Quant Strategy Report

Strategy Description & Rationale:

Long strategy: Growth and momentum

Rebalance frequency: Monthly

The long position will utilize growth and momentum strategies. Given the consistent growth of the stock market, a growth strategy will find companies with improving financial performance. The strategy will invest in stocks whose earnings are consistently and robustly increasing over the past 1 year. This will avoid stocks where growth potential is ultimately unrealized but was initially fully factored in their stock price. The long position will also invest in stocks whose change of closing price over the last 1 year is at the top 10th percentile to pursue high returns. This ranking is based on the industry of the stocks to avoid a selection bias where we only heavily invest in technology and consumer discretionary industries. In this screener, we only take large cap stocks into account. This mainly serves to reduce excessive risks and avoid comparing against nonpersistent price growth from small and micro cap stocks.

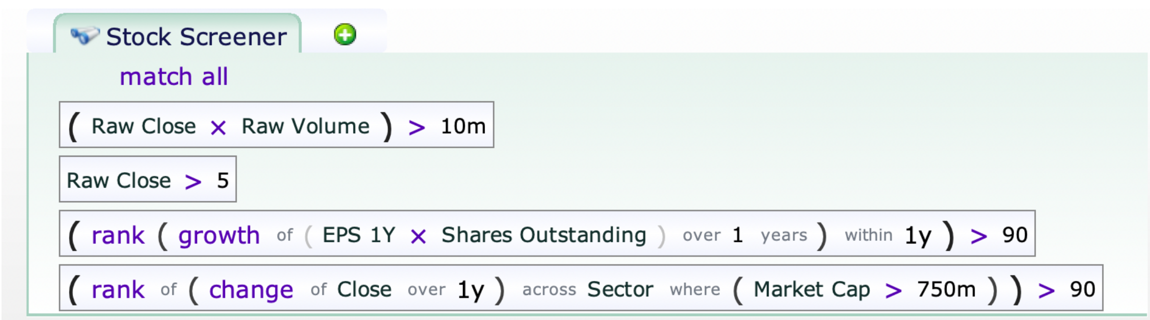
Short strategy: P/E and Reversal

Rebalance frequency: Monthly

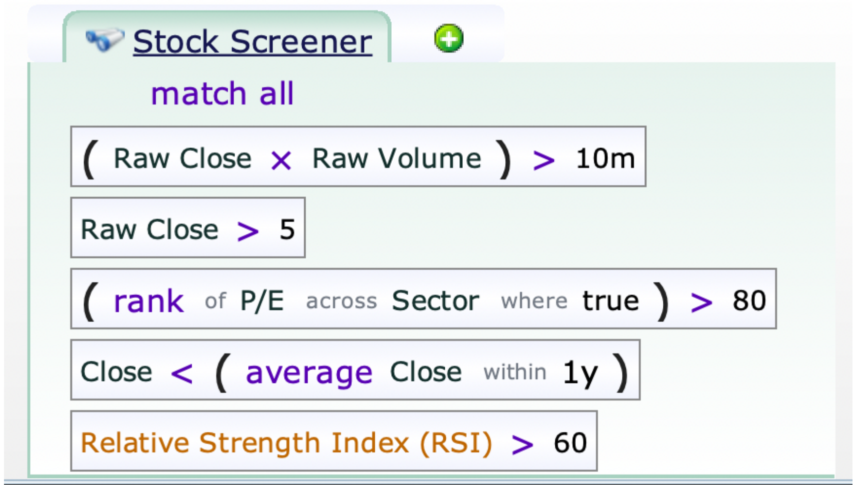
The short position will find high P/E stocks each time the portfolio rebalances. High P/E stocks tend to expect and require a large growth rate which may not be consistent. These stocks also tend to be more volatile and have more limited growth potential but greater downside potential. To find stocks that are underperforming relative to market expectations, we short all stocks whose closing price is lower than their 1 year moving average–MA(252), indicating a downward trend. To filter out the noise of the systematic downturn as well as capture the beginning of the reversal period, we add a RSI indicator to find overbought stocks. The short position will profit from a trend reversal as corrective pullback takes place.

Screenshots of specific screener (clauses) used in Equity Lab.

In the long portfolio, we first find stocks with the highest growth of earnings in the past 1 year as of the day before each rebalance period in the top 10th percentile. Among these candidates, we will find the stocks whose change of closing price over the last year is in the top 10th percentile compared with other large cap stocks in their industry. EPS 1Y variable indicates earnings per share in the last 1 year. We multiply this by shares outstanding to find the earnings attributable to common shares. Market cap indicates market capitalization which is shares outstanding multiplied by price per share.



In the short portfolio, we find the stocks whose P/E ratio is in the highest 20th percentile in their respective industry. Among these stocks, we find the stocks whose closing price is lower than the average closing price in the past 1 year. Finally, we find the signs of overbought stocks by shorting stocks with a RSI greater than 60. P/E variable is price per share divided by earnings per share. RSI is the relative strength index that indicates stock momentum.



Back test statistics:

Annualized Return (%) “Cell B2520”	15.43%
Annualized Standard Deviation (%) “Cell B2522”	28.93%
Annualized Alpha (%) “Cell T22”	19.87%
Beta “Cell T20”	-0.07
R Squared (Adjusted) “Cell T8”	0.0016
Annualized Sharpe Ratio “Cell B2524”	0.65
Maximum Drawdown (%) “Cell B2525” From June 6th 2018 to Mar 2nd 2020	46.17%
Percentage of Months with Positive Returns “Cell B2527”	56.67%

Back test plots:

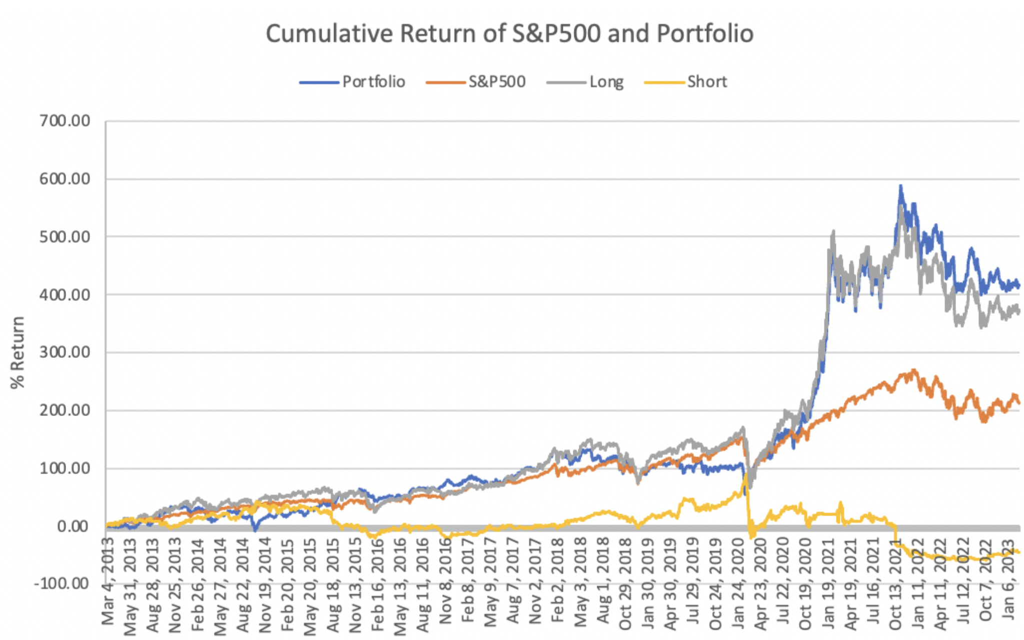
Long

close Mar 4, 2013 to Feb 28, 2023	Long	S&P 500
Total Returns	358.3%	212.2%
Drawdown	39.85%	33.7%
Annualized Returns	16.46%	12.07%

Short

close Mar 4, 2013 to Feb 28, 2023	Short	S&P 500
Total Returns	-12.16%	212.2%
Drawdown	64.44%	33.7%
Annualized Returns	-1.29%	12.07%

Market Neutral



Discussions

The complete portfolio generated a total of 418.7% return with a standard deviation of 28.9%. The annualized Sharpe Ratio is 0.65. The Sharpe Ratio indicates the portfolio's risk-adjusted return. This measure could be used to compare risk-adjusted returns across portfolios with different risk exposure. A Sharpe Ratio of 0.65 is a respectable result. One of the weaknesses of Sharpe Ratio is a lack of market proxy for systematic risk and diversification.

Our portfolio has positive returns 56.67% of the months during the backtest period. The strategy was able to capture stocks with high resilience and post-covid financial growth. These companies have strong economic logic in their business and were able to return from previous drawdowns. The market filtered out stocks that were outperforming and capital may have been quickly reallocated to companies that were the first to return to pre-Covid earnings.

When considering the portfolio's correlation with the markets, our fund reported a beta of -0.07. Posting a near zero beta implies that the portfolio has achieved market neutrality. Furthermore, the portfolio was able to generate an annualized alpha of 19.87%. Having a high alpha and a near zero beta implies that the portfolio has outperformed its benchmark by generating a higher return and simultaneously holds a low correlation with the market. By holding a near zero beta, the portfolio was able to reduce its exposure to systematic risks such as interest rates and economic downturn.

The maximum drawdown for the portfolio was 46.17%. When combined with an annualized return of 15.43%, the portfolio yields a relatively low Calmar ratio. This can imply that over a ten-year horizon, the risk of drawdown was greater than the annualized return, at times. It can also imply that the fund was not as efficient during the whole 10-year horizon compared to specific periods of times where the portfolio outperformed the market.