P Discovery Project

The Global Financial Crisis of 2007 – 2008

The global financial crisis of 2007 – 2008 seemed to have been years in the making. By the summer of 2007, financial markets around the world were showing signs that a correction was overdue for several years due to companies (primarily financial institutions) taking advantage of "cheap credit." Several large banks were the first to collapse and investors were being warned that they might not be able to withdraw their money from stock market accounts, retirement funds, or even regular bank accounts. This was a stark reminder of the Great Depression between 1929 – 1932. Even with these warnings, investors did not anticipate the worst financial crisis in nearly 80 years was about to cripple the global financial system. The financial crisis cost many ordinary people their jobs, their life savings, their homes, and for some, all three were lost.

Data

The data set can be found by visiting stat.hawkeslearning.com and navigating to **Discovering Business Statistics, Second Edition > Data Sets > Percentage Change in Real Home Price Index since 1890**.

This global financial crisis will be written about for many, many years to come with many financial experts asking, *Should we have seen this coming*? To shed just a little light on the crisis and to help answer the question, please use the data titled "Percentage Change in Real Home Price Index since 1890" to answer to answer the following questions.

1. Plot the raw data (Percentage Change in Home Price Index (HPI) against Date) from January 1, 1970, through December 1, 2008. Do you see any patterns over the first five years; over the first 15 years; over the first 30 years?
2. Are these data stationary or nonstationary?
3. Do you see any patterns of variation in the data such as trends, cycles, or seasonality? If so, please identify the timeframe and whether these patterns might have been helpful in predicting the crisis (as a function of HPI).
4. Using MS Excel, perform a 12-period moving average to predict HPI. Using these predictions, did you see any evidence that would help you predict the global financial crisis? Is the moving average method good for predicting HPI for this data? Please justify your answer.
5. Using MS Excel, using the adjusted exponential smoothing procedure to predict the HPI for January 1, 2009. Using $\alpha = 0.3$ and $\beta = 0.7$. Using these predictions, did you see any evidence that would help you predict the global financial crisis? Is this forecasting method good for predicting HPI for this data? Please justify your answer.
6. Would the Additive Seasonal Forecasting method be good to use for this data? Please justify your answer.

There are many more questions that could be asked. Please take the time to explore all of the data to find as many "stories" as possible. One can also examine productivity growth and the labor force growth, labor force participation rates, average household incomes, aggregate household debt, just to name a few. This is just one of many sets of data associated with the Global Financial Crisis of 2007 – 2008.