Exploiting the Post Earnings Announcement Drift Using a Long Short Trading Strategy

Executive Summary

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Aims

In this bachelor thesis, the objective is to investigate the post-earnings announcement drift (PEAD) and exploit it using a long-short trading strategy. In the studied time frame of 1994 until 2023, the study aims to determine if excess returns can be generated from S&P 500 equities (first hypothesis). In a next step, its profitability is determined within the technology sector (second hypothesis). In summary, this bachelor thesis examines whether a long-short PEAD strategy can outperform a traditional buy-and-hold benchmark, and if focusing on the technology sector, these returns could be can enhanced.

Background

The phenomenon of post-earnings announcement drift (PEAD), where stock prices continue to drift in the direction of an earnings surprise beyond the announcement period was documented by Ball & Brown in 1968. However, the PEAD contradicts the semi-efficient market hypothesis, which posits that all public information is immediately reflected in stock prices. Subsequent studies, such as those by Foster, Olsen & Shevlin (1984) and Bernard & Thomas (1989, 1990) empirically confirmed the existence of PEAD. This drift opens an opportunity for investors to achieve excess returns by trading on the information provided by earnings announcements. This

thesis investigates the profitability of a long-short PEAD strategy in the S&P 500, and in the technology sector as a subset.

Methodology

The methodology involves backtesting a long-short trading strategy on S&P 500 stocks, using past earnings announcement data from 1994 to 2023. The strategy is based on opening long positions in stocks with a positive earnings surprise and short positions in stocks with negative surprise. To find the optimal parameters for this strategy, Bayesian optimization is used, where the order size, thresholds based on the severity of surprise and holding periods were fitted to the train set (1994-2008). Then, the strategy's effectiveness is evaluated in the test set from 2009 until 2023. Total and annualized returns, volatility, beta, Jensen's alpha, and Sharpe ratio are calculated.

Main Results

The results from the backtest confirm that the long-short PEAD strategy outperforms the buy-and-hold benchmark. From 2009 to 2023, the strategy generates an annualized excess return of 2.74% over the benchmark (S&P 500 index SPY). When looking at the risk, the long-short PEAD strategy reveals a beta of 0.9994, indicating that the systematic risk is comparable to the S&P 500. Further, the strategy achieves a Jensen's alpha of 2.74%, demonstrating the idiosyncratic risk-adjusted profitability of the strategy. However, the annualized volatility for the strategy is 19.64%, which is slightly higher than the benchmark's 17.8%. Further, the strategy's Sharpe ratio of 0.0518, compared to the benchmark's 0.0474, indicates even slightly better risk-adjusted returns.

The performance in the technology sector reveals an annualized excess return of 8.93%. However, this comes with an annualized volatility of 30.22%, which is attributed to the lower number of stocks in the technology portfolio. Moreover, the beta was 0.931, which is indicative of a lower correlation to the whole market. Jensen's alpha for the technology sector strategy is 9.68%, reflecting substantial excess returns adjusted for idiosyncratic risk. However, the Sharpe ratio is 0.0443, which is slower than the 0.0474 for the benchmark, suggesting that these larger excess returns are relative to the higher risk taken.

Discussion, Limitations, and Improvements

The superior performance of the technology sector can be explained through its rapid innovation, high growth rates, and frequent significant earnings surprises. However, as seen from the risk metrices, the higher excess returns correlate with higher risks taken.

To move forward, the study discusses potential limitations, such as a bias in company selection and the benchmark chosen for the technology sector comparison. The strategy's generalizability to other stock exchanges and the market delay are discussed. Further, suggestions to improve this long-short PEAD strategy are presented, such as adjusting the order size differently, using a different time frame for verification as well as to predict the surprises based on previous surprises.

Conclusion

In summary, this thesis demonstrates the potential of exploiting PEAD using long-short trading strategy. The primary hypothesis confirms that this strategy is able generate excess returns compared to a conventional buy-and-hold approach. The study further demonstrates that focusing on the technology sector yields even greater excess returns. Despite the promising results, potential biases and limitations are acknowledged and future improvements presented. Overall, these findings contribute valuable insights for optimizing an investment strategy based on the post-earnings announcements drift.

References:

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