

There's No Smoke without Fire: Equity Returns Response to Indictment Filing

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Abstract

Markets react to new information and it is widely expected that the publication of negative news regarding a firm would negatively affect the returns on its equity. This work employs event study mythology on indictment filings in Israel during the period January 2011 to March 2014. We find that such events cause statistically significant negative abnormal returns during a twenty-day period after the event date. Interestingly, we also find that market reaction starts about a week after the event and that it appears to vary with the economic significance of the indictment. This is remarkable as prior research does not find significant reaction in relatively small markets to other corporate and rating agency announcements.

Keywords: event studies, emerging markets, indictment filing

1. Introduction

It is widely supposed that financial investors are rational and react to new information by reassessing the economic value of traded assets (Note 1). It is therefore natural to assume that an indictment filing would cause a decrease in the indicted firm equity. Unless such information leaks to the public, prior to the filing event one may expect a “normal” stock behavior without a consistent and significant change in the firm’s equity. We analyze indictment filings in the Israeli market from January 2011 to March 2014. We employ an event study methodology that is widely used and academically accepted for similar studies. Mackinley (1997) presents a concise history of the method, starting with its apparent first use by Dolley (1933) and its improvements by Ball and Brown (1968), Fama et al. (1969), and others. Example for good texts presenting the methodology are Campbell et al. (1997, chapter 4) and MacKinley (1997) which we follow in this paper.

Our research question is not redundant, despite its trivial appearance. It is interesting to note that Bhattacharya et al. (2000), using a sample of Mexican corporate news announcements of a four year period (1994–1997), find that there is nothing unusual about returns of shares trading in the Bolsa Mexicana de Valores—they do not seem to react to company news. The paper provides evidence suggesting that unrestricted insider trading causes prices to fully incorporate the information before its public release, exposing market integrity issues in emerging stock markets. Similarly, Afik et al. (2013) find that market players act prior to credit rating announcements and thus event studies of market reaction to such announcements in the Israeli market, in the years 2000–2009, reveal only marginal effect in the bond and equity markets, unlike other research (albeit mixed) findings in larger and more mature markets (Note 2). Such examples raise doubts whether negative news actually induce the expected negative returns following indictment filing in the relatively young and small Israeli market.

A large volume of prior event study publications is concerned with corporate actions unrelated to indictment and court procedures, such as mergers and acquisitions (Agrawal et al., 1992), stock splits (Dolley, 1933), and new stock issuance (Barclay and Litzenberger 1988) (Note 3). We shortly describe here two examples of prior studies of legal events. Raghu et al. (2008) assess the effect of patent infringement litigation on the stock market returns around the date of litigation announcement as well as the date of settlement or termination. They find that the news of patent infringement litigation is unfavorably viewed in the stock market for the defendants, and, on the other hand, they observe significantly positive abnormal returns for plaintiff firms, around litigation announcement date and settlement or termination dates.

It is logical to expect diversity in reaction to indictment filings. Not all lawsuits are equal, thus equity reaction

might depend on the event characteristics. Bhagat et al. (1998) find that the characteristics of the suit, such as the legal issue and type of opponent, and firm characteristics, such as firm size and proximity to bankruptcy, have power to explain cross-sectional variation in market reactions to legal news.

This paper finds a delayed equity market reaction to indictment filings; the reaction is negative and statistically significant despite the small sample of nine events. We repeat the analysis after filtering seemingly insignificant events out of the sample. An insignificant event is a procedural matter that may be settled without significant economic impact on the firm performance. In our sample of nine cases, four are insignificant. These cases are the filing for business management without license, the filing for dining room management without license, the filing for a binding arrangement, and the filing for dangerous material law violations. The significant filings are legal matters that might disrupt the core activity of the firm by harming the effectiveness of its leader(s) and the firm reputation. These cases are the filing for security fraud, management reporting duty violation, bribery, money laundering, unlawful interference in a legal process and security law violations. The Appendix to this paper lists the details of the nine events. The reaction of the remaining five “significant” firms is more pronounced yet different, supporting the intuition and prior research that indictment characteristic affect market reaction as measured by cumulative abnormal return.

The rest of the paper proceeds as follows: Section 2 presents the data and methodology, Section 3 presents the results and discusses them, and Section 4 concludes.

2. Methodology and Data

2.1 Data

The official source of public firm announcements in Israel is Maya (a TASE information repository). Our final event set, collected from Maya, includes nine indictment-filing events during the period 1 January 2011 to 23 March 2014. Two additional events in this period are of firms issuing exchange traded bonds, and not equity that is used in our study.

As a relatively small stock exchange, not all stocks in TASE are highly liquid. The event study analysis tests short-term effects on stock behavior and therefore the tested stock should show some daily trade. For this reason, we do not include stocks that are illiquid. Since the purpose of our work is to capture the effect of indictments on stock behavior, it is important to avoid other issues that may “contaminate” this effect. By using data from 2011 we avoid cases that may have been affected by the downturn economy (2008–2010) or the earlier bullish market (2003–2007).

For the benchmark market we use TA100, a value-weighted index of the 100 largest firms traded on TASE (Note 4). Our source for the equity data is the TASE website. For each firm we have a time series of 160 daily observations, of which the last 20 days trail the event date and the first 140 days end on the event date. For each firm equity time-series there is a matching (day by day) TA100 time series.

2.2 Methodology

We follow the common methodology of event studies described in MacKinley (1997) and used by many prior researchers. We start by the definition of abnormal returns at time t of firm i :

$$AR_{i,t} = r_{i,t} - E(r_{i,t} | X_t) \quad (1)$$

where $r_{i,t}$ is the actual return of firm i at time t , $E(r_{i,t} | X_t)$ is the “normal” return for the same time and firm, and X_t is the conditioning information for the normal return model. We employ the two most common normal return models: the market model and the constant mean return, which is conceivably the simplest possible one. Obviously, the parameters for the normal model are better estimated at a “normal” period, usually in an estimation time window prior to the event window. We use about half a year, 125 trading days for the estimation period $t \in [-140, -14]$ days, where $t = 0$ is the announcement day.

The market model assumes a linear relation between the returns of the examined firm and those of a benchmark market:

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + \epsilon_{i,t} \quad (2)$$

and can be easily estimated using ordinary least-square (OLS) method. Using these estimations ($\hat{\alpha}_i$ and $\hat{\beta}_i$), for each firm i , we calculate the daily abnormal returns using:

$$AR_{i,t} = r_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i r_{m,t}) \quad (3)$$

in the window $t \in [-14, 20]$ days, as we assume that returns earlier than three weeks prior to the indictment filing might be related to other informational events and thus irrelevant to our events. We then calculate the

cumulative abnormal returns (CAR) for the period of interest $t \in [k, l]$ days:

$$CAR_i(k, l) = \sum_{t=k}^l AR_{i,t} \quad (4)$$

As the estimation period length increases, the variance of the CAR can be calculated using:

$$\sigma_i^2(k, l) = (l - k + 1) \sigma_{\varepsilon_i}^2 \quad (5)$$

where $\sigma_{\varepsilon_i}^2$ is the variance of the residuals of equation (2) regression. For hypothesis testing it is then common to assume a normal distribution for the CAR:

$$CAR_i(k, l) \sim N(0, \sigma_i^2(k, l)) \quad (6)$$

The relevant (available) N individual events (firms) are aggregated by averaging $CAR(k, l)$ for the same time period:

$$\overline{CAR}(k, l) = \frac{1}{N} \sum_{i=1}^N CAR_i(k, l) \quad (7)$$

and the average CAR variance is given by:

$$\text{var} \overline{CAR}(k, l) = \frac{1}{N^2} \sum_{i=1}^N \sigma_i^2(k, l) \quad (8)$$

where it is assumed that the events are independent (otherwise certain modifications are required to the formulation). Under the above assumptions, inferences about \overline{CAR} can be drawn using the following normal distribution:

$$\overline{CAR}(k, l) \sim N(0, \text{var} \overline{CAR}(k, l)) \quad (9)$$

The constant mean return model is:

$$r_{i,t} = \mu_i + \zeta_{i,t} \quad (10)$$

where:

$$E(\zeta_{i,t}) = 0 \text{ and } \text{var}(\zeta_{i,t}) = \sigma_{\zeta_i}^2 \quad (11)$$

and the CAR calculations and distribution follow equations (1) and (4) to (9), using $E(r_{i,t}|X_t) = \mu_i$, and $\sigma_{\zeta_i}^2$ instead of $\sigma_{\varepsilon_i}^2$.

Surprisingly, although the constant mean return model seems an oversimplified one, Brown and Warner (1980, 1985) find that it often yields results similar to those of more sophisticated models. This is also evident in the results of this work. We avoid reporting the results of this alternative method for brevity reasons.

We analyze the CAR evolution, first qualitatively, by observing its charts and then quantitatively, testing its mean and median value for statistical significance (Note 5).

3. Analysis and Discussion

Figure 1 shows the evolution of the average CAR of the nine firms (events) in the period [-14, 20] using the market model. To gain further insight we also filter out the events which seem, by the content of their announcement, to be insignificant economically for the firm performance. The average CAR of the remaining five “significant” firms is presented in Figure 2. It is apparent from both figures that returns in an event window, defined conventionally as the day before to two days after a firm-specific indictment filing announcement, are not abnormal. In Figure 1 it seems that CAR are close to zero approximately until day seven and then CAR drops almost monotonically, to below -4% by the end of the sample on day 20. There is no evidence of direction change in our sample.

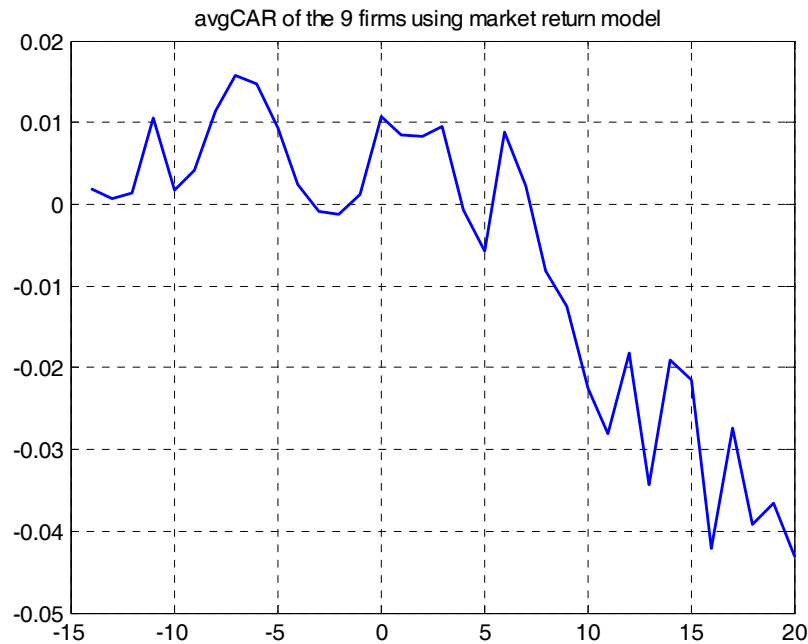


Figure 1. The average CAR of the nine events, using market model

Note. The horizontal axis is event time in days, $t=0$ is the event date. The vertical axis is returns (in decimal fraction, e.g., day 20's CAR < -4%)

The smaller sample CAR, of five significant events, depicted in Figure 2, reveals some different characteristics. Similar to Figure 1, the CAR starts plummeting after day seven. However, prior to that day, it seems that CAR slowly decreases for about a month prior to day seven. Furthermore, the drop is very sharp compared to Figure 1, and reaches a level of -4.5% by day 10 and even slightly lower by day 11. Interestingly, this appears like an overreaction as CAR starts increasing and seems to oscillate slowly around a level of -3% approximately.

To evaluate whether these observed CARs are statistically significant, even in our relatively small samples of nine and five firms, we examined three time periods in the observation window: $[-14, 0]$, $[3, 10]$, and $[3, 20]$. For each time period $[k, l]$ we test whether its mean and median are significantly different than zero. The results are presented in Table 1 for the entire sample of nine firms and for the smaller sample of five firms which excludes seemingly insignificant events. Here again, the results support the observations in the two figures. Prior to the event, for the period $[-14, 0]$, the null hypotheses of zero mean and zero median CAR cannot be rejected. Then, as evident from the figures, for the short period $[3, 10]$ after the event, the null hypotheses are rejected for the five "significant" events and cannot be rejected for the entire sample of nine firms. The market reacts to significant events more sharply than to relatively marginal events. The negative CAR becomes statistically significant for the entire sample over the longer period $[3, 20]$ while we cannot reject the null hypotheses for the reduced sample of five firms, probably due to the small sample noise and the oscillating CAR after day 10.

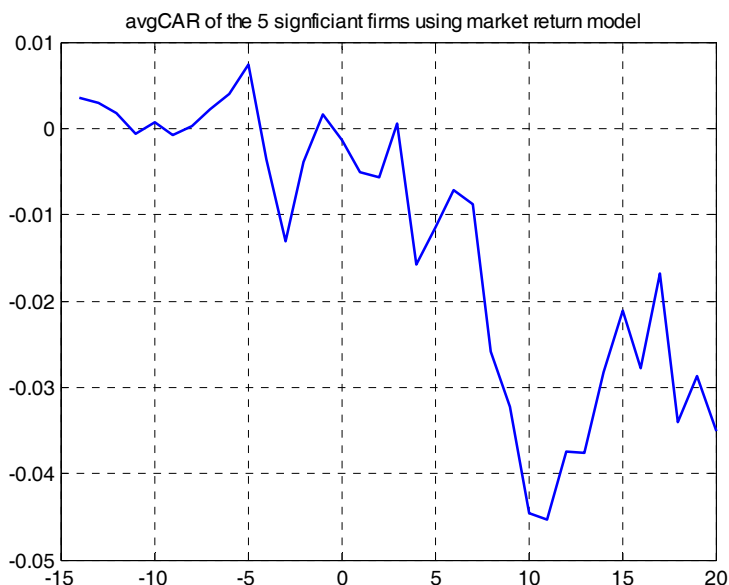


Figure 2. The average CAR of the five seemingly significant events, using market model

Note. The horizontal axis is event time in days, $t=0$ is the event date. The vertical axis is returns (in decimal fraction, e.g., day 10's CAR = -4.5%)

Remembering that our data sample is small (nine and five firms) one should be careful in drawing general conclusions from our findings. Subject to that disclaimer, we suggest the following conclusions: (a) the equity market reacts to indictment filings, even in a relatively small country such as Israel. (b) The reaction seems delayed and starts more than a week after the announcement. (c) The reaction is negative, as could be expected, and it is statistically significant despite the small sample. (d) The reaction seems to depend on the economic significance of the indictment filings. Filtering seemingly insignificant events out of the sample changes the observed CAR pattern.

Table 1. The average CAR for pre and post-event periods and statistical significance

[k, l]	for the 9 firms			for the 5 "significant" firms		
	[-14, 0]	[3, 10]	[3, 20]	[-14, 0]	[3, 10]	[3, 20]
$\overline{CAR}(k, l)$	1.077%	-3.082%	-5.146%	-0.129%	-3.881%	-2.932%
$var\overline{CAR}(k, l)$	0.001152	0.000614	0.001382	0.001367	0.000729	0.001640
t-stat	0.3174	-1.2434	-1.3839	-0.0349	-1.4375	-0.7239
p-value	0.3755	0.1069	*0.0832	0.4861	*0.0753	0.2346
p_sign	1.0000	0.1797	0.5078	1.0000	*0.0625	1.0000

Note. * significant at 10% level.

The table presents the average CAR for pre and post-event periods and assessing their statistical significance. $[k, l]$ states the period as defined for equation (4), where 0 is the day of the event. p-value and p_sign are the probabilities of H_0 for mean and median CAR equal zero respectively (t-test and sign-test). The left hand side reports the numbers for the entire sample of nine firms. The right hand side reports the numbers for the five firms whose indictment filings seem to be relatively significant economically, according to their announcement content.

Two explanations appear plausible for the delayed reaction of the market: either market players do not follow such news closely and/or they attempt to assess whether the news are significant economically or just procedural and thus do not change the prior valuation of the firm and its holding in their portfolio. The fact that not all events are equal, some are more significant, is logical and supported by prior research (see for example Bhagat et al., 1998). What seems peculiar is the continuous and monotonic drop of average CAR, for the entire sample, all along the period up to the last observation on day 20. One explanation could be the nature of indictment filing

compared to other corporate events. The market seems to react slowly to indictment filing for both samples, yet it then reacts sharply to “significant” indictments and seems to further delay its reaction to seemingly “insignificant” indictments. The latter might be a momentum of negative sentiments towards the tarnished stocks, following an attitude of “there’s no smoke without fire,” and “better safe than sorry,” with stock sales despite what initially had been assumed a minor economic issue.

4. Conclusion

This paper analyze indictment filings in the Israeli market from January 2011 to March 2014 using event study methodology. We find a delayed equity market reaction to indictment filings. The reaction is negative and statistically significant despite the small sample of nine events. We repeat the analysis after filtering seemingly insignificant events out of the sample. The reaction of the remaining five “significant” firms is more pronounced yet different, supporting the intuition and prior research that indictment characteristic affect market reaction.

We believe that our paper augments the existing literature by shedding light on a legal event effect on the firm value in a small market. Although prior event studies of small markets such as Bhattacharya et al. (2000) and Afik et al. (2013) find no significant market reaction to corporate news in the first paper, and to credit agencies announcements in the second paper, in this paper we find statistically significant market reaction to indictment filings. This may be explained by the nature of the events studied in this paper. These events usually follow an earlier announcement about an investigation or potential indictment, thus usually do not come as a complete surprise on one hand. On the other hand the indictment filings are often governed by state authorities whose decisions seem not to be internalized by the market prior to the announcement. On the contrary, the market seems to react at a significant delay to such announcements.

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Notes

Note 1. Subsequent to the efficient market hypothesis, following Fama (1970).

Note 2. For example, Afik et al. (2013) list some prior literature of mixed response to credit rating announcements.

Note 3. These are only a few examples of the numerous papers utilizing event study methodology in the financial markets.

Note 4. To avoid an excessive bias of a large firm on the index, a ceiling is set for the weight of any single firm at 10%.

Note 5. For each tested time-period we calculate its average and median CAR. To evaluate these results we use t-test and a non-parametric sign-test, where H_0 is that the mean and median CAR respectively, is zero.

Appendix A. Indictment Filing Event List

The following is the list of events used in this study. It includes indictment filing events listed on Maya (a TASE information repository) during the period 1 January 2011 to 23 March 2014 (excluding two events for which stock trading data is not available (Note A)):

- 1). Carmit Candy Industries Ltd., on 15 February 2011, filing for business management without license.⁽ⁱ⁾
- 2). British Israel Investments Ltd., on 13 November 2011, filing against the CEO for security fraud and management reporting duty violation while he was the CEO of Melisron.⁽ⁱⁱ⁾
- 3). Melisron Ltd., on 13 November 2011, filing for security fraud.⁽ⁱⁱ⁾
- 4). Shemen Industries Ltd., on 9 August 2012, filing for dining room management without license.⁽ⁱ⁾
- 5). Angel Bakeries Ltd., on 28 August 2012, filing against the CEO and sales manager for a binding arrangement.⁽ⁱ⁾
- 6). Manofim Ltd., (Note B) on 5 February 2013, filing for security fraud.⁽ⁱⁱ⁾
- 7). Amir Marketing & Investments in Agriculture Ltd., on 28 April 2013, filing for dangerous material law violations.⁽ⁱ⁾
- 8). I.E.S. Holdings Ltd., on 31 January 2013, filing against the Chairman for, bribery, money laundering, and unlawful interference in a legal process.⁽ⁱⁱ⁾
- 9). Itay Financial A.A. Investments Ltd., on 3 October 2013, filing against a director for security law violations.⁽ⁱⁱ⁾

Note

Note A. The two firms (Polar Investment and The Phoenix Capital Raising (2009) Ltd.) issue exchange traded bonds, and not equity that is used in our study.

Note B. Only a Hebrew name is available.

Comments: (i) Insignificant filing. (ii) Significant filing.

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