SECTORIAL PARTICIPATION IN DIFFERENT BULL RUNS OF INDIAN STOCK MARKETS

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Abstract : "History does not repeat itself but it often rhymes" goes the aphorism. It is particularly true in the case of bull runs. While the characteristics of bull markets remain similar the sectors driving it vary. So in general, what is it that the crowd likes to pick in a bull market? "It likes companies that grow rapidly. During bull market madness, growth is more valued than the quality of growth" says RaamdeoAgarwal, Joint MD, MotilalOswal Securities Ltd. Thepresent study will be a modest attempt in the area of Behavioural finance and the focus will be to analyze the various bull runs of the Indian stock market and also to find out which sectors were driving these bull runs.

***Key words*:Bull Run, PE Ratio, Fundamental Return, Speculative Return, Total Return.**

I. INTRODUCTION

"History does not repeat itself but it often rhymes" goes the aphorism. It is particularly true in the case of bull runs. While the characteristics of bull markets remain similar the sectors driving it vary. So in general, what is it that the crowd likes to pick in a bull market? "It likes companies that grow rapidly. During bull market madness, growth is more valued than the quality of growth" says RaamdeoAgarwal, Joint MD, MotilalOswal Securities Ltd. [1]

It is been observed by the various analysts that sectors and stocks that lead one bull market rarely participate in the rally that follows it. For example Tata steel was a darling stock of 1992 rally with a Sensex weight of 15.82% but it was nowhere in the 2000 rally and by then its weight shrunk to just 1.52%. Similarly Infosys was a favorite of the 2000 rally with a weight of 19.59% but did not participate in the 2008 rally and its weight reduced to 5.71%. Reliance Industries rode the 2008 rally with a weight of 15.68% but did not participate in the 2015 rally as its weight fell to 6.12%. ICICI Bank, the stock with the maximum weight on the Sensex at its 2015 peak is slipping and has fallen to 33% from its 2015 high; its weight on the Sensex has shrunk to 5.64%. This was a short summary of some of the winner stocks that rode different bull runs in the past but had lost the charm later.

According to an article republished in the live mint E paper on 4th November 2017 titled " What the past 6 bull runs tell us about this market", the past 30 years of the Indian stock market history is been divided into six bull runs[2]. The details of these bull runs like the start date, end date, duration (in weeks), magnitude, starting value, ending value and also the key characteristics are given in the table below.

Table 1: Characteristics of different Indian stock market bull runs (1984-2010)

WHAT THE DIFFERENT BULL MARKETS SHOW

Till date, India has had six major bull runs. Here are their key characteristics.

Start date	End date	Duration (Week)	Magnitude (%)	Start value	End value	Key characteristics
9 May 1984	27 Feb 1986	94	185	233	665	Rajiv Gandhi's new era
8 Feb 1990	22 Apr 1992	115	578	659	4,467	Harshad Mehta bull market
19 Jul 1993	12 Sep 1994	60	121	2,098	4,631	Access to Global Depository Receipts and foreign institutional investors
20 Oct 1998	11 Feb 2000	68	115	2,764	5,934	Technology boom
25 Apr 2003	8 Jan 2008	246	614	2,924	20,873	Infrastructure and global liquidity
9 Mar 2009	5 Nov 2010	87	157	8,160	21,005	Global revival after the financial crisis
	Average	112	295			
	Median	90	171			

Source: http://www.livemint.com/Money/XMTtBng0BtRHpU6PCocUrL/Will-the-current-market-uptrend-last-for-long.html

It is important to note that in the above analysis only the bull runs till 2010 are considered. This can be extended further till 2017.In order to divide the period of 2011 to 2017 into suitable number of bull runs the meaning and the significant feature which qualifies an increase in stock prices to be called as a bull run has to be understood.

2. Meaning of Bull Run in Stock Market

A bull market or a bull run refers to a stock market characterized by a sustained rise in share prices. This happens when investors believe that a positive trend will continue for the long term and that the optimism is usually based on strong positive indicators for a country's economy.

If a stock goes up in value from the previous day that does not necessarily mean a bull market. For a market to be characterized as bull, the change in stock prices has to occur over a longer period. Another important indicator is the degree of change. Most definitions say a bull market is characterized by a rise of 15 to 20 % over at least two months. Similarly a decline of the same degree over the same period of time is known as bear market.[3]

3. Literature Review

Investors' irrationality is an inevitable reality that has been time and again pointed out by researchers like Statman [4]. The researchers had focused on the fact that an actual investor cannot conform to the "rational" assumptions of the standard finance theories. They had argued that investors are not the calculative utility maximizing machines as the traditional theories believe them to be. Rather, they are led by their sentiments and are prone to make cognitive errors. They may lack self-control, can be over confident about their abilities, may miscalibrate information, and may also overreact or follow the crowd without thinking [5]. These errors can get projected in the form of market anomalies like speculative bubbles, for instance, the dot-com bubble of 1990's[6] and real estate bubble of 2006[7]. These events prove to be very costly in the stock market and they warrant the understanding of investment behavior, which has become important as ever. Thus, the need for comprehending such anomalies and shortcomings of human judgment involved with them became the precursor of behavioral finance. Behavioral finance deals with the influence of psychology on the behavior of financial practitioners and its subsequent impact on stock markets [8].

3. Need for the study

While we boast of one of the old exchanges in the world, the recorded history of Indian capital markets is limited. With the opening up of the Indian markets to foreign institutional investors(FIIs) in 1993-94, Indian market cycles have become strongly correlated with global equity markets. Over the past few years, aided by a strong electoral outcome, local enthusiasm for equities has recorded a sharp rebound, with analysts and market experts predicting a multi-year bull market, which they are popularly referring as 'Mother of all Bull runs'. This study is focused to analyze the various bull runs of the Indian stock market and also to find out which sectors were driving these bull runs.

4. Objectives of the Study

1. To identify the different bull runs in Indian stock markets based on Nifty 50 index values and the corresponding PE ratios.
2. To study the participation of different sectorial indices in the various bull runs in Indian stock markets.

5. Scope of the study

The bull runs that are included in the study are for the period of 1999 to 2017 as the PE values of Nifty 50 were not available for the period before 1999. The sectorial indices that are included in the study are Nifty Auto Index, Nifty Bank Index, Nifty Financial Services Index, Nifty IT Index, Nifty Media Index, Nifty Metal Index, Nifty Pharmacy Index, Nifty PSU Bank Index, Nifty FMCG Index, Nifty Energy Index and Nifty Realty Index.

The performance of the sectorial indices is studied for the following period:

Nifty Auto Index: 2006 to 2017
Nifty Bank Index: 2000 to 2017
Nifty Financial Services Index: 2006 to 2017
Nifty IT Index: 1997 to 2017
Nifty Media Index: 2007 to 2017
Nifty Metal Index: 2006 to 2017
Nifty Pharma Index: 2011 to 2017
Nifty PSU Bank Index: 2007 to 2017
Nifty FMCG Index: 2011 to 2017
Nifty Energy Index: 2011 to 2017
Nifty Realty Index: 2007 to 2016

6. Methodology

The historical data of broad indices and sectorial indices were obtained from the extensive archives of NSE.

The historical data of broad indices and also of sectorial indices that was collected from the extensive archives of NSE is entered into the computer in the form of spreadsheets.

To identify the various bull runs in the period of 1999 to 2017 the average PE, maximum PE and the minimum PE values for all the years are tabulated and studied. The average Nifty 50 value, 52 week highs and lows of Nifty 50 for the corresponding period is tabulated and some meaningful observations are made.

In order to analyze the performance of Nifty 50 as well as other sectorial indices the returns from the equities are divided into two components i.e. Fundamental and Speculative components.

The fundamental element concerns the earnings behind the enterprise along with the dividend paid out during the holding period.

The speculative element concerns the changes in the appraisal of the current performance and prospective profitability by the market participants, as a group, having a bearing on PE expansion or contraction, thereby increasing or decreasing the total shareholder return. This speculative element is the product of the general sentiment prevailing and the presence of greed and fear amongst the investors. This is subject to fast changes and this is what makes the markets volatile and unpredictable and also interesting.

The performance of the Nifty 50 and other sectorial indices are dissected into components, fundamental and speculative.

Total Return = (Fundamental Return) + (Speculative Return) + (Dividend Yield)

7. Classification of Different Bull Runs (1999-2017)

It will be interesting to study the Nifty 50 index and also the respective PE ratios for last 18 years and analyze it further to identify the different bull runs in that corresponding period.

Table 2: PE ratios of Nifty 50 Index (1999-2017)

Year	Average PE	Max. PE	Min. PE
1999	18.22	24.22	11.62
2000	22.14	28.47	17.18
2001	16.34	22.78	12.3
2002	16.09	19.14	13.83
2003	14.49	20.67	10.84
2004	16.31	22.01	11.62
2005	14.81	17.2	13.27
2006	19.17	21.64	14.92
2007	21.31	27.69	17.2
2008	18.69	28.29	10.68
2009	18.69	23.11	11.96
2010	22.88	25.91	20.06
2011	19.79	24.57	16.46
2012	18.05	19.64	16.28
2013	17.76	19.12	15.23
2014	19.89	21.94	17.09
2015	22.44	24.06	20.57
2016	21.94	24.54	18.65
2017	24.47	26.87	21.94

Source: Calculated and compiled by the researcher based on Secondary data
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

The above table can be used along with the Nifty 50 values to draw meaningful observations. The average Nifty 50 values that are calculated based on closing values of Nifty 50, 52 week highs and 52 weeks lows for the period of 1999 to 2017 are presented in the table given below.

Table 3: Average values, 52 Week High and 52 Week Low of Nifty 50 Index (1999-2017)

Year	Average Nifty 50	52Week High	52 Week Low
1999	1211.34	1522.85	882.6
2000	1417.62	1818.15	1108.2
2001	1121.8	1422.95	849.95
2002	1055.87	1205.95	920.1
2003	1231.15	1914.4	920
2004	1754.59	2088.45	1292.2
2005	2268.91	2857	1894.4
2006	3357.09	4046.85	2595.65
2007	4564.97	6185.4	3554.5
2008	4344.75	6357.1	2252.75
2009	4109.47	5214.6	2539.45
2010	5458.44	6338.5	4675.4
2011	5335.91	6181.05	4531.15
2012	5341.53	5965.15	4588.05
2013	5914.35	6415.25	5118.85
2014	7356.51	8626.95	5933.3
2015	8287.29	9119.2	7539.5
2016	8092.19	8968.7	6825.8
2017	9476.45	10490.45	8133.8

Source: Calculated and compiled by the researcher based on Secondary data
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

From the table2 and table 3 it is evident that there are four bull runs in the period of 1999 to 2017.

The first Bull Rundaring this period wasobserved in the year 1999 when the PE ratio was at its low of 11.62 and Nifty 50 was at 882.6. Internet set the foundation for this uptrend.While the US was in the mid of an Internet bubble, India reflected this through the Y2K scare. The fear of Y2K gave Indian software companies an opportunity to enter global markets. If china got the manufacturing boom of the 2000s, India got the software services boom. Within a period less than 24 months the BSE IT index chalked up over 1000% return [9]. The scale of market capitalization gains for information technology companies was so significant that during this period, from no weight in the Sensex, it peaked at over 30% weight by February 2000. The rally was vicious and narrow, with all the ingredients of collapsing which it did. Beset with poor domestic economic micro variables, the markets went into a tailspin. This Bull Run has witnessed the Nifty high of 6357 at a PE of around 28.47.

A slowdown in Indian economy after the tech bubble burst set the foundation for the bull market that Indian investors had experienced. At the start of 2003, the level of disbelief in equities was unmatched which can be observed from the table above that PE ratio was at its historic low of 10.84 and Nifty hovering around 920 .With mouth-watering valuation and interest rate and inflation at historic lows, what was required was a confluence of global factors to give the additional boost. For Indian investors, the 2003-08 rally re-ignited their faith in equities. The rally was across the board and equities were back. The rally in infrastructure sector rivaled the technology bubble in intensity, though it was longer and thus considered more stable. This was brief summary of the second Bull Run which was identified in the period of 1999-2017. This Bull Run has witnessed the Nifty high of 1818 at a PE of around 28.29.

8. Performance of Nifty 50 during the bull runs (1999-2017)

Date	Nifty	PE Ratio	Total Return(1)	Fundamental return(2)		Speculative Return(3)	Div.Yield
				EPS	Return		
Jan-96	908.01						
Jan-97	939.55						
Jan-98	1081.2						
Jan-99	890.8	11.62		76.66			1.83
Jan-00	1592.2	25.91	79.69%	61.45	-19.84%	98.58%	0.95
Jan-01	1254.3	19.06	-19.97%	65.81	7.09%	-28.31%	1.25
Jan-02	1055.3	15.29	-14.38%	69.02	4.88%	-20.75%	1.49
Jan-03	1100.15	14.92	6.63%	73.74	6.84%	-2.59%	2.38
Jan-04	1912.25	21.09	75.26%	90.67	22.97%	50.85%	1.44
Jan-05	2115	15.57	12.50%	135.84	49.82%	-39.21%	1.89
Jan-06	2835.95	17.16	35.65%	165.27	21.67%	12.42%	1.56
Jan-07	4007.4	21.48	42.51%	186.56	12.89%	28.42%	1.2
Jan-08	6144.35	27.64	54.16%	222.3	19.15%	34.17%	0.84
Jan-09	3033.45	13.3	-48.77%	228.08	2.60%	-53.23%	1.86
Jan-10	5232.2	23.31	73.42%	224.46	-1.59%	74.07%	0.94
Jan-11	6157.6	24.57	18.70%	250.61	11.65%	6.04%	1.01
Jan-12	4636.75	16.79	-23.07%	276.16	10.19%	-34.89%	1.63
Jan-13	5950.85	18.82	29.73%	316.2	14.50%	13.84%	1.39
Jan-14	6301.65	18.69	7.38%	337.17	6.63%	-0.74%	1.49
Jan-15	8284	21.16	32.72%	391.49	16.11%	15.34%	1.27
Jan-16	7963.2	21.53	-2.42%	369.87	-5.52%	1.65%	1.45
Jan-17	8179.5	22.08	4.07%	370.45	0.16%	2.56%	1.35

Source: Calculated and compiled by the researcher based on Secondary data
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

The method to study whether the markets are fundamentally driven or speculative driven is as follows:
After dissecting the returns from Nifty 50 into fundamental return and speculative return, student's t-test is conducted to test whether there is a significant difference between the mean total return and mean fundamental return. If the markets are fundamentally driven i.e., good/bad performance of the Nifty stocks has got to do with the consistent/inconsistent performance of the companies behind the stocks then the difference between the total return and fundamental return should be insignificant. In other words if the fundamentals of the companies are the only driving force for the variations in the Nifty 50 then there should not be any significant difference between total returns generated by the index and its fundamental component.
So based on the description given above the hypothesis which is framed and is tested is as follows:

Hypothesis 1

Null Hypothesis: There is no significant difference in the mean total return and the mean fundamental return of Nifty 50.
Alternate Hypothesis: There is a significant difference in the mean total return and the mean fundamental return of Nifty 50.

Table 4: t-Test for Equality of Means of Total Return and Fundamental Return of Nifty 50 (1999-2016)

t-Test: Two-Sample Assuming Equal Variances		
	Total Return	*Fundamental Return*
Mean	0.202116667	0.100110556
Variance	0.130357405	0.020680645
Observations	18	18
Pooled Variance	0.075519025	
Hypothesized Mean Difference	0	
df	34	
t Stat	1.113574451	
P(T<=t) one-tail	0.136636309	
t Critical one-tail	1.690924255	
P(T<=t) two-tail	0.273272618	
t Critical two-tail	2.032244509	

Source: Based on the results generated by using MS-Excel, to the secondary data.
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

Calculated value of t is 1.11 for degrees of freedom 34. The significance value is 0.273 which is more than 0.05 (at 5% level of significance), the null hypothesis is accepted. Hence it is concluded that there is no significant difference between the mean total return and the mean fundamental return generated by Nifty 50.

The overall figures suggest that the market as measured in terms of Nifty 50 is fundamentally driven but it can be interpreted in the following ways:

1. There is a difference in total return and fundamental return but it is not significant. In other words though the speculative element is existing but its contribution to the total return is insignificant.

   Or

2. The law of averages is nullifying the effect of positive speculative effect with that of negative speculative effect. There are times when speculative element is predominant (either in positive or negative sense) and there are also times when fundamentals of the companies only are ruling the stock markets. The positive speculative effect is being nullified by the negative speculative effect and it is wrongly reflected in the performance of the index that it is only being driven by consistent/inconsistent performance of the companies behind the stocks and it has nothing to do with speculative element of the market participants.

To rule out the later possibility the figures mentioned in the Table.5.4 are investigated further and an observation was made that in the years 1999, 2003,2006,2007,2009, 2015 and 2016 the positive speculative activity was predominant which was reflected in higher speculative return in Jan. 2000, Jan.2004, Jan 2007, Jan2008, Jan.2010, Jan 2016 and Jan 2017 than the respective fundamental return component in those years. In the years 2000, 2001, 2008 and 2011 the negative speculative activity was predominant which was reflected in higher speculative return (in absolute terms) in Jan 2001, Jan. 2002, Jan2009 and Jan 2012 than the respective fundamental return component in those years. In the years 2002, 2004, 2005, 2010, 2012, 2013 and 2014 fundamental component was predominant over the speculative component which can be seen from the figures of Jan. 2003, Jan2005, Jan.2006, Jan.2011, Jan.2013, Jan.2014 and Jan.2015.

Based on the above demarcation of the years into three groups, **Hypothesis 1** was tested for all these groups and the results are as follows:

Hypothesis 1.1

Null Hypothesis: There is no significant difference in the mean total return and the mean fundamental return of Nifty 50.
Alternate Hypothesis: There is a significant difference in the mean total return and the mean fundamental return of Nifty 50.

Table 5: t-test for Equality of Means of Total Return and Fundamental Return of Nifty 50 (For the years of predominant positive speculative activity)

t-Test: Two-Sample Assuming Equal Variances		
	Total Return	***Fundamental Return***
Mean	0.4667	0.040312857
Variance	0.115354413	0.022889767
Observations	7	7
Pooled Variance	0.06912209	
Hypothesized Mean Difference	0	
df	12	
t Stat	3.03409861	
P(T<=t) one-tail	0.005193585	
t Critical one-tail	1.782287556	
P(T<=t) two-tail	0.010387169	
t Critical two-tail	2.17881283	

Source: Based on the results generated by using MS-Excel, to the secondary data.
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

As it can be observed from the Table 5 that the calculated value of t is 3.034 for the degrees of freedom equal to 12 and the significance value which is 0.010387 is less than 0.05(at 5% level of significance) and so the null hypothesis is rejected. Hence the alternate hypothesis is accepted and it is concluded that there is a significant difference between the mean total return and the mean fundamental return.

Hypothesis 1.2

Null Hypothesis: There is no significant difference in the mean total return and the mean fundamental return of Nifty 50.

Alternate Hypothesis: There is a significant difference in the mean total return and the mean fundamental return of Nifty 50.

Table 6: t-test for Equality of Means of Total Return and Fundamental Return of Nifty 50 (For the years of predominant negative speculative activity)

t-Test: Two-Sample Assuming Equal Variances		
	Total Return	***Fundamental Return***
Mean	-0.265475	0.0619
Variance	0.023241469	0.00104714
Observations	4	4
Pooled Variance	0.012144305	
Hypothesized Mean Difference	0	
df	6	
t Stat	-4.201208	
P(T<=t) one-tail	0.002839099	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.005678199	
t Critical two-tail	2.446911851	

Source: Based on the results generated by using MS-Excel, to the secondary data.
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

It is evident from the above test results that even in the years where negative speculative activity was predominant the alternate hypothesis is accepted as the calculated t value is -4.2 and significance value is 0.005678 which is less than 0.05 (at 5% level of significance).

Hypothesis 1.3

Null Hypothesis: There is no significant difference in the mean total return and the mean fundamental return of Nifty 50.

Alternate Hypothesis: There is a significant difference in the mean total return and the mean fundamental return of Nifty 50.

Table 7: t-test for Equality of Means of Total Return and Fundamental Return (For the years of predominant fundamentals)

t-Test: Two-Sample Assuming Equal Variances		
	Total Return	*Fundamental Return*
Mean	0.204728571	0.181742857
Variance	0.014929832	0.022262263
Observations	7	7
Pooled Variance	0.018596048	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.315341916	
P(T<=t) one-tail	0.378959274	
t Critical one-tail	1.782287556	
P(T<=t) two-tail	0.757918548	
t Critical two-tail	2.17881283	

Source: Based on the results generated by using MS-Excel, to the secondary data.
https://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

It can be observed from above table that the calculated value of t is 0.315 and the significance value which is 0.7579 is more than 0.05 (at 5% level of significance), so null hypothesis is accepted and this further confirms the point that when the fundamental component is more than the speculative component then there is no significant difference between fundamental component and the total return.

9. Comparative performance of Nifty 50 and other sectorial indices

Theanalysis discussed in the earlier sectionhad been extended further to other sectoral indices and even its returns were dissected into fundamental and speculative component.The sectorial indices that are included in the study are Nifty Auto Index, Nifty Bank Index, Nifty Financial Services Index, Nifty IT Index, Nifty Media Index, Nifty Metal Index, Nifty Pharmacy Index, Nifty PSU Bank Index, Nifty FMCG Index, Nifty Energy Index and Nifty Realty Index. The outcome of the analysis performed on the sectorial indices has been consolidated in the following table.

	Nifty 50	Auto	Bank Nifty	Fin Ser Nifty	IT Nifty	Media Nifty	Metal Nifty	Pharma Nifty	PSU Bank Nifty	FMCG Nifty	Energy Nifty	Realty Nifty
1997					PS							
1998					PS							
1999	SPS				PS							
2000	SNS		SNS		SNS							
2001	SNS		SPS		SNS							
2002	FUNDA		FUNDA		SNS							
2003	SPS		FUNDA		PS							
2004	FUNDA	NA	SPS		FUNDA							
2005	FUNDA	NA	SNS		FUNDA							
2006	SPS	NS	SPS	SPS	SNS		SPS					
2007	SPS	NS	SPS	SPS	SNS	SPS	SPS		SPS			NS
2008	SNS	NS	SNS	SNS	SNS	NS	NS		SNS			NS
2009	SPS	PS	SPS	SPS	PS	SPS	SPS		FUNDA			PS
2010	FUNDA	NS	SPS	SPS	PS	NS	NS		SPS			NS
2011	SNS	NS	SNS	SNS	SNS	SPS	NS	PS	SNS	NS	NS	NS
2012	FUNDA	PS	SPS	FUNDA	SNS	FUNDA	SPS	PS	FUNDA	PS	NS	PS
2013	FUNDA	PS	SNS	SNS	PS	NS	SPS	FUNDA	FUNDA	NS	NS	PS
2014	FUNDA	PS	SPS	SPS	SNS	SPS	NS	NS	SPS	FUNDA	PS	NS
2015	SPS	PS	SNS	SNS	SNS	NS	SPS	PS	FUNDA	PS	PS	PS
2016	SPS	NS	SPS	SPS	PS	NS	SPS	NS		NS	NS	PS

10. Findings and Conclusion

- The four bull runs were identified in the study period that ranges from 1999 to 2017.
- The first Bull Run (1999- 2000) was led by IT Sector.
- The financial services sector and banking sector were driving the second Bull Run (2003-2008).
- Both IT as well as Banking sectors was driving the third Bull Run (2009-2010).
- The fourth Bull Run identified had started in the year 2012 and is been continuing till date. No particular sector is driving this Bull Run for all these years but Metal sector is identified to be contributing significantly for more number of years as revealed by the analysis.

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