1. Download data from [http://www.law.upenn.edu/fac/jklick/PS5.txt](http://www.law.upenn.edu/fac/jklick/PS5.txt). prc is the closing price for each firm’s shares at the end of the given day. adjprc is price adjusted for any stock splits or dividends (which is important since a stock split affects price but it doesn’t affect the return on the asset; similarly, dividends lower price, all other things equal, but they aren’t “bad” from a return standpoint).

2. The Office Depot (ticker: ODP) and Staples (ticker: SPLS) merger proposal was announced September 4, 1996. Run a simple event study for the effect of that date for each of the potentially merging firms and the lone major competitor in the industry Office Max (ticker: OMX). Use the S&P 500 index return (sprtrn) as the market index. Use all of the pre-event data in the dataset to estimate your model. Use the direct regression model approach (i.e., estimate the regression with a dummy variable for the event date in the model).

3. Do #2 again using the conventional “long” approach (i.e., estimate a model to generate your counterfactual; predict your event day return; calculate the abnormal return; standardize it by an estimate of the abnormal return volatility). Intuitively, why do #2 and #3 generate the same results?

4. Re-do #2 using only 100 pre-event days in your regression. Note any differences between #2 and #4 with respect to your model estimates. What are the costs/benefits of using a shorter estimation period?

5. If you are concerned about the costs discussed in #4, one way to examine this concern is to test whether the relationship between each firm’s return and the market is the same in the early part of the sample as it is during the 100 days before the event. Perform such a test.

6. Re-do #2 using the CRSP value weighted return for your market index (vwretd) which is a broader market index which includes all firms traded on public markets in the US weighted by market capitalization. Why is the broader measure “better?” Why, in practice, is it unlikely to matter?

7. Re-do #2 allowing for a 3 day event “window” (i.e., the event date t, t-1, and t+1) using all of the pre-event data to estimate your model. What are the benefits of using the broader event day definition? What are the negatives involved in using the broader measure?

8. Redo #2 using the non-parametric approach suggested in Gelbach, Helland, and Klick (see syllabus for citation) to perform inference on the event effects for each firm. Note differences in implies significance levels between the standard approach and the SQ approach suggested by Gelbach et al. What is the benefit of using the SQ method relative to the normal approach?
9. Fama and French suggest that CAPM with the addition of control variables for the relationship between the asset and the return differential between a portfolio of small market cap firms and big market cap firms (smb) and the return on a portfolio of stocks with high book to market ratio (hml) does a good job of modeling US asset returns. Use their suggested model to re-run the event study in #2. Note that rf is the risk free rate of return. Also note that, except for the CAPM portion of the model, Fama and French offer no theoretic justification for their assertion. They merely suggests that it “works” empirically for US returns.