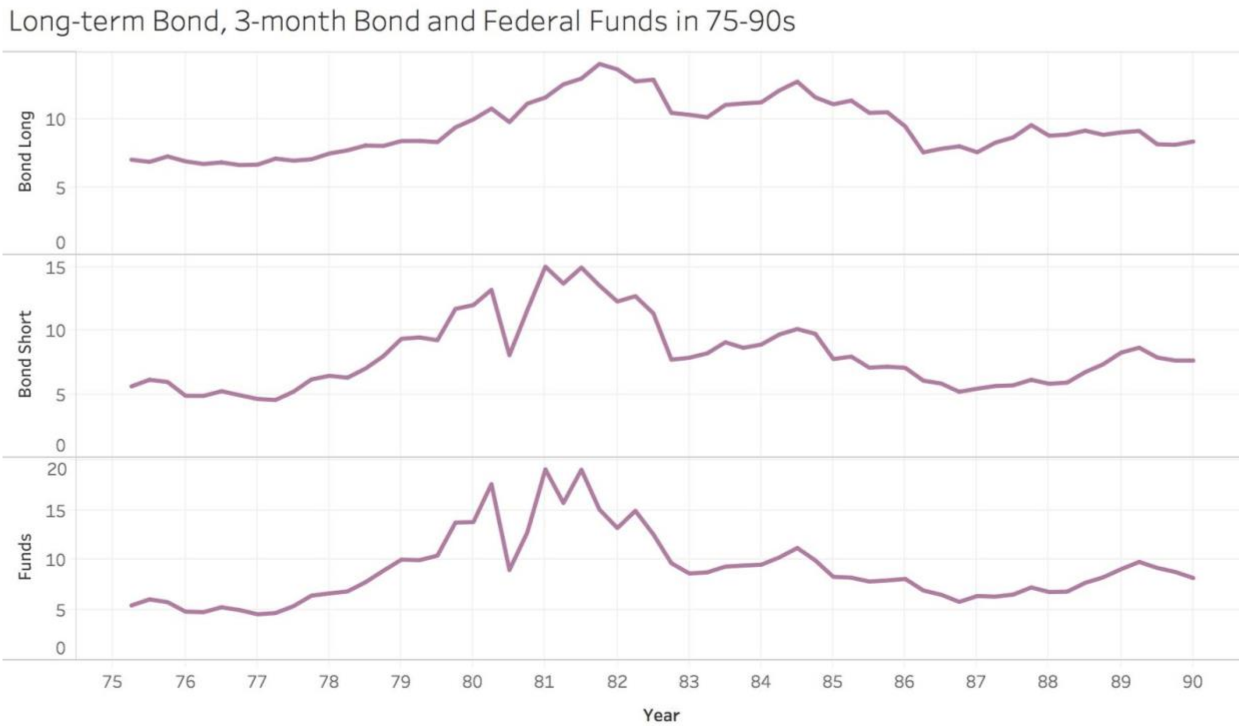
Story telling with Economy dataset

The variables I am going to do research in the Economy dataset are: Year, DJI, IBM, Prime, Bond Short, Bond Long, Funds, Unemployment, Population. I filtered the year from 75 to 90.



The trends of Bond Long, Bond Short and Funds for Year.

Above line graph shows the Funds, Bond Short, Bond Long rate in that period. We can see that they all have experienced a drastic change from Year 78 to 83. Long-term Bond stands for long-term treasury bond yield and tends to be more stabilized, while Bond Short (3-month treasury bond yield) better reflects the situation of bond market. Funds stand for federal funds rate has been increasing since early 1980s.

The Bloomberg Opinion has the conclusion that when the yield curve inverts, an economic recession is coming. It also gives us a quick definition that an inversion occurs when the yield on long-term bonds is lower than the yield on shorter term bonds. A buyer gets paid less to tie up capital for longer periods of time. From the line graph, it is obvious that around 1980, Bond Short yields more than Bond Long.

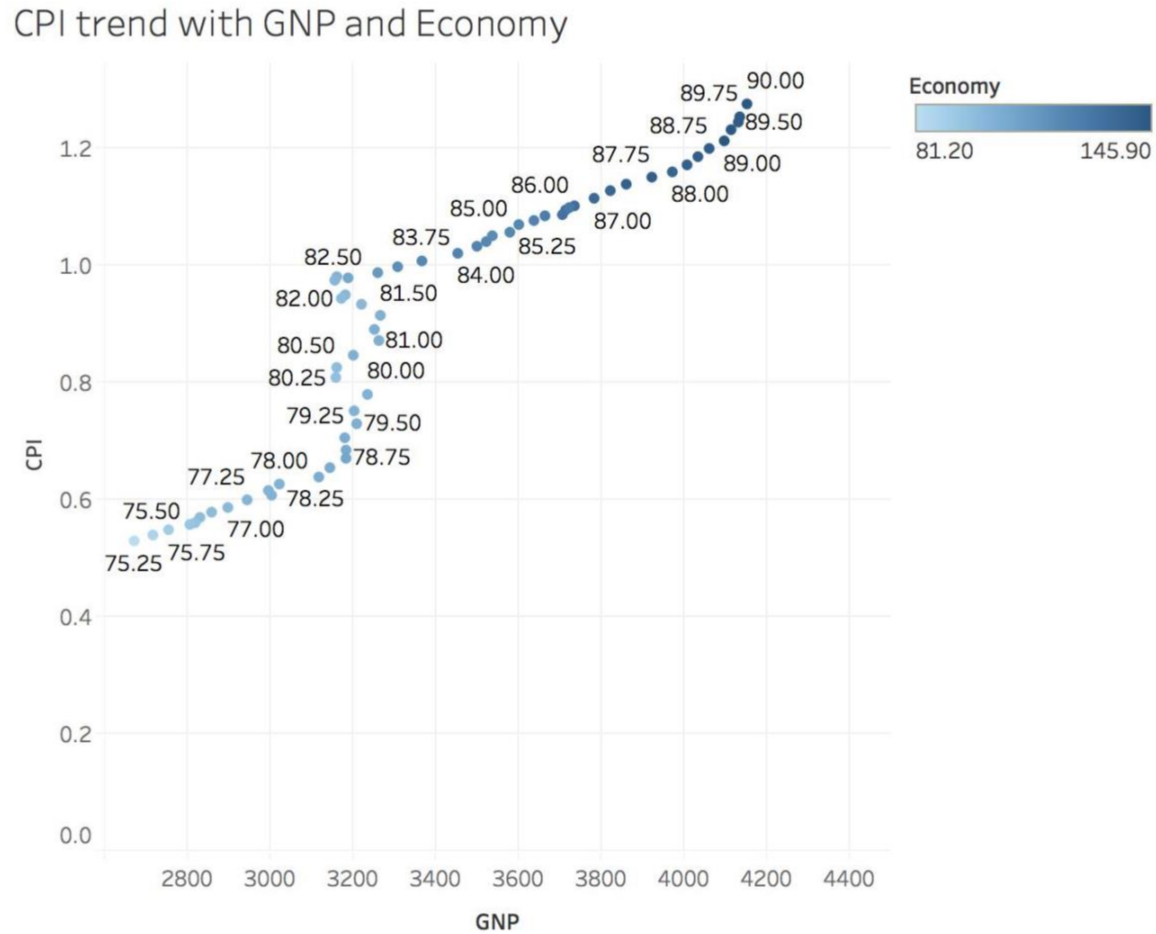
" Beginning in 1978, inflation began to intensify, reaching double digit levels in 1979. The consumer price index rose considerably between 1978 and 1980. These increases were largely attributed to the oil price shocks of 1979 and 1980, although the core consumer price index which excludes energy and food also posted large increases.[6] Productivity, real gross national product, and personal income remained essentially unchanged during this period, while inflation continued to rise, a phenomenon known as stagflation.[4]

In order to combat rising inflation, recently appointed chairman of the Federal Reserve, Paul Volcker, elected to increase the federal funds rate. Following the October 6, 1979 meeting of the Federal Open Market Committee, the federal funds rate increased gradually from 11.5% to an eventual peak of 17.6% in April 1980.[6] This caused an economic recession beginning in January 1980, and in March 1980, president Jimmy Carter created his own plan for credit controls and budget cuts to beat inflation.[7] In order to cooperate with these new priorities, the federal funds rate was lowered considerably from its April peak.[6]"

------Background of Early 1980s recession in the U.S.

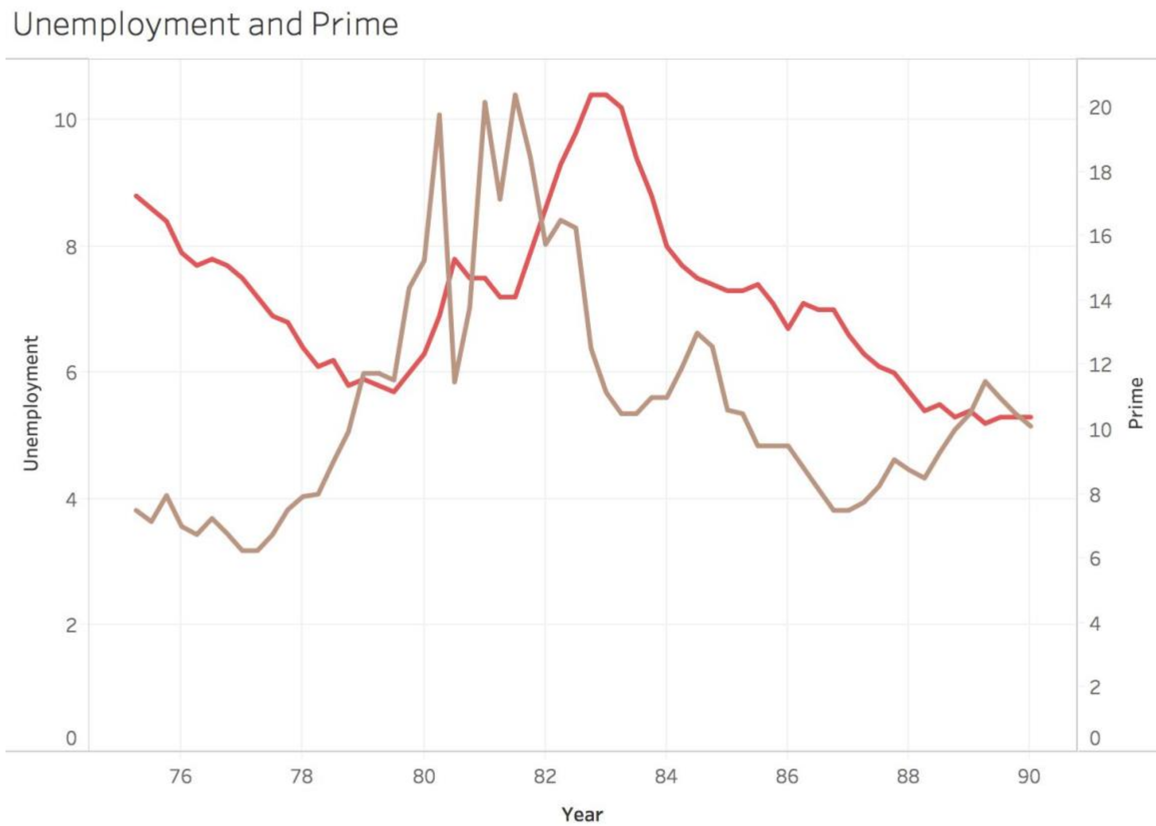
The recession begins in Jan 1980 as the result of increasing Federal Funds Rate, and credit loans become hard to get for cars and house, which in turn stimulate the Bond Short rate to climb because of the market demand for credit. Since manufacturing and housing are mostly depend on consumer credit, the recession causes most job lost in manufacturing and construction. We can have more direct feeling from below graphs: Unemployment and Economy; CPI trend with GNP and Economy.

The unemployment rate surge on early 80s, and only has a little drop around mid-year of 1980. It is probably due to the interest rate dropped beginning in May 1980 and payroll turned positive. Gross national product (GNP) also stagnated from 1978 to 1982, with the climbing of CPI at the same time.



GNP vs. CPI. Color shows Economy. The marks are labeled by Year.

Another interesting thing is that the unemployment rate for civilian in U.S. has another peak around 1982. The main reason is the rising interest rate. The Fed Reserve reported that there would be no economic growth in 1981 as the interest rates were continue rising in order to reduce inflation. (Red line stands for Unemployment; Brown line stands for Prime rate)

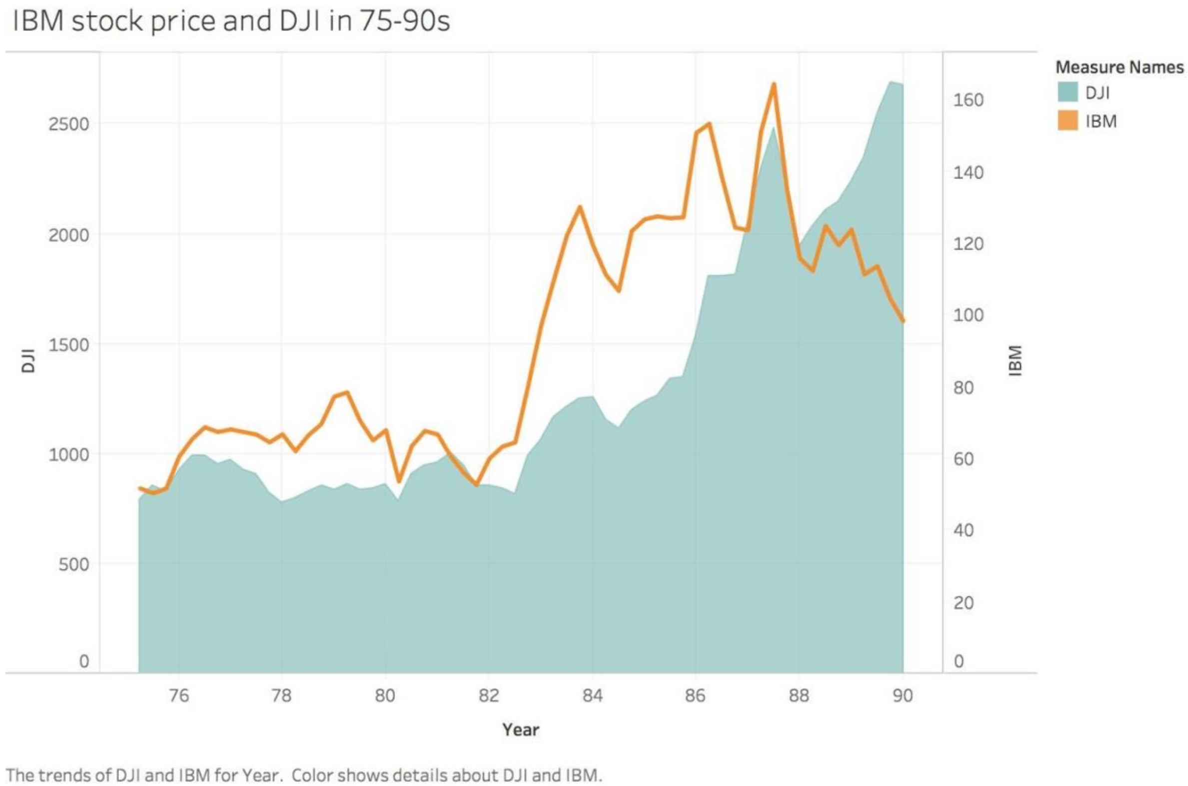


The trends of Unemployment and Prime for Year.

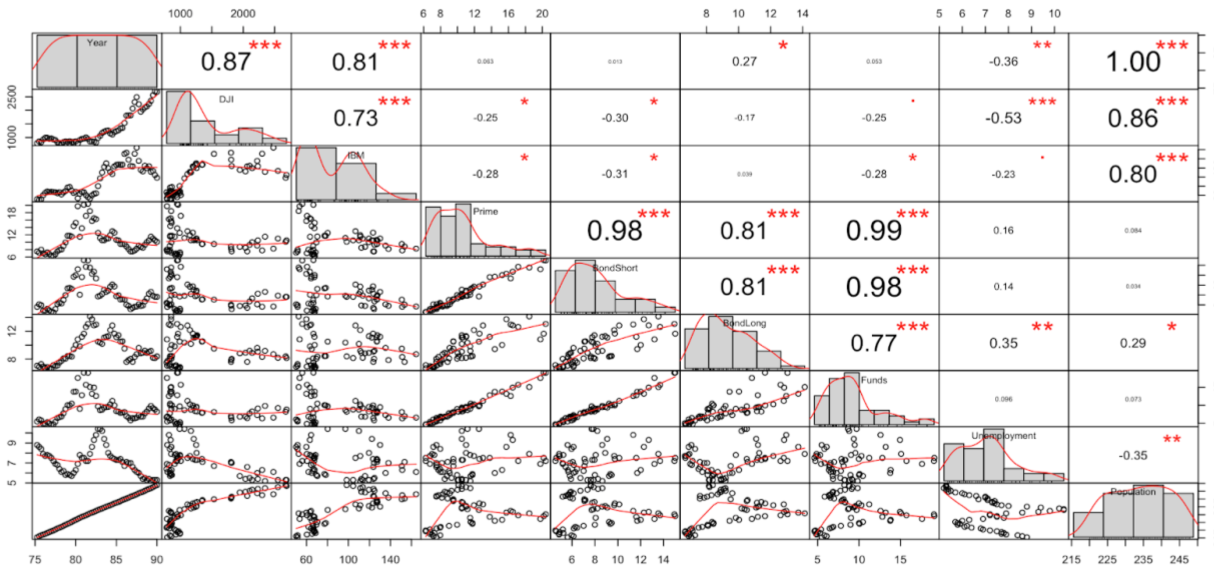
The result of rising interest rate (Prime Rate) caused the job losses resumed, as nearly all employment sectors have been affected through the end of 1982. There are also observations and statistics I found online said that:

“Unemployment had changed very little in the period between the end of the 1980 recession and the July 1981 start of the second, never dropping below 7.2%. Unemployment rose to double digits for the first time since 1941 in September 1982, and stood at a postwar high of 10.8% by the end of the year. Because the recession began with already elevated levels of unemployment, the increase easily pushed it higher than any other post-war recession.”

The IBM stock price and DIJ from that period also has been affected by bond market.



The chart below shows the correlation of Year, DJI, IBM, Prime, Bond Short, Bond Long, Funds, Unemployment, Population. We can see that Prime rate, Bond Short, Bond Long and Funds are positively correlated with each other, which is the same conclusion as discussed before. The distribution of each variable is shown on the diagonal. The significance level as stars (symbols: *,**,***) plus the correlation (p-values: 0.98, 0.77 etc.) on the top of the diagonal also can give us some understanding of relationship between those variables.



Reference:

https://www.bloomberg.com/opinion/articles/2018-04-30/a-flatter-yield-curve-is-no-reason-to-freak
https://en.wikipedia.org/wiki/Early_1980s_recession_in_the_United_States