**Empirical Finance – Project 2**

**Stock Split Events**

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**Problem Statement**

We are trying to test the hypothesis that companies that announce stock splits have higher returns than the market. Theoretically, stock split is a purely cosmetic event and should have no relation to returns. Our assumption here is that companies who are undervalued do this to gain attention and hence generate higher returns. We will do this analysis looking at all stock splits from 1980 to 2020.

**Approach**

Our analysis is divided into 3 parts. First, we compare market returns on the day of announcement and next trading day. We do this as some announcement can be after market close. We see that the stocks which announced stock split have higher returns than that of the market. More precisely, excess returns of ~0.8% over the market.

For the 2nd part, we built a portfolio of stocks which have announced stock split over the last 6 months. After the 6 month period, the stocks are removed from the portfolio. This portfolio was compared against the market and 3 factor Fama French Model. The portfolio was constructed using both Value weighted and Equal Weighted approach. Market returns was obtained from FF database.

For part 3, like part 2, the return was compared but with removing the top 500 companies by market cap at each rebalancing date. Rebalancing was done daily. When calculating the market returns here all stocks in CRSP data base was used. For Equal returns, mean of daily returns of all stocks was taken. For value weighted, the change in total market cap was taken. (This is an approximate as some stocks may go public and private.)

**Results and Conclusion**

Chart, scatter chart

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Figure 1: Stock Split Returns vs FACPR

We see no huge trend with respect to the size/ratio of stock split and the returns although there are outliers.

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Figure 2: All stocks

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Figure 3: Excluding 500 top MCap stocks

We observe that for all the cases the Alpha is statistically significant and positive, indication that stocks that announce stock split have higher returns. But the excess returns are small. (The Alpha has to be multiplied by 100 to get excess returns in %.)

The alpha (3 factor value weighted) yearly is 0.000073\*252 ~ 1.8% (all stocks) or 5.7% (exc 500). This indicates the early reaction of ~0.8% was an underreaction. Therefore, this is a buy signal.