Chapter 6: Data Exploration Problems

1. Graph investors' long-term expected inflation rate since 2003 by subtracting from the 10-year U.S. Treasury bond yield (FRED code: GS10) the yield on 10-year Treasury Inflation-Protected Securities (FRED code: FII10). Do these market-based inflation expectations appear stable? Did the financial crisis of 2007-2009 affect these expectations? *(LO4)*

   Hint: At the FRED Web site, click on "Data Tools" and then "Create Your Own Graph." In the search box below the "Settings" heading, type in GS10. Then select "Add Data Series," highlight the "Line 1" button, and then type "FII10" (without the quotes) into the search box. Set the Observation Date Range to start in January 2003. In the formula box, type "a – b" (without the quotes) to graph the difference between the two series. Then select "Redraw Graph."

2. Compare long-run market expectations of inflation with a consumer survey measure of one-year-ahead inflation expectations. Starting with the graph from Data Exploration Problem 1, add as a second line the University of Michigan survey measure of inflation expectations (FRED code: MICH). Why might they differ systematically? *(LO4)*

   Hint: Starting with the graph from Data Exploration question 1, select "Add Data Series" and add a second line for the University of Michigan inflation survey (FRED code: MICH). Return to "Line 1" and select "Copy to All Lines" next to the Observation Date Range and then "Redraw Graph."

3. How does the variability of annual inflation—an indicator of inflation risk—change over time? Graph the percent change from a year ago of the consumer price index (FRED code: CPIAUCSL) since 1990 and visually compare the 1990s, the 2000s, and the period that began in 2010. *(LO4)*

   Hint: At the FRED Web site, select "Data Tools" and then "Create Your Own Graph." In the search box below the "Settings" heading, enter the identifier for the consumer price index (FRED code: CPIAUCSL). Set the "Observation Date Range" to start in 1990, select "Percent Change from Year Ago" from the "Units" dropdown box, and then "Redraw Graph."

4. Download the data from the graph that you produced in Data Exploration Problem 3. Calculate the standard deviation of the annual inflation rate for the three time periods and compare these results against your visual assessment from Data Exploration Problem 3. *(LO4)*

   Hint: Above the graph, select "Download Data in Graph" to create a spreadsheet with the inflation data. Use the spreadsheet function STDEV to calculate the standard deviation of annual inflation for each time period.

5. Economists sometimes exclude food and energy prices from the “headline” consumer price index and use the resulting “core” price measure to assess inflation prospects. For the period since 1990, plot on one graph the percent change from a year ago of the consumer price index (FRED code: CPIAUCSL) and the percent change from a year ago of the consumer price index excluding food and energy (FRED code: CPILFESL).Visually compare the variability of these two measures of inflation. Why might inflation excluding food and energy be a better predictor of future inflation than headline inflation? *(LO4)*

   Hint: Starting with the graph in question 3, select “Add Data Series,” add the core CPI code (FRED code: CPILFESL) in the search box, set the “Observation Date Range” to start in January 1990, select “Percent Change from Year Ago” from the “Units” dropdown box, and then “Redraw Graph.”