**HW3 – Part 4**

In this event study, we looked at the cumulative average abnormal returns (CAR) after the release of non-farm payroll (NFP) data. Our window spanned from 5 minutes before the release to 30 minutes after the release. Our three events were the NFP data releases in Jan, Feb, and Mar 2017. To estimate expected returns, we used a model that regressed the average of minute-by-minute returns on the surprise in NFP results over the days that the 32 preceding NFP reports were released. At the end of the event window in our event study, the USD/CAD was the only asset to show statistically significant negative CAR. I assume that a p-value below 0.05 is statistically significant. The AUD/USD, GBP/USD, NZD/USD, RBOB gasoline, silver, and gold assets showed statistically significant positive CAR. The USD/CHF, EUR/USD, and USD/JPY did not show a CAR that was statistically significantly different from zero; in the case of these last three assets, we are not able to reject the null hypothesis that the standardized CAR (SCAR) is significantly different from zero. In general, the larger the magnitude of the SCAR statistic, the lower the p-value.

For the three events in our study, the average NFP surprise was positive. When the actual NFP data come in higher than economists' estimates, forex traders will usually buy U.S. dollars in anticipation of a strengthening currency. USD/CAD had the lowest CAR at approximately -0.03%. This suggests a strengthening dollar, and the CARs of AUD/USD, GBP/USD, and NZD/USD also suggest a strengthening dollar. The other forex assets suggest a relatively stable dollar. This difference could be explained by domestic and/or international events that impact other nations’ currencies differently. In addition, higher NFP data usually positively impact crude oil prices while negatively impacting bullions (gold and silver). RBOB gasoline posted the highest CAR at ~0.14%, and XAG was the next highest at ~0.12%. The RBOB gasoline CAR seems to support the idea that higher-than-expected NFP data bolster gasoline prices, but the XAG CAR (and even XAU CAR) does not seem to support the idea that higher-than-expected NFP data negatively impacts gold and silver prices. In terms of market movements, there does not appear to be much movement in returns before the event for any of the assets. For almost all the assets, the cumulative abnormal returns grew larger in magnitude over time, suggesting a market that is NOT perfectly efficient. In other words, the market reaction was delayed. The oil and silver assets responded most drastically immediately after the event, this could suggest higher volatility and/or liquidity of these assets. XAG (the silver asset) was the only asset that appeared to show an overreaction and correction. The study seems to suggest, that at least for some assets, NFP surprise does abnormally affect returns, although the delayed reactions and overcorrection appear to weaken the semi-strong form of the efficient market hypothesis.