Establishing Sector Weights for the UD Flyer Fund: A Quantitative Approach
Background

In essence, the hypothesis that I am testing is that sector price movements vary directly with the expansion and contraction of economic activity. As a measure of economic activity I chose to use the Chicago Fed's National Activity Index (CFNAI). CFNAI is a weighted average of 85 macro-economic indicators and is considered by business economists to be a reliable indicator of U.S economic expansions and contractions. I will use the S&P market/sector ETF's to obtain market/sector price movements.

Study Objective

Determine the Co-variation between S&P Sector Prices and Chicago Fed National Activity Index (CFNAI)

Model Specification

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\begin{align*}
SPY_t &= a + b \times (CFNAI_t) \\
S_i &= a + b \times (CFNAI_{t-12}) \\
SPY_{t-12} &= a + b \times (CFNAI_t) \\
S_{i-12} &= a + b \times (CFNAI_{t-12})
\end{align*}
\]

Where SPY= S&P 500 ETF

S_i = Sector

CFNAI= Chicago Fed National Activity Index

a = Intercept

b = Slope Coefficient

t = Time in Months

t – 12 = 12 month lag

Research Approach

- Univariate Regression Analysis
- Time Periods Analyzed
  1.) 2001-2012
  2.) 2009-2012
- Hypothesis: \( b > 0 \)

Conclusions

- SPY’s slope coefficient had the right sign and was statistically significant for all three regressions.

  - For the 2001-2012 period 6 out of the 10 sectors had positive slope coefficients that were statically significant.

  - For the 2009-2012 period all sector slope coefficients were positive and statistically significant.

  - For the 2001-2012 12 month lag model 6 out of 10 sector slope coefficients were positive and statistically significant.

- Regression results support my hypothesis of a positive correlation between CFNAI and market/sector price movements.