Research Article

THE JANUARY EFFECT ON THE INDIAN STOCK MARKET

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ARTICLE INFO	ABSTRACT
	The stock market has always been a great interest for both companies as well as individuals. This interest is based on the potential to achieve great profits. There are many possibilities to earn money in the stock market if one has the right information. It is always assumed that the stock market is efficient. This means that when an arbitrage possibility occurs it won't be there for long, since brokers and individuals will use it. In this research a particular arbitrage occurrence will be investigated that has existed in the stock market for many years-The January Effect. This type of pattern in price behaviour on the financial market supports the fact that financial markets are not fully efficient. The January Effect was first observed in, or before, 1942 by investment banker Sidney B. Wachtel. It is the observed phenomenon that since 1925, small stocks have outperformed the broader market in the month of January, with most of the disparity occurring before the middle of the month. In this report, these existing claims and beliefs regarding the January Effect will be tested and analysed by evaluating the historical data of representative indices of the stock market.

INTRODUCTION

The January effect is a calendar-related anomaly in the financial market where financial security prices increase in the month of January. This creates an opportunity for investors to buy stock for lower prices before January and sell them after their value increases. Therefore, the main characteristics of the January Effect are an increase in buying securities before the end of the year for a lower price, and selling them in January to generate profit from the price differences.

Past Claims

- Stocks have a tendency to rally each January. Financial security prices increase in the month of January creating an opportunity for investors to buy stock for lower prices before January and sell them after their value increases.
- It is the observed phenomenon that since 1925, small stocks have outperformed the broader market in the month of January. The major disparity occurs before the middle of January, especially in the first week.
- The January Effect also suggests that positive (negative) returns in January predict positive (negative) returns in the remaining 11 months of the year.

- On an average, 11-month returns following positive Januaries are larger than 11-month returns following negative Januaries, and this "spread" cannot be explained by standard asset pricing models.
- Institutions and traders sell off stocks the end of the year for tax reasons and portfolio dressing. Then they start buying again in January, often favoring small companies, also known as "small caps".

Reasons and Causes

Tax Deduction: The most common theory explaining this phenomenon is that individual investors, who are income tax-sensitive and who disproportionately hold small stocks, sell stocks for tax reasons at year end (such as to claim a capital loss) and reinvest after the first of the year.

When you sell any pharmaceutical flops or banking blunders, you can use them to offset gains from more successful ventures -or even a portion of your everyday income. Capital loss is the result of selling an investment at less than the purchase price or adjusted basis. Any expenses from the sale are deducted from the proceeds and added to the loss.

The key point is that capital losses are only losses after you sell them. A stock sitting in your portfolio with a deflated price may cause distress, but it doesn't do you any tax good until you

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dump it. You can recoup a percentage of a true loss from the taxman. This is one of the best deductions available to investors. A capital loss directly reduces your taxable income, which means you pay less tax.

Portfolio Dressing: A strategy used by mutual fund and portfolio managers near the year or quarter end to improve the appearance of the portfolio/fund performance before presenting it to clients or shareholders. To window dress, the fund manager will sell stocks with large losses and purchase high flying stocks near the end of the quarter.

Institutional investors prefer not to show large holdings in "high beta" small cap stocks when they release their annual reports. As well, institutional investors, who are having a profitable year, often prefer to own big cap stocks with lower volatility near year end as the time for calculating their final performance bonus approaches.

In addition, institutional investors start to look for equities with higher risk and greater potential return to set the stage for potential outperformance in the following year.

Individual Behavior: There are behavioural reasons why it may exist. Many investors like to clear out their deadwood by the end of the year and start afresh in January. Instead of adopting new resolutions, they buy new stocks. Another view is that after a holiday respite, investors are looking for new, profitable ideas.

Increased Income: The income that the investors earn by selling their small cap and underperforming stocks in the end of December increases their spending power. It is also used afresh in the month of January to buy the small cap stocks.

Another cause is the payment of year–end bonuses in January. Some of this bonus money is used to purchase stocks, driving up prices.

LITERATURE REVIEW

The comprehensive literature talks about the different aspects of the January effect such as increasing stock prices in January, higher returns in January vis-à-vis the remaining months of the year and the magnified effect of this phenomenon on the stock prices of smaller capitalised companies. The following literature has been reviewed to justify the need of the study:

Sidney Wachtel (1942)first documented 'The January effect' in his paper "Certain Observations on Seasonal Movements in Stock Prices" published in the Journal of Business in 1942.

Rozeff and Kinney (1976)further studied on this phenomenon and found in their results that the monthly average returns in January was about 3.5% compared with about 0.5% per month for the remainder of the year. These results were based on an equally weighted index of the New York Stock Exchange from 1904–1974.

- Studies by Reinganum (1981), Banz (1981), Keim (1983), Blume and Stambaugh (1983), and Roll(1983) examined the involvement of the month-of-the-year with the sizeof the company. Their research showed that there was a major negative relationship between the size of the firm and its stock earnings, as measured by the total market value of the outstanding equity in

their empirical results. They concluded that the returns generated by smaller capitalised firms were significantly higher than large capitalised firms in January.

- Seyhun (1988) studied the seasonal pattern of aggregate insider trading. He suggested that the January effect resulted from the predictable changes in the turn-of-the-year demand for securities or that it represented the returns for the higher risk of trading against informed traders at the turn of the year.

Objectives of the Study

The two main objectives of the study are:

1. To see if the stock prices, on an average, follow an increasing pattern in the beginning of January
   a. Analyse the prices of the stocks through a representative index, in the first week of January, in the past years to see if the prices followed an increasing pattern on an average.
2. To see if the stock prices of small cap companies outperform the large cap companies in the first week of January
   a. Record and analyse the prices of stocks in the past years through 2 indices-the first representative of the large cap companies and the other representative of the small cap companies-to see if the small cap outperforms the large cap.

Objective 1

Index used

For the first objective, the index 'NIFTY 500'has been used which is India's first broad based benchmark of the Indian capital market. It represents about 95.2% of the free float market capitalization of the stocks listed on the National Stock Exchange (NSE) as on 31 March 2017.

The NIFTY 500 companies are disaggregated into 68 industry indices namelythe NIFTYIndustry Indices. Industry weightages in the index reflect the industry weightages in the market. For e.g. if the banking sector has a 5% weightage in the universe of stocks traded on NSE, banking stocks in the index would also have an approx. representation of 5% in the index.

Method of computation

NIFTY 500 is computed using free float market capitalization weighted method, wherein the level of the index reflects the free float market value of all the stocks in the index relative to a particular base period. The index is calculated with the base date of 01-01-1995 and a base value of 1000.

METHODOLOGY

1. Firstly the historical closing prices of the index in the first week of January of the last 18 years (2000-2017) are obtained.
2. After recording them sequentially, the percentage change (increment/decrement) in the beginning value is calculated using the simple percentage formula

$$\% \text{ Change} = \frac{\sum(\text{Day}_{CY} \text{ Closing Price} - \text{Day}_{PY} \text{ Closing Price}) * 100}{\text{Day}_{PY} \text{ Price}}$$

- *Day^{CY} refers to the last working day of the first week in January of the current year (CY)*
- *Day^{PY} refers to the last working day of the last week in December of the previous year (PY)*

The values of all the 18 years are then added to find the Total Return and then divided by 18 to find the Average return.

Assumptions and remarks

- To represent the beginning of January, the first week i.e. the first 5 working days are used as it is said that majority of the price increase happens in the first week. Closing prices of the day are used.
- Last day of the previous December is also included in the calculations to include the change on the first day of January.

Research

Table 1: Historical NIFTY500 closing price data for January first week (2000-2017)

| Date	Close Price	Date	Close Price
Historical values for Jan 2000		**Historical values for Jan 2001**	
30-Dec-99	1205.00	29-Dec-00	912.85
07-Jan-00	1276.30	05-Jan-01	962.75
% change	5.917012	% change	5.466396
Historical values for Jan 2002		**Historical values for Jan 2003**	
31-Dec-01	700.60	31-Dec-02	772.85
07-Jan-02	731.25	07-Jan-03	771.20
% change	4.374822	% change	-0.213496
Historical values for Jan 2004		**Historical values for Jan 2005**	
31-Dec-03	1531.35	31-Dec-04	1804.90
07-Jan-04	1579.65	07-Jan-05	1758.05
% change	3.154080	% change	-2.595712
Historical values for Jan 2006		**Historical values for Jan 2007**	
30-Dec-05	2459.20	29-Dec-06	3295.05
06-Jan-06	2537.30	08-Jan-07	3286.90
% change	3.175830	% change	-0.247341
Historical values for Jan 2008		**Historical values for Jan 2009**	
31-Dec-07	5354.70	31-Dec-08	2295.75
07-Jan-08	5500.15	07-Jan-09	2271.40
% change	2.716305	% change	-1.060656
Historical values for Jan 2010		**Historical values for Jan 2011**	
31-Dec-09	4329.10	31-Dec-10	4940.95
08-Jan-10	4405.30	07-Jan-11	4750.75
% change	1.760181	% change	-3.849462
Historical values for Jan 2012		**Historical values for Jan 2013**	
30-Dec-11	3597.75	31-Dec-12	4,743.45
06-Jan-12	3694.80	07-Jan-13	4,831.45
% change	2.697519	% change	1.855190
Historical values for Jan 2014		**Historical values for Jan 2015**	
31-Dec-13	4914.85	31-Dec-14	6773.65
07-Jan-14	4820.25	07-Jan-15	6644.95
% change	-1.924779	% change	-1.900010
Historical values for Jan 2016		**Historical values for Jan 2017**	
31-Dec-15	6724.75	30-Dec-16	6982.80
07-Jan-16	6446.85	06-Jan-17	7083.10
% change	-4.132496	% change	1.436387

Source: National Stock Exchange of India

Results and observations

- The Net Total Return in the 18 years in the first week of January is 16.63% and the average return is 1.28%
- Out of the total 18 years, 10 years showed positive returns while there were negative returns in 8 years.
- The total returns earned in the 10 positive return years is 32.55% in comparison with 15.92% earned in the 8 negative return years.

Table 2: Nifty500 stock price percentage change in January first weeks (2000-2017)

Year	% change
2000	5.92%
2001	5.47%
2002	4.37%
2003	-0.21%
2004	3.15%
2005	-2.60%
2006	3.18%
2007	-0.25%
2008	2.72%
2009	-1.06%
2010	1.76%
2011	-3.85%
2012	2.70%
2013	1.86%
2014	-1.92%
2015	-1.90%
2016	-4.13%
2017	1.44%
Total Return	16.63%
Average Return	1.28%
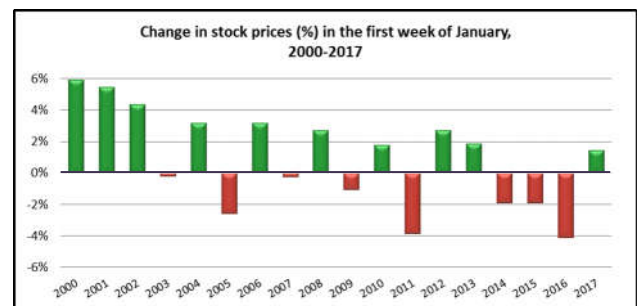
Figure 1 Movement in Nifty500 closing stock prices in January first week (2000-2017)

CONCLUSION

From our analysis, we can observe that there was no substantial evidence to support the premise that the January Effect exists. We could not find an increasing pattern in the index prices in the first week of January over the period covered, as 8 out of the 18 years (44%) had negative returns. Although the total of the positive returns is double the total of negative returns, the high frequency of negative return occurrences makes the January effect phenomenon a very risky option to rely on for any arbitrage opportunity.

Objective 2

Indices used

For the small-cap companies, the NIFTY Free Float Smallcap 100 Index has been used which is designed to reflect the behaviour and performance of the small capitalised segment of the financial market. The NIFTY Free Float Smallcap 100 Index comprises of 100 tradable, exchange listed companies. The index represents about 2.9% of the free float market capitalization of the stocks listed on NSE as on 31 March 2017.

For the large-cap companies, the NIFTY 50 Index has been used as it includes the top 50 blue-chip companies from different sectors listed on the National Stock Exchange of India. It is a well diversified 50 stock index accounting for 12 sectors of the economy. The index represents about 62.9% of the free float market capitalization of the stocks listed on NSE as on 31 March 2017.

Method of computation

The NIFTY Free Float Smallcap 100 Index is calculated using free float market capitalization methodology with a base date of January 1, 2004 indexed to a base value of 1000.

The NIFTY 50index is computed using market capitalization weighted method, wherein the level of the index reflects the total market value of all the stocks in the index relative to a particular base period.The index uses 3 November 1995as the base date and the base value has been set at 1000.

Research

Table 3: Historical Nifty50 and NIFTY Free Float Smallcap 100 closing price data for January first week (2005-2017)

NIFTY 50		NIFTY Free Float Smallcap 100	
Date	Close Price	Date	Close Price
Historical values for Jan 2005		**Historical values for Jan 2005**	
31-Dec-04	2,080.50	31-Dec-04	1,348.71
07-Jan-05	2,015.50	07-Jan-05	1,346.54
% change	-3.124249%	% change	-0.160894%
Historical values for Jan 2006		**Historical values for Jan 2006**	
30-Dec-05	2,836.55	30-Dec-05	2,187.64
06-Jan-06	2,914.00	06-Jan-06	2,278.04
% change	2.730430%	% change	4.132307%
Historical values for Jan 2007		**Historical values for Jan 2007**	
29-Dec-06	3,966.40	29-Dec-06	3,097.52
08-Jan-07	3,933.40	08-Jan-07	3,194.84
% change	-0.831989%	% change	3.141868%
Historical values for Jan 2008		**Historical values for Jan 2008**	
31-Dec-07	6,138.60	31-Dec-07	5,800.74
07-Jan-08	6,279.10	07-Jan-08	6,048.06
% change	2.288795%	% change	4.263594%
Historical values for Jan 2009		**Historical values for Jan 2009**	
31-Dec-08	2,959.15	31-Dec-08	1,684.07
07-Jan-09	2,920.40	07-Jan-09	1,663.58
% change	-1.309498%	% change	-1.216695%
Historical values for Jan 2010		**Historical values for Jan 2010**	
31-Dec-09	5,201.05	31-Dec-09	3,486.24
08-Jan-10	5,244.75	08-Jan-10	3,622.90
% change	0.840215%	% change	3.919983%
Historical values for Jan 2011		**Historical values for Jan 2011**	
31-Dec-10	6,134.50	31-Dec-10	4,101.01
07-Jan-11	5,904.60	07-Jan-11	3,918.84
% change	-3.747657%	% change	-4.442076%
Historical values for Jan 2012		**Historical values for Jan 2012**	
30-Dec-11	4,624.30	30-Dec-11	2,711.85
06-Jan-12	4,754.10	06-Jan-12	2,803.00
% change	2.806911%	% change	3.361174%
Historical values for Jan 2013		**Historical values for Jan 2013**	
31-Dec-12	5,905.10	31-Dec-12	3,710.15
07-Jan-13	5,988.40	07-Jan-13	3,888.70
% change	1.410645%	% change	4.812474%
Historical values for Jan 2014		**Historical values for Jan 2014**	
31-Dec-13	6,304.00	31-Dec-13	3,402.90
07-Jan-14	6,162.25	07-Jan-14	3,419.15
% change	-2.248572%	% change	0.477534%
Historical values for Jan 2015		**Historical values for Jan 2015**	
31-Dec-14	8,282.70	31-Dec-14	5,272.90
07-Jan-15	8,102.10	07-Jan-15	5,174.45
% change	-2.180448%	% change	-1.867094%
Historical values for Jan 2016		**Historical values for Jan 2016**	
31-Dec-15	7,946.35	31-Dec-15	5,653.30
07-Jan-16	7,568.30	07-Jan-16	5,450.45
% change	-4.757530%	% change	-3.588170%
Historical values for Jan 2017		**Historical values for Jan 2017**	
30-Dec-16	8,185.80	30-Dec-16	5,780.85
06-Jan-17	8,243.80	06-Jan-17	6,063.25
% change	0.708544%	% change	4.885095%

Source: National Stock Exchange of India

METHODOLOGY

1. Firstly the historical closing prices of both the indices in the first week of January of the last 13 years (2005-2017) are obtained.
2. After recording them sequentially and separately, the percentage change (increment/decrement) in the beginning value is calculated using the simple percentage formula

$$\% \text{ Change} = \frac{\Sigma(\text{Day}^{CY} \text{ Closing Price} - \text{Day}^{PY} \text{ Closing Price}) * 100}{\text{Day}^{PY} \text{ Price}}$$

- *Day^{CY} refers to the last working day of the first week in January of the current year (CY)*
- *Day^{PY} refers to the last working day of the last week in December of the previous year (PY)*

1. The values of all the 13 years are then added to find the Total Return and then divided by 13 to find the Average return.
2. These results along with the yearly return values are compared between both the indices to see which index outperformed the other,both year-wise and overall.

Assumptions and remarks

- To represent the beginning of January, the first week i.e. the first 5 working days are used as it is said that majority of the price increase happens in the first week.
- Last day of the previous December is also included in the calculations to include the change on the first day of January.
- Closing prices of the day are used.
- The indices are the best representatives of the large and small cap companies in the Indian stock market.
- 13 years is the maximum time period that could be used for the NIFTY Free Float Smallcap 100 index as it started in the year 2004 and no data was available before that.
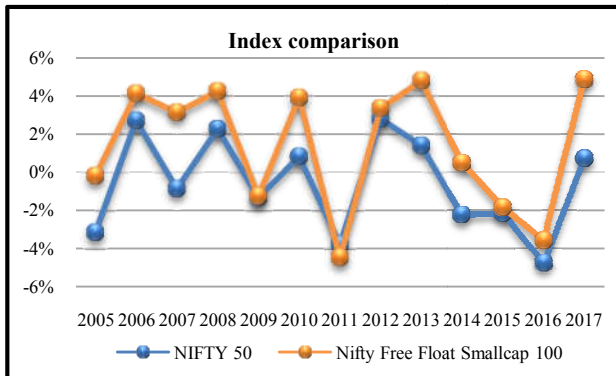
Analysis

Table 4: Nifty50 and NIFTY Free Float Smallcap 100 stock price percentage change in January first weeks (2005-2017)

Year	NIFTY 50	NIFTY Free Float Smallcap 100
2005	-3.12%	-0.16%
2006	2.73%	4.13%
2007	-0.83%	3.14%
2008	2.29%	4.26%
2009	-1.31%	-1.22%
2010	0.84%	3.92%
2011	-3.75%	-4.44%
2012	2.81%	3.36%
2013	1.41%	4.81%
2014	-2.25%	0.48%
2015	-2.18%	-1.87%
2016	-4.76%	-3.59%
2017	0.71%	4.89%
Total Return	***-7.41%***	***17.72%***
Avg. Return	***-0.57%***	***1.36%***

Results and observations

- The individual yearly results of both the indices are compared and NIFTY Free Float Smallcap 100 has clearly outperformed the NIFTY50 index in all the 13 years except for 2011. In that year too, NIFTY50 earned only 0.7% more return than the Smallcap index.

Figure 2 Comparison between Nifty50 and NIFTY Free Float Smallcap 100 stock price percentage changes in January first weeks (2005-2017)

- Based on our research, the probability of small caps providing better returns than large caps in the beginning of January of every year is 92.3%.
- Both the Total and Average returns of NIFTY are negative compared to the high positive returns of Smallcap index. This has resulted in a large difference between their performances leading to arbitrage opportunities.
- The gap between the average returns of the two indices in the first week of January is close to 2%, which is a substantial figure given that the time period is just a week.

CONCLUSION

The belief and claim of the investors turned out to be true as the small cap companies beat the large cap companies by a significant margin and frequency.

Based on the findings of this research and assuming other market and risk factors to be constant, buying small cap stocks at the end of a year and selling them in the beginning of January could be considered as an option for investors and speculators. This shows that the market is not completely efficient and investors can make use of an arbitrage opportunity.

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