# Medium and Long Term Trading Strategy by Absolute Momentum

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# *Abstract*

Momentum is one of the strongest returns generating factors and with this research we try to analyse application of momentum in size/sector/style rotation in Indian Equity Markets. We also analyse effective time frame for use of momentum in allocation to enhance risk adjusted returns in both medium & long term trading models. We optimise factors such as look back period, holding time and number of assets in the portfolio to obtain maximum profits. We also analyse optimal portfolio allocation based on momentum by including non- equity asset class in models including fixed income and gold for higher risk adjusted returns as compared to only equity focused portfolio. We then evaluate our strategies numerically and visually using comparative returns, standard deviations, profit consistency, alphas, Sharpe ratios, box plots, and maximum drawdowns under different scenarios.

**Keywords:** Momentum investing, sector asset allocation, price momentum, asset allocation, momentum trading, style factors

**1. Literature Review**

The idea of Momentum investing has existed in the mainstream since the ‘90s. It is built on the logic that stocks that have gone up will continue to go up and that the returns from such a portfolio must be better than the broader markets. This simple premise has been shown to work on US stocks (Jegadeesh and Titman (1993))[1], industries, currencies, government and corporate bonds (Asness, Moskowitz and Pedersen (2012))[2].

Absolute momentum is different from relative momentum and is positive only when there is excess return from an asset over a lookback period, regardless of relative performance with other assets. There may be a case where momentum to be relatively negative but absolutely positive.

Momentum investing has more hard data backing its persistence as a strategy for outperformance than any other school of investing thought, including value. Absolute momentum is equally strong and universal as relative momentum. It has shown to perform well during extreme market conditions and across asset classes.

The effect of absolute momentum risk, returns, and corelation of diverse markets have been extensively studied and compared to buy and hold approach (Antonacci (2012))[3]. It was seen that Absolute momentum improved the Sharpe ratio with respect to relative momentum.

Determining trend using absolute momentum also benefits to track regime changes and mitigate and mitigate the downside risk. In addition, absolute momentum gave substantially lower maximum drawdown than relative momentum also lowering the cross module correlations.

In the Indian market context, Sehgal and Balakrishnan (2002) obtained significant evidence of long-term return-reversal tendency and short-term momentum effect in Indian equities. Ansari and Khan (2012)[2] found a strong presence of momentum profit in the Indian context and pointed out the significance of behavioural factors as sources of momentum profit.

It is well documented that momentum as a strategy works in developed markets like US and Europe. But does a strategy that buys winners purely based on price returns work in the Indian markets? Since there aren’t many concrete published studies, we plan to analyse this strategy in the Indian Markets. We will back test the momentum strategy using a basket of stocks/assets with an intention to find the optimal number of assets, holding period, look back period.

**2. Methodology**

For acquiring the data from National Stock Exchange(NSE), we will use an open source python library, NSEpy. This will be the basic building block for extraction of historical data for back testing. We can fetch the daily price history of stocks/indices/derivatives using NSEpy into a Pandas data frame, providing us with a dataset with minimum daily time period data, which can be modified to larger time periods. We plan to use NSEpy data and NSE website data for relevant indices and stocks from 2010 to present date.

Once the data frame is ready with a mix of stocks, indices, fixed income indices and exchange traded funds(ETFs), we find the absolute momentum of each of the assets using a certain lookback period, ,where absolute momentum would be return in the lookback period and perform back test and analyse returns of portfolio in relevant holding period.

Our strategy is to leverage absolute momentum to enhance this portfolio by optimising look back period, holding time and number of assets in the portfolio to obtain maximum returns. In the medium term strategy, we will look at a holding period of 7 days to 1 month, whereas for a long term strategy we will consider a period of 1 month to 1 year.

For equity only indices/portfolio , we will optimize portfolio selection by selection of equal weighted top n performing constituents in lookback period and back test returns in holding period for equal weighted top n constituents selecting relevant n for that particular index.

We will also explore returns of portfolio obtained from minimum variance optimization in selection on top n performing constituents.

For style/index/ sector or asset class in portfolio we will compare returns of portfolio based on relative momentum of style/index/ sector or asset class with highest returns in the lookback period and select that style/index/ sector or asset class for back testing returns in holding period.

We will use following indices for our analysis:

**Table 1. Indices in Indian Markets**

|  |  |
| --- | --- |
| **Index Name** | **Type** |
| NIFTY 50 | Large Cap Index |
| NIFTY MIDCAP 50 | Mid Cap Index |
| NIFTY SMALLCAP 50 | Small Cap Index |
| NIFTY AUTO | Automobiles Sector Index |
| NIFTY BANK | Bank Sector Index |
| NIFTY IT | Information Technology Sector Index |
| NIFTY METAL | Metal Sector Index |
| [NIFTY R](https://www.nseindia.com/market-data/live-equity-market?symbol=NIFTY%20REALTY)E[ALTY](https://www.nseindia.com/market-data/live-equity-market?symbol=NIFTY%20REALTY) | Real Estate Sector Index |
| NIFTY PHARMA | Pharma Sector Index |
| NIFTY FMCG | FMCG Sector Index |
| NIFTY GROWTH SECTORS 15 | Growth Factor Index |
| NIFTY50 VALUE 20 | Value Factor Index |
| NIFTY 10 yr Benchmark G-Sec Index | Fixed Income Index |
| NIPPON INDIA ETF GOLD BEES | Gold ETF |

We will test the medium term strategy by rebalancing the portfolio on a weekly or bi-weekly and monthly basis. In the long term strategy, we will rebalance quarterly, semi-annually and annually.

We then evaluate our strategies numerically and visually using comparative returns, standard deviations, return consistency, alphas, Sharpe ratios, box plots, and maximum drawdowns under different scenarios.

**References**

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