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MARKET CRASH OR CORRECTION EXPECTED IN INDIAN STOCK MARKET IN 2018?

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ABSTRACT

The study in this paper aims to examine BSE Sensex and NSE Nifty Bull Run and the factors causing this Bull Run since the January 2017 to January 2018 and on the likely chances of crash or major correction in the market. In this process, similarities of the conditions on the market during 2006 to 2008 and 2016 to 2018 are compared and possible consequences are studied as this is extensively talked about topic in the interest of investors and thus for financial and economic analysts. The objective of this study is to find whether the BSE Sensex and NSE Nifty are showing any similarities of 2007 bull run patterns and to analyse what are the likely chances for crash or major correction in market. The analysis utilizes daily stock indices data from July 1997 to January 2018. The methodologies adopted are the returns and volatility in market and CMAX ratio to find the Indian stock markets possible course of movement. This research work results shows comparison in swiftness in 2007 Bull Run and present Bull Run and throws light whether possible crash or correction may occur.

Key Words*: Stock Market, BSE Sensex, NSE Nifty Bull Run, Market Crash, Market Correction*

Introduction

Following the demonetization decision by Government of India on 8th November 2016, Indian stock markets showed slight plunge during the months of November and December 2016. Ever after January 2017, Indian stock markets BSE Sensex and NSE Nifty are strong and are on a persistently continual rally in the year 2017. In January 2018 BSE Sensex and NSE Nifty are trading at all time high levels above 35,000 points and 10,800 points respectively. Since January 2017, BSE Sensex and also NSE Nifty have been simply on Bull Run. BSE Sensex leaped up approximately 7,500+ points in last 12 months. NSE Nifty has taken a leap of 2,400+ points in preceding 12 months. In very recent 6 months a midst's certain apprehensions on probabilities of expected major correction in market, BSE Sensex and NSE Nifty have only leaped to higher levels defeating all cautions.

The reasons for this kind of rally are more explained by financial analysts in daily news papers. One such article "Sensex, Nifty rally to records: 5 crucial reasons behind stock markets' extended bull run" in Financial Express daily news paper's web version on January 8, 2018 3:28 pm says 5 reasons are stimulating the stock market rally. According to this article 1) **Wall Street at records – American stock markets, 2) Third-quarter earnings optimism -** corporate earnings for the October-December quarter of the financial year 2017-2018, 3) **FII's influx -** injecting money into domestic equities after an extended sell-off between the months of August 2017 and December 2017, 4) **Expectations of a populist Union Budget 2018 -** populist Union Budget 2018 seemed to have turned infused a wave of optimism among the investors and 5) **Value-buying in heavyweights -** a value-buying have been witnessed in the shares of heavyweight companies such as Infosys, L&T, HDFC, ITC, Reliance Industries, Coal India, Sun Pharma, TCS, IndusInd Bank, and ICICI Bank contributed the most in the Sensex bull run.

On the other side, the same daily news paper on October 23, 2017 3:24 pm, through its article says "Indian stock market headed for 2008-like crash? 6 warning signs you must not ignore anymore". These six signals are 1) **Stagnant earnings trail market surge -** Earnings growth have suffered in the last three years but the markets and stock prices have incessantly risen, 2) **Liquidity-fuelled rally -** Fund managers state that the markets are rallying merely due to their being too much liquidity in the system without the

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underlying fundamental factors to support it, 3) **IPO bubble -** This year come out as a record-breaking one for the IPO (initial public offerings) market. About Rs 50,000 crore has been raised through the public offers so far since January 2017, and several others are lined up to come up with their public issues, 4) **Irrational movement -** Indian equities have been rallying since January 2017 even as economic growth fell to its weakest since the year 2014 and the majority companies reported lower-than-expected **Q1** (first quarter) earnings, 5) **GDP under stress -** India's GDP growth declined to a three-year low in April-June, slowing down to 5.7% in first quarter of FY 2017-18 and upsetting for the second straight quarter and 6) **Brokerages warning! -** Brokerages have been expressing caution over Indian stock market that it is overvalued and is trading at close to 20 times one-year forward earnings, well above its long-term historical valuations of around 15 times. "There is a clear and present risk to the earnings turnaround in FY19 as consumption, which has been the sole driver of growth, will not likely be strong enough due to weak fiscal push and job growth. In addition, From "Get Money Rich" Financial Analysts in their article "Indian Stock Market Crash Likely in 2018" posted on net on January 13, 2018, it is indicated that P/E ratio is an indicator which is saying that stock market correction will happen any time in 2018. S&P BSE 500 PE ratio has already crossed 28.76. In year 2008 it was 27 when the market crashed.

In the past, subsequent to the liberalization of India in 1991, the Indian stock markets experienced numerous sequences of booms and busts, some these events associated to scams for instance those tricked by players such as Harshad Mehta and Ketan Parekh, some owing to global events and a few as a result of circular trading, rigging of prices and the irrational high spirits of investors steered to bubbles in market rally that finally burst. Driven by the global financial crisis of 2007-2008, the Indian stock markets fell on numerous occasions in 2007 as well as 2008. In 2007 alone, there were six sharp falls in the stock markets on April 02, 2007, August 01, 2007, August 16, 2007, October 18, 2007, November 21, 2007 and December 17, 2007. In 2008 the crash in Indian stock market is quite high all along the year starting on 21 Jan 2008 (fell by 1408 points in BSE Sensex) and followed on 22 January 2008 (fell by 875 points), On 11 Feb 2008 (fell by a 834 points), On 3 March 2008 (fell by 900 points), On 17 March 2008 (fell by 951 points) and On 24 October 2008 (fell by 1070 points).

Later in 2009, on 6 July 2009 there was sharp plunge by 869 points in BSE Sensex, in 2015, on January 6, 2015, the sensex down by 854 points and on August 24, 2015, the BSE sensex fall down by 1,624 points and the NSE fell by 490 points. Indian stock markets in 2016 continued to plummet and in February 2016 the BSE Sensex experienced a plunge of 26% over the past eleven months, by 1607 points plunge in four consecutive days. On 2016, November 9th Sensex crashed by 1689 points due to Indian government demonetization decision on November 8th, 2016. At present, albeit no clarifications or classifications on market crash the BSE and NSE fell swiftly on 2nd and 5th February 2018, sparkled by the Central Government Finance minister's proposal in the budget speech of 2018 - 2019 to introduce a 10% long term capital gains tax (LTCG) on equity shares sold after 12 months. The BSE Sensex down by 600 points in two days, and the Nifty 50 down by about 400 points to 10,676 on 5th February, 2018. Prior to this, the BSE sensex had plunged by 570 points to 35,328 on 2nd February and the NSE Nifty by 190 points to a low of 10,826. Under these conditions of the Indian Stock market, the present research work is initiated to trace any possibilities of crash in the Indian stock markets in 2018.

Literature Review

Numerous experiences of severe market turn downs in the recent three decades stressed the economists, financial academicians and analysts to have more studies to describe the market maneuvers that portray the episodes of market crashes, for example Kasch et al. (2011), Easley and O'Hara (2010), Brunnemeier and Pedersen (2009), Caballero and Krishnamurthy (2008), Garleanu and Pedersen (2007), Morris and Shin (2004) Vayanos (2004), Bernardo and Welch (2003), Gromb and Vayanos (2002), Kyle and Xiong (2001) and Xiong (2001). In general, a ***stock market crash*** occurs when a stock index goes down more than 10 percent in a day or two. Crash in Stock market is a sudden decline of stock returns that is undergone by majority stocks in a stock market, causing a significant decrease of investors' wealth (Wang Jia, et. al, 2009). On the other hand, a ***stock market correction*** occurs when the stock market declines 10 percent from its (index's) 52 weeks high gradually over days or weeks or months. Mishkin and White (2002) defined the stock market crash as a 20 percent fall in a stock price index over a period around a day to a year. Patel and Sarkar (1998) suggested another definition of a stock market crash. They recognized the crash as a significant decrease of stock prices relative to the historical maximum price during observed period, such as one or two years. They divided the process of stock market crisis into four stages: beginning of crisis, beginning of crash, date of trough, and recovery. To determine these four stages, they utilized the CMAX ratio, which is a ratio of stock price index in time 't' to the maximum price during observed period before 't'. The beginning of crash occurs when the CMAX ratio is below threshold value. Threshold value is defined as two standard deviations below the average value of CMAX for developed countries and Asia, and one and a half standard deviations below the average value of CMAX for Latin American countries. The above definition of stock market crash extensively employed by stock market analysts, such as MSCI Perspective Publication and BARRA Wall Street Review in Forbes Magazine and also followed by a number of stock market researchers, for instance Villa (2000), Illing and Liu (2006), Das et al (2005), Coudert and Gex (2006), Zouaoui et al (2011), and Mukulu et al (2014).

Alternatively, a lot of studies on stock market crash show cross-sectional forecasts associated with changes in investor preferences for holding assets with specific distinctiveness and reallocation of resources in the stock market, often expressed as *flights*, reflecting agents' disinvestment from risky investments to safety investments with certainty and liquidity. Stock Trading stresses connected with these flights are apparent to explain a considerable portion of price movements in times of crash. As a result, study of

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the aspects of order flow and the inter-relation amongst order flow and returns in periods of crashes is of very significance for recognizing the market methods characterizing the crash periods. Stock market crash and recovery returns are positively related with contemporaneous changes in order imbalance. Hasbrouck and Seppi (2001) demonstrated that commonality in the order flow explains about half of the commonality in returns at fifteen minute intraday frequency. Beber, Brandt and Kavajecz (2011) illustrate conditions under which order flow may contain less, the same, or more value relevant information than asset price changes. They utilize order flow data to study aggregate portfolio rebalancing across industry sectors at different stages of business cycle. Blume, MacKinlay and Terker (1989), and Lauterbach and Ben-Zion (1993) analyzed returns and order imbalance around the market crash of October 1987. In the Indian context, from the time of origin of BSE and also NSE, the stock markets of India have experienced a number of booms as well as crashes and very a small number of studies are available on market crashes.

Objectives of the study

1. To study the stochastic pattern of the Indian BSE Sensex and NSE Nifty and examine the close price line trend in times of previous market crashes and compare the present trend.
2. To determine CMAX ratio of BSE Sensex and NSE Nifty and observe the behaviour in CMAX graph.
3. To scrutinize fundamentals of Indian stock markets and global stock market influence on the BSE Sensex and NSE Nifty and interpret the possibility of correction or crash.

Methodology

The present paper "Market Crash or Correction Expected in Indian Stock Market in 2018?" covers the study on contemporary Indian stock markets movements and attempts to find whether markets are heading towards major correction or crash in immediate near future. **Data set used in analysis is daily series from 01-07-1997 to 31-01-2018 of BSE Sensex and NSE Nifty.** The daily data used as it is and also by taking logarithm value of series wherever required as it may be similar to the return on which investors are interested. Data is collected from bseindia.com and nseindia.com. *Methodologies* adopted are the visual observations of index close price movement, returns and volatility in market and CMAX ratio of index price.

Following the Patel and Sarkar (1998) methodology, in this paper, to recognize stock market crash or correction in present indices trend, calculated the CMAX ratio using daily stock market indices price data from July 1997 to February 2018 on BSE Sensex and NSE Nifty. The considered period (rolling window) for $CMAX_t$ used is one year. CMAX ratio is calculated using the following equation.

$$CMAX_t = \frac{P_t}{\max(\mathrm{P}_{t,\dots\dots}\ \mathrm{P}_{t-260})}$$

Where, max ($P_t,\dots,P_{t-260}$) is the maximum value of stock price index (P_t) in the last one year.

CMAX is the ratio between indices Price at time 't' to the maximum price of index in the last one year. This ratio is very extensively used by stock market analysts and in Morgan Stanley indices publication "MSCI Perspective. This ratio is used to know possibility of crash in stock market. To determine the occurrence of crash, CMAX ratio should be less than two standard deviations from historical average of CMAX.

$$CMAX_{crash} = CMAX_t < -2\sigma\ \overline{CMAX}$$

Patel and Sarkar (1998) define a stock market crash as an event when the index price decreases, relative to the historical maximum, more than 20 per cent for the developed markets and more than 35 per cent for the emerging markets. The commencement of the *crash* is the month when the index price plunges below this threshold level. The commencement of a *crisis* is the month when the index arrived at its historical maximum *prior* to the month when the crash is triggered. The date of *trough* is the month when the index price makes its minimum level during the crisis. The date of *recovery* is the first month when the index price achieves the prior to crash maximum level, *after* the crash is triggered.

Data Analysis

Figures 1 and 2 show the BSE Sensex Close Price Jan 2014 to Jan 2018 and Jan 2004 to Feb 2008 respectively and similarly Figures 3 and 4 show the NSE Nifty Close Price Jan 2014 to Jan 2018 and Jan 2004 to Feb 2008 respectively.

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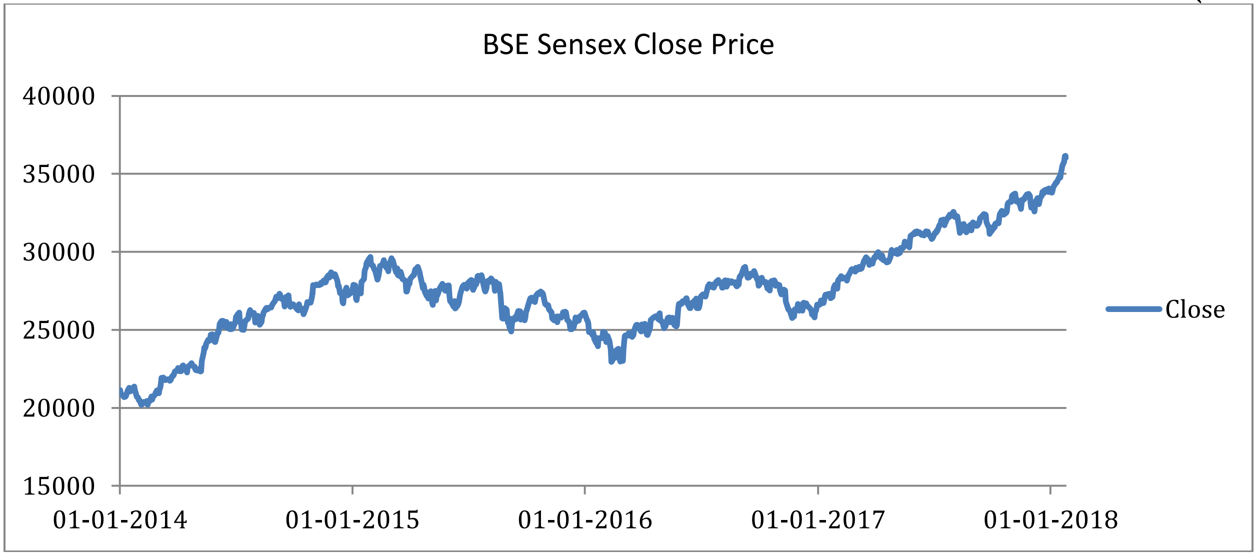

Figure 1: BSE Sensex close price line graph from Jan 2014 to Jan 2018

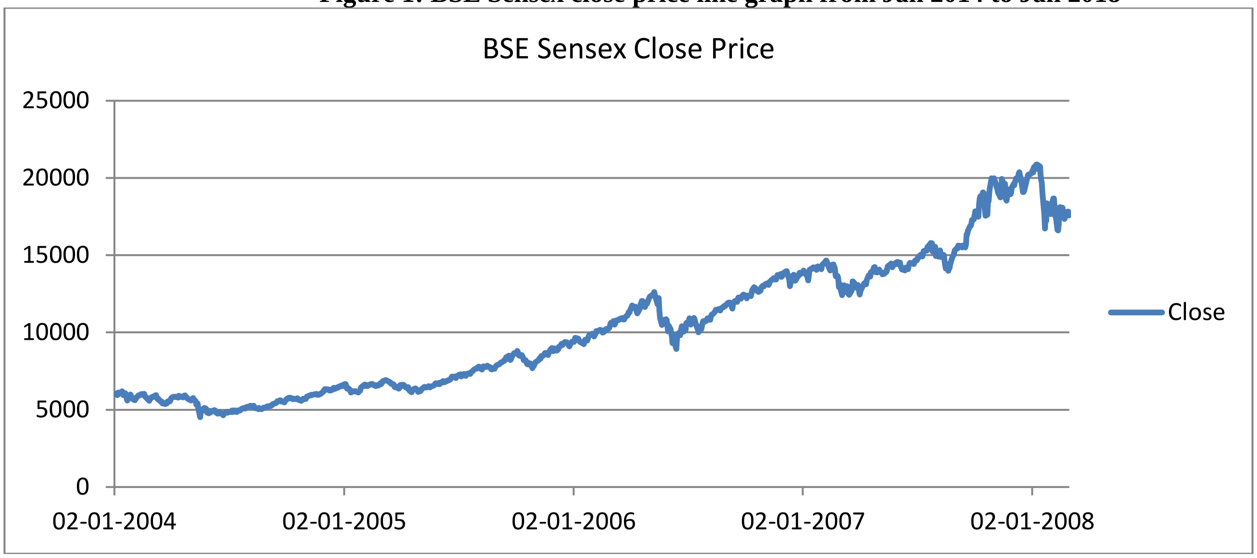

Figure 2: BSE Sensex close price line graph from Jan 2004 to Feb 2008

From the Figure 1, Indian stock market BSE Sensex close price for the period from 2014 to January 2018 shows rising trend or Bull Run. The rally of markets is quite high particularly in 2017. When Figure 2 is observed that trend is same for the periods 2004 to 2008. In figure 2 the year 2007 has shown high phase of bull run, which eventually under global conditions went into crash in 2008. Compared with the 2007, in the year 2017 'Bull Run' is much faster and Sensex has almost risen by 7500+ points. Similar trend was observed with NSE Nifty as shown in figures 3 and 4.

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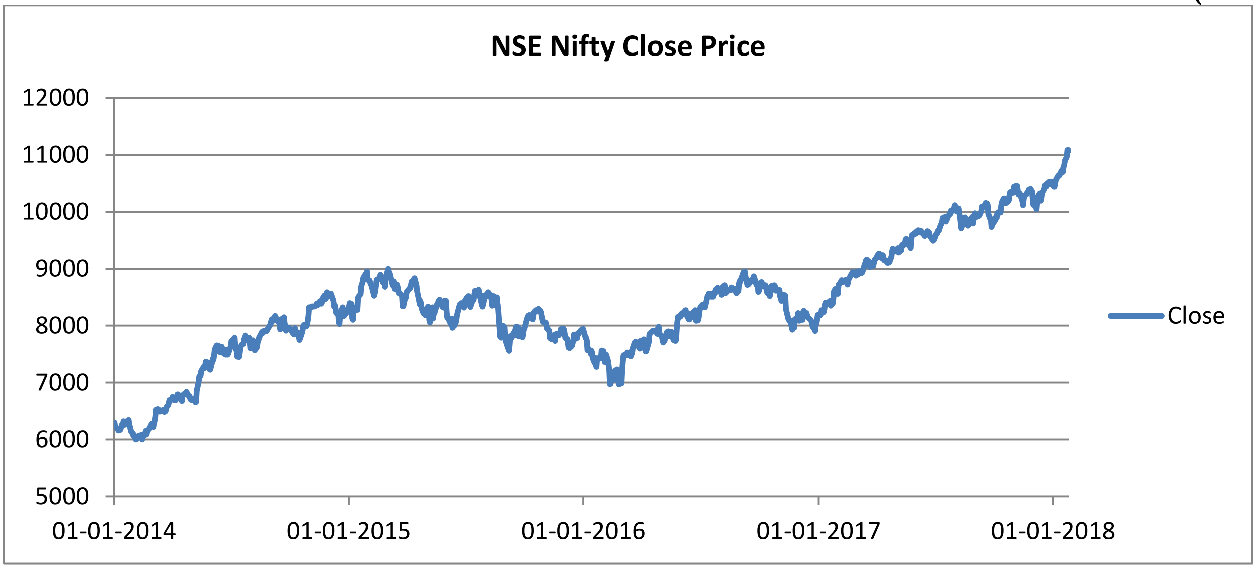

Figure 3: NSE Nifty close price line graph from Jan 2014 to Jan 2018

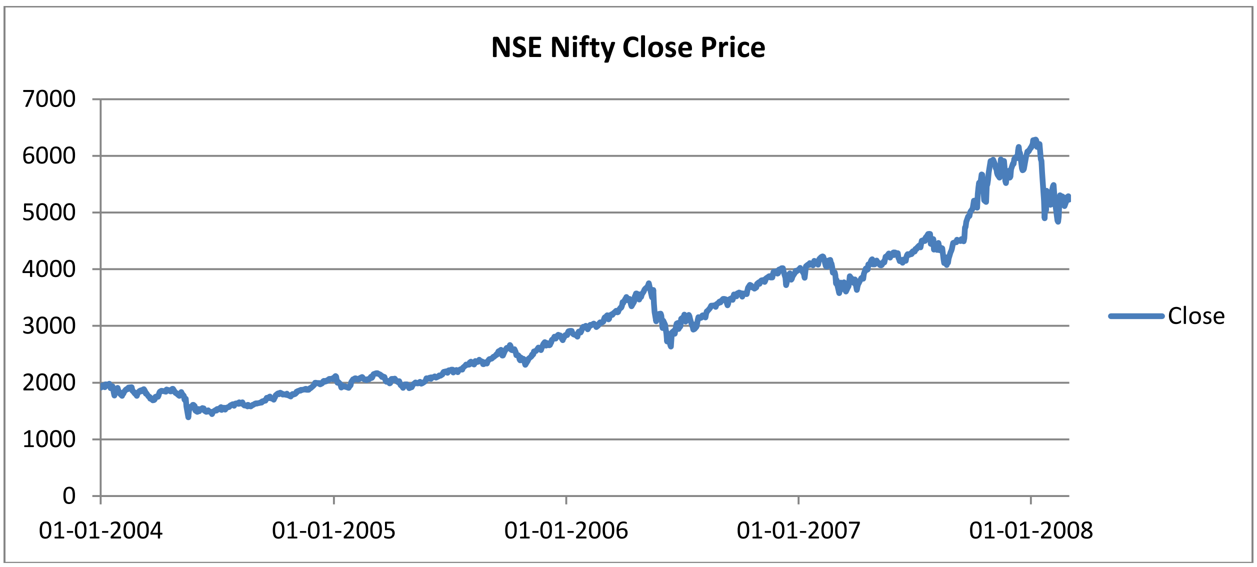

Figure 4: NSE Nifty close price line graph from Jan 2004 to Feb 2008

From the Figure 5, BSE Sensex from 1997 to 2004 was below 6000 and started to rise till 2006 and in 2007 its movement is more rapid and in 2008 has went in to crash and slowly recovered by 2009 and almost in sluggish rising trend till 2011. From 2011 to July 2014 the rising trend was observed but quite slow phase. From August 2014 the rising trend of the market is faster and went into small crashes in 2015 and 2016. From January 2017 to January 2018 the rising trend reveal very rapid phase which India has ever experienced.

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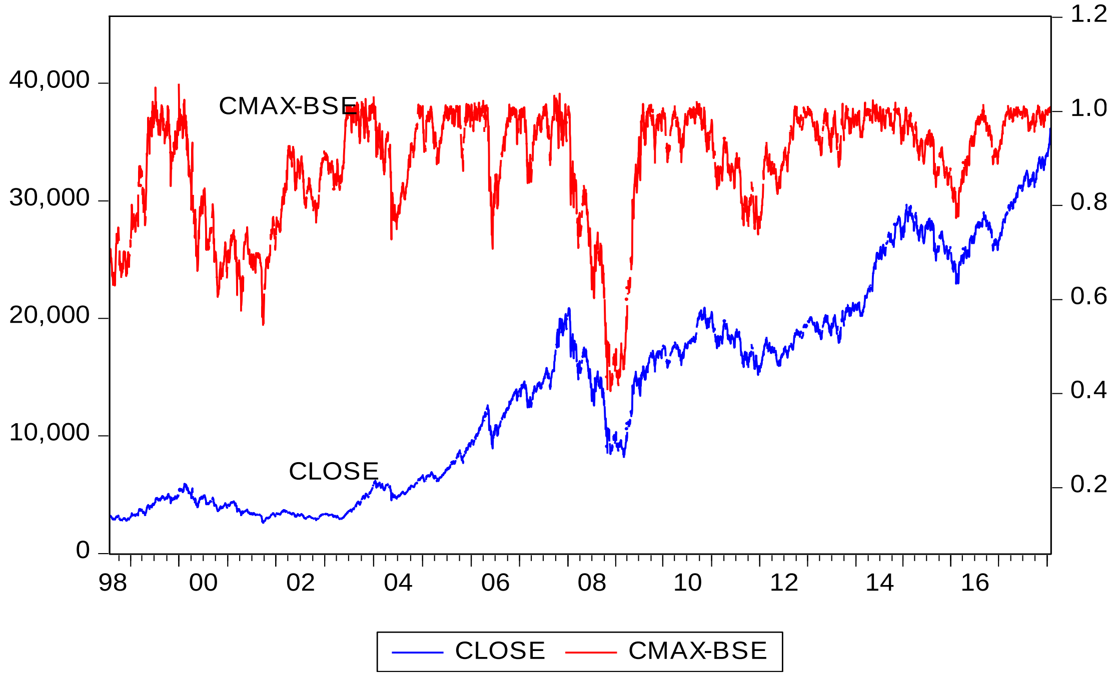

Figure 5: BSE Sensex close price line graph from July 1997 to Jan 2018 and CMAX of BSE

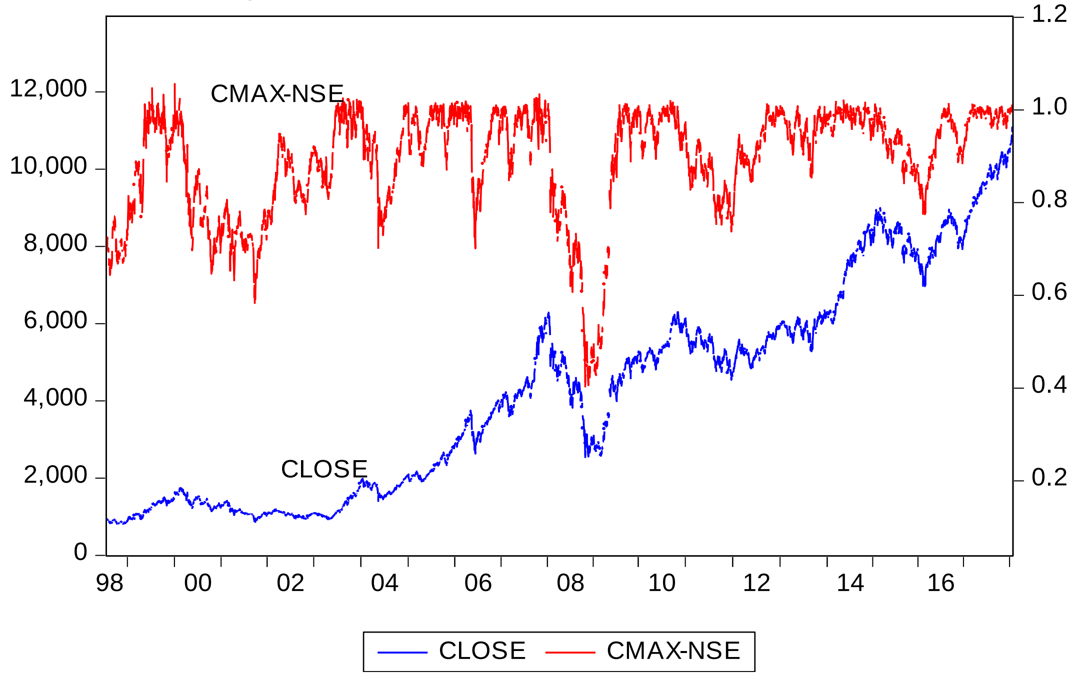

Figure 6: NSE Nifty close price line graph from July 1997 to Jan 2018 and CMAX of NSE

Impulsively, after 2018 -19 central government budget presentations in parliament Sensex started to slide and coupled with decline in US stock market on 5th February 2018, Sensex has lost more than 2000 points in few days in first and second week of February 2018. Similarly trend was observed with NSE Nifty as shown in figure 6. If two decades trend was observed, Indian stock markets were sluggish from 1997 to 2004 with slow phase of rising trend. After 2009, the markets are under continuous bull trend and as such at present along with fundamentals of the markets being shown with moderate growth rates slightly signal possibility of major correction or crash in near future.

For CMAX ratio Figure 5 shows that when market index BSE Sensex for all the time it raises, CMAX ratio will be continually equal to one. Scale for the CMAX ratio is shown on the right side of the figure. Stock market crash occurs when market index BSE Sensex reaches the lowest point, after going across threshold value. As defined by the Patel and Sarkar (1998), for India being an emerging market 35 percent decline in this ratio indicates market crash. In the figure 5, such decline was during 2001 to 2003 due incidents such as dot.com bubble and Ketan Parekh incidents. This type of decline of more than 40 per cent was observed during 2007 and 2008 following global market crashes and recession. From 2014 onwards the ratio for most of the time is equal to one and in recent January 2018 also the ratio is equal to one. In Figure 6 for NSE also similar kind of movement of Nifty index is observed and also for the CMAX ratio of Nifty. From the ratio behavior it may be inferred that the stock market crash may not occur but correction may be possible.

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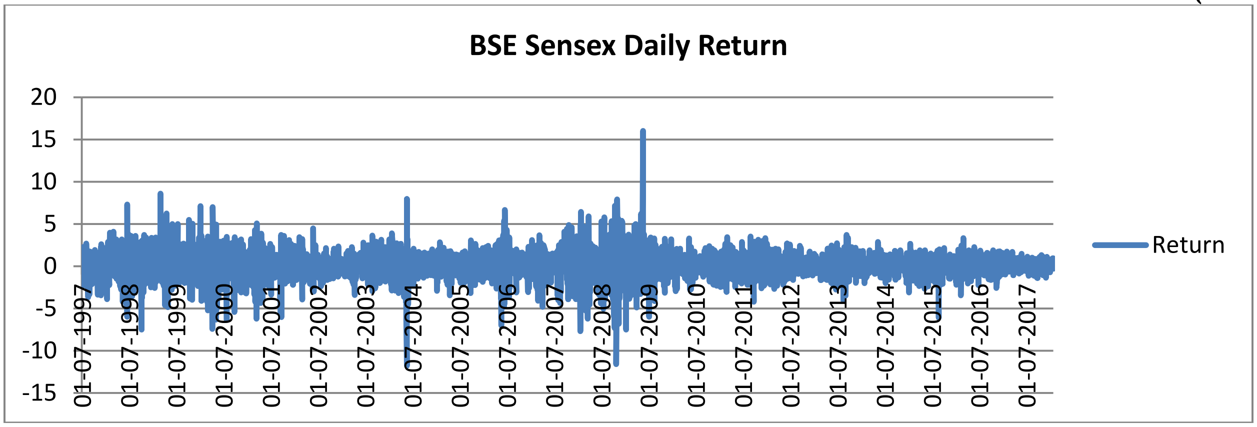

Figure 7: BSE Sensex Return graph from July 1997 to Jan 2018

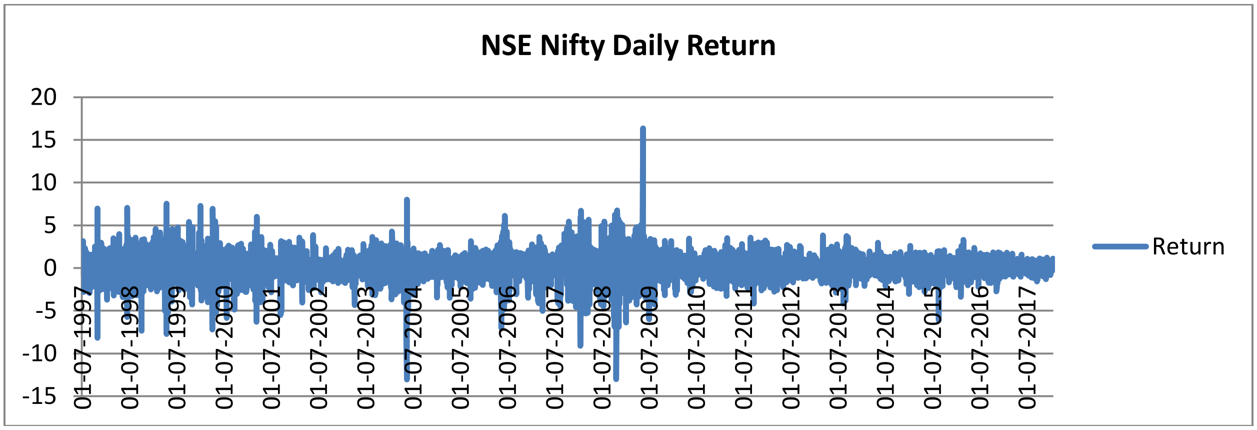

Figure 8: NSE Nifty Return graph from July 1997 to Jan 2018

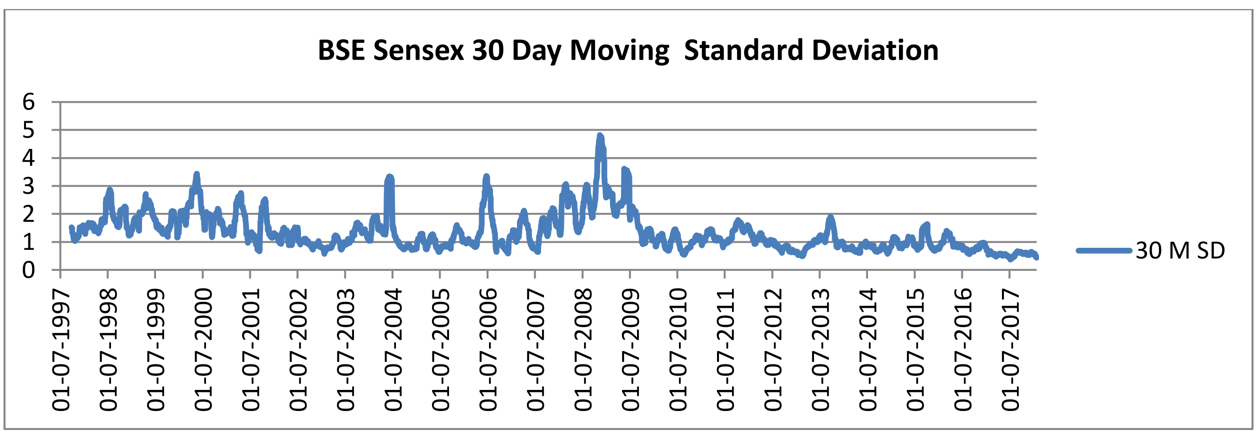

Figure 9: BSE Sensex 30 Day Moving Standard Deviation graph - July 1997 to Jan 2018

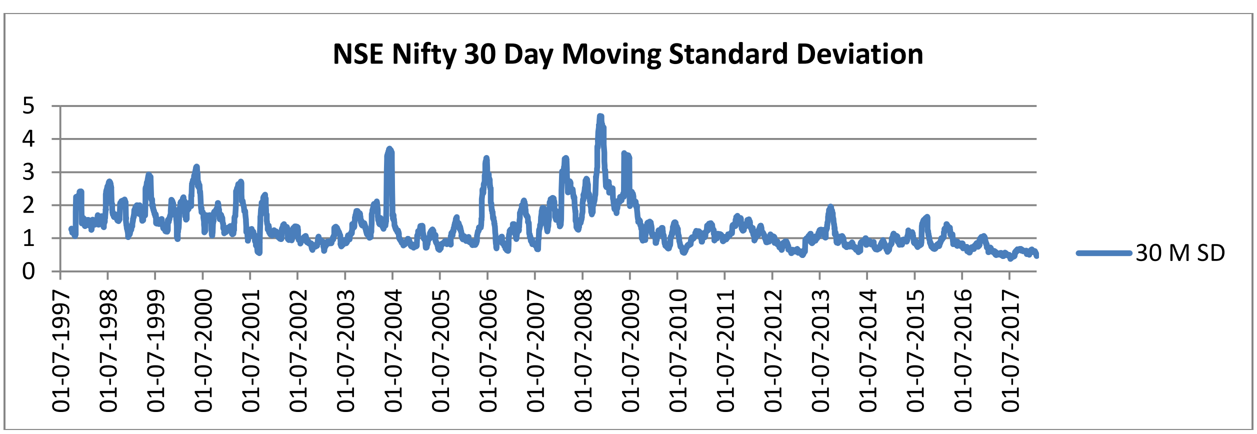

Figure 10: NSE Nifty 30 Day Moving Standard Deviation graph - July 1997 to Jan 2018

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From the Figures 7 and 8 on indices returns of BSE Sensex and NSE Nifty, it is observed that during the time periods of 2007 to 2008 the fluctuation in returns is very high and abnormal returns are more. Whereas in the recent times 2015 onwards the returns on both the indices is very quiet and below 5 percent and there are no abnormal behavior in returns. Therefore, there are no signals of crash in the market.

From the Figures 9 and 10, it is revealed that the 30 day moving standard deviation of indices was very high during 2007 to 2009 at 5 percent and slightly decreased in 2010 to 2014. In 2015 and 2016 for small intervals of time standard deviation is more than 1 percent. From 2016 onwards standard deviation is below the 1 percent. Thus from volatility of the market also there are little chances for crash.

Table 1: BSE Sensex's PE Ratio, PB Ratio and Dividend Yield during study period

Year	High	Low	Close	PE Ratios	PB Ratios	Dividend Yield
2017-2018	36443.98	29241.48	34082.71	23.84	3.04	1.22
2016-2017	29824.62	24523.20	29620.50	20.62	2.84	1.43
2015-2016	29094.61	22494.61	25341.86	20.18	2.85	1.39
2014-2015	30024.74	22197.51	27957.49	18.73	2.94	1.29
2013-2014	22467.21	17448.71	22386.27	17.38	2.78	1.50
2012-2013	20203.66	15748.98	18835.77	17.09	2.97	1.64
2011-2012	19811.14	15135.86	17404.20	18.50	3.42	1.41
2010-2011	21108.64	15960.15	19445.22	21.60	3.58	1.11
2009-2010	17793.01	9546.29	17527.77	20.13	3.75	1.24
2008-2009	17735.70	7697.39	9708.50	15.66	3.38	1.52
2007-2008	21206.77	12425.52	15644.44	22.61	5.47	1.04
2006-2007	14723.88	8799.01	13072.10	20.72	4.88	1.31
2005-2006	11356.95	6118.42	11279.96	16.98	4.16	1.48
2004-2005	6954.86	4227.50	6492.82	16.56	3.32	2.00
2003-2004	6249.60	2904.44	5590.60	16.18	2.82	2.03
2002-2003	3538.49	2828.48	3048.72	14.51	2.23	2.21
2001-2002	3759.96	2594.87	3469.35	16.55	2.38	1.95
2000-2001	5542.81	3436.75	3604.38	23.89	3.60	1.25
1999-2000	6150.69	3183.47	5001.28	19.76	3.40	1.23
1998-1999	4322.00	2741.22	3739.96	12.86	2.26	1.82

Source: www.bseindia.com

Table 1 illustrates the BSE Sensex's Price Earnings ratio, Price to book value ratio, Dividend yield on Sensex from 1998 to 2018. The highest P/E ratio 23.84 times is recorded in 2017-2018 and corresponding Price to book value ratio is 3.04 times. When 2007-2008 year is considered, P/E ratio is 22.61 times with corresponding Price to book value ratio of 5.47 times. In the above table P/E ratio values are more for years 2017-2018 and 2007-2008 only and rest of the values are low. Therefore, from P/E ratio and PB ratio at present there is more chance for major correction than crash of the market as PB ratio is not alarming. When dividend yield is considered is indicating P/E ratio is alarming as corresponding dividend yield low based on slow growth rate.

Conclusion

The year 2017 for the Indian Stock Markets BSE and NSE is very tremendous bull trend year where both exchanges indices BSE Sensex and NSE Nifty are reached to all time highs. Following the year 2017, January 2018 shown the same trend and then in early February 2018 both indices shown major declines following the Central Government Budget presentation in the parliament which mentioned Long term capital gains tax and from the US stock markets major declines on 5^{th} February 2018. Under these circumstances questions are raised on the possibility for the crash in the market or major correction. In this paper based on the present indices price movements and the study compared present indices trend with the earlier crashes particularly 2007-2008, to arrive at the meaning full inferences. When 2016 to January 2018 bull trend was compared with that of the 2006 to 2008, both trends are very much similar in nature and bull trend in 2017 is faster than earlier. From indices price trend observation it may infer to have possibility for crash in the market. However, when CMAX ratio of BSE Sensex and NSE Nifty are analyzed the present trend is not showing any decline in CMAX ratio less than 35 percent of average CMAX ratio or more than 2σCMAX value. From the CMAX ratio value at present, which is near to one indicates no possibility for the market crash. In addition, PE ratio and PB ratio of BSE Sensex are analyzed which are based on the fundamentals, indicates no possibility for the market crash. Though 2017-2018 PE ratio is all time highest, corresponding PB ratio may not be the all time highest and hence there is very meager chances for crash in the market. In Contrast, from the Economists like Chief Economic Adviser Arvind Subramanian, who mentioned a note of caution over this subject

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in the Economic Survey tabled in Parliament. Subramanian recognized that India's primary indices, the BSE Sensex and NSE Nifty, have both been booming despite sour news from the actual economy, high real interest rates and miserable corporate profits and hence he cautioned the all who are related with subject. Though this caution exists, by comparing all the above mentioned facts, this study concludes that there is more possibility for major market correction than crash in the market.

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