International Journal of Research in Social Sciences
Vol. 6 Issue 11, November 2016,
ISSN: 2249-2496 Impact Factor: 6.278
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

STUDY OF MOMENTUM STRATEGY ON DAILY STOCKS OF INDIAN MARKETS

Prof. (Dr.) Uttam B. Sapate*

ABSTRACT

The Efficient Market Hypothesis (EMH) has been one of the dominant topics in the financial research literature. The main purpose of this study is to explore the existence of return continuation in the Indian Stock Markets, thus investigating its efficiency at the weak form level (Fama,1970). Momentum strategies which buy stocks that have performed well in the past and sell stocks that have poor performances previously – generate significant positive returns. The daily momentum strategies can be executed by the investor to generate significant profits. The explanation of momentum remains challenge in literature. The behavioral factors may account for the momentum phenomena.

KEYWORDS - Indian Stock Markets; Market Efficiency; Momentum; Weak Form Market Efficiency

* **MM's Institute of Management Education Research and Training, Pune, India**

INTRODUCTION

According to Fama (1970), in an efficient market, prices "always fully reflect available information". Therefore, prices could be considered an unbiased estimate of the true value of an investment at any given moment. "If stock prices either overreact or under-react to information, then profitable trading strategies that select stocks based on their past returns will exist." Jegadeesh and Titman (1993). According to these anomalies, investors may be able to conceive profitable strategies based on past returns' observation. Considering the existence of this possibility, the Efficient Market Hypothesis can be seriously questioned. For that reason, the investigation of these anomalies has attracted the interest of many financial researchers and market professionals that want to explore this inefficiency.

The main base of momentum strategies is the continuation of existing trends in the market. The basic idea is that investors will buy winner and sell loser stocks, because it is more likely that a rising asset price continues to rise further than the opposite, at least in the short-term (Jegadeesh and Titman, 1993). The Jegadeesh and Titman (1993) methodology is followed and study is to focus on daily momentum strategies in Indian context. Additionally, by examining the profitability of momentum strategies, the research intends to investigate the weak form efficiency of the Indian stock markets. If market is efficient in weak form, current prices fully reflect all historical information.

The momentum strategies have attracted considerable attention because their consistent profitability poses a strong challenge to the efficient market hypothesis. The momentum phenomenon is puzzling as we are still not clear about the economic mechanism that drives it. The paper is organized as follows; Section 1: Review of literature, Section 2: Data and methodology, Section 3: Analysis and findings, Section 4: Conclusions.

1. LITERATURE REVIEW

A momentum strategy aims to capitalize on the continuance of existing trends in the market. This strategy is based on the belief that large price increases of a security will be followed by additional gains and vice versa for declining values. The fundamental idea is that the investor will buy winner stocks and sell loser, because, according to this strategy, it is more likely that a

rising asset price continues to rise further than to move against the trend (Jegadeesh and Titman, 1993). The original findings of Jegadeesh and Titman (1993) appear to be applicable in other markets besides the United States.

Diverging Chui *et al.* (2000) conclusions for the Japanese stock market, Chaves (2012) shows that momentum strategies can be profitable in Japan, but only when the return component due to market beta exposure is removed, thus reducing the volatility of momentum strategies (Chaves, 2012).

While the momentum profitability in short horizons have been well accepted, financial economists are far from reaching consensus on the causes of momentum profits. Jegadeesh and Titman (2001a) considers the under-reaction to new information as a natural explanation for those profits. "(…) if a firm releases good news and stock prices only react partially to the good news, then buying the stocks after the initial release of the news will generate profits. However, this is not the only source of momentum profits." Jegadeesh and Titman (2001).

In case momentum profits are indeed driven by under-reaction, the good performance of a winner portfolio will continue until all the news is incorporated in prices. Chan *et al.*(1996) and Hong *et al.* (2000) found evidence consistent with this explanation.

The behavioral models attempt to explain the momentum profits through investors' overconfidence or by the way that investors interpret firm's specific information. These models are based on the idea that momentum profits arise because of inherent biases (Jegadeesh and Titman, 2001).

Ansari and Khan (2012) applied momentum strategies on monthly data from 1994-2006 from Indian stock markets and observed profitable momentum strategies rejecting weak form of market efficiency.

2. DATA AND METHODOLOGY

Data: The data comprises of monthly share prices (adjusted for bonus, rights and stock splits) for 200 companies that form part of the Bombay Stock Exchange (BSE) 200 index from 1st April, 2000 to 31st March, 2010 (daily observations). The sample companies account for more than 83.6% of the market capitalization as well as the trading activity on the Indian market. The sample is hence fairly representative of the market performance.

The daily share price (day closing price) series have been converted into daily return series for further estimation. The daily data provide 2608 observations for ten year period. Subsequently, data was split in to the sub-periods of 5 years and 2.5 years as given below;

Table 1 : Sub-periods division for data analysis

Total 10Yr	First 5Yr sub-period	Second 5Yr sub-period	First 2.5Yr sub-period	Second 2.5Yr sub-period	Third 2.5Yr sub-period	Fourth 2.5Yr sub-period
Apr. 00 to Mar. 10	Apr. 00 to Mar. 05	Apr. 05 to Mar. 10	Apr. 00 to Oct. 02	Oct. 02 to Mar. 05	Apr. 05 to Oct. 07	Oct. 07 to Mar. 10

Hypothesis: Ho: Momentum Strategies in the Indian stock markets return series for daily data do not provide significant returns (i.e. Past winners do not outperform past losers in future).

All the null hypotheses have been tested at 95% confidence level. Null hypothesis has been rejected if P value is less than 0.05.

Statistical Tools: Initial data processing & refinement has been done using Microsoft EXCEL. The econometric tests of momentum have been applied using MATLAB software of The MathWorks, Inc. (2008).

Momentum Strategy Tests: A momentum effect could be defined as the continuation of a price direction of an asset. Thus, utilizing a momentum strategy means that to exploit the pattern of price movements by buying previous winners and selling previous losers. It has been shown that applying a momentum strategy could in some cases generate excess returns above that of a risk adjusted index.

Any momentum strategy involves decision on the (1) length of the ranking or formation period, (2) length of the holding or investment period, and (3) the ranking criterion. The ranking criterion determines winners and losers at the end of the ranking period, and the zero-investment strategy of simultaneously selling losers and buying winners produces momentum returns in the holding period.

The momentum strategy tests the hypothesis Ho (Momentum Strategies in the Indian stock markets return series do not provide significant returns i.e. Past winners do not outperform pas losers in future).

The strategies implemented in this study select daily stocks based on their returns over the past 65 days (130 days) (i.e. J = Ranking Period or Formation period) and hold the selected stocks to 65 days (130 days) (i.e. L = Holding Period).

Momentum strategies used in this study are given below which are based on earlier finding that the momentum strategies of (3,3) and (6,6) months are more profitable (Ansari and Khan, 2012).

Table 2 : Momentum Strategies selected for study

Sr. No.	Frequency of Data	J (Ranking Period)	L (Holding period)
1	Daily	65 days	65 days
2	Daily	130 days	130 days

3. ANALYSIS AND FINDINGS

Momentum in daily returns is unexplained area in Indian context. Ansari and Khan (2012) conducted study on momentum strategies but it is based on monthly momentum strategies.

Table 3 shows the results of Momentum strategy tests for daily log returns of stocks for total ten year period. Results of Momentum strategies (65, 65) & (130, 130) with daily return series reject the null hypothesis in turn reject Weak Form Market Efficiency Hypothesis. It is observed that for the total period i.e. of 10 years there are no exceptions with regards to momentum strategy hypothesis rejections.

Table 3 : Summary of Momentum test for daily log returns of individual stocks

Period	Frequency of Data	Daily (65, 65)	Daily (130, 130)
April 2000	t statistics	19.32	-8.89

to March 2010			
April 2000 to March 2010	Hypothesis Ho	Rejected	Rejected

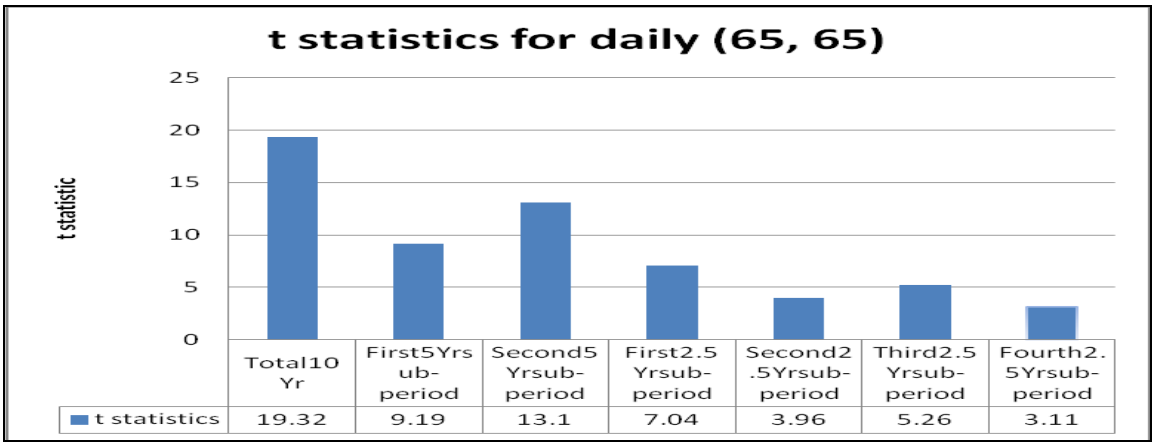
Among the two strategies considered for analysis, the (65, 65) momentum strategy is found to be superior in comparison with other (130, 130) strategy in case of daily data.

Table 4 shows the results of Momentum strategy (65, 65) tests for daily log returns of stocks for all sub-periods.

Table 4 : Sub-period Daily Momentum (65, 65) test results

Period	t statistics	Hypothesis Ho
Total10Yr	19.32	Rejected
First5Yrsub-period	9.19	Rejected
Second5Yrsub-period	13.1	Rejected
First2.5Yrsub-period	7.04	Rejected
Second2.5Yrsub-period	3.96	Rejected
Third2.5Yrsub-period	5.26	Rejected
Fourth2.5Yrsub-period	3.11	Rejected

Fig 1: Graphical sub-period Daily Momentum (65, 65) test results



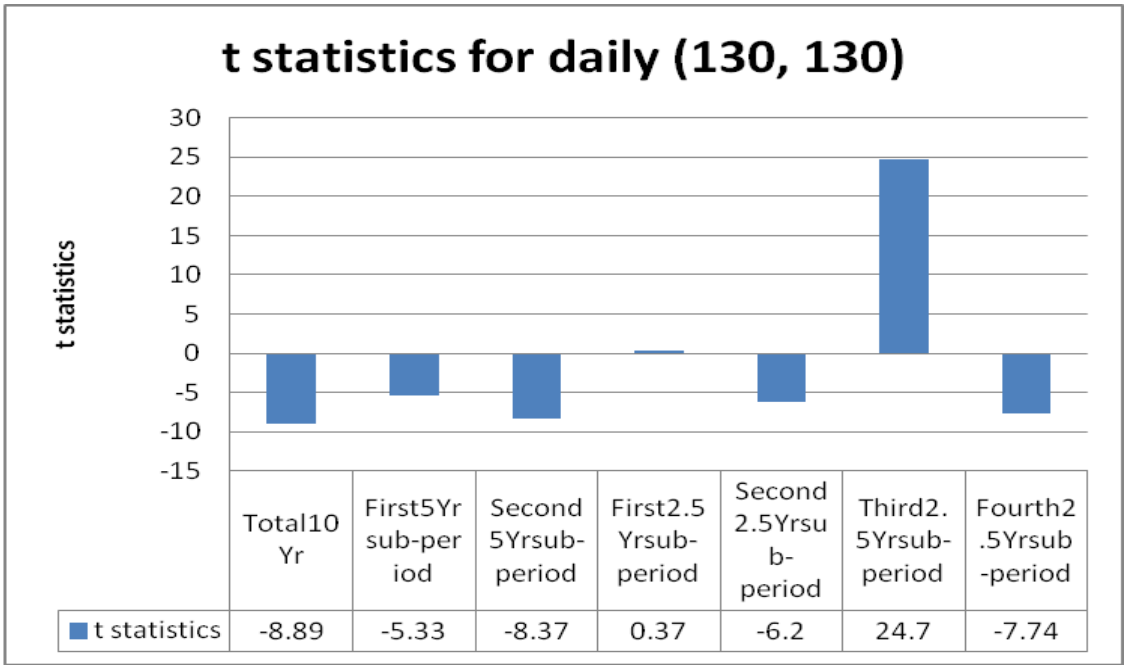
In case of (65, 65) momentum strategy for all seven sub-periods the null hypothesis of weak form of market efficiency is rejected. The t statistics is observed to gradually decreasing from large positive values for total 10 year period to Fourth 2.5 year sub-period.

Table 5 shows the results of Momentum strategy (130, 130) tests for daily log returns of stocks for all sub-periods.

Table 5 : Sub-period Daily Momentum (130, 130) test results

Period	t statistics	Hypothesis Ho
Total10Yr	-8.89	Rejected
First5Yrsub-period	-5.33	Rejected
Second5Yrsub-period	-8.37	Rejected
First2.5Yrsub-period	0.37	Accepted
Second2.5Yrsub-period	-6.2	Rejected
Third2.5Yrsub-period	24.7	Rejected
Fourth2.5Yrsub-period	-7.74	Rejected

Fig 2: Graphical sub-period Daily Momentum (130, 130) test results



In case of (130, 130) strategy for First 2.5 Year sub-period the hypothesis is accepted with t statistics at 0.37. However, for all other six sub-periods the momentum (130, 130) strategy

rejected null hypothesis of weak form of market efficiency. The t statistics is observed to be mostly in negative zone without any specific pattern for total 10 year period to Fourth 2.5 year sub-period.

The Momentum Strategies provide significant returns i.e. Past winners outperform past losers in future. These results are in line with the studies of Chan et al. (1996), Jegadeesh & Titman (1999) and Ansari and Khan (2012). The existence of momentum in stock returns is against the weak-form market efficiency. However, the factors responsible for momentum returns are difficult to explain. According to behavioral economists momentum profits arise because of inherent biases in the way that investors interpret information. Others, however, argue that profitability of momentum strategies may simply be compensation for risk.

4. CONCLUSIONS

The main findings of this study indicate the existence of momentum profitability in the short-run in Indian stock markets which is in conformity to most of the results found in the main international large and liquid markets. Therefore, it is possible to predict future returns based on past performance, at least in the short run in Indian context. The findings seriously question the Weak Form of Market Efficiency Hypothesis in the Indian stock market, since, according to this assumption, there is no possibility to conceive profitable strategies based on past returns. Although the main findings of study point to the existence of momentum profits in the Indian stock market, the momentum causes are not, yet, fully ascertained. The daily momentum strategies can be executed by the investor to generate significant profits. The explanation of momentum remains challenge in literature. The behavioral factors may account for the momentum phenomena.

REFERENCES

1. Ansari, V. A. and Soha Khan (2012) "Momentum anomaly: evidence from India", *Managerial Finance*, vol. 38, no. 2, 206-223.

2. Chan, K. (1988), "On the Contrarian Investment Strategy", *Journal of Business*, Vol. 61, No. 2, pp. 147-164.

3. Chan, L. K., Jegadeesh, N. and Lakonishok, J. (1996), "Momentum Strategies", *Journal of Finance,* Vol. 51, No. 6, pp. 1681-1713.

4. Fama, E. F. (1970), "Efficient Capital Markets: A Review of Theory and Empirical Work", *Journal of Finance,* Vol. 25, No. 2, pp. 383-417.

5. Jegadeesh, N. (1990), "Evidence of Predictable Behavior of Security Returns", *Journal of Finance,* Vol. 45, No. 3, pp. 881-898.

6. Jegadeesh, N. and Titman, S. (1993), "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency", *Journal of Finance,* Vol. 25, No. 1, pp. 65-91.

7. Jegadeesh, N. and Titman, S. (1999), "Profitability of Momentum Strategies: An Evaluation of Alternative Explanations", *NBER Working Paper Series* no. 7159.

8. Jegadeesh, N. and Titman, S. (2001a), "Momentum", *University of Illinois Working Paper*.

9. Jegadeesh, N. and Titman, S. (2001b), "Profitability of Momentum Strategies: An Evaluation of Alternative Explanations", *Journal of Finance,* Vol. 56, No. 2, pp. 699- 720.

10. MATLAB - The MathWorks, Inc. (2008), "*MATLAB - The Language Of Technical Computing*". [online] Available at < http://www. mathworks.in/products/matlab/index. html >.