A Legal Practitioner’s Guide to Event Studies

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An event study examines changes in share prices of companies associated with the release of new information. In its simplest form, the researcher estimates a “predicted” share price based on past performance relative to a market index and the actual movement of the index on each date, then looks to the actual share price around the dates when new information of interest became known to the market to see what, if any, share price reaction can be discerned.¹

Event studies are commonly used by both academic researchers and expert witnesses and may appear in both antitrust merger and conduct cases to support or refute claims of competitive harm when there is a relatively clear announcement of the conduct in question, e.g., announcement of an allegedly anticompetitive merger or of an allegedly anticompetitive settlement in a “pay-for-delay” case. While event studies can provide useful support for an expert’s conclusions, the results can be sensitive to a variety of study design elements, several of which are amenable to examination by legal practitioners.² An understanding of those elements may be useful to legal practitioners when evaluating possible uses or criticisms of event studies.

A Legal Practitioner’s Checklist

The “event” refers to the release of new information to the market. That new information might be contemporaneous news of an event, such as an earthquake, or it might be information that was privately known for some time but is only now being publicly disclosed. Particularly for events of the latter type, determining when exactly they become known to the market can be trickier than it sounds.³ For example, consider an event study trying to look at the impact on competitors of a merger. The new information might be the announcement of the merger. There is usually a formal announcement, so that can provide an obvious anchor point, but is that really when the market first learns about the merger? Often news about negotiations or rumors of a deal are present prior to the official announcement.

The choice of window to study can involve trade-offs—a longer window may help capture important information leakages that occur over time but also may increase “the noise due to the

¹ See, e.g., Daniel R. Fischel, Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities, 38 Bus. L., Nov. 1982, at 18 (“The model is based on the observable correlation between the return on a particular security and the return on the entire market when viewed over time. Once this historically observed correlation is determined, it is possible to predict what the return of a given security should be on a certain date given the return for the market as a whole . . . . Moreover, by comparing the predicted return with the actual return on the date of release of the supposedly correct information or immediately thereafter, the test attempts to isolate the change in the return earned by investors that is attributable solely to the allegedly withheld or false information.”).

² For a more technical discussion of areas “a defence attorney armed with the knowledge of statistics might question,” see, e.g., Charles J. Corrado, Event Studies: A Methodology Review, 51 ACCT. & FIN., Mar. 2011, at 207.

³ See, e.g., G. William Schwert, Using Financial Data to Measure Effects of Regulation, 24 J. L. & ECON. 121, 122 (1981) (“The main difficulty with measuring the effects of regulatory change on security prices is identifying when the market first anticipates the effects of the change on future profitability.”).
occurrence of other” events.\textsuperscript{4} For example, an official announcement might simply confirm what the market has known for some time, but extending the window of analysis may sweep in confounding events as well.

So the very first item a practitioner may wish to check when evaluating an event study is whether the event study is, in fact, looking at the right date. It is not necessary that the “new” information have been completely unanticipated in order to conduct an event study. For example, confirming a rumor may be sufficient new information to be worth studying. However, when news comes out over a period of time in small increments, it may be difficult to identify a sufficiently sharp change in market expectations to perform an event study.\textsuperscript{5} The practitioner may thus wish to examine whether there is sufficient new information released on the identified date to be of use in an event study.

Given a distinct event, is there a clear, testable hypothesis as to the effects of that event on share prices? An event study looks at what happens to share price. But that means such a study is only useful if there is a clear, testable hypothesis as to how the event is expected to impact share price. In some cases the expected share price effect given a theory of competitive harm is clear, but that is not always the case. Some new information may have ambiguous effects on share prices even under a single theory. (It is also important to bear in mind that at most an event study can provide information about what the market expects to happen. That does not mean the market’s initial expectation is borne out.\textsuperscript{6}) For example, new regulations may both benefit and harm companies. The net effect may be ambiguous, although an event study might be of use in determining whether the market predicts the net effect will be positive or negative.

A more difficult situation presents itself when multiple theories can yield the same prediction. Consider the impact on share prices of a horizontal merger. Many event studies have found that shareholders of acquired firms tend to earn large positive abnormal returns, consistent with increased value for the merged firm, but researchers have also pointed out that one “generally cannot distinguish the sources of these gains”—whether efficiencies or increased market power.\textsuperscript{7} Studies have attempted to distinguish between those hypotheses by looking at the share price returns for rival firms after the merger announcement or upon later antitrust challenges, on the grounds that efficiencies likely mean a stronger competitor and hence negative returns for rivals if the merger proceeds, while increases in market power if the merger proceeds may benefit rivals as the entire industry becomes less competitive. However, other researchers have pointed out

\textsuperscript{4} See, e.g., John Y. Campbell, Andrew W. Lo & A. Craig MacKinlay, The Econometrics of Financial Markets 151, 176 (1997) (“The period prior to or after the event may also be of interest and included separately in the analysis. For example, in the earnings-announcement case, the market may acquire information about the earnings prior to the actual announcement and one can investigate this possibility by examining pre-event returns. . . . [I]n some studies it may be difficult to identify the exact date. . . . . The usual method of handling this problem is to expand the event window.”); Tomaso Duso, Klaus Gugler & Burcin Yurtoglu, Is the Event Study Methodology Useful for Merger Analysis? A Comparison of Stock Market and Accounting Data, 30 INT’L REV. L. & ECON. 186, 187 (2010) (“The choice of the event window is a much debated issue. While a long window might help to capture important information leakages that affect firms’ returns, a shorter window helps to reduce the noise due to the occurrence of other non-merger-related events, which might also affect firms’ valuations.”).

\textsuperscript{5} Campbell et al., supra note 4, at 179 (“An important characteristic of a successful event study is the ability to identify precisely the date of the event. In cases where the date is difficult to identify or the event is partially anticipated, event studies have been less useful.”).

\textsuperscript{6} See, e.g., Schwert, supra note 3, at 133 (“It is entirely possible that the actual effects of regulation will turn out to be very different from what was expected at the time of the regulatory change.”).

\textsuperscript{7} See, e.g., Lawrence Schumm, Patterns of Abnormal Returns and the Competitive Effects of Horizontal Mergers, 8 REV. INDUS. ORG. 679 (1993).
alternative explanations for such observed patterns of abnormal returns. Thus, there can be situations where different studies observe the same pattern of abnormal returns but draw different inferences from that pattern. 8

Assuming the study is looking at the right time period and has a testable hypothesis, the third item a practitioner may wish to check is whether the event study is looking at the right companies which may be affected by the event at issue. 9 This question can hinge both on whether a company is likely to be affected as well as on whether the effect is likely to be detectable in light of the company’s overall operations and structure. In some cases this may be a trivial question, such as in a securities case where the relevant question is news regarding a particular company and the impact on that company’s share price. But in other cases it can be a difficult question. For example, when doing event studies related to regulation or merger impacts, which companies are likely to be impacted? And if they are likely to be impacted in different ways, then the researcher needs to sort them out appropriately. For example, a proposed regulation might open up a new geographic area for development, but might only allow certain companies in, while explicitly or implicitly barring others. One would expect the two groups to be impacted differently, and the researcher should make clear which companies are in which group. 10

This step can provide several areas for the practitioner to examine. Are the companies analyzed consistent with other evidence concerning product and geographic market definition? If the study does not explicitly discuss market definition, is it taking an implicit position through the choice of companies to study, and is that position reasonable in light of the facts of the case? Are groups of companies being mixed together that are likely to be impacted in different ways? If so, what happens to the companies individually or if they are grouped together in different ways? (More on this below.) Are some potentially relevant companies being excluded from the analysis? If so, a practitioner may wish to learn if any excluded companies yield different results than the event study claims for the included companies. Conversely, is it plausible that an included company will be impacted sufficiently that the impact can be detected? That is, some events may be expected to have only a modest impact on a small division of a huge, diversified company. If an event study nonetheless claims to find a statistically significant deviation from the predicted share price, a practitioner may wish to question the researcher’s inference that the two are related.

Following up on the question of how multiple companies are handled, the literature suggests, for example, that if there are multiple companies that are likely to be impacted in similar ways, then the researcher may wish to see if there is a jointly significant deviation on the relevant day—that is, looking at a group can yield greater precision than looking at individual firms. 11 If an event study

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8 See, e.g., id. at 693 (“Nevertheless, our analysis indicates that the conclusions drawn by these earlier studies do not necessarily follow from their results. It is possible to tell a reasonable story in which the pattern of abnormal returns reported in Eckbo and Eckbo and Wier are consistent with mergers that lessened competition along with creating efficiencies.”).

9 See, e.g., CAMPBELL ET AL., supra note 4, at 151 (“After identifying the event of interest, it is necessary to determine the selection criteria for the inclusion of a given firm in the study. The criteria may involve restrictions imposed by data availability such as listing on the NYSE or AMEX or may involve restrictions such as membership in a specific industry. At this stage it is useful to summarize some characteristics of the data sample (e.g., firm market capitalization, industry representation, distribution of events through time) and note any potential biases which may have been introduced through the sample selection.”). Selecting the right companies or market indices to use as benchmarks for overall market trends is also important but can be a more technically oriented topic.

10 See, e.g., Schwert, supra note 3, at 132 (“Of course, it is important to group securities into portfolios based on the similarity of the impact of regulation.”); Schuman, supra note 7, at 686–87 (noting that, for example, the impact of a merger on other firms can vary substantially from firm to firm); CAMPBELL ET AL., supra note 4, at 167 (discussing pros and cons of examining portfolios and individual securities).

11 See, e.g., Schwert, supra note 3, at 132 (“Thus, the portfolio return will provide a more precise estimate of the effect of regulation when the abnormal return is the same for each security in the portfolio.”).
has multiple companies with a common expected impact and does not look at their joint performance, the practitioner may wish to inquire as to why, and whether the study’s results are robust when looking at a group. Similarly, if the joint results are not statistically significant but an event study disregards the joint results in favor of one or two individual companies with statistically significant results, that calls into question the study’s inference that the share price deviations are related to the event of interest. If that were so, why is it impacting only some of the companies where impact is predicted? There may well be reasons why that is so, but inconsistency between individual and joint results is an area the practitioner may wish to pay close attention to.

The final area to look at is what else is going on during that time period. Are there confounding events that may make it difficult, or even impossible, to tease out the impact of the event of interest? For example, consider a company that releases new information that a mining operation has petered out. (As noted above, it is possible that such information might have become known to the market prior to the official announcement, e.g., because researchers or reporters visited the mine and observed that it was being shuttered. But assume here that the announcement is, in fact, new information.) An event study might find that the share price on that day falls by a statistically significant amount relative to the predicted share price level, which the researcher doing the event study might interpret to mean that news of the loss of the mining operation has had a material adverse effect on the company’s future profitability. But what if that announcement had been part of a quarterly earnings call, and on the same call the company made multiple other announcements containing negative new information, such as earnings being lower than the market had expected or that the CEO would resign soon because of health issues?

The event study itself simply tests whether there is a statistically significant deviation from predicted performance on a given day. If one sees what may plausibly be important new information released on that day, one can draw an inference that the two are related, but it is important to look at what other information may have been released that day. For this reason, it is common for researchers to do news searches for possible confounding events. The practitioner may wish to look into any failure to do so.

Case Study

I use a recent working paper by Zimmerman et al. as a case study of how a legal practitioner might evaluate an event study. The paper focuses on the AT&T/Time Warner merger—a merger between a multichannel video programming distributor (AT&T/DIRECTV) and a provider of video content (the Turner networks). The U.S. Department of Justice claimed that the merger would result in Turner charging DIRECTV’s rival MVPDs more to carry the Turner networks (e.g., TNT, TBS, CNN). The paper’s hypothesis is that if the market agreed with the Department of Justice’s theory, then the share prices of rival MVPDs should have declined when the merger was announced and that the share prices of other content providers should have increased.

Going through the areas discussed above in order, first, how do the authors determine when the market first becomes aware of the merger? The authors are not entirely clear on their method-

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12 See, e.g. Nicholas I. Crew, Kevin L. Gold & Marnie A. Moore, Federal Securities Acts and Areas of Expert Analysis, in Litigation Services Handbook 24-1, 12-13 (Roman Weil, Daniel Lentz & David Hoffman, eds., 5th ed. 2012) (An “expert’s analysis includes a news search [and] examination of industry and market conditions over the period” in order to establish “that the relevant industry and market factors did not change” and “no confounding news events occurred. . . .”).

ology or what news sources they reviewed, but they claim that initial reports appeared on October 20, 2016, with more definitive reports the following day and an official announcement on October 22.\textsuperscript{14} Given the rolling nature of the disclosures, the authors focus on a five trading day window starting two days before the Oct. 20, and extending two days after, and look at both individual day estimates and cumulative estimates. As discussed above, using a window is a common practice, particularly when the release date of the news is not clear cut. However, also as discussed above, longer windows may be more prone to confounding events.

The next question is whether the authors have a clear, testable hypothesis. One might think this question would rarely be a fruitful avenue for examination, but in fact in an antitrust context it may often be worth looking at closely. Here, the authors devote 17 pages to discussing the predicted share price impacts of a large number of economic theories.\textsuperscript{15} In short, the authors note that any particular pattern of observed share price impacts can be explained by multiple theories.

The practitioner may also wish to consider whether there are additional explanatory theories not discussed by an expert. Here, for example, the authors cite literature to argue that if the price for Turner content went up, prices received by other content providers should also go up.\textsuperscript{16} However, an argument can be made that the bargaining model put forward by the Department of Justice implies that if MVPDs are made worse off by Turner raising price to them, then the "pie" that the remaining content providers are negotiating over with the MVPDs will shrink, resulting, under the DOJ's theory, in lower prices for other content providers, not higher. Thus, it can be the case that authors identify multiple hypotheses that can explain particular observed patterns of abnormal returns, and there can also be additional hypotheses not discussed that can do so as well.

The authors attempt to solve the problem of multiple hypotheses that can explain a particular observed set of results by turning to the record to dismiss some hypotheses on grounds unrelated to the event study. For example, the authors note that negative abnormal returns for rival firms may be explained by either the merging firm becoming a stronger competitor (e.g., DIRECTV lowering its prices for video services due to elimination of double marginalization) or the merging firm engaging in some form of raising rivals’ costs (e.g., Time Warner raising the price of Turner networks to MVPDs competing with DIRECTV). The authors claim that they can dismiss the possibility of the merging firm becoming a stronger competitor because the efficiencies could be expected to be small—a price reduction of about $1.20/month according to the DOJ.\textsuperscript{17}

This sort of effort to distinguish between hypotheses based on external analysis can be difficult, and the practitioner should look to see whether there is a dispute as to the factual basis for dismissing a particular hypothesis. Here, for example, there is such a dispute. The authors fail to note that the claimed impact on rivals’ costs was also of small magnitude—a price increase of about $0.76/month for the Turner networks\textsuperscript{18}—and that the sizes of the efficiencies and harm were both contested. The government claimed that, on net, content price increases would dominate, and AT&T/Time Warner claimed the government’s predicted price increases were speculative and inconsistent with the outcomes of prior vertical integration events and that efficiencies would be

\begin{itemize}
  \item[14] Id. at 25.
  \item[15] Id. at 6–22.
  \item[16] Id. § 2.2.
  \item[17] Id. at 14.
\end{itemize}
important. The practitioner might ask how the authors can reasonably claim that negative abnormal share price changes for rival firms support the government’s theory when the merging parties’ theory can explain the same pattern, and the court in fact found in favor of the merging parties.\(^{19}\)

As discussed above, this problem of multiple hypotheses being able to explain an observed set of results is not unique to this working paper and may be particularly common with respect to merger-related event studies. One researcher has noted that “practically any pattern of rivals’ abnormal returns can be consistent with some story of predominately procompetitive or anticompetitive mergers.”\(^{20}\) That researcher was discussing horizontal mergers, but the working paper’s extensive discussion of hypotheses illustrates that the same concern applies with respect to vertical mergers.

The next question is whether the event study is looking at a relevant group of companies. The authors examine a variety of upstream and downstream firms, including content providers, traditional MVPDs, virtual MVPDs, and subscription video on demand firms. There is little explicit discussion of market definition, but the authors have the advantage of being able to refer to a litigated case where market definition was extensively discussed. That will not generally be the case for ongoing litigation, of course. Nonetheless, perusal of the specific list of companies analyzed in the working paper suggests several areas a practitioner might want to explore.

First, why these MVPDs and not others? That is, if a company was considered part of the relevant product and geographic markets, why is it not being analyzed? The answer may be as simple as that other MVPDs were not publicly traded during the relevant time frame, but the practitioner should look closely at the stated criteria for choosing the firms analyzed and, just as importantly, the criteria for excluding other firms. Here, the discussion of firm selection is relatively limited, inviting further inquiry from the practitioner.

Second, some of the firms fit into multiple categories, raising concerns about how to interpret results for those firms. For example, Comcast is an MVPD that is vertically integrated with a content provider (NBCU) and is also partial owner of a virtual MVPD (Hulu). This is an illustration of the sorts of practical difficulties that can arise when large companies have diversified operations. The practitioner may wish to examine the relative importance of different divisions to the overall company and whether predicted impacts vary for the different divisions.

Third, as a related matter, one might ask whether it is plausible that a small increase in the price of Turner content or a small decrease in the retail price of a single rival MVPD would have any detectable share price impact given the size and diversity of some of the firms. For example, the authors include Google because of Google’s launch of YouTube TV, a virtual MVPD. If the authors found a statistically significant result for Google, a practitioner might reasonably ask whether the authors were claiming that the tail is wagging the dog—that it is more likely that any such finding was due to other factors that the authors failed to consider. (In fact, the authors did not find a statistically significant result for Google, which is not surprising for the reasons just discussed.)

As discussed above, it may be useful to look at firms both individually and in groups, and the authors in the working paper do so. The authors’ results also provide a useful example of the tension that can arise between the two approaches. None of the groups examined by the authors had statistically significant cumulative abnormal returns for any of the periods analyzed. On an indi-

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\(^{19}\) Memorandum Opinion at 170–72, United States v. AT&T, Case No. 1:17-cv-02511-RJL (June 12, 2018).

\(^{20}\) Schumann, supra note 7, at 694.
vidual firm basis, the authors essentially had only three statistically significant results—negative abnormal returns at Verizon, positive, then negative, abnormal returns at DISH, and a positive abnormal return at Fox for the day after the merger announcement. (The day of the announcement is referred to as “time $t$, ” and the day after as “$t+1$.”)

One question the practitioner may wish to ask is why, if MVPDs are expected to be harmed by the merger, should that effect not show up for other cable companies? That is, how is it plausible that Verizon, which is a diversified company with very large wireless and telecom operations, should show an impact while more narrowly focused cable companies like Charter and Cable One do not? The general principle is that if different results are found for companies that are allegedly in the same situation, the practitioner may find it useful to inquire whether there are other things going on besides the event being studied that are driving the results.

This leads to the final topic: confounding events. The authors devote substantial space to discussing other news for DISH that may explain why there were positive statistically significant returns at time $t$ and negative ones at $t+1$, but no statistically significant cumulative abnormal returns. Attempting to parse out the effects of acknowledged confounding news events can be a difficult exercise. The working paper’s discussions also highlight the perils of selectively engaging in such parsing of other news. The authors discuss at length why they believe that the DISH result at time $t$, which would contradict their hypothesis, can be dismissed as being the result of confounding news, while the $t+1$ result that they claim is consistent with their hypothesis is actually related to the announcement at time $t$. However, they also claim that the Verizon results fit their theory but provide no discussion of possible confounding news. The practitioner might ask why a discussion of other news was provided to dismiss a result contradicting the authors’ hypothesis while no such discussion was provided for results confirming the authors’ hypothesis.

In this sort of situation, the practitioner might conduct their own news search to see whether there might be any confounding events. Here, for example, Verizon released its quarterly earnings in the middle of the period the authors are studying.\footnote{See, e.g., Press Release, Verizon Communications, Inc., Verizon Communications to Report Earnings October 23 (Oct. 22, 2018), https://www.verizon.com/about/news/verizon-communications-report-earnings-october-23.} Were there factors anticipated or discussed related to those earnings that might explain the authors’ results for Verizon? The practitioner might well explore that further.

**Conclusion**

To sum up, event studies are very useful in many circumstances and commonly appear in expert testimony. Legal practitioners working with experts putting forward or responding to such studies may find it helpful to “kick the tires” by asking several lay-friendly questions:

1. Does the expert identify the right time period?
2. Does the expert have a clear, testable hypothesis, or is there more than one explanation for the results?
3. Is the expert looking at a relevant group of companies where an impact could plausibly be detected?
4. Given more than one company in the analysis, are the results internally consistent? And
5. Are there confounding events occurring at the same time?