Homework for Chapter 17: Event Studies

*How Does It Work?*

1. The Berlin Wall, which divided West Berlin from Soviet East Berlin, fell in late 1989. You suspect that the fall might have reduced the number of villains in Hollywood movies who were Soviets or communists. However, you look at the number of Soviet or communist villains in Hollywood movies leading up to 1989 and notice that the number had already been dropping. What will happen if you use an event study to look at the effect of the Berlin Wall on Soviet villains and *don’t* account for the time trend?
   1. You will estimate that the wall falling had a bigger impact than it actually did
   2. You will estimate that the wall falling had a smaller impact than it actually did
   3. You will produce an estimate that is, on average, the true effect
   4. You will, on average, get the true effect, but only if you account for the average rate of villains before the wall fell
   5. There’s no way to tell
2. Describe an event study you might run, and what you’d want to see in the data, that would justify estimating the effect by simply comparing the average outcome before the event to the average afterwards, ignoring the Time back door.
3. “Approach 3” in the chapter, where we estimate relationships before the event and then use that information to help predict the counterfactual outcome afterwards, seems too hard. Can’t we just estimate a time trend and stop there?   
     
   Imagine a company releases a worse-than-expected financial report, and you want to know the effect of that report on its stock price. However, this report also came out just one day before a stock market crash. What would our event study get wrong if we only use a time trend that would be fixed by the use of Approach 3 instead?
4. Why does running an event study on a *very very small time window* help justify ignoring the Time back door?
   1. Because by limiting the number of time periods to a very small number it allows you to feasibly control for every time period
   2. Because time trends are easier to estimate and thus control for when using a short time window
   3. Because any trend in the data is unlikely to show up on such a short time scale
   4. It doesn’t

*How is it Performed?*

1. Imagine you have calculated the abnormal return for Stock X using the means-adjusted, market-adjusted, and risk-adjusted models. You look at the values and find that, about two weeks after your event, the means-adjusted abnormal return jumps way up, but the market-adjusted and risk-adjusted models stay flat. What can you infer from this?
   1. The market as a whole jumps up two weeks after the event.
   2. The market as a whole drops down two weeks after the event.
   3. The price of Stock X in the leadup to the event was trending upwards.
   4. The price of Stock X in the leadup to the event was trending downwards.
   5. The event significantly increased Stock X’s return two weeks after the event.
   6. The event significantly decreased Stock X’s return two weeks after the event.
2. Consider the below table of returns for Stock X and for the market as a whole. Consider days -2 and -1 as the “estimation” period and days 0 and 1 as the “observation” period.

|  |  |  |
| --- | --- | --- |
| Days to Event | Stock X Return | Market Return |
| -2 | .01 | .01 |
| -1 | -.02 | -.01 |
| 0 | .03 | .02 |
| 1 | .02 | -.01 |

* 1. Calculate the abnormal return for Stock X for day 0 and day 1 using the means-adjusted returns model.
  2. Calculate the abnormal return for Stock X for day 0 and day 1 using the market-adjusted returns model.
  3. You use a longer window of data than you have here to estimate the OLS model . Calculate the abnormal return for Stock X for day 0 and day 1 using the risk-adjusted returns model.

1. One of the downsides of using an interaction term/segmented regression approach to estimating an event study design is that you’ll get the estimate wrong if you pick the wrong shape to fit. Explain why we can’t just solve this problem by picking a super-flexible shape, like a polynomial with a really high order.
2. You estimate a linear segmented regression model , where the event occurs at .
   1. Write a one-sentence interpretation of the coefficient.
   2. Write a one-sentence interpretation of the coefficient.
   3. Write a one-sentence interpretation of the coefficient.
   4. Which coefficient represents our estimated event study effect?

Coding (which includes any how-the-pros-do-it questions)