Chapter 3

The Event Study Approach

As explained in the previous chapter, ESA comprises an effective tool for assessing the information content of events, as perceived by market participants, as well as for shedding light on the issue of market efficiency. The underlying idea in common event studies is to track the market prices of securities whose issuing firms were involved in the studied event, in order to detect market-related reactions. The prices are tracked over a period that is potentially relevant for evaluating the effect of the event on the prices of the traded securities; this period is termed the event window.1

Commonly, the market reaction to the studied events has a predictable direction. That is, in events consisting of good news, the market participants are expected to react positively, raising thereby the security prices of the firms undergoing the studied event, and, conversely, in bad-news events, the market participants are expected to react negatively, and the security prices are expected to fall. For instance, mergers are usually perceived as good news for the equity holders of the acquired companies (e.g., Keown and Pinkerton 1981), so a positive reaction is expected for the stocks of these firms around their merger announcements.

In cases of events for which there is no unidirectional expectation for security returns, aggregating the price reactions across the pooled sample would miss the point as opposite directions would tend to cancel each other out. For instance, in the event of earnings announcements, there may be cases of positive- and negative-earnings surprises, as well as announcements that are not surprising at all. In the study of such cases, the sample
should be partitioned into positive, negative, and possibly also no-surprise subsamples, each of which should be separately analyzed.

Occasionally, there may be events for which it may be hard or even impossible to hypothesize the direction of market reaction. In such cases, it may still be possible to extract information on the relevance of the event to market participants, by considering other aspects of reaction, such as the magnitude of returns (irrespective of their direction) or the trading volume around the event.\footnote{2}

Given a legitimate sample in the sense just explained, we may proceed with its analysis, concentrating on the average reaction over the sample of events. According to EMH, the price reaction to news in efficient markets is instantaneous and complete, that is, the price adjustment should happen, without any delay, at the time of information release, or even earlier in cases of information “leakage” prior to the announcement date. Furthermore, the price adjustment should be quick enough so that no profit-generating predictions could be made upon the news release. Having established this basic logic underlying ESA, we henceforth elaborate on the technical aspects of the approach. Specifically, we describe, stage by stage, the basic ESA application to the analysis of the announcing firms’ stock-price behavior.\footnote{3}

### 3.1 Abnormal Return (AR)

The main premise behind ESA is that in efficient markets stock prices are updated immediately upon the arrival of pricing-relevant information. The updates in stock prices automatically translate into stock returns, which are the percentage changes of the prices:

Definition: The arithmetic return of stock \( i \), \( R(a)^i \), is defined as the percentage change of its price.

\[
R(a)^i_t \equiv \left( \frac{P^i_t - P^i_{t-1}}{P^i_{t-1}} \right) \quad (3.1)
\]

where

\( R(a)^i_t \) is stock \( i \)'s return at period \( t \) (from time \( t - 1 \) to time \( t \)).\footnote{5}