Recessions have been a concern for government and business leaders and the populace in general for hundreds of years. From the Tulipmania in 1634 to the Great Depression in the 1930's to the Dot Com bubble to the Great Recession in 2007 they have all instilled fear and anxiety in the populace because of financial insecurity, but also because of the relative uncertainty of knowing when a recession would begin. This has changed, to a degree, with the discovery of the relationship between the term spread in U.S. Treasury bonds and recessions.

Researchers, Arturo Estrella, Federal Reserve, and Professor Campbell Harvey, Duke University, have both studied the relationship between the term spread on the U.S. Treasury yield curve and economic output. Their findings show that when the term spread is positive it is indicative of a growing economy and when the term spread is negative it is indicative of a recession.

A difference between these two researchers is how they calculate the term spread, either using a ten-year Treasury bond or a five-year Treasury bond minus a three-month Treasury note. The lack of uniformity in calculating the term spread with U.S. Treasuries is what led me to my research topic, determining the ideal calculation for the term spread to predict recessions by using probit models and linear regressions.

In total I ran 36 variations with monthly data dating from 1955 to 2015. Those variations included differing time periods, lag times and term spread calculations. The probit models without statistical significance were eliminated and those with statistical significance were advanced. Then the statistically significant probit models were compared to each other to find the probit model with the least amount of information loss, as judged by the Akaike Information Criterion (AIC).

The results showed that the term spread calculated with the ten-year U.S. Treasury bond minus a three-month U.S. Treasury note with an 18-month lag from the time period of 1985-2015 is both statistically significant as determined the Chi Square P-Value and is the model with the least amount of informational loss as shown by the AIC calculation I then used the cumulative normal distribution table to calculate probabilities of recessions.