Summary

Prospectus

HALB Fund

Investment Philosophy

The Idea for the Fund was created from previous research and classwork. The underlying was a research paper on the movement of a stock’s alpha and beta over time. Using two periods, 2013-2018 & 2018-2023, using S&P 500 stocks, only 20% of betas significantly changed over the five-year period. Across industries, the average change of the industry beta in the same time period was only 0.127. Combining this from a research paper I read from a class about betting against beta, I thought of combing these two. To test this farther, instead of using monthly five-year data, I wanted to use daily year data, to get shorter time period, and more observations. Using data from 2000-2023, the average change in beta from year to year for each stock was 0.27, however the median change was 0.20. For alpha, the average change in alpha was 14 bps per day, compared to the median of 10 bps per day. For the alpha this is a relatively large shift from year to year. However, when having a positive alpha the previous year, the stock had a positive alpha the following year 57% of the time.

Creating the Portfolio

In creating the portfolio, the hardest part was finding a way to combine these two metrics to create the best mix of high alphas and low betas. The pool of stocks I used to create the portfolios was the 3000 largest stocks by market cap as of 2023.The hardest part about going back and creating the weightings is by trying to maximize results, so I wanted a set it from the start. To start of I calculated the previous year’s CAPM coefficients from a six-factor CAPM. From there, the coefficients get normalized against ever stocks coefficients from that year. There were a few reasons I standardized them. Firstly, it makes all for the coefficients in similar values. Secondly, since I used stocks from today to regress against the S&P 500, some of these stocks weren’t around back then, as well as some firms going bankrupt or delisted. For example, in 2000 the average beta was around 0.81 from the stocks used in regression. For betas, to get the low betas weighted higher, I had to multiply the coefficients by -1. After normalizing the alpha and betas, I had to combine them. I decided to put multiply the normalized alphas and betas to produce a raw weight. I put a cap on this raw weight, and then produced a weight summing to zero to create my portfolio. The portfolio is then finished for the year until the process is run again the following year. The portfolio does not change throughout the year, besides weight changes from the stocks’ movements in the market.

Fund Information

The fund will almost be as if it were an index fund. It is a passive fund as it doesn’t trade except for the first of the year. When it comes to fees, it will be minimal, around 0.25% of invested funds yearly. When it comes to investors, there won’t be any constraints on who can invest in the fund. Given the minimal trading and reweighting of the portfolio, the fund is predetermined through out the year. There will be a small fee when buying into the fund due to the trading costs of the large number of the stocks.

Fund Performance & Evaluation

When it came to back test the portfolio, there were two indexes I regressed against. First to get the coefficients of the previous years I used the Fama-French ‘mkt-rf’ index. This was offset with the standardization of the coefficients. For measuring the portfolio’s returns and regressions, I used an equally weighted index of all the stocks that had were weighted that year. This includes stocks that had 0 weight either from being above the median beta or below the median alpha of the previous year. Below is an overview of different metrics.

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Compared to the equal weighted portfolio, the fund had a higher total return compared to the market all but one year. The average return of the portfolio over the 23 years is 32.9% compared to 14.4% of the equal weighted portfolio. In terms of alpha, the fund had a positive alpha every year, including double digit alpha in all but three years. The average yearly alpha over the same period was 23.7%. When running a regression of everyday over the last 23 years, the portfolio had an alpha of 7 bps per day or 19.1% annualized. The funds beta over the 2023 years was 0.75. The daily volatility of was 1.30% compared to the equally weighted’s volatility of 1.32%.

Fund Makeup

The portfolio is made of low beta sectors, with the biggest being Healthcare. To see if the portfolio was driving its return and alpha from just the healthcare sector, I created a portfolio inside each sector using the same method as the overall. It yielded similar results. Below is a table of these results. Healthcare is still leading the way, but on average the philosophy of previous low beta and high alpha still beats the sector average.

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| --- | --- | --- | --- | --- |
| sector | Annualized Alpha | Return Diff. | Beta Diff. | Avg. Weight |
| Healthcare | 27.7% | 27.8% | -0.272 | 21% |
| Financial Services | 9.4% | 8.0% | -0.306 | 14% |
| Industrials | 9.8% | 5.0% | -0.316 | 13% |
| Basic Materials | 9.3% | 3.0% | -0.428 | 11% |
| Technology | 8.8% | 3.7% | -0.156 | 9% |
| Consumer Cyclical | 5.0% | 0.9% | -0.237 | 7% |
| Energy | 5.6% | 8.0% | -0.326 | 6% |
| Consumer Defensive | 4.2% | 2.8% | -0.111 | 6% |
| Real Estate | 6.2% | 3.7% | -0.216 | 5% |
| Communication Services | 3.1% | 1.3% | -0.139 | 3% |
| Utilities | 2.3% | 0.5% | -0.129 | 2% |
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Here are links to overall fund data:

Full Portfolio Weights: <https://jhkersting.github.io/halb-fund/yearly-portfolio-weights.csv>

Daily Portfolio Returns: <https://jhkersting.github.io/halb-fund/final/daily-portfolio-returns.csv>

Year Portfolio: <https://jhkersting.github.io/halb-fund/final/2001/portfolio-clean.csv> (Replace 2001 with year you want data for)