus able to identify turning points in asset markets on both sides of the conflict, i.e. we may locate events that were viewed as turning points by one side of the conflict or both, and compare reactions in the different markets. Moreover, in contrast to previous research we do not limit ourselves to one particular horizon ("window length") but examine five different ones, varying from three months to two years. This allows us to classify events based on how long-lasting their effects were. To gain perspective on the results obtained from asset markets we also analyze turning points in a measure of Israeli public support for the peace process with the Palestinians.[4]

The turning points that we locate in asset markets can be divided into four categories. The first category is made up of events that are directly related to the Israeli-Palestinian conflict or to the wider Arab-Israeli conflict. In the second category we include important internal political developments in Israel and the Palestinian Authority (PA), developments which have a direct bearing on the Israeli-Palestinian conflict. The third category comprises of major economic policy changes in Israel. The last

[3] The Palestinian Authority does not issue its own currency. Instead, both the Israeli Shekel and the Jordanian Dinar are considered legal tender.

[4] We also examined data from Palestinian public opinion polls. Sources for such data include the Jerusalem Media and Communication Center (http://www.jmcc.org/) and the Palestinian Center for Policy and Survey Research (http://www.pcpsr.org/). However, these polls appear at irregular frequencies and therefore cannot be analyzed using our econometric methodology.

category includes events that are completely exogenous to the economies of Israel and the PA. These are cases of "contagion."[5] [6]We focus our analysis on the first two categories.

With respect to the first category we find that major escalations in violence lead to declines in asset prices in both Israel and the PA. The most salient example of this case is the outbreak of the second Palestinian Intifada (uprising) in late 2000. Conversely, major peace initiatives lead to increases in asset prices in both Israel and the PA. Examples include the Oslo peace accord in 1993 and the Road Map peace plan in 2003. With respect to the second category - internal politics - our main finding essentially echoes the findings for the first category: asset markets on both sides respond positively to the success of politicians who favor a negotiated settlement to the Israeli-Palestinian conflict. This is a novel insight - it has not been identified in the previous turning points literature. With respect to the third and fourth categories - economic policy-making decisions and contagion - we find that, at least for Israel, such events also exert an influence on the markets and that this influence seems to have weakened during the relatively more violent period of the Intifada (2000-2005).

Overall, we believe that our results have a strong intuitive appeal. Previous research has demonstrated the macroeconomic costs of conflict in general and of terrorism in particular.[7] These findings imply that asset markets should respond negatively to actual or prospective escalations in violence and positively to de-escalations. Our findings thus tend to reinforce the view that the Israeli-Palestinian conflict exacts a heavy economic toll on both sides. Hence, another contribution of our paper is in showing how sensitive asset markets are to political, diplomatic, and military developments[8]

[5] In order to take into account fluctuations in world asset markets we have experimented with an alternative methodological approach. In this approach we first regress asset returns in Israel on foreign returns and then search for breakpoints in the residual time series. This presents several difficulties, including in the adjustment of trading schedules between Israel and other markets. Nevertheless, the results obtained using the alternative methodology were quite similar to the ones reported below. Significantly, our most important results regarding the effect of events such as the Oslo agreement, the outbreak of the Intifada, and the Road Map peace plan actually received stronger statistical support using the alternative methodology.

[6] Blass, Peled, and Yafeh (2004) analyze the risk premium associated with Israeli government bonds traded in the US during 1996-2000. They find that the risk premium was mainly driven by the forces of financial globalization, but that political events also had an influence on it.

[7] See, for example, Abadie and Gardeazabal (2003) for the economic costs of terrorism in the Basque country in Spain, and Eckstein and Tsiddon (2004), Fielding (2003a, 2003b), and Haj-Yehia (2003) for the economic costs of terrorism in the Israeli case. Frey, Luechinger, and Stutzer (2004) review this literature.

[8] This conclusion is in the spirit of Surowiecki (2004). See also Chen and Siems (2004) and Wolfers and Zitzewitz (2004). On the other hand it contrast to an extent with Cutler, Poterba, and Summers (1989) who find that major political events have relatively little effect on the US stock market.

The rest of the paper is structured as follows. We begin by describing our econometric methodology and highlight its advantages relative to the one used in previous research. Presentation of the empirical results follows. In the last section we discuss the results and offer some concluding remarks.

2 Econometric methodology

Suppose the discrete time evolution of the log-price p_t of an asset is given by

$$p_t = \mu + \beta t + z_t, \tag{1}$$

$$z_t = z_{t-1} + u_t, \tag{2}$$

where u_t is the unpredictable element of the price changes, which is assumed to be identically and independently distributed, or more generally, assumed to be a martingale difference. Taking first differences of (1)-(2), the continuously compounded percentage return from time period $t-1$ through time t is

$$r_t = \Delta p_t = \beta + u_t, \tag{3}$$

i.e. log-prices follow the well-known random walk with drift. In particular, the slope term in the log-price equation becomes the drift (or intercept) term in the returns. The driving equation for returns (3) is the discrete time analog of the standard geometric Brownian motion assumption from the continuous time finance literature.

We assume that, under the null of no structural breaks (no turning points), the log-prices follow the process (1)-(2) or equivalently that returns follow (3).

Suppose instead that there is a break or turning point at time t_0 in the sense that both the mean and slope of the log-price process change, i.e.

$$p_t = \mu + \delta_0 I\left(t > t_0\right) + \beta t + \delta_1 I\left(t > t_0\right)\left(t - t_0\right) + z_t, \tag{4}$$

where $I\left(A\right)$ is the indicator function of the set A. The δ_0-term corresponds to a shift in mean and the δ_1-term is a shift in slope. Note that by convention with the structural break literature we define the breakdate to be t_0 which is the last date of the "old regime." With this convention, the new mean and slope coefficients, $\mu + \delta_0$ and $\beta + \delta_1$, respectively, are effective as of date $t_0 + 1$. In the returns equation, the alternative p_t process (4),(3) corresponds to

$$r_t = \Delta p_t = \beta + \delta_0 I\left(t = t_0 + 1\right) + \delta_1 I\left(t > t_0\right) + u_t, \tag{5}$$

i.e. there is an outlier at date $t_0 + 1$ and also a mean shift between dates t_0 and $t_0 + 1$.

Figures 1a and 1b about here

We illustrate this graphically, both in terms of log-prices and returns, in Figures 1a and 1b. The figures show three possible types of turning points, where the initial shock δ_0 is positive and is followed by a period of "faster than usual" growth ($\delta_1 > 0$), same growth as before the break ($\delta_1 = 0$), or slower growth ($\delta_1 < 0$) in which case the initial shock is eventually negated by the subsequent decrease in mean returns.

In terms of the returns equation under the alternative, i.e. equation (5), the null of no turning points corresponds to

$$H_0 : \delta_0 = \delta_1 = 0 \tag{6}$$

against the composite alternative $H_A : \delta_0 \neq 0$ or $\delta_1 \neq 0$. This null can be tested by a standard F-test in the regression (5) for $t = 1, ..., T$.

Since we are interested in locating potentially multiple turning points in the same data series, each of which does not necessarily have a permanent effect, we apply a rolling window-type methodology similar to, e.g., Banerjee, Lumsdaine, and Stock (1992) and Willard, Guinnane, and Rosen (1996). In particular, our methodology is a three-step procedure. First, selecting a window size of $T_0 (< T)$, we run the regression (5) for $t = 1, ..., T_0$, then $t = 2, ..., T_0 + 1$, etc., until finally, $t = T - T_0 + 1, ..., T$. In the second step we test the turning point hypothesis for the middle of each window. Noting that each of these regressions has T_0 observations, for each regression we therefore test the hypothesis (6) for $t_0 = [T_0/2]$, where $[x]$ denotes the integer part of x. Third, we take the largest of the $T - T_0 + 1$ F-test statistics, say it corresponds to the n'th window which is the $t = n, n + 1, ..., T_0 + n - 1$ sample. If it is not significant the procedure is stopped and it is concluded that no significant turning points exist in the data. On the other hand, if the largest of the F-test statistics is significant we say that there is a turning point at the middle of the corresponding window, i.e. at $t_0 = n + [T_0/2]$. In that case, all the F-test statistics for the n'th window are deleted, and the largest F-test statistic outside the window is located. If it is also significant, there is another turning point, otherwise the procedure is stopped. The procedure continues until non-rejection of the null hypothesis.

Note that with this methodology the effect of the turning point does not have to last forever which would be an extremely strong assumption. Instead, it is assumed to last only (at least) until the end of the window $[(T_0 + 1)/2]$ time periods hence. This admits the detection of turning points that are significant, both statistically but also in an economic sense, without requiring them to last throughout the sample period.

Finally, the critical values for our iterative procedure have been found by Monte Carlo simulation, since the rolling window F-test described above has a non-standard distribution. In particular, we simulated M artificial samples of (3) with the same sample size as the actual data series and ran the rolling F-test procedure as described above. Let the highest F-test statistic for the i'th of the M artificial samples be denoted $F_i, i = 1, ..., M$. The $\alpha\%$ critical value was chosen to be the $(100\,(1-\alpha)\,/M)$'th highest of the F_i. In practice, we used $M = 1,000$, set $\beta = \bar{r}$ (the average return of the observed data), and let u_t be zero-mean normally distributed with the same variance as the observed r_t.[9]

We believe that our methodology offers several advantages over the one used by Willard, Guinnane, and Rosen (1996). First, their procedure includes a fourth step where the selected window is searched for breaks within the window, i.e. the test is run for each t_0 throughout the window. Since the window has already been selected due to having the highest F-test statistic for a break in the middle of the window, this step seems superfluous.

Second, their procedure does not impose the asset pricing restriction that returns are essentially unpredictable. Instead, they model the prices as a stationary autoregression which is, at least to some extent, predictable, and test for breaks in the parameters that govern the conditional mean of the autoregression.

Third, their critical values are simulated under the null that prices are governed by a stationary autoregression of order one, with coefficient 0.9 and sample size of 1,000. Obviously, if one believes the standard asset pricing equations, a stationary autoregression is a misspecified model for prices. Furthermore, the arbitrary selection of the length of the simulated series also has an influence on the critical values since the longer the sample the more likely it is that the null will be rejected for some window, and hence the critical values for rolling F-tests of the type considered here (and also by Willard, Guinnane, and Rosen (1996)) are increasing in the sample size. In the implementation of our alternative methodology we avoid this complication since we use the actual sample size of our data as the sample length for the artificial samples used to simulate the critical values. All these points would tend to make the tests of Willard, Guinnane, and Rosen (1996) over-reject the null, i.e. find too many significant turning points relative to the true null distribution.

[9] The empirical finance literature often finds that the unpredicatble shock, u_t, tends to have "fat tails" relative to the normal distribution. We believe that this is a relatively minor issue that could only affect the analysis by marginally raising the the simulated critical values of the F-test. We have therefore chosen to abstract from this issue.

3 Turning Points in Asset Markets

Our main set of results is based on an analysis of the three major indices of the Tel Aviv Stock Exchange (TASE) for the period January 1988 to May 2005. These results are described first. We then take a closer look at the three series for the period January 2000 to May 2005, a period which saw the outbreak of the Intifada.

The foreign exchange market is another natural place to look for turning points. However, for the purposes of our investigation there is a crucial difference between the stock market and the foreign exchange market. Whereas the value of stocks is determined freely in the market, the value of the Israeli currency has until recent years been either determined or heavily influenced by intervention of the Bank of Israel. Indeed, in an examination of the foreign exchange market data for the period January 1990 to May 2005 we found that the large majority of the turning points identified in the first decade were associated with changes in the exchange rate regime.[10] Our analysis of the foreign exchange market therefore focuses on the period 2000-2005 in which the value of the exchange rate was determined by market forces.

We augment the results obtained from Israeli asset markets by analyzing two additional data series. The first is the main index of the Palestinian Securities Exchange, the Al-Quds index. Like in the case of the Israeli stock market the behavior of the Palestinian one is expected to reflect developments in the Israeli-Palestinian conflict. The second is the "Peace Index" - a measure of public support in Israel for the peace process with the Palestinians. The turning points identified in these two series are then compared to those obtained for the Israeli stock exchange.

3.1 Tel Aviv Stock Exchange, 1988-2005

We search for turning points in daily (trading days) data for three aggregate TASE indices: (1) the Tel Aviv general index which reflects the prices of all stocks traded in the market; (2) the Tel Aviv 100 index which reflects prices of 100 major stocks; and (3) the Tel Aviv 25 index which reflects the prices of 25 major stocks.[11] For the first two indices the search is conducted for the period January 3, 1988

[10] These results are available upon request from the authors.

[11] We have chosen to analyze aggregate TASE indices because their behavior is directly related to the macroeconomic performance of the Israeli economy. However, it is clear that stocks of individual firms may display differential reactions to political developments depending on their business. For example, while firms in the tourism industry may suffer from an escalation in violence, the same political development may benefit firms in the defense sector. This is a potentially fruitful line of future research.

to May 31, 2005. The Tel Aviv 25 index was established on January 3, 1992 and so our analysis of this index starts then and ends in May 2005. Figure 2 plots the values of the three indices during this period. For each of the series we conduct our search for breakpoints using five window sizes: 60, 120, 240, 360, and 480 trading days.[12] All the data series were obtained from the Bank of Israel.

Figure 2 about here

Table 1 about here

A summary of the results of the analysis is reported in Table 1. The full set of results is reported in Appendix Table 1. The first column of Table 1 reports the date of the turning point and the second our proposed explanation for the turning point. Columns 3 to 17 report the sign of the δ_0 coefficient in the search regression.[13] All the breakpoints reported are significant at either 1%, 5%, or 10% levels of significance.

Figure 3 about here

Figure 3 illustrates the selection of significant turning points based on our methodology. It shows the F-statistics obtained in the search for breakpoints (using the Tel Aviv general index and a 240 trading day window), the 10% critical value of the F-test, and our suggested explanations for significant turning points.[14] We describe the turning points based on the nature of the proposed explanation in each case rather than chronologically and pay more attention to the ones that seem most directly related to the Israeli-Palestinian conflict.

3.1.1 Israeli-Palestinian and Arab-Israeli relations

In the period 1988-2005 we find the following turning points that are directly related to Israeli-Palestinian and Arab-Israeli conflicts:[15]

[12] On average there are about 20 trading days in a month. Thus the window sizes we use vary in duration from 3 months to 24 months, or 2 years.

[13] Note in the appendix tables that in some cases δ_0 and δ_1 have opposite signs. In these cases the initial effect of a shock is partially or completely reversed within the length of the window. However, instances of complete reversal are relatively infrequent (for example,of the 132 turning points in Appendix Table 1 less than a third exhibit complete reversal) and we therefore concentrate our analysis on the sign of the δ_0 coefficient.

[14] Note that some of the turning points shown in Figure 3 do no appear in Table 1. This is due to the constraint imposed in our econometric procedure to allow for only one break per window.

[15] For recent general references on the Israeli-Palestinian and Arab-Israeli conflicts see Bickerton and Klauner (2005) and Cossali (2004). Detailed examinations of the years of the second Intifada, focusing on the Israeli side, can be found in Drucker and Raviv (2005) and Harel and Isacharoff (2004), whereas Masalha (2004) concentrates on the Palestinian side.

August 19, 1990 and January 22, 1991 (Iraq crisis) - decline and rise: On August 2, 1990 Iraq invaded and annexed Kuwait. The Israeli market reacted to this development negatively, reflecting both purely economic but also strategic concerns. The major concern on the economic front emanated from the threat posed to world oil supplies. The strategic concern was the increased potential of aggressive Iraqi moves toward Israel. The delay in market reaction is probably related to the uncertainty about the seriousness of the crisis and the response of the international community to it.

In the weeks that followed the Iraqi invasion the UN condemned it and demanded the immediate and unconditional withdrawal of Iraqi troops. In November the Security Council set January 15, 1991 as a deadline for Iraq to begin withdrawing from Kuwait. On January 16 a US-led coalition launched an air attack on Iraq, signaling the beginning of the Gulf War.[16]

Despite the threat of Iraqi missile attacks (which materialized but caused minimal damage) the approaching war in the Persian Gulf was perceived as having several positive implications for Israel. First, the attack on Iraq meant that the military capability of one of Israel's most powerful Arab enemies would be crushed. Second, events in the months leading to the war demonstrated the relative weakness of the Soviet Union, the traditional supporter of radical Arab regimes. Third, Palestinian Liberation Organization (PLO) chairman Arafat was one of the only Arab leaders who did not condemn Iraq's invasion of Kuwait. Consequently the reputation and credibility of Arafat suffered, and the weakening of the PLO made it more willing to consider a compromise with Israel. Fourth, as war neared there was widespread belief that the almost universal Arab support of the American-led attack against Iraq would be rewarded by renewed US efforts to resolve the Arab-Israeli conflict. The positive market reaction to the start of the Gulf War is consistent with these considerations.

June 29, 1993 (Oslo agreement) - rise: This turning point is a special one for two reasons. First, the Oslo agreement is widely viewed as one of the most important developments in the Israeli-Palestinian conflict in recent decades. Second, it is the only case where we locate the turning point several weeks before the date in which conventional history locates it. This turning point therefore warrants special attention.

In the first year of Rabin's tenure as Prime Minister (his tenure began in June 1992 - see below) the bilateral talks between Israel and its neighbors that started after the Madrid Conference (October

[16] Note that the "Iraq invades Kuwait" negative effect persists for a longer period than the "Start of Gulf War" positive effect. This result is probably due to the fact that for window lengths 240, 360, and 480 the F-test for the first date is higher than for the second. Given that there were only 100 trading days (less than half a window length) between the two dates our methodology would not identify the second date as a breakpoint.

1991) continued but showed very little progress. By the summer of 1993 the peace process seemed to be collapsing. Then, on August 29, came the dramatic revelation that Israel and the PLO had been engaged since early 1993 in parallel but secret negotiations in Oslo, Norway. On August 30 the Israeli cabinet unanimously approved the Oslo accords which entailed the phased withdrawal of Israeli forces from the West Bank and the Gaza Strip and affirmation of the Palestinian right to self-government within those areas. The formal signing of the accord by Rabin and Arafat took place in Washington on September 13, 1993.

Figure 4 about here

The reason our econometric procedure finds June 29, 1993 rather than August 30, 1993 as the turning point is related to news regarding a tax reform plan. During the summer of 1993 a committee set up to propose a tax reform recommended imposing a tax on capital gains. On June 28 the Israeli finance minister surprisingly announced that the reform would not be implemented for at least two years. The next day the stock market rose sharply. Figure 4 displays (using the Tel Aviv general index) a 240 trading day window around the June 29 turning point. Visual inspection suggests that the breakpoint in the series actually occurs around the end of August.[17]

October 12, 2000 (outbreak of the Intifada) - decline: In July 2000 US President Clinton hosted Israeli Prime Minister Barak and Palestinian President Arafat for a peace summit in Camp David, Maryland. After two weeks of exhaustive negotiations the summit broke up in acrimony, with each side accusing the other of responsibility for the failure. The peace process entered a stalemate as the positions of the two parties became more deeply entrenched.[18]

Figure 5 about here

On September 28 Israeli opposition leader Sharon toured the Al-Aqsa compound in Jerusalem's Old-City. The visit provoked mass demonstrations and stone throwing by Palestinians, first in the Occupied Territories and then also in Arab towns inside Israel. This marked the beginning of the Intifada. The fact that the turning point is found on October 12 and not earlier can most probably be attributed to

[17] It is interesting to note that the first major report in the Israeli press about the secret Israeli-Palestinian peace negotiations in Oslo appeared only in mid July 1993.

[18] Different perspectives on the Camp David summit can be found in Rubinstein, Malley, Agha, Barak, and Morris (2003).

an especially gruesome incident that took place on that date and triggered an escalation in violence.[19] Figure 5 displays (using the Tel Aviv 25 index) a 480 trading day window around this turning point. The figure clearly demonstrates the decisive effect the outbreak of the Intifada had on the stock market.

September 24, 2001 (terrorist attacks in US) - rise: The terrorist attacks on the US in September 11, 2001 had important implications for the Israeli-Palestinian conflict. There was an expectation that US actions in response to the attacks would be accompanied by more engagement in trying to resolve the Israeli-Palestinian conflict. The introduction of the US "War on Terror" pressured Palestinian President Arafat to order a cease-fire on September 17, 2001. This contributed to a short-term decrease in Palestinian armed activities.[20]

May 25, 2003 (Israel endorses Road Map) - rise: US President Bush first outlined the principles of his Middle East peace plan, known as the Road Map, in a speech in June 2002 in which he called for the establishment of an independent Palestinian state living side by side with Israel in peace. The plan was put on the back burner as the Iraq crisis intensified in late 2002 and early 2003.

At the end of April 2003, following the US invasion of Iraq, representatives of the Quartet (the US, the European Union, Russia, and the UN) officially presented Israeli and Palestinian leaders with the Road Map plan. On May 25 Israel's Cabinet approved it, officially recognizing the Palestinians' right to establish an independent state in the West Bank and the Gaza Strip.

3.1.2 Elections and coalitional changes

Three of the turning points we identify in the TASE data are directly related to elections in Israel and to changes in the structure of the governing coalition. The reaction of the market to these events is closely

[19] According to the New York Times (October 13, 2000, Section A, Page 1, Column 3) "Israeli helicopter gunships rocketed Ramallah and Gaza City today [October 12] after a Palestinian mob [in Ramallah] stabbed and stomped to death two Israeli reserve soldiers and then paraded a mutilated body through town." The paper continues "Today's events were a climax of two weeks of street violence ... experts on both sides had predicted that it would take only one 'incident' to escalate the situation into a new kind of conflict. That incident came today." Blass, Peled, and Yafeh (2004) report that October 13 saw the largest change in the risk premium of Israeli government bonds during 2000.

[20] The location of this turning point may also be related to the reaction of US stock markets to 9/11. When US markets reopened after the terrorist attacks they exhibited a strong decline. The S&P500, for example, declined by almost 5 percent on Monday, September 17 (the first day of trading after 9/11). By Friday, September 21, the market had declined by almost 12 percent relative to its value on September 10. However, on Monday, September 24 the market sharply rebounded by almost 4 percent. The positive trend continued in the following weeks. This rebounding in US market may have contributed to the rise in the Tel Aviv Stock Exchange.

related to views regarding the Israeli-Palestinian conflict since this issue dominates election campaigns and voting patterns in Israel.[21]

March 21, 1990 (Labor quits government) - decline: The Likud-Labor national unity government that was formed in late 1988 showed signs of strain in late 1989 and early 1990. The main reason for this was the refusal of Prime Minister Shamir of the Likud to accept a Labor-supported US plan for Israeli-Palestinian peace talks. The crisis reached a peak on March 13 when Shamir fired his deputy and Labor leader Peres leading Labor to quit the government. Within weeks a right-wing coalition led by the Likud was formed. The stock market exhibited a late reaction to these events because it was on a two-weeks strike that ended only on March 21.

June 24, 1992 (Rabin elected PM) - rise: The Israeli general elections of June 22, 1992 brought to power the opposition Labor Party headed by Rabin. In the weeks preceding the elections polls showed Labor having a slim majority implying that Israel was likely to end up with a revival of the broad Labor-Likud coalition that prevailed through much of the previous decade. However, Labor's success in the elections was much greater than anticipated, allowing it to form a left-wing coalition committed to more flexibility in Israeli-Palestinian peace talks.

May 30, 1996 (Netanyahu elected PM) - decline: Rabin's tenure as Prime Minister saw a major breakthrough in the relations between Israel and the Palestinians with the signing of the Oslo agreement (see above). Rabin was assassinated in November 1995 and was replaced by his deputy Peres. The assassination initially led to a strong increase in public support for continued peace negotiations with the Palestinians. However, the next few months saw a massive wave of suicide bombings inside Israel. Peace and terrorism became the focus of campaigns in the general elections of May 29, 1996. The elections, which were decided by a tiny 30,000 vote margin, yielded a surprising victory for the hawkish Likud leader Netanyahu over Labor's Peres. The negative reaction to the election of Netanyahu could be viewed as validating our claim that the Palestinian issue dominates stock market reactions, since Netanyahu is widely believed to hold strong pro-market views.

[21] It is important to note that in recent years the ideological divide that separated the major parties in Israel with respect to economic issues has narrowed considerably. Both Labor and Likud have today a market oriented platform. Thus in Israeli politics the terms left and right mostly reflect positions regarding relations with the Palestinians.

3.1.3 Economic policy making

Under this category we lump together turning points which seem to be primarily related to major economic policy making decisions taken by either the Israeli government or the Bank of Israel. These decisions should not be viewed as exogenous, however, but rather as responses of policymakers to economic and political developments. At the same time the reaction of the market to policymakers' decisions is conditioned on their perceptions of the overall economic and political outlook. Thus in the appropriate places we highlight the wider considerations, especially those that involve the Israeli-Palestinian conflict.

January 2, 1989 (economic plan announced) - rise: On January 1, 1989 the Israeli Minister of Finance and the Bank of Israel Governor held a press conference in which they outlined the details of a new comprehensive economic plan. The plan was composed of a long list of measures including a devaluation of the domestic currency, the slashing of subsidies, and the cutting of government spending. The two stressed in the press conference that there would be no taxation of capital gains on the TASE. The positive reaction of the market to this announcement may also have been influenced, however, by some important political developments in the weeks preceding it.

By many accounts the final weeks of 1988 opened a new chapter in the Israeli-Palestinian conflict. In November 1988, almost a year into the first Intifada, the Palestinian National Council (parliament in exile) proclaimed the establishment of an independent Palestinian state, which was recognized within days by dozens of countries. On December 13, 1988, in front the UN General Assembly, PLO Chairman Arafat outlined a peace plan which included an international conference under UN auspices with representatives from Israel, Palestine, and their neighbors. On the next day Arafat went further: he repeated the PLO's acceptance of UN Resolutions 242 and 338 (which call for an Israeli withdrawal from areas occupied in the 1967 war in return for peace) and for the first time renounced terrorism. Hours later the US announced that it would open a diplomatic dialogue with the PLO. Thus we argue that the strong reaction of the market to the economic plan announced on January 1, 1989 may have been influenced by these political developments.

August 21, 1994 and January 31, 1995 (capital gains tax)- decline and rise: On August 16, 1994 the Israeli Minister of Finance surprisingly announced a government plan to impose a ten percent tax on stock market profits from the beginning of 1995. The stock market was shut down for the next two trading days and therefore had the chance to respond to the announcement only when it reopened

on August 21. In the next several months there was uncertainty whether the capital gains tax law would be adopted by the parliament and if so in what form. On January 30, 1995, in a dramatic reversal, the Finance Minister called for cancelling the tax.[22]

August 9, 1998 and December, 31 2001 (central bank cuts interest rate) - rise: In both cases the Bank of Israel announced a much sharper than anticipated cut in its key interest rate. In the first case the rate was cut by 1.5 percentage points and in the second by 2 percentage points.[23] The interest rate cut of December 2001 was intended to counter the sharp decline in the economy's growth that followed the outbreak of the Intifada and the implosion of the high-tech bubble (GDP grew by 8 percent in 2000 and shrank by 0.9 percent in 2001).

3.1.4 Contagion

There are several instances where the most likely explanation for a turning point is a shock that comes from world markets. These are cases of "contagion." In order to support this interpretation we used our methodology to search for breakpoints in three foreign stock market indices, two from the US and one from Britain: the S&P 500, the NASDAQ, and the FTSE 100.[24] The Israeli stock market is highly integrated with overseas markets, especially those in the US. Many Israeli firms, predominantly those involved in the high-tech industry, are dual-listed in US markets, typically in NASDAQ. The turning points that we identified as emanating from contagion are also found for the foreign markets.

October 15, 1989 - decline: The source of this turning point was a "mini-crash" in US markets.[25] We identify significant negative turning points on October 13, 1989 in both the S&P 500 and the NASDAQ indices and on October 17, 1989 in the FTSE 100 index.

[22] Note that the "Plan to tax capital gains" negative effect persists for a longer period than the "Tax plan scrapped" positive effect. The explanation for this result is similar to one given for the two dates associated with the 1990-91 Gulf War crisis (see above).

[23] It is interesting to note that the interest rate cut preceded a crisis in Russia which negatively affected many emerging markets. Blass, Peled, and Yafeh (2004) demonstrate that the Russian crisis led to an increase in the risk premium associated with Israeli government bonds.

[24] These results are available upon request from the authors. The data were obtained from "finance.yahoo.com."

[25] We refer to this event as a "mini-crash" because it was less dramatic than the crash of October 1987. The October 1989 slide in US stock markets began in Japan and Europe. The immediate cause of the plunge in mid-October was the collapse of a buy-out deal of United Airlines.

August 19, 1991 - decline: The source of this turning point is the coup which ousted President Gorbachev of the Soviet Union. We identify significant negative turning points on October 17, 1989 in the FTSE 100.[26]

July 16, 1996 - decline: The source of this turning point is the publication of disappointing earning reports by several large US high-tech companies. We identify a significant negative turning point on July 15, 1996 in the NASDAQ.

October 28, 1997 - decline: This turning point is related to the Asian financial crisis. We identify significant negative turning points on October 27, 1997 in the S&P 500 and the NASDAQ.[27]

April 16, 2000 - decline: The implosion of the high-tech bubble in US markets is behind this turning point. We identify significant negative turning points on April 14, 2000 in the S&P 500.

3.2 A Closer Look at the Intifada Years, 2000-2005

When we limit our investigation to January 3, 2000 - May 31, 2005, the results we obtain are very similar to those obtained previously for that period. A summary of the results is reported in Table 2. The full set of results is reported in Appendix Table 2. None of the turning points identified previously drop and we obtain an additional one. This turning point is directly related to the Israeli-Palestinian conflict.

Table 2 about here

March 31, 2002 (escalation in violence) - decline: March 2002 saw the largest number of Israeli casualties from Palestinian terrorism during the Intifada. In the most lethal incident, on March 27, a Hamas suicide bomber killed 29 Israelis. In response, on March 29 Israel launched "Operation Defensive Shield", the invasion and reoccupation of all the major Palestinian population centers in the West Bank. On the first day of the operation the Israeli army stormed the compound of PA President Arafat in

[26] The coup in Moscow had the potential of strongly influencing the Israeli economy because it threatened the continuation of mass immigration of Jews from the USSR to Israel. The immigration wave, which eventually continued, made an important contribution to the growth of the Israeli economy in the 1990s.

[27] Blass, Peled, and Yafeh (2004) find that the Asian crisis led to an increase in the risk premium associated with Israeli government bonds.

Ramallah and imprisoned him in his office. In the following days violence continued to escalate.[28] Figure 6 displays the number of Israeli and Palestinian fatalities during the Intifada.[29] The spike in violence in March and April of 2002 is clearly evident.

Figure 6 about here

3.3 The Foreign Exchange Market, 2000-2005

We searched for turning points in the foreign exchange market using daily (trading days) data on the Shekel-US dollar rate and the Shekel-currency basket rate.[30] The period covered is January 3, 2000 to May 31, 2005. The data was obtained from the Bank of Israel. Figure 7 displays the two series. The turning points are reported in Table 3. The full set of results is reported in Appendix Table 3.

Figure 7 about here

Table 3 about here

Three of the turning points identified in the stock market data were also identified in the exchange rate data and have the same qualitative effects (note that a weakening of the Israeli currency appears with a positive sign). The turning point associated with the outbreak of the Intifada is located at the same date (October 12, 2000) as in the stock market data. The turning point associated with the escalation in violence (April 2, 2002) is located two days after the date identified for the stock market data due to the difference in trading schedules between the two markets.[31] Finally, May 23, 2003 is the date in which Israeli Prime Minister Sharon gave the Road Map peace plan his (qualified) support. The turning point identified in the stock market - May 25, 2003 - was associated with the subsequent Israeli cabinet's endorsement of the plan.

Three turning points identified for the stock market do not appear in the exchange rate data. The first is the event of contagion on April 2000. The second is the one associated with the terrorist attacks

[28] The market was closed from March 27 to March 30 due to the Passover holiday and therefore had a chance to respond only on March 31.

[29] The source of the data is B'Tselem - The Israeli Information Center for Human Rights in the Occupied Territories (http://www.btselem.org). Israeli fatalities include civilians and security forces personnel killed by Palestinians, either in the Occupied Territories or within Israel. Palestinian fatalities include those killed by Israeli security forces or civilians, either in the Occupied Territories or within Israel.

[30] The currency basket is a weighted average of the value of the Shekel against the currencies of five of Israel's major trading partners.

[31] Because of the Passover holiday the foreign exchange market was closed from March 27 to April 1. In contrast, the stock market was closed from March 27 to March 30.

on the US in September 2001. The third is the Bank of Israel interest rate cut of December 2001. On the other hand we locate three new turning points which are described below.

March 23, 2000 (leaks of tax reform) - depreciation: This turning point is probably associated with leaks, which appeared in the Israeli media on March 23, from a committee set up to propose a comprehensive tax reform. Some of the committee's recommendations made investments in foreign currency denominated assets more attractive, thereby creating pressures for a depreciation of the Shekel.

A political development around this time may have also influenced market behavior. Since his election in mid-1999 Israeli Prime Minister Barak attempted to restart peace negotiations with Syria. However, on March 26, in a crucial summit meeting in Geneva, US President Clinton failed to persuade Syrian leader Assad to resume peace negotiations with Israel.[32]

March 20, 2003 (new Palestinian PM and war in Iraq) - appreciation: This turning point is probably due to two important and inter-related events. On March 19, 2003 a US-led coalition launched a war on Iraq. Despite the fear of Iraqi missile attacks on Israel the US invasion was widely perceived in Israel (like the US-led attack on Iraq twelve years earlier) as improving its strategic situation.[33]

In the period leading to the war the US administration promised to release its Middle East peace plan (Road Map) provided that a position of Palestinian Prime Minister with substantial authority would be established. On March 19 Mahmoud Abbas (Abu Mazen), a pragmatic leader and critic of the Intifada, accepted Arafat's offer of the post. This marked the most significant cut in Arafat's powers since he became PA President in 1994 and paved the way for the formal presentation of the Road Map to Israeli and Palestinian leaders.

May 10, 2004 (escalation in violence) - depreciation: On May 11, 2004 Israel suffered its largest loss of soldiers' lives in a single operation in 18 months when a roadside bomb planted by Hamas militants killed six soldiers that were aboard an armored vehicle. The soldiers entered Gaza City a day earlier in order to destroy weapons factories. On May 12 Palestinian militants destroyed a second Israeli armored vehicle in the Gaza Strip, killing five soldiers. Heavy fighting between Israeli and Palestinian forces resulted in the deaths of dozens of Palestinians (see Figure 6).

[32] Blass, Peled, and Yafeh (2004) find that this event led to an increase in the risk premium associated with Israeli government bonds.

[33] Prior to the outbreak of the war Israeli intelligence estimated the likelihood of an Iraqi attack as low. It also estimated that in the case of an attack damage would be minimal.

The weakening of the Israeli currency during this time may have been related to an additional development in Israeli-Palestinian relations. The year 2004 was dominated by the ups and downs of Israeli Prime Minister Sharon's disengagement plan. First hints of Sharon's plan for a unilateral Israeli withdrawal from the Gaza Strip and parts of the West Bank came in December 2003. In February 2004 he outlined the plan more explicitly to his party and to the Israeli press. The plan, which enjoyed wide popular support, suffered a major (albeit a temporary) blow on May 2, 2004 when members of the Likud voted to reject it.

3.4 Adding New Perspectives

In this section we augment our analysis by attempting to locate turning points in data from two additional sources. The first source is the Palestinian Securities Exchange (PSE). The second is the "Peace Index" - a measure of public support in Israel for the Oslo peace process. By locating turning points in these series we hope to obtain complementary perspectives on the important developments in the Israeli-Palestinian conflict.

The PSE started its operation in 1997. The market is relatively thin and trading suffers from periodic interruptions.[34] Because of the low frequency of trading in the early years of the PSE's operation and because of the long trading interruptions that occurred during the Intifada we use end-of-month data in our search for turning points. We focus our analysis on the Al-Quds index, the main index of the PSE. The index is calculated based on the weighted average of the market capitalization of ten companies that represent all sectors.

The Peace Index is derived from public opinion polls conducted by the Tami Steinmetz Center for Peace Research at Tel Aviv University.[35] The poll has been carried out at the end of each month since 1994 and is widely considered to be a reliable measure of Israeli public opinion regarding Arab-Israeli relations. We construct our Peace Index based on responses to a question concerning the Oslo peace process. The value of the index reflects net public support for the Oslo agreement.[36]

[34] As of October 2005 there were 28 Palestinian companies listed on the exchange with combined market capitalization of about half a billion US dollars. See the PSE's website for further details: http://www.p-s-e.com/. To the best of our knowledge the only other study that utilizes the PSE data is Zussman and Zussman (2006).

[35] The data were obtained from the center's website: http://spirit.tau.ac.il/socant/peace/

[36] The exact phrasing of the relevant question is "What is your opinion on the agreement that was signed in Oslo between Israel and the PLO (Agreement of Principles)?". The six possible answers are: (1) strongly in favor; (2) somewhat in favor; (3) in the middle; (4) somewhat opposed; (5) strongly opposed; (6) don't know/no opinion. To obtain our index we subtracted the share of those opposed to the Oslo agreement (answers 4 and 5) from the share of those who favor it (answers 1 and 2).

Table 4 about here

We conduct a search for breakpoints in these series using our econometric methodology, after adjusting it for the fact that the data have monthly frequency. Also, since the Peace Index may take negative values, we do not log-transform this variable, but consider instead the first differences of the un-logged observations, c.f. (3) and (5). The window lengths that we use are 12, 18, and 24 months. For purposes of comparison we conduct the same search in end-of-month Tel Aviv 25 stock market index data. The period covered is the one in which data for all three indices exist, July 1997-May 2005. The turning points are reported in Table 4. The full set of results is reported in Appendix Table 4. We focus on the three most significant turning points for each series.[37]

Figures 8a, 8b, 8c, and 9 about here

Figures 8a, 8b, and 8c display the series and indicate the location of the turning points. Figure 9 paints a "big picture" of the Israeli-Palestinian conflict by comparing the behavior of the Israeli and Palestinian stock markets. The figures highlight the similarity in the trends exhibited by the indices: a rise in the early part of the period, a decline in the middle, and a rebounding at the end.[38] Some of the turning points displayed in Table 4, specifically October 2000 (outbreak of the Intifada), April 2002 (escalation in violence), and April 2003 (Road Map peace plan), correspond to those found using daily data. However, we also identify a few new turning points and we now turn to their description.[39]

October 1998 (Wye River agreement) - rise: This turning point, which affected only the Peace Index, is related to the signing (on October 23, 1998) of the Wye River Memorandum outlining further Israeli withdrawals from the West Bank. The Wye River Memorandum ended eighteen months of stagnation in the Israeli-Palestinian peace process. The signing of the agreement by Prime Minister Netanyahu of the Likud was widely perceived as demonstrating a weakening in the commitment of the party and its leaders to the ideology of Greater Israel.

[37] Note that not all of these breakpoints are significant at conventional levels. The fact that we are forced to use monthly data makes it more difficult to reject the null hypothesis.

[38] The period examined in Figure 9 is July 1997-July 2004. We limit our examination to this period because of the dramatic increase in the PSE in late 2004 and early 2005. Including this period in the figure would have distorted the scaling of the axes. The trends in the series are fitted polynomials (of degree 6) in time.

[39] The fact that the data is monthly rather than daily makes it is more difficult for us to pinpoint the exact reason for each turning point. However, we are quite confident that our proposed explanations are plausible.

March 1999 and July 1999 (Barak Elected PM) - rise: Both these turning points, the first affecting the Israeli stock market and the second the Palestinian stock market, are related, in our interpretation, to the election of Barak as the Prime Minister of Israel on May 17, 1999. In March 1999 Labor was joined by two other parties to form the One Israel party and nominated Barak as its leader. The main issue on Barak's agenda during the election campaign was his promise to open peace talks with Syria and to bring, within a year, a withdrawal of Israeli troops from Lebanon. Barak also promised to speed up the peace negotiations with the Palestinians. Immediately after the elections, which he won decisively over Netanyahu, Barak began a series of meetings with US President Clinton, PA President Arafat, and several Arab heads of state in an attempt to move the peace process forward.

November 2002 (new elections called) - rise: In late October 2002 Prime Minister Sharon's national unity coalition collapsed when the Labor party decided to quit the government. In early November Sharon, after failing to rebuild his government, dissolved the Parliament and called early elections. Later that month Sharon easily won re-election as Likud leader, defeating the more hawkish Foreign Minister Netanyahu.[40]

August 2004 (reforms in the PA) - rise: In the summer of 2004 there were signs of growing political instability in the West Bank and the Gaza Strip. The crisis was one of the strongest internal challenges to President Arafat's authority since the establishment of the PA in 1994. In late August Arafat settled his differences with former PA Prime Minister Abbas and former PA Security Minister Dahlan. This came on the eve of a crucial Palestinian Legislative Council meeting that discussed and adopted a list of reforms in the authority.[41]

[40] There are two points worth mentioning about this turning point. First, it is important to note that the outbreak of the Intifada in 2000 shattered electoral support for the Israeli left, making Likud the most important player in Israeli politics. Within the Likud, Prime Minister Sharon became identified with relatively dovish positions with respect to the Palestinian issue while Netanyahu was identified with the hawks. The fact that the stock market reacted positively to the events of November 2002 is thus consistent with our claim that it rises with the success of moderate politicians. Second, it needs to be emphasized that there were several important developments around this time in Israeli-Palestinian relations. The most important one is probably the mid-December call by the Quartet for a Palestinian state to be created in three years as part of the Road Map peace plan.

[41] August 2004 also saw a major cut in Israeli imposed restrictions on the movements of labor and goods in the Occupied Territories, restrictions that have a strong detrimental effect on the Palestinian economy. The Israeli move was in part a response to the decline in Palestinian terrorism in the previous months. We thank Danny Rubinstein for pointing this out.

4 Conclusion

The Israeli-Palestinian conflict has exacted a heavy economic toll from both societies. This fact is reflected in asset markets in Israel and the Palestinian Authority (PA). Our analysis provides a demonstration of how sensitive asset markets are to political, diplomatic, and military developments. The analysis of asset market behavior should be seen as a methodological complement to studies that employ more traditional approaches.

We find that major escalations in violence lead to declines in asset prices in both Israel and the PA. The clearest example of this is the market reactions to the outbreak of the Intifada in 2000. Conversely, major peace initiatives, such as the Road Map plan in 2003, lead to increases in asset markets on both sides. Since the Israeli-Palestinian conflict tends to dominate politics in the two societies it seems clear that these patterns are directly related to another important finding of our study: asset markets tend to respond favorably to the success of moderate politicians.[42]

There is an interesting difference between Israel and the PA in the type of events that influence the markets. On the Palestinian side it seems that relations with Israel and internal political events are the sole key to understanding market movements. This probably reflects the PA's dependence on Israel, its limited trade with the rest of the world, and its internal political instability.[43] Under such conditions the impact of internal economic policymaking decisions and of shocks emanating from the global economy naturally tends to be muted.

In contrast, in the case of Israel we find that economic policymaking decisions also have an effect on asset markets and so do the exogenous events of contagion. For example, of the 19 turning points identified in the stock market for the 1988-2005 period (Table 1) more than half are classified as "economic." However, when we focus our attention on the years 2000-2005, a period which saw a dramatic escalation in violence, the role of political events seems to have become more dominant. Thus during this period three quarters of the identified turning points are classified as "political" (Tables 2 and 3). This is especially true for events that are identified as turning points in the longer windows: while half of the turning points identified in the 60 days windows are classified as "political" four fifths of those identified in the 480 days window are classified in such a way. A possible interpretation of this finding

[42] Thus national leadership matters, as in Jones and Olken (2005).

[43] Examples for these channels abound: the ability of Palestinians to move and trade within the Occupied Territories, to work in Israel and trade with it, and to obtain foreign assistance are all important for the Palestinian economy and at the same time heavily dependent on political developments. It is worth noting that the number of Palestinians working in Israel and the amount of trade between Israel and the PA has significantly declined since the outbreak of the Intifada.

is that the long windows capture the more important, or strategic, developments.

In our discussion of the results so far we have ignored the magnitudes of the shifts in the mean and the slope of the asset prices - the δ_0 and δ_1 coefficients - and instead focused on their joint statistical significance. Back of the envelope calculations allows us to demonstrate the economic implications of the size of the coefficients. To to so we use the values of the δ_0 and δ_1 coefficients obtained for the TA General index in the 360 days window during 2000-2005 (Appendix Table 2). A rough calculation yields a drop of 22 percent in market value due to the outbreak of the Intifada and an increase of 25 percent in market value due to the adoption of the Road Map.[44] Taken together with the fact that during the period under examination the market capitalization of the TASE was about 60 billion US dollars, these figures thus imply that the outbreak of the Intifada and the adoption of the Road Map had very large effects on the Israeli stock exchange.[45]

Some events that appear in traditional (historical) "greatest hits" lists of the Israeli-Palestinian and Arab-Israeli conflicts are not identified as turning points in our analysis of asset markets. Examples of such events include the Madrid conference of 1991, the Israeli-Jordanian peace agreement of 1994, the assassination of Israeli Prime Minister Rabin in 1995, the Hebron agreement of 1997, the Israeli pullout from Lebanon in 2000, the election of Sharon as Prime Minister in 2001 and his reelection in 2003, and the death of PA President Arafat in 2004. Conversely, some of the events that we identify as turning points, such as the Israeli adoption of the Road Map, may not viewed as such by others.

We wish to highlight several potential explanations for these mismatches. First, some of the historically important events which are not identified by us may have been widely anticipated by participants in asset markets. Thus by the time the "historically important event" occurred its effect was already incorporated into asset prices. Good examples of this are the election of Sharon as Prime Minister in 2001 and his re-election in 2003. In both cases Sharon's victory was anticipated months in advance.

Second, some events may seem to be important in retrospect but were not seen in such a way in the past. The assassination of Rabin may be a case in point. At the time many believed that the peace process would continue and even speed up under the leadership of Rabin's successor, Foreign Minister Peres. However, in hindsight one may argue that the continuation of the peace process crucially depended on having the security-oriented and more popular Rabin rather than Peres in the position of

[44] Technically, we estimate the effect of a breakpoint by taking the value of the δ_0 coefficient and adding to it the value of the δ_1 coefficient multiplied by half of the window length (180 days).

[45] Our estimate of the decline in the stock market associated with the outbreak of the Intifada is somewhat larger, percentage-wise, than the cost of the Intifada in terms of GDP, as estimated by other researchers, e.g. Eckstein and Tsiddon (2004).

Prime Minister.

Third, some of the events that were politically important may not have had significant economic repercussions. A possible example of such an event is the 1994 Israeli-Jordanian peace treaty. Peace with Jordan was not anticipated to have, and in fact did not have, important economic implications for Israel (e.g. in terms of bilateral trade). Moreover, a de-facto peace already existed between the two countries prior the formal signing of the peace agreement.

Fourth, some events that may seem unimportant to observers today may have seemed important to stock market investors in the past. Thus investors, who clearly lack "perfect foresight", may overestimate the importance of some events and therefore overreact to them. The Israeli adoption of the Road Map in 2003 may be a case in point, in the sense that some observers view it as an incremental rather than a crucial development.

A major finding of our analysis, one that was already mentioned but which we wish to emphasize again, is the degree of symmetry between the Israeli and Palestinian asset markets in their reactions to political events. It seems that investors on both sides of the conflict share a common view regarding the costs of violence and the potential benefits of peace. Their reactions tell us that they do not see the conflict as a "zero-sum" game. Rather their reactions imply that only a negotiated settlement will bring prosperity to the region.

References

[1] **Abadie, Alberto and Gardeazabal, Javier.** "The Economic Costs of Conflict: A Case Study of the Basque Country." *American Economic Review*, March 2003, 93(1), pp. 113-32.

[2] **Amihud, Yakov and Wohl, Avi.** "Political News and Stock Prices: The Case of Saddam Hussein Contracts." *Journal of Banking and Finance*, May 2004, 28(5), pp. 1185-1200.

[3] **Banerjee, Anindya; Lumsdaine, Robin L. and Stock, James H.** "Recursive and Sequential Tests of Unit Root and Trend Break Hypotheses: Theory and International Evidence." *Journal of Business and Economic Statistics*, July 1992, 10(3), pp. 271-287.

[4] **Berrebi, Claude and Klor, Esteban F.** "The Impact of Terrorism across Industries: An Empirical Study." The Maurice Falk Institute for Economic Research in Israel (Hebrew University of Jerusalem), Discussion Paper 05.03, December 2005.

[5] **Bickerton, Ian J. and Klauner, Carla L.** *A Concise History of the Arab-Israeli conflict*, 4th edition. Upper Saddle River, N.J.: Prentice Hall, 2005.

[6] **Blass, Asher A.; Peled, Osnat and Yafeh, Yishay.** "The Determinants of Israel's Cost of Capital: Globalization, Reforms and Politics." *Israel Economic Review*, May 2004, 2(1), pp. 25-54.

[7] **Brown, William O. Jr. and Burdekin, Richard C.K.** "Turning Points in the U.S. Civil War: A British Perspective." *Journal of Economic History*, March 2000, 60(1), pp. 216-231.

[8] **Brown, William O. Jr. and Burdekin, Richard C.K.** "German Debt Traded in London During the Second World War: A British Perspective on Hitler." *Economica*, November 2002, 69(276), pp. 655-669.

[9] **Chen, Andrew H. and Thomas F. Siems.** "The Effects of Terrorism on Global Capital Markets." *European Journal of Political Economy*, June 2004, 20(2), pp. 349-366.

[10] **Cossali, Paul.** "Arab-Israeli Relations 1967-2004," in *The Middle East and North Africa 2005, Regional Surveys of the World*, 51st edition. London: Europa Publications, 2004, pp. 3-48.

[11] **Cutler, David M.; Poterba, James M. and Summers, Lawrence H.** "What Moves Stock Prices." *Journal of Portfolio Management*, Spring 1989, 15(3), pp. 4-12.

[12] **Drucker, Raviv and Shelah, Ofer.** *Boomerang*. Jerusalem: Keter, 2005. [in Hebrew]

[13] **Eckstein, Zvi and Tsiddon, Daniel.** "Macroeconomic Consequences of Terror: Theory and the Case of Israel." *Journal of Monetary Economics*, July 2004, 51(5), pp. 971-1002.

[14] **Eldor, Rafi and Melnick, Rafi.** "Financial Markets and Terrorism." *European Journal of Political Economy*, June 2004, 20(2), pp. 367-386.

[15] **Frey, Bruno S. and Kucher, Marcel.** "History as Reflected in Capital Markets: The Case of World War II." *Journal of Economic History*, June 2000 (2000a), 60(2), pp. 468-496.

[16] **Frey, Bruno S. and Kucher, Marcel.** "World War II as Reflected on Capital Markets." *Economic Letters*, November 2000 (2000b), 69(2), pp. 187-191.

[17] **Frey, Bruno S. and Kucher, Marcel.** "Wars and Markets: How Bond Values Reflect the Second World War." *Economica*, August 2001, 68(271), pp. 317-333.

[18] **Frey, Bruno S. and Waldenstrom, Daniel.** "Markets Work in War: World War II Reflected in the Zurich and Stockholm Bond Markets." *Financial History Review*, April 2004, 11(1), pp. 51-67.

[19] **Frey, Bruno S.; Luechinger, Simon and Stutzer, Alois.** "Calculating Tragedy: Assessing the Costs of Terrorism." Zurich University Institute for Empirical Research in Economics Working Paper No. 205, September 2004.

[20] **Haj-Yehia, Samer.** "Terrorizing the Consumers and Investors." Mimeo, Massachusetts Institute of Technology, November 2003.

[21] **Hall, George J.** "Exchange Rates and Casualties During the First World War." *Journal of Monetary Economics*, November 2004, 51(8), pp. 1711-1742.

[22] **Harel, Amos and Isacharoff, Avi.** *The Seventh War*. Tel Aviv: Yedioth Ahronoth, 2004 [in Hebrew].

[23] **Jones, Benjamin F. and Olken, Benjamin A.** "Do Leaders Matter? National Leadership and Growth Since World War II." *Quarterly Journal of Economics*, August 2005, 120(3), pp. 835-864.

[24] **Leigh, Andrew; Wolfers, Justin and Zitzewitz, Eric.** "What do Financial Markets Think of War in Iraq?" National Bureau of Economic Research (Cambridge, MA) Working Paper No. 9587, March 2003.

[25] **Masalha, Nur.** "Palestine: Recent History and Economy," in *The Middle East and North Africa 2005, Regional Surveys of the World*, 51st edition. London: Europa Publications, 2004, pp. 930-960.

[26] **McCandless, George T. Jr.** "Money, Expectations, and the U.S. Civil War." *American Economic Review*, June 1996, 86(3), pp. 661-671.

[27] **Mauro, Paolo; Sussman, Nathan and Yafeh, Yishay.** "Emerging Market Spreads: Then Versus Now." *Quarterly Journal of Economics*, May 2002, 117(2), pp. 695-733.

[28] **Rigobon, Roberto and Sack, Brian.** "The Effects of War Risk on US Financial Markets." *Journal of Banking and Finance*, July 2005, 29(7), pp. 1769-1789.

[29] **Rubinstein, Danny; Malley, Robert; Agha, Hussein; Barak, Ehud and Benny Morris.** *Rashomon Camp David*. Tel Aviv: Yedioth Ahronoth, 2003. [in Hebrew]

[30] **Oosterlinck, Kim.** "The Bond Market and the Legitimacy of Vichy France." *Explorations in Economic History*, July 2003, 40(3), pp. 326-344.

[31] **Surowiecki, James.** *The Wisdom of Crowds*. New York: Doubleday, 2004.

[32] **Sussman, Nathan and Yafeh, Yishay.** "Institutions, Reform and Country Risk: Lessons from Japanese Government Debt in the Meiji Period," *Journal of Economic History*, June 2002, 60(2), pp. 442-467.

[33] **Waldenstrom, Daniel and Frey, Bruno S.** "How Government Bond Prices Reflect Wartime Events: The Case of the Stockholm Market." Zurich University Institute for Empirical Research in Economics Working Paper No. 102, January 2002.

[34] **Weidenmier, Marc D.** "Turning Points during the U.S. Civil War: Views from the Grayback Market." *Southern Economic Journal*, April 2002, 68(4), pp. 875-890.

[35] **Willard, Kristen L.; Guinnane, Timothy W. and Rosen, Harvey S.** "Turning Points in the Civil War: Views from the Greenback Market." *American Economic Review*, September 1996, 86(4), pp. 1001-1018.

[36] **Wolfers, Justin and Zitzewitz, Eric.** "Prediction Markets." *Journal of Economic Perspectives*, Spring 2004, 18(2), pp. 107-26.

[37] **Zussman, Asaf and Zussman, Noam.** "Assassinations: Evaluating the Effectiveness of a Counterterrorism Policy Using Stock Market Data." *Journal of Economic Perspectives*, 2006 (forthcoming).

Table 1: Turning Points in the Tel Aviv Stock Exchange, 1988-2005

		60 days			120 days			240 days			360 days			480 days		
Date	Proposed Explanation	Gen	100	25	Gen	100	25	Gen	100	25	Gen	100	25	Gen	100	25
01-02-89	Economic plan announced	+	+		+	+		+	+		+	+		+	+	
10-15-89	Contagion	-			-	-		-			-					
03-21-90	Labor quits government				-											
08-19-90	Iraq invades Kuwait				-	-		-	-		-	-		-	-	
01-22-91	Start of Gulf War	+			+	+										
08-19-91	Contagion	-	-		-	-		-	-		-	-		-	-	
06-24-92	Rabin elected PM				+	+	+	+	+		+	+				
06-29-93	Oslo agreement	+			+	+		+	+							
08-21-94	Plan to tax capital gains	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
01-31-95	Tax plan scrapped	+			+											
05-30-96	Netanyahu elected PM	-	-	-				-	-					-	-	
07-16-96	Contagion									-			-			-
10-28-97	Contagion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08-09-98	BOI cuts interest rates	+			+			+	+		+	+	+			
04-16-00	Contagion				-	-	-	-	-		-	-		-	-	
10-12-00	Outbreak of the Intifada	-	-	-	-	-	-			-			-			-
09-24-01	Terrorist attacks in U.S.	+														
12-23-01	BOI cuts interest rates							+	+		+	+		+	+	
05-25-03	Israel endorses Road Map							+	+	+	+	+	+	+	+	+
		12	6	4	14	11	5	13	12	5	11	10	6	9	9	5

Notes: The table describes all the break points identified through our search procedure that are significant at 10% or better. Search was conducted on daily data for three stock market indices (Tel Aviv General, Tel Aviv 100, and Tel Aviv 25) with window lengths varying from 60 to 480 trading days. Data for the Tel Aviv 25 index is available starting in January 1992. The positive and negative signs reflect the value of the δ_0 coefficient in the search regression. The full set of results is reported in Appendix Table 1.

Table 2: Turning Points in the Tel Aviv Stock Exchange, 2000-2005

		60 days			120 days			240 days			360 days			480 days		
Date	Proposed Explanation	Gen	100	25	Gen	100	25	Gen	100	25	Gen	100	25	Gen	100	25
04-16-00	Contagion	-			-	-	-									
10-12-00	Outbreak of the Intifada	-	-	-	-	-	-	-	-	-	-	-	-			
09-24-01	Terrorist attacks in U.S.	+														
12-23-01	BOI cuts interest rates	+	+			+		+	+		+	+		+	+	
03-31-02	Escalation in violence									-			-			-
05-25-03	Israel endorses Road Map							+	+	+	+	+	+	+	+	+
		4	2	1	2	3	2	3	3	3	3	3	3	2	2	2

Notes: The table describes all the break points identified through our search procedure that are significant at 10% or better. Search was conducted on daily data for three stock market indices (Tel Aviv General, Tel Aviv 100, and Tel Aviv 25) with window lengths varying from 60 to 480 trading days. The positive and negative signs reflect the value of the δ_0 coefficient in the search regression. The full set of results is reported in Appendix Table 2.

Table 3: Turning Points in the Shekel Exchange Rate, 2000-2005

		60 days		120 days		240 days		360 days		480 days	
Date	Proposed Explanation	Dollar	Basket	Dollar	Basket	Dollar	Basket	Dollar	Basket	Dollar	Basket
03-23-00	Leaks of tax reform	+									
10-12-00	Outbreak of the Intifada			+		+		+			
04-02-02	Escalation in violence			+	+	+	+	+	+	+	+
03-20-03	New Palestinian PM								-		-
05-23-03	Israel endorses Road Map					-		-		-	
05-10-04	Escalation in violence			+							
		1	0	3	1	3	1	3	2	2	2

Notes: The table describes all the break points identified through our search procedure that are significant at 10% or better. Search was conducted on daily data for value of the Shekel against the U.S. dollar and the Currency Basket with window lengths varying from 60 to 480 trading days. The positive and negative signs reflect the value of the δ_0 coefficient in the search regression. A positive sign reflects a Shekel depreciation while a negative sign reflects an appreciation. The full set of results is reported in Appendix Table 3.

Table 4: Turning Points in Three Related Indices, 1997-2005

		Palestinian Stock Exchange			Tel Aviv Stock Exchange			Peace Index		
Month	Proposed Explanation	12 M	18 M	24M	12 M	18 M	24M	12 M	18 M	24M
Oct-98	Wye River agreement							+	+	+
Mar-99	Barak Elected PM				+	+	+			
Jul-99	Barak Elected PM	+	+	+						
Oct-00	Outbreak of the Intifada		-	-	-	-	-	-	-	-
Apr-02	Escalation in violence							-	-	-
Nov-02	New elections called				+	+				
Apr-03	Road Map peace plan	+	+	+			+			
Aug-04	Reforms in the PA	+								
		3	3	3	3	3	3	3	3	3

Notes: The table describes the top three most significant break points identified through our search procedure. Search was conducted on end of month data for the Palestinian stock exchange (Al-Quds index), the Tel Aviv stock exchange (Tel Aviv 25 index), and the Peace Index (net support for the Oslo agreement). Window lengths vary from 12 to 24 months. The positive and negative signs reflect the value of the δ_0 coefficient in the search regression. The full set of results is reported in Appendix Table 4.

Appendix Table 1: Turning Points in the Tel Aviv Stock Exchange, 1988-2005

		Tel Aviv General				Tel Aviv 100				Tel Aviv 25			
Window	Date	δ_0	δ_1	β	F	δ_0	δ_1	β	F	δ_0	δ_1	β	F
60 days	01/02/89	4.78	0.35	-0.08	47.58***	25.37	0.44	-0.18	190.62***				
	10/15/89	-6.39	0.31	0.19	33.59***								
	01/22/91	6.24	0.32	0.03	24.30*								
	08/19/91	-9.35	0.22	0.16	43.23***	-11.71	0.30	0.16	44.51***				
	06/29/93	5.92	0.41	-0.40	23.79*								
	08/21/94	-12.20	-0.40	0.56	38.20***	-10.76	-0.16	0.45	24.67**	-10.47	-0.05	0.36	23.75*
	01/31/95	8.21	-0.12	-0.25	27.57**								
	05/30/96	-4.40	-0.40	0.23	27.20**	-4.76	-0.50	0.30	29.33**	-4.24	-0.52	0.32	24.99**
	10/28/97	-7.77	0.12	0.03	30.43***	-10.66	0.22	0.06	42.76***	-10.18	0.22	0.07	41.61***
	08/09/98	5.56	-0.31	-0.05	24.25*								
	10/12/00	-6.83	0.34	-0.29	23.27*	-7.95	0.45	-0.35	23.08*	-8.44	0.47	-0.34	26.20**
	09/24/01	3.67	0.80	-0.64	23.61*								
120 days	01/02/89	4.72	0.32	0.02	34.48***	25.22	0.29	0.10	152.41***				
	10/15/89	-6.22	0.06	0.27	41.36***	-7.54	0.15	0.24	24.83***				
	03/21/90	-6.34	0.49	-0.03	21.55**								
	08/19/90	-8.38	0.00	0.14	21.90**	-11.94	0.08	0.14	26.38***				
	01/22/91	6.27	0.29	0.03	26.02***	7.86	0.20	0.10	21.02**				
	08/19/91	-9.14	-0.06	0.24	52.09***	-11.48	-0.05	0.28	56.70***				
	06/24/92	5.57	0.05	0.19	26.24***	6.08	0.04	0.19	24.12***	6.33	0.00	0.20	22.86**
	06/29/93	5.74	0.26	-0.06	23.64***	6.22	0.38	-0.16	20.47*				
	08/21/94	-11.98	0.17	-0.24	31.63***	-10.49	0.22	-0.19	20.73*	-10.22	0.24	-0.17	19.91*
	01/31/95	7.93	0.16	-0.24	25.55***								
	10/28/97	-7.59	-0.02	0.00	34.47***	-10.43	0.04	0.01	51.95***	-9.93	0.02	0.02	48.83***
	08/09/98	5.49	-0.26	-0.04	20.28*								
	04/16/00	-9.24	0.31	-0.02	34.43***	-8.74	0.35	-0.04	28.31***	-7.96	0.32	-0.01	26.67***
	10/12/00	-6.76	0.09	0.09	33.09***	-7.85	0.14	-0.14	32.23***	-8.35	0.16	-0.12	33.92***
240 days	01/02/89	4.81	0.20	0.05	40.15***	25.32	0.18	0.12	192.80***				
	10/15/89	-6.04	-0.03	0.18	25.91***								
	08/19/90	-8.42	0.02	0.15	25.48***	-11.99	0.09	0.18	29.58***				
	08/19/91	-9.13	-0.11	0.28	47.92***	-11.46	-0.07	0.28	54.89***				
	06/24/92	5.59	-0.02	0.25	24.02***	6.08	-0.03	0.26	22.23**				
	06/29/93	5.72	0.19	0.02	21.42**	6.27	0.21	-0.03	18.97*				

		Tel Aviv General				Tel Aviv 100				Tel Aviv 25			
Window	Date	δ_0	δ_1	β	F	δ_0	δ_1	β	F	δ_0	δ_1	β	F
240 days	08/21/94	-12.01	0.19	-0.23	32.37***	-10.48	0.19	-0.18	22.03**	-10.16	0.18	-0.17	20.96**
	05/30/96	-4.54	-0.08	0.04	19.12*	-4.93	-0.09	0.07	18.56*				
	07/16/96									-5.61	0.34	-0.11	18.47*
	10/28/97	-7.72	-0.03	0.13	48.80***	-10.53	0.00	0.14	74.80***	-10.04	0.02	0.13	67.55***
	08/09/98	5.27	-0.20	0.12	23.40**	5.74	-0.22	0.13	20.40**				
	04/16/00	-8.98	-0.19	0.21	42.01***	-8.44	-0.18	0.19	32.14***				
	10/12/00									-8.18	-0.13	0.00	30.12***
	12/23/01	4.89	-0.08	0.00	20.92**	5.93	-0.12	-0.01	21.43**				
	05/25/03	5.16	0.02	0.13	22.79**	6.42	0.03	0.12	23.34**	6.82	0.03	0.09	20.58**
360 days	01/02/89	4.86	0.16	0.05	36.91***	25.41	0.17	0.05	197.16***				
	10/15/89	-6.13	0.04	0.20	28.48***								
	08/19/90	-8.46	0.10	0.12	30.12***	-11.98	0.12	0.14	35.04***				
	08/19/91	-9.11	-0.11	0.26	45.62***	-11.42	-0.12	0.30	49.55***				
	06/24/92	5.62	0.12	0.08	19.20*	6.11	0.10	0.10	18.54*				
	08/21/94	-12.03	0.19	-0.20	37.61***	-10.51	0.21	-0.17	25.54***	-10.21	0.22	-0.16	24.30***
	07/16/96									-5.58	0.22	-0.02	18.52*
	10/28/97	-7.68	-0.05	0.11	44.63***	-10.47	-0.02	0.11	70.71***	-9.98	-0.01	0.11	62.13***
	08/09/98	5.09	0.04	0.06	23.46***	5.55	0.03	0.08	20.99**	5.69	0.02	0.08	18.27*
	04/16/00	-8.96	-0.11	0.11	45.10***	-8.44	-0.09	0.10	33.04***				
	10/12/00									-8.24	-0.08	0.01	28.70***
	12/23/01	4.87	-0.07	0.01	19.52*	5.89	-0.09	0.01	19.94**				
	05/25/03	5.15	0.11	0.05	26.04***	6.41	0.13	0.03	27.11***	6.82	0.12	0.01	24.69***
480 days	01/02/89	4.87	0.19	0.00	32.90***	25.41	0.28	-0.07	181.67***				
	08/19/90	-8.48	0.08	0.16	33.94***	-12.00	0.13	0.16	39.00***				
	08/19/91	-9.15	-0.04	0.23	41.08***	-11.45	-0.07	0.27	43.60***				
	08/21/94	-12.09	0.08	-0.05	46.58***	-10.54	0.11	-0.04	30.88***	-10.23	0.11	-0.03	28.55***
	05/30/96	-4.69	0.07	0.05	18.22*	-5.07	0.05	0.06	19.28**				
	07/16/96									-5.60	0.24	-0.01	21.05**
	10/28/97	-7.61	-0.20	0.20	43.04***	-10.39	-0.19	0.19	66.12***	-9.88	-0.19	0.18	56.07***
	04/16/00	-8.88	-0.21	0.13	48.72***	-8.35	-0.19	0.11	35.06***				
	10/12/00									-8.21	-0.22	0.12	30.80***
	12/23/01	4.86	0.03	-0.08	20.26**	5.88	0.02	-0.09	20.67**				
	05/25/03	5.18	0.10	0.03	26.99***	6.45	0.11	0.02	28.53***	6.84	0.10	0.00	26.35***

Notes: ***, **, * symbol significance at the 1%, 5%, and 10% levels. Values of δ_0, δ_1, and β were multiplied by 100.

Appendix Table 2: Turning Points in the Tel Aviv Stock Exchange, 2000-2005

		Tel Aviv General				Tel Aviv 100				Tel Aviv 25			
Window	Date	δ_0	δ_1	β	F	δ_0	δ_1	β	F	δ_0	δ_1	β	F
60 days	04/16/00	-9.52	0.98	-0.42	22.14**								
	10/12/00	-6.83	0.34	-0.29	23.27**	-7.95	0.45	-0.35	23.08**	-8.44	0.47	-0.34	26.20**
	09/24/01	3.67	0.80	-0.64	23.61**								
	12/23/01	4.68	0.00	0.14	20.04*	5.72	-0.08	0.16	21.24**				
120 days	04/16/00	-9.24	0.31	-0.02	34.43***	-8.74	0.35	-0.04	28.31***	-7.96	0.32	-0.01	26.67***
	10/12/00	-6.76	0.09	-0.12	33.09***	-7.85	0.14	-0.14	32.23***	-8.35	0.16	-0.12	33.92***
	12/23/01					5.88	-0.14	0.07	18.06*				
240 days	10/12/00	-6.64	-0.12	-0.02	26.94***	-7.71	-0.13	-0.02	28.47***	-8.18	-0.13	0.00	30.12***
	12/23/01	4.89	-0.08	0.00	20.92**	5.93	-0.12	-0.01	21.43**				
	03/31/02									-5.60	-0.22	0.11	17.42*
	05/25/03	5.16	0.02	0.13	22.79***	6.42	0.03	0.12	23.34***	6.82	0.03	0.09	20.58**
360 days	10/12/00	-6.70	-0.08	-0.01	23.85***	-7.77	-0.07	-0.01	26.61***	-8.24	-0.08	0.01	28.70***
	12/23/01	4.87	-0.07	0.01	19.52**	5.89	-0.09	0.01	19.94***				
	03/31/02									-5.67	-0.02	-0.02	17.25**
	05/25/03	5.15	0.11	0.05	26.04***	6.41	0.13	0.03	27.11***	6.82	0.12	0.01	24.69***
480 days	12/23/01	4.86	0.03	-0.08	20.26***	5.88	0.02	-0.09	20.67***				
	03/31/02									-5.61	-0.12	0.03	16.55**
	05/25/03	5.18	0.10	0.03	26.99***	6.45	0.11	0.02	28.53***	6.84	0.10	0.00	26.35***

Notes: ***, **, * symbol significance at the 1%, 5%, and 10% levels. Values of δ_0, δ_1, and β were multiplied by 100.

Appendix Table 3: Turning Points in the Shekel Exchange Rate, 2000-2005

		Shekel-U.S. Dollar Exchange Rate				Shekel-Currency Basket Exchange Rate			
Window	Date	δ_0	δ_1	β	F	δ_0	δ_1	β	F
60 days	03/23/00	1.68	0.14	-0.05	22.69**				
120 days	10/12/00	1.46	-0.02	0.00	25.58***				
	04/02/02	2.36	-0.07	0.11	19.05*	2.45	0.00	0.10	20.70**
	05/10/04	1.06	-0.08	0.04	19.41**				
240 days	10/12/00	1.42	0.01	0.01	21.40**				
	04/02/02	2.38	-0.05	0.06	24.86***	2.51	0.00	0.04	24.46***
	05/23/03	-2.17	0.04	-0.03	20.68**				
360 days	10/12/00	1.43	0.01	-0.01	20.99***				
	04/02/02	2.41	-0.08	0.06	29.80***	2.54	-0.06	0.06	27.61***
	03/20/03					-2.06	-0.03	0.01	16.68*
	05/23/03	-2.16	0.01	-0.01	22.70***				
480 days	04/02/02	2.39	-0.04	0.04	31.86***	2.52	-0.01	0.04	28.54***
	03/20/03					-2.08	-0.04	0.04	17.20**
	05/23/03	-2.17	0.05	-0.03	23.14***				

Notes: ***, **, * symbol significance at the 1%, 5%, and 10% levels. Values of δ_0, δ_1, and β were multiplied by 100.

Appendix Table 4: Turning Points in Three Related Indices, 1997-2005

		Palestinian Stock Exchange				Tel Aviv Stock Exchange				Peace Index			
Window	Date	δ_0	δ_1	β	F	δ_0	δ_1	β	F	δ_0	δ_1	β	F
12 months	Oct-98									30.90	-0.87	-1.33	35.04**
	Mar-99					11.66	2.99	-0.66	9.15				
	Jul-99	24.60	-1.05	1.82	80.73***								
	Oct-00					-18.61	-0.62	0.58	11.26	-21.10	0.23	0.47	8.90
	Apr-02									-21.93	1.34	1.79	27.71*
	Nov-02					13.77	0.56	-2.80	9.57				
	Apr-03	28.10	-3.93	0.05	25.47								
	Aug-04	12.07	7.66	-0.58	18.78								
18 months	Oct-98									30.27	-0.43	-1.14	41.29***
	Mar-99					12.47	1.72	-0.20	9.27				
	Jul-99	23.22	1.76	0.39	39.43***								
	Oct-00	-9.68	-5.11	0.86	7.59	-17.31	-3.84	2.49	8.17	-19.96	-0.88	0.44	9.35
	Apr-02									-20.53	2.05	-0.32	16.33
	Nov-02					8.78	6.19	-3.45	6.65				
	Apr-03	26.23	-0.68	-1.33	27.31**								
24 months	Oct-98									31.22	-2.70	0.18	36.29***
	Mar-99					11.22	1.76	1.01	6.97				
	Jul-99	23.31	1.31	0.74	30.27***								
	Oct-00	-9.65	-5.21	0.93	8.98	-17.72	-3.97	3.04	10.56	-18.52	-2.05	0.17	10.77
	Apr-02									-20.13	2.03	-0.70	11.90
	Apr-03	25.23	0.54	-1.55	15.36*	10.87	4.93	-1.88	7.72				

Notes: ***, **, * symbol significance at the 1%, 5%, and 10% levels. Values of δ_0, δ_1, and β were multiplied by 100 (except for the Peace Index).

Figure 1a: Behavior of the Price Level

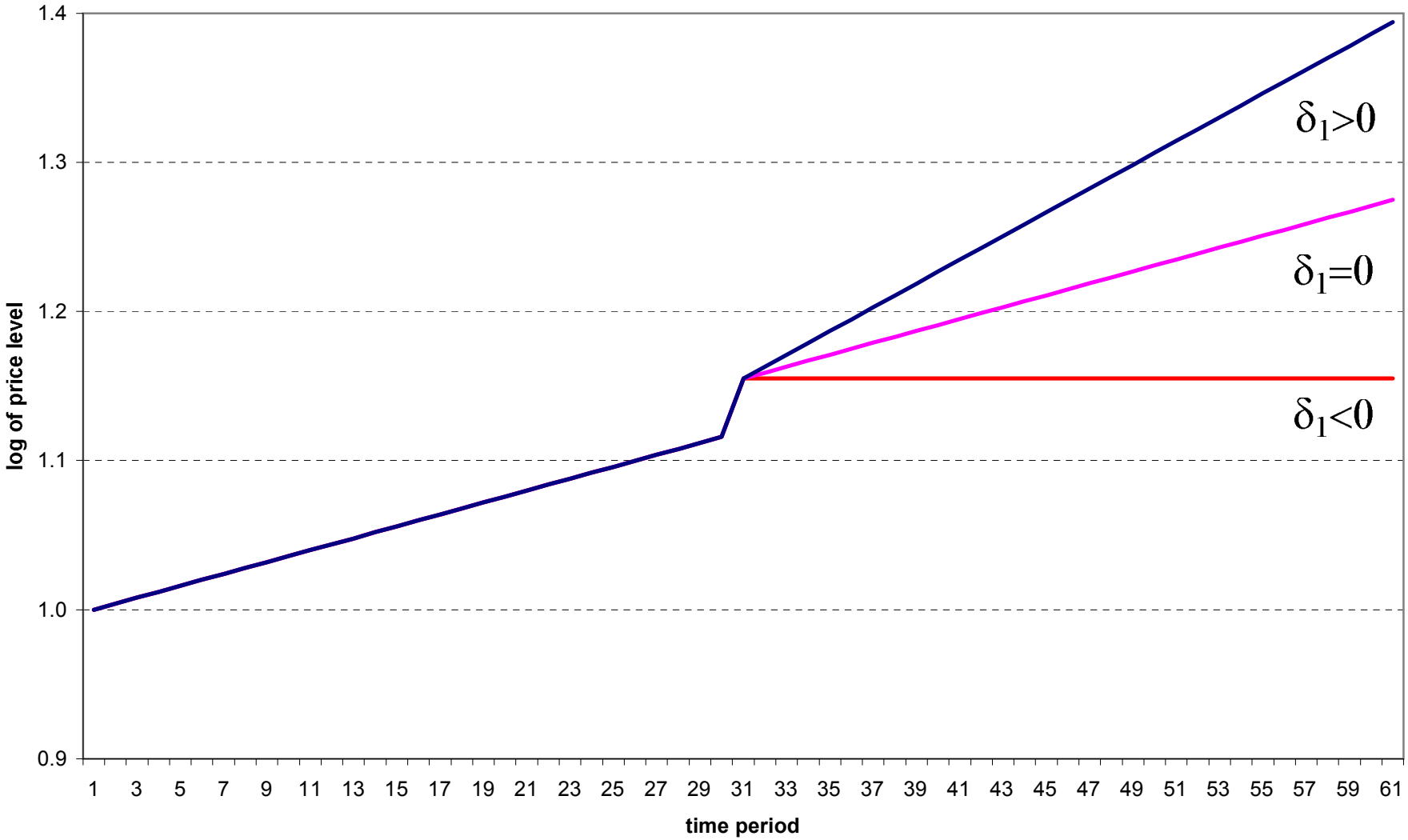

Figure 1b: Behavior of Returns

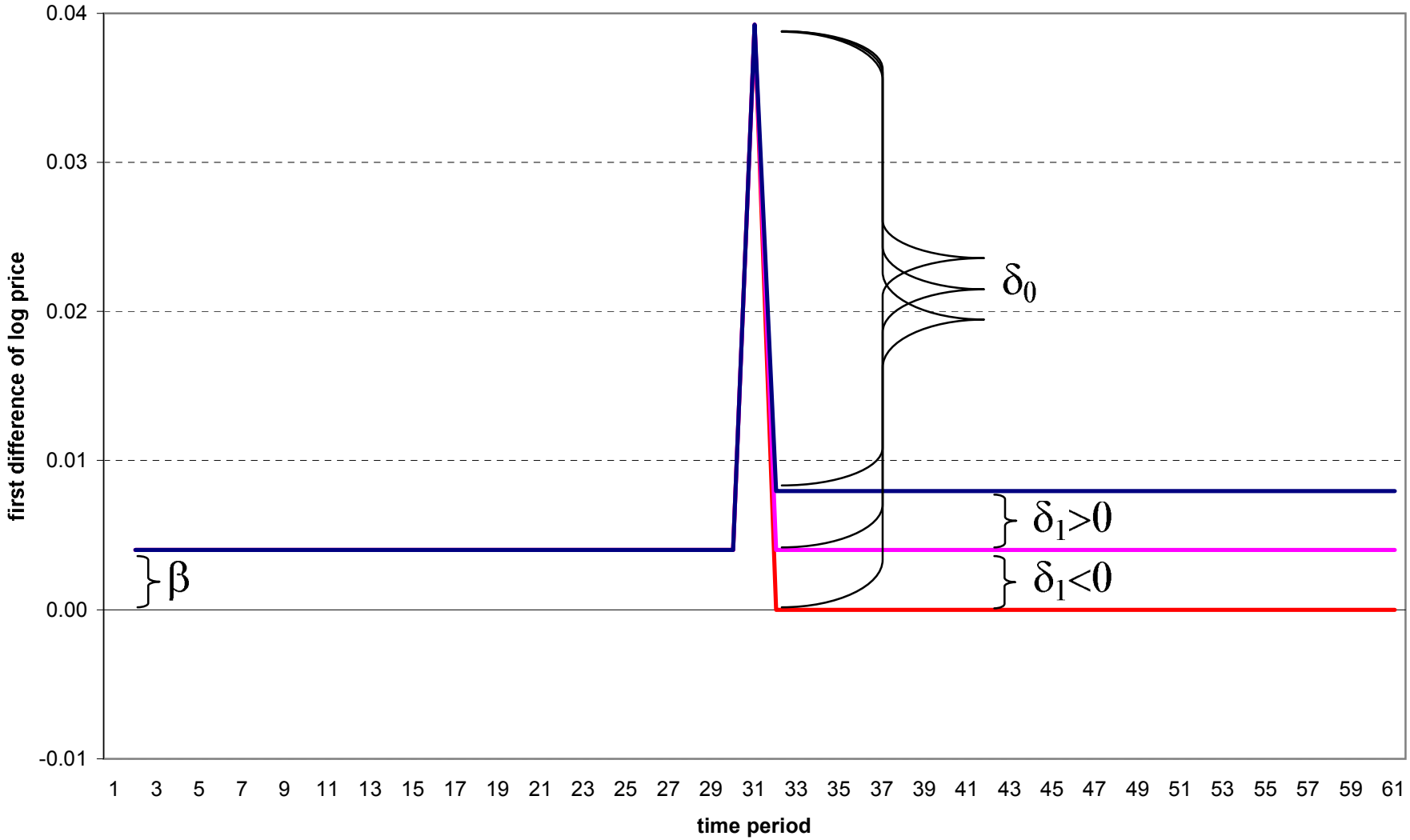

Figure 2: Tel Aviv Stock Exchange, 1988-2005

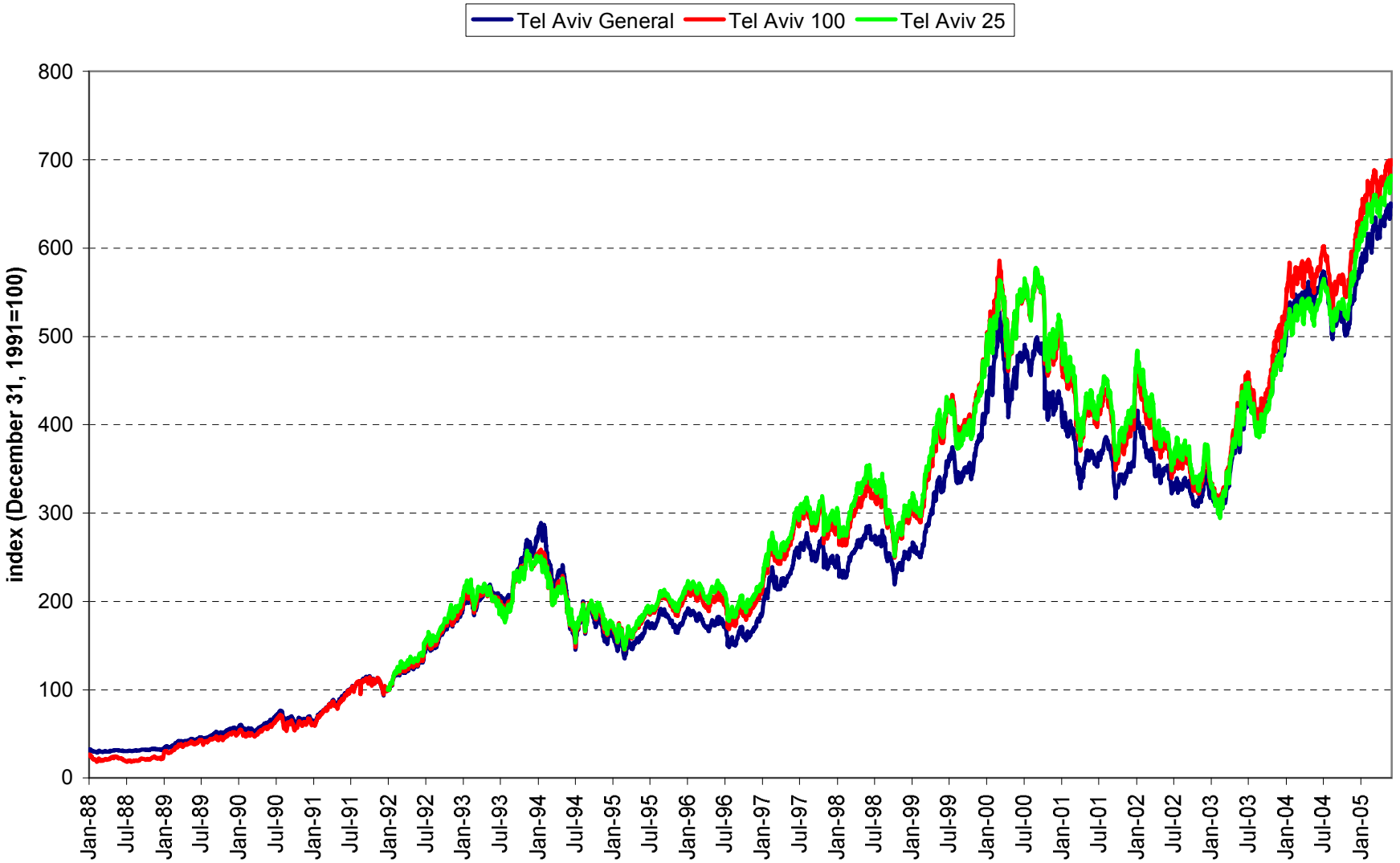

Figure 3: F-Statisics for Breakpoint Search Regression

Tel Aviv General Index, 240 Days Window, 1988-2005

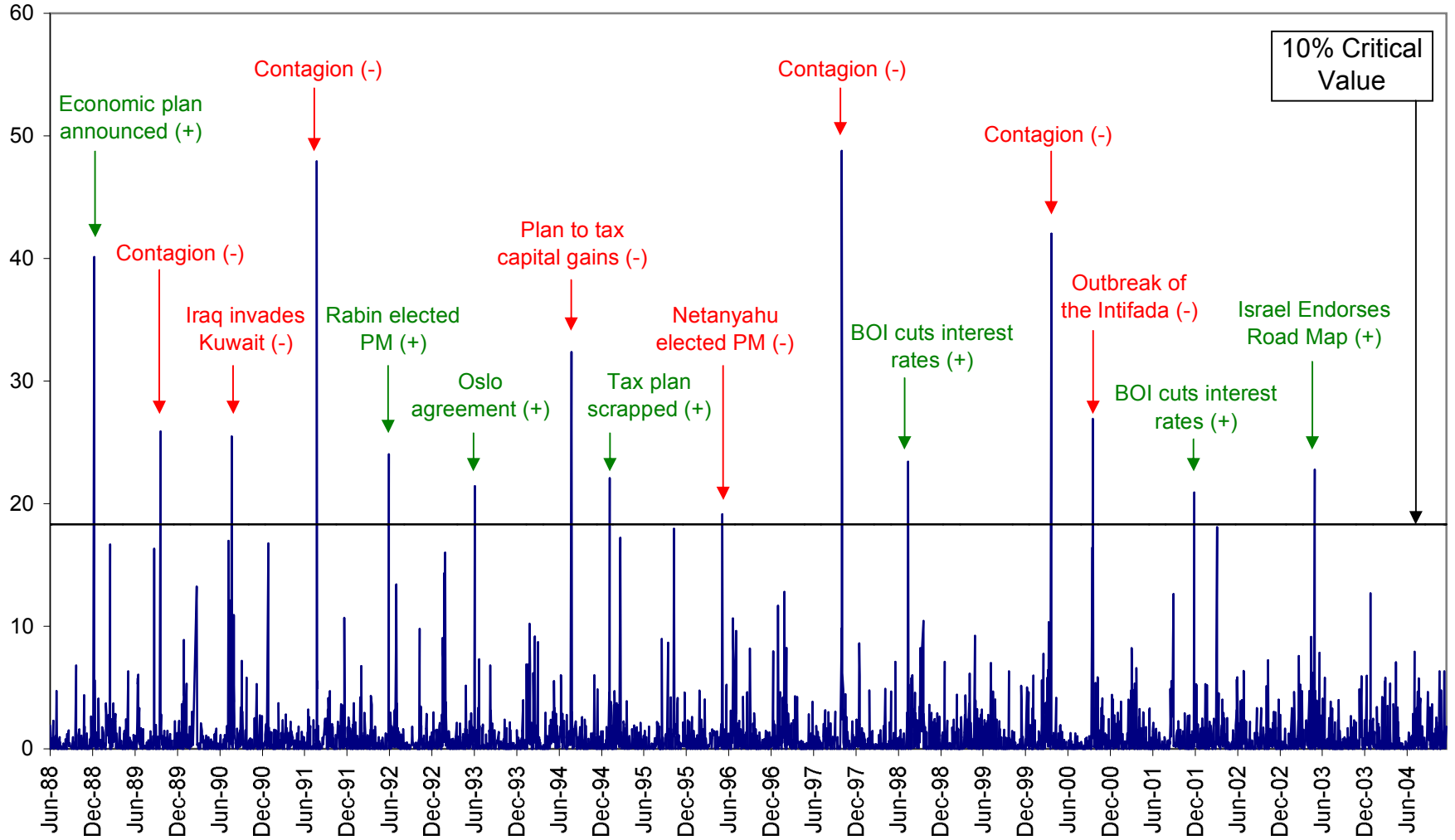

Figure 4: 240 Trading Day Window around June 29, 1993

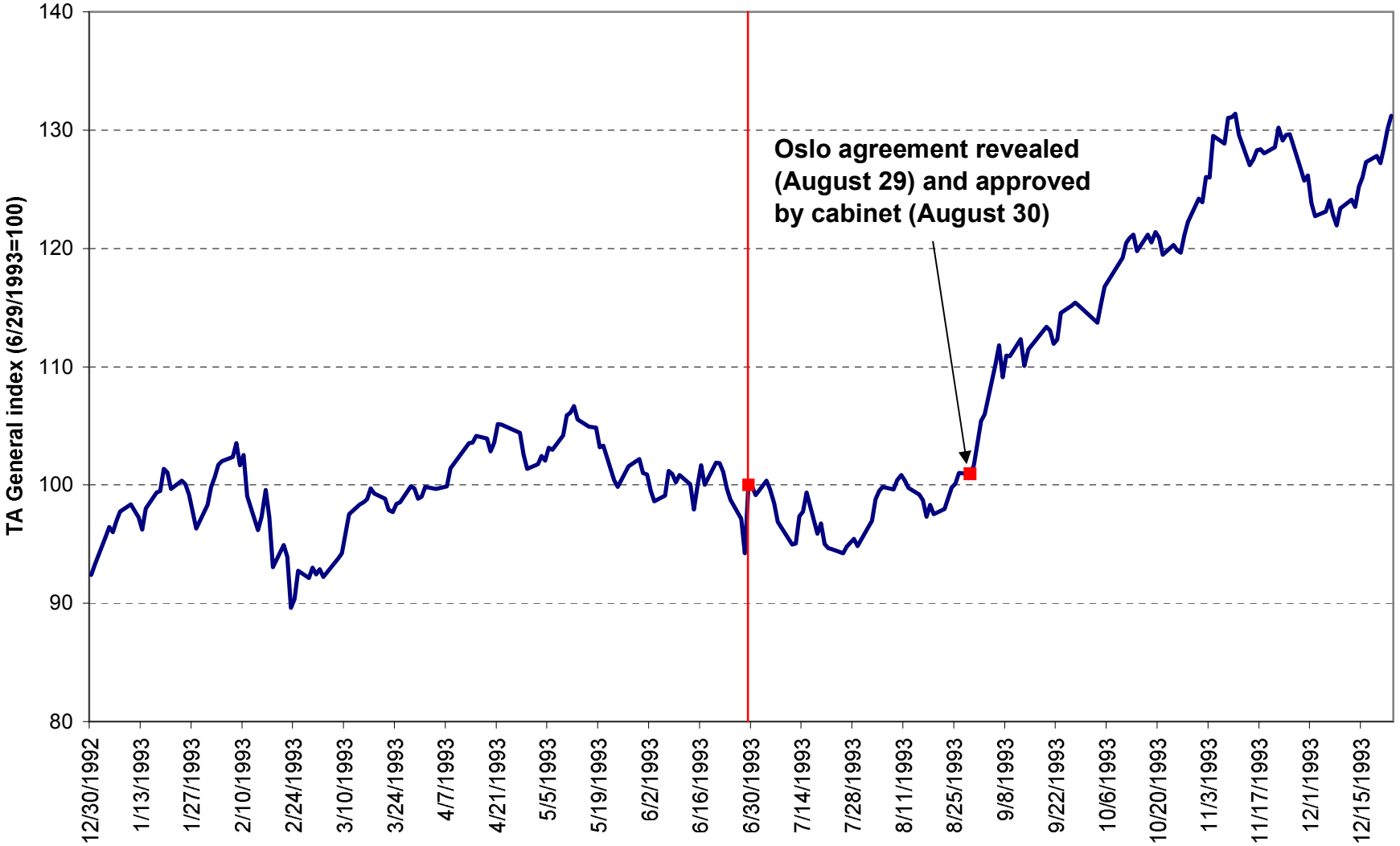

Figure 5: 480 Trading Day Window around October 12, 2000

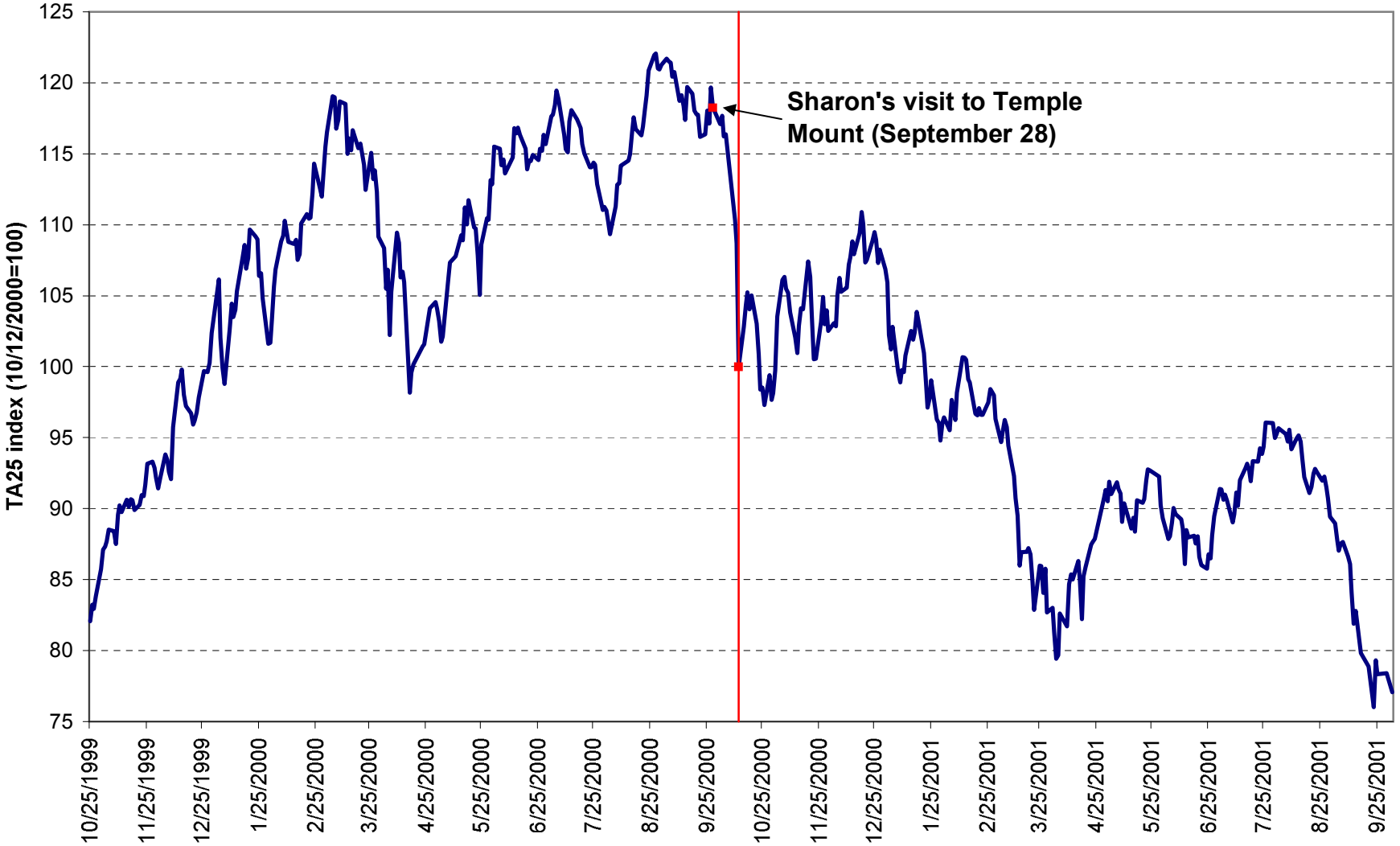

Figure 6: Fatalities in the Intifada, 2000-2005

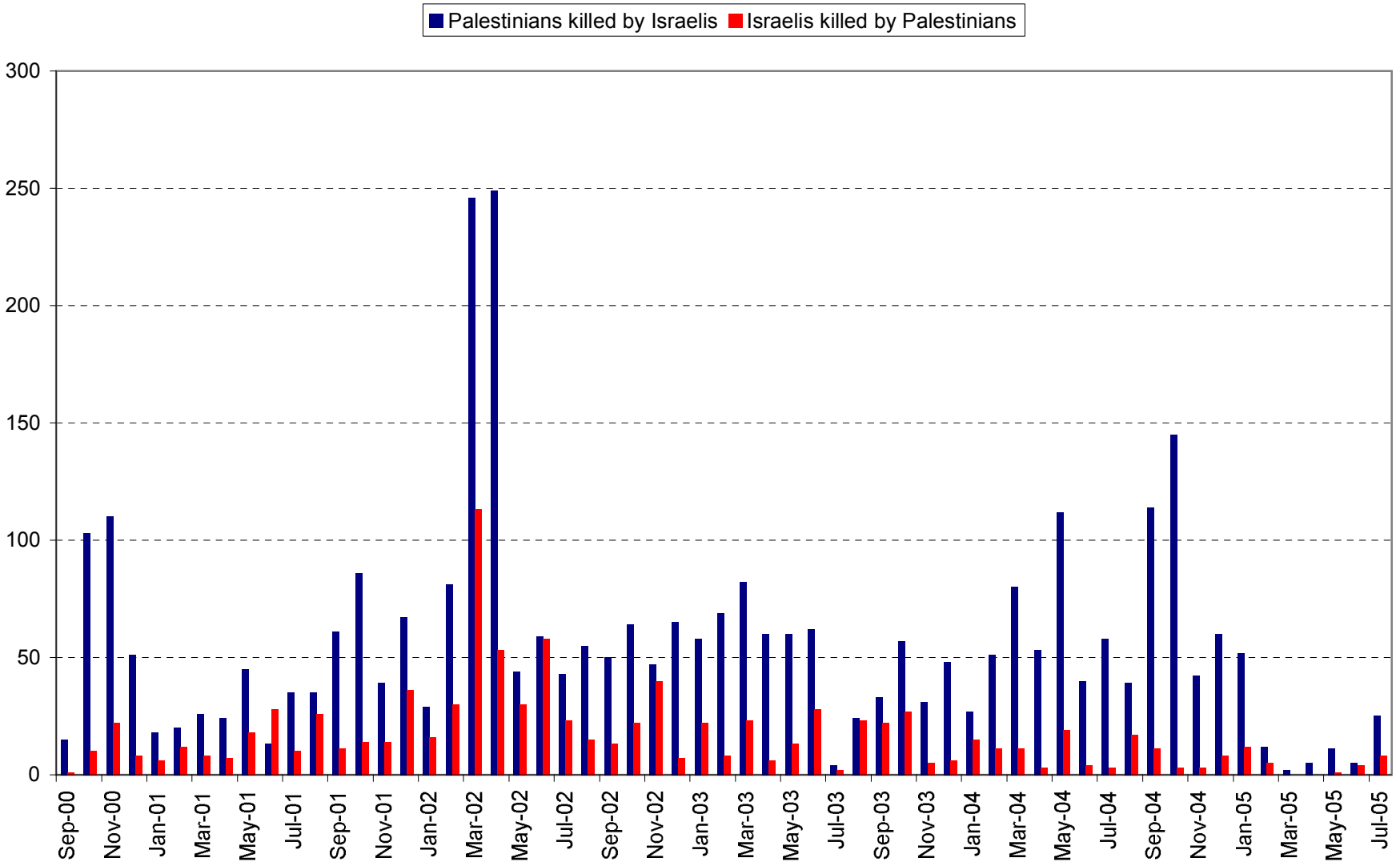

Figure 7: Exchange Rate of the Israeli Currency, 2000-2005

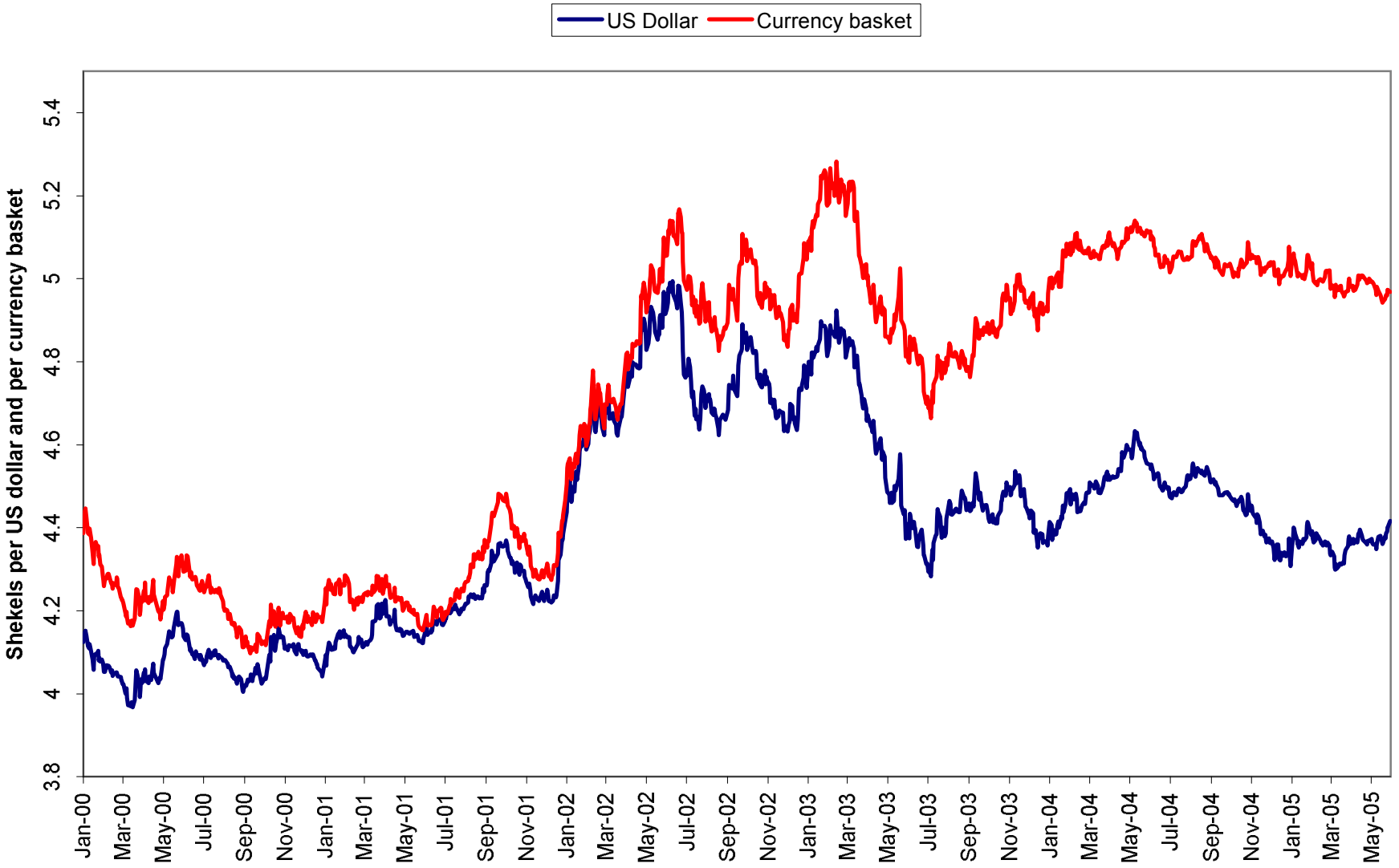

Figure 8a: The Palestinian Stock Exchange, 1997-2005

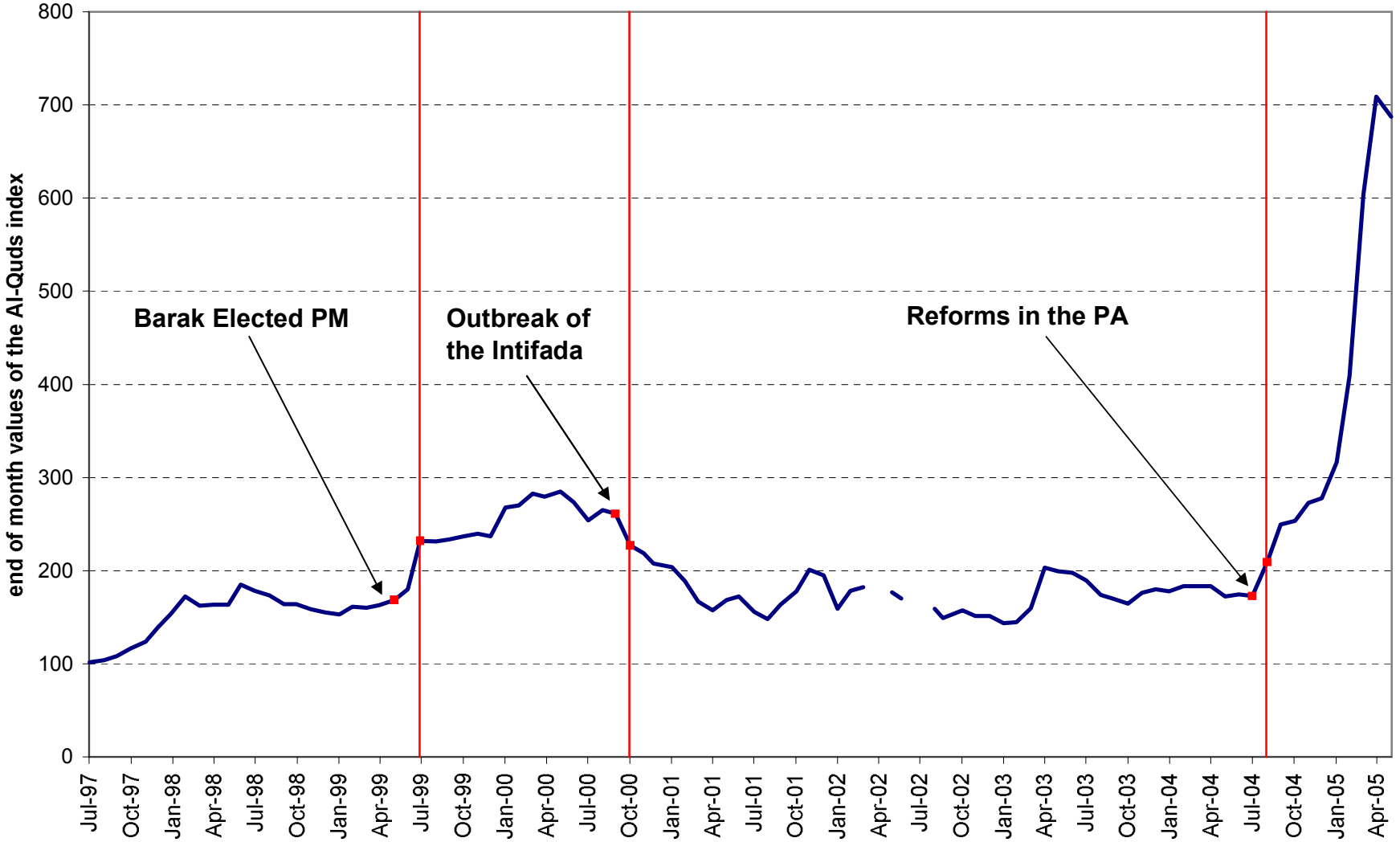

Figure 8b: The Israeli Stock Exchange, 1997-2005

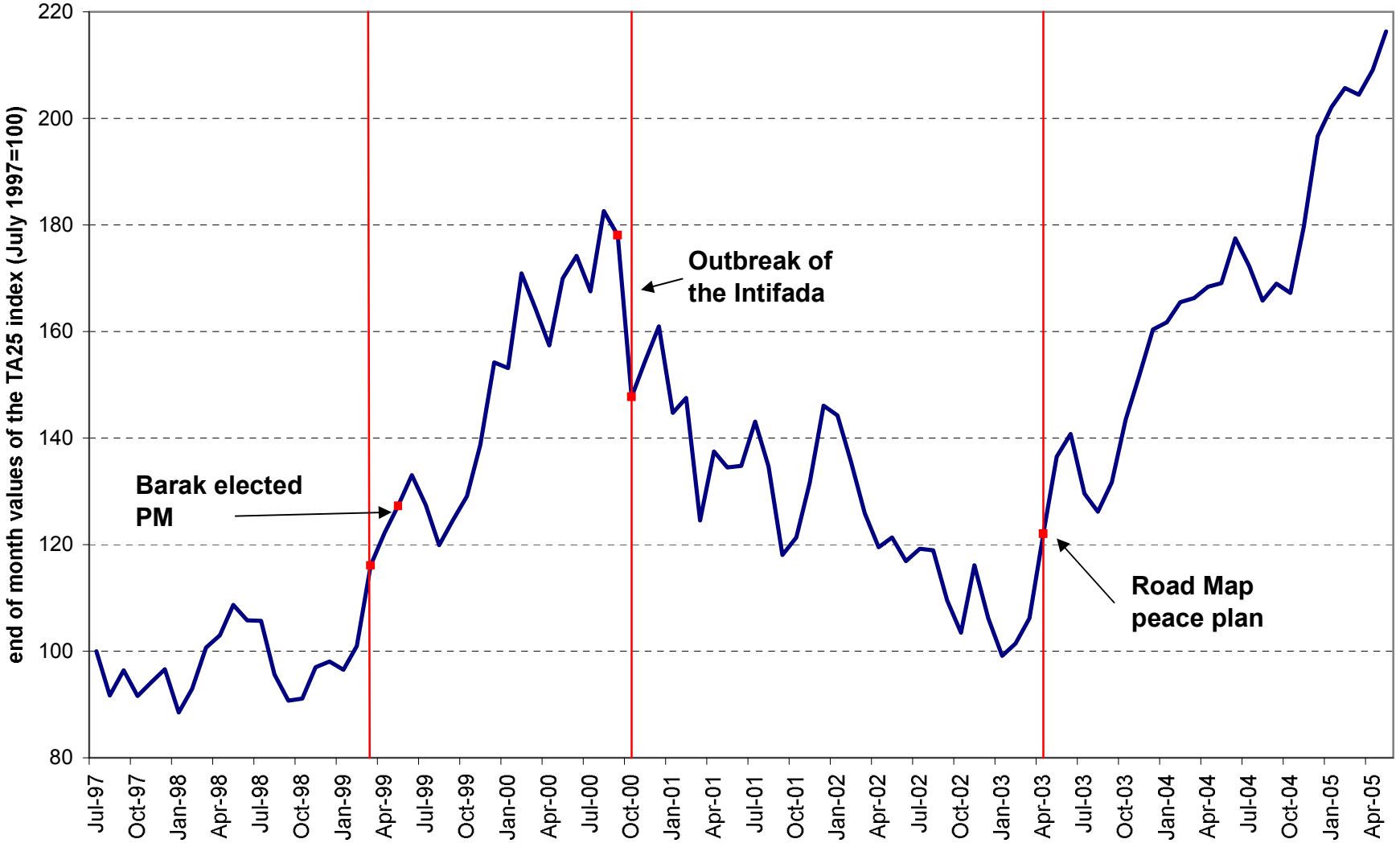

Figure 8c: The Peace Index, 1997-2005

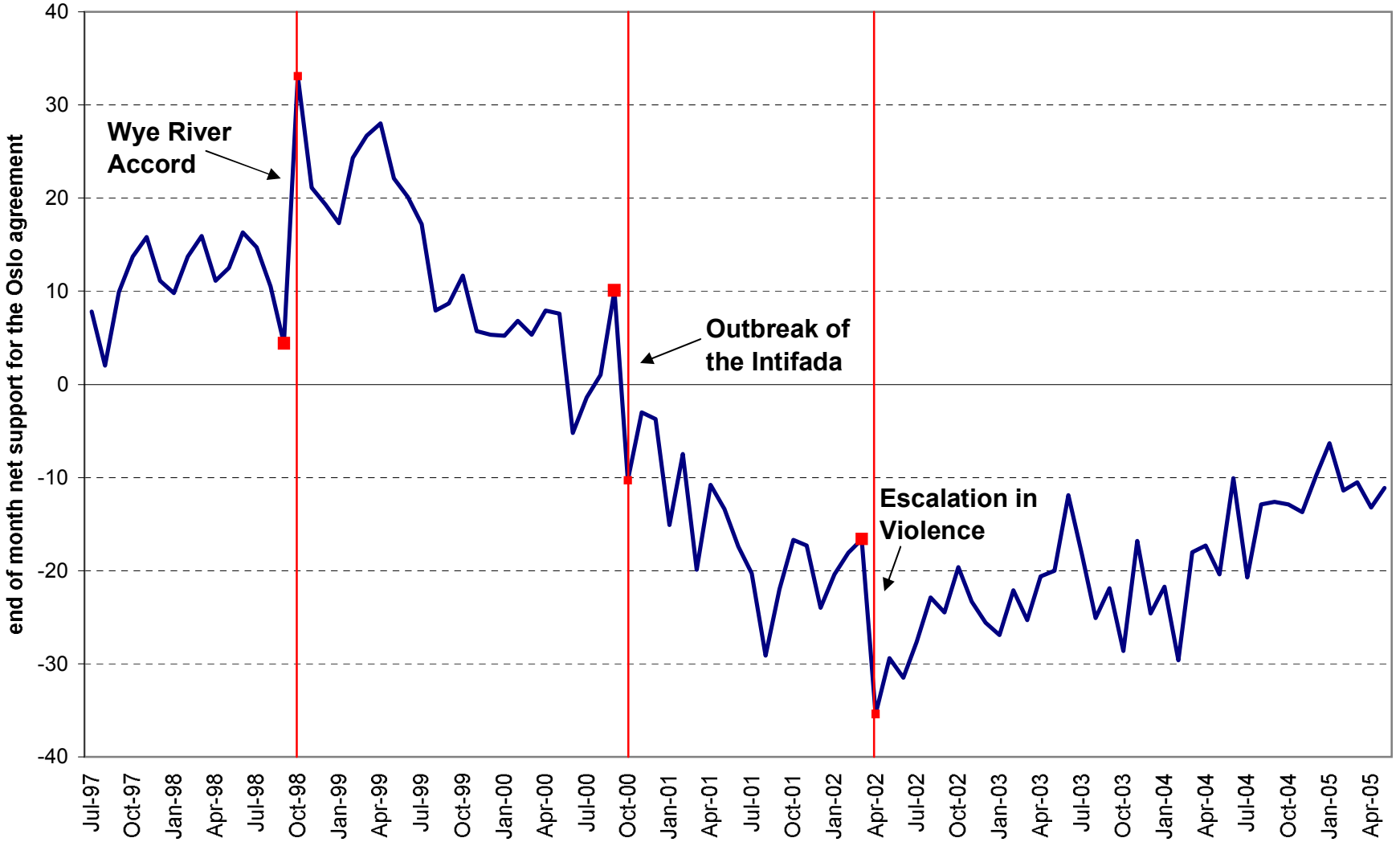

Figure 9: The Big Picture - Comapring the Israeli and Palestinian Stock Exchanges, July 1997 - July 2004