**Basic SAS Skills**

**Replication Day 1: Compustat**

1. Perform basic initializations
   1. Create a location to save data files
   2. Load your macro file
   3. Sign on to WRDS
   4. Create 4 macro variables:
      1. Ndays, the number of weekdays in the estimation period for beta, equal to one calendar years’ worth of workdays (approximately 240).
      2. Offset, the time between the end of the beta estimation period and the start of the event study (typically 40 days).
      3. Beginning date, the time relative to an event to start the event window (0 in this case).
      4. End date, the time relative to an event to end the event window (2 in this case).
2. Retrieve Compustat data between 1999 and 2001 inclusive.
   1. Include anything needed to validate your data.
   2. Keep the following
      1. Primary Compustat identifier
      2. Primary identifiers to link with CRSP and audit analytics
      3. Industry classification
      4. Fiscal year and month
      5. Date of data
      6. Exchange code
      7. Financial variables including, at a minimum enough to compute:
         1. Leverage
         2. Market value
         3. ROA
3. Create key variables of interest including:
   1. A variable called calendar year. Calendar year should equal the current year for firm’s with a fiscal month end in June or later. Otherwise, calendar year should be the next year.
   2. A variable called nmo. NMO should equal the difference (in months) between the data year and 1960 plus the number of month’s until the current fiscal year end.
   3. A trimmed version of cusip including only the first 8 digits.
   4. Leverage
   5. ROA
   6. Market value
   7. Sales’ growth
   8. Only keep observations with an NMO between 490 and 501.
4. Merge in information on historical industry and major index from the Security Monthly Descriptor database.

**Basic SAS Skills**

**Replication Day 2: CRSP**

1. Merge in a link to CRSP.
2. Add an event day equal to January 10th, 2002.
3. Gather company level returns for a 240 day period before the event day and a 2 day period after the event day.
4. Merge in market level returns for this same period.
5. Calculate expected returns for each firm during the 3 day event window.
   1. Note that expected returns are a function of a stock’s historical movement with the market.
   2. The following code may be helpful:

**proc** **reg** data=event1c noprint;

by permno edate;

model tmp\_ret = vwretd;

output out = event2 p=expected\_ret;

**quit**;

1. Calculate abnormal (actual – expected returns) for the 3 day event window.
   1. Make sure these are continuously compounded.
2. Merge abnormal returns back in with the main Compustat information.