Notes on Momentum Investing

Signal processing techniques are being utilized in finance to help predict movements of stock prices based off of their previous trajectory. This notebook examines a portfolio of a small basket of stocks and their key metrics.

This case uses momentum strategy and iterates over a number of lookback parameters and holding periods to grid search what momentum strategy works optimally

This will give us lb\*hp amount of strategies for momentum

**MOMENTUM INVESTING**

One of the most remarkable truths in stock markets is that prices have a tendency to trend in the same direction. Indeed buying recent winners and selling losers is one of the most profitable habits that an investor can have. This 'momentum' is evident not only in share prices but also in company earnings.

Prices have a tendency to trend in the same direction for 6-12 month periods

Momentum says that stocks with strong past performance > stocks with weak past performance

* runs against efficient market hypothesis - that all security prices are said to reflect all available information

Portfolios created at end of day of lookback period, hence the day lag

Lookback period begins the timeframe

**Momentum is a market anomaly - performs contrary to notion of market efficiency**

* **works with large cap and small cap stocks**
* **can capture momentum effect with around 50 stocks**

https://help.stockopedia.com/product-guide/stockranks/basics/the-momentum-rank

**https://www.investopedia.com/terms/m/momentum\_investing.asp**

What is a momentum portfolio? **Technical analysis**

Goal: capitalize on continuance of existing trends in the market

Long an asset that has shown upward trending price

Short an asset that has shown downward trend in price

Idea: once a trend is established, it is likely to continue in that direction vs move against the trend

Momentum Vs Value

* Value is long term (sales and expenses vs price)
  + If price is down and P/E ratio suggests undervalue, value investors want to buy
* Momentum is short term
  + not concerned with operational performance, not from pricing perspective
  + Technical analysts, look for trend and spend a great deal of time looking for patterns
  + Thrive on investor emotion

How to Monitor Momentum

* Monitor movement of price
* Basic and common tool: trend line drawn between two points
* If line is up, trend is up and momentum investors will buy
  + opposite is true
* 50 period moving average
  + When price drops below 50 period moving average, trend down and sell
    - opposite is true

**MEASURING MOMENTUM**

Total return of a stock (including dividends) over the last n months

* period of n months is called the lookback period
* calculating return of the previous n periods (lookback period)

Lookback period of 1 week to five years

* 12 month lookback period

Calculate momentum of AMZN over 12 months

* cumulative return over last 12 months
* simply cumulative return over previous 12 months

**LOOKBACK PERIOD**

Based on duration of lookback period, can get three types of momentum

* Short (<=1 month), intermediate (6 and 12 months) and long term momentum (3 to 5 years)

Short term momentum

* typically converse relationship, e.g. week to week variability
* same behavior seen in monthly lookback period
* Stocks with positive momentum in short term are losers in the future
* (Jagdeesh, Narsimhan - Evidence of Predictable Behavior of Security Returns)

Long Term Momentum

* DeBondt, Thaler - Does Stock Market Overreact?
* Studies effect on long term momentum
* 3 years.
* Show that losers outperform winners in next 3 years
  + as well as 5 year lookback period
  + Return reversals similar for long term

Intermediate Term Momentum

* *Narasimhan Jegadeesh and Sheridan Titman “Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency”*
* 3, 6, 9, 12 months with holding periods of 3, 6, 9, 12 months, all combos, 16 strategies
* No return reversals identified
* Intermediate term momentum differ from short and long term momentum
* **this is an anomaly**

**MOMENTUM DRAWBACKS**

[**https://quantpedia.com/Screener/Details/136**](https://quantpedia.com/Screener/Details/136)

[**https://www.investopedia.com/terms/f/famaandfrenchthreefactormodel.asp**](https://www.investopedia.com/terms/f/famaandfrenchthreefactormodel.asp)

Conventional momentum is a very well known anomaly; therefore, it is scrutinizingly studied. This strategy has been academically confirmed many times, but a lot of researchers have documented several momentum drawbacks. One important characteristic is that traditional momentum has substantial time-varying exposures to the classical Fama and French factors (asset pricing model that expands on capital asset pricing model by adding size and value factors to market risk in CAPM). Academic research shows that momentum loads positively (negatively) on systematic factors when these factors have positive (negative) returns during the formation period of the momentum strategy. As a consequence, a conventional total return momentum strategy experiences losses when the sign of the factor returns over the holding period is opposite to the sign over the formation period. One example is that negative market returns in the credit crises of 2008 caused the total return momentum to be tilted towards the low-beta segment of the market in early 2009. When the market recovered in the first quarter of 2009, the total return momentum’s negative market beta caused large losses.

Luckily, the same academic research offers a solution. A residual momentum strategy based on residual returns estimated using the Fama and French three-factor model offers smaller time-varying factor exposures (which reduces the volatility of the strategy) and has a higher long-run average Sharpe ratio. A higher strategy consistency, large cap investment universe and a lower concentration in the extremes of the cross-section of stocks is an added bonus.

**Developments in Momentum**



