

## Chapter 7: Data Exploration Problems

1. Did the financial crisis of 2007–2009 affect financial and nonfinancial firms to the same extent? For the period beginning in 2006, plot the spread between the interest rates on three-month nonfinancial commercial paper (FRED code: CPN3M) and three-month Treasury bills (FRED code: TB3MS). Plot a similar spread using the interest rates on three-month financial commercial paper (FRED code: CPF3M) and Treasury bills (FRED code: TB3MS). Compare the evolution of these two spreads. (LO1)

*Hint: At the FRED Web site, select “Data Tools” and then “Create Your Own Graph.” Type in the code for the non-financial commercial paper (FRED code: CPN3M) and then set the “Observation Date Range” to begin in January 2006. Go to “Add Data Series,” select the “Line 1” button, and then type in the code for the Treasury bill rate (FRED code: TB3MS). At the formula box type in “ $a - b$ ” (without the quotes) and then select “Redraw Graph.” Repeat this process for financial commercial paper (FRED code: CPF3M), but use the “Line 2” button when you enter TB3MS again.*

2. The Federal Reserve Bank of St. Louis publishes a weekly index of financial stress (FRED code: STLFSI) that summarizes strains in financial markets, including liquidity problems. For the period beginning in 1994, plot this index and, as a second line, the difference between the Baa corporate bond yield (FRED code: WBAA) and the 10-year U.S. Treasury bond yield (FRED code: WGS10YR). Does the index STLFSI provide an early warning of stress? (LO3)

*Hint: At the FRED Web site, select “Data Tools” and then “Create Your Own Graph.” Type in the code for the Baa bonds (FRED code: WBAA). Select “Add Data Series” and the “Line 1” button and insert the code for the Treasury bond yield (FRED code: WGS10YR). At the formula box, type in “ $a - b$ ” (without the quotes) and then select “Redraw Graph.” Go again to “Add Data Series” and type in the code for the financial stress index (FRED code: STLFSI). Click “Copy to All Lines” next to the Observation Date Range for this index. Finally, select “Redraw Graph.”*

3. How did the Great Depression (1929–1933) and the Great Recession of 2007–2009 affect expectations of corporate default? To investigate, construct for each of those periods a separate plot of the corporate bond yield spread. For the Depression period, plot from 1930 to 1933 the difference between the Baa corporate bond yield (FRED code: BAA) and the long-term government bond yield (FRED code: LTGOVTBD). For the Great Recession, plot from 2007 to 2009 the difference between the Baa yield (FRED code: BAA) and the 10-year Treasury bond yield (FRED code: GS10). Compare the plots. (LO1)

*Hint: For the first plot, at the FRED website, select “Data Tools,” then “Create Your Own Graphs.” At the “Graph” settings, turn off the recession bars. In the “Add Data*

*Series” box, type in the Baa bond yield code (FRED code: BAA). Select “Add Data Series” again, select the “Line 1” button, and type in the Treasury bond yield code (FRED code: LTGOVTBD). In the formula box, type in “a – b” (without the quotes) and then select “Redraw Graph.” Finally, set the observation range from January, 1930 to December, 1933 and then “Redraw Graph.” For the second graph, start afresh by typing the Baa bond yield code (FRED code: BAA) in the search box under “Add Data Series.” Choose “Add Data Series” again, select the “Line 1” button, and type in the 10-year Treasury bond yield code (FRED code: GS10). In the formula box, type in “a – b” (without the quotes) and select “Redraw Graph.” Finally, select the Observation Date Range from January, 2007 to December, 2009, and choose “Redraw Graph.”*

4. How reliably does an inverted yield curve anticipate a recession? How far in advance? Plot from 1970 (as in Figure 7.9A) the difference between the 10-year Treasury yield (FRED code: GS10) and the three-month Treasury bill rate (FRED code: TB3MS). Discuss the variability of the time between an inversion of the yield curve and the subsequent recession. (LO3)

*Hint: At the FRED Web site, select “Data Tools” and then “Create Your Own Graph.” Type in the code for the 10-year Treasury yield (FRED code: GS10). Go to “Add Data Series,” select the “Line 1” button, and insert the code for the Treasury bill rate (FRED code: TB3MS). At the formula box type in “a – b” (without the quotes), set the start date of 1970 in the Observation Date Range box, and select “Redraw Graph.”*

5. Download the data from the graph produced in Data Exploration Problem 4 and (a) find the most recent period for which the yield curve was (approximately) flat and (b) the longest time period for which yield curve was inverted. (LO2)

*Hint: Above the graph produced in Data Exploration Problem 4, click on “Download Data in Graph” and examine the resulting spreadsheet.*