# NAMO MANA VIJAYEE

## Stock Market Performance or a Bubble

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**ABSTRACT**

India is most favoured country and anattractive destination for business and investment with opportunities of large manpower base, diversified natural resources and cultivated over a period of time. Since 1991 the process of economic reforms and economic development is much faster. A drastic development can be seen from the day Narendra Modi tookoath as Prime Minister, by initiating relations with neighboring countries, to build a Brick Bank & investor-friendly environment. This paper finds that Vajpayee and Singh (UPA-I) were affected by Dot-com bubble and US recession. As the Economic indicators and Sensex are giving good returns excluding IIP which is negative, an analysis of India's Economic conditions under Modi's leadership was studied by considering major economic variables such as BSE Sensex, IIP, Forex Reserve, WPI and USD. Further economic variables can be measured by using Autoregressive conditional Heteroscedasticity, unit root test, Markov regime shift and Economic condition.

Ke**ywords:** *BSE, Foreign Exchange, ARCH, IIP, unit root test, Markov regime shift& Economic condition***.**

**JEL classification:** G1, F4, C22**.**

## 1. INTRODUCTION

Globalisation has increased cross border movement of funds with the world moving towards a free trade zone. The technological development in the field of communication, tradingsystems and introduction of innovative financial products has helped the investors to face today's challenges to maximise their returns by portfolio investments. On the other hand, emerging market economies have turned the corner and recovered sharply, but a lot still needs to be done for realizing developed markets.Therefore, it is very essential for both investors and academicians to know whether stock markets are dependent.

One of the purposes of this paper is to examine the performance of the new government in their earlier months & to compare Modi as Prime Minister (PM) with the earlier PMs.The study considers financial market performance and macroeconomic indicators during Modi, Man MohanSingh and Vajpayee government.

## 2. Review of Literature

1. Apte (working papers, 2001) in a study incorporates negative returns suppresses on volatility in two ways:(i) in the same market and (ii) as spillovers across any two markets. "Empirical analysis with one the major stock market indices supports the hypothesis of such volatility linkages. While for the other index there appears to be a spillover from the foreign exchange market to the stock market but not the other way round.[1]
2. Santa-Clara and Rossen (2003) in their studyfound that under Democratic than Republican presidencies, the excess return in the stock market was higher.One of their conclusions was that the difference which came from higher real stock returns and lower real interest rates were statistically significant, and was robust in the sub-samples. They also significantly observed that, the difference in returns was not explained by business-cycle variables related to expected returns and was not concentrated around election dates and that there was no difference in the risk factor of the stock market across the considered presidencies for the study that could justify a risk premium. They concluded that the divergence in returns through the political cycle hence remained difficult to explain.

3. Joerg and Christian (2004) intheir study established a number of interesting stylized facts about the link between stock market movements and the political process in Germany. They found that unlike in the U.S., stock market returns in Germany tend to be higher under conservative than under liberal governments. Moreover, there was no evidence for political or election cycles in stock market returns. However, VAR-based evidence as well as evidence from popularity functions has revealed that stock market returns have an impact on the popularity of German governments.

4. David and Mukherjee (2004) used GARCH, Egarch and Markov-switching models and estimated from all the statistical models supportingthe key prediction that 'stock market volatility decreases when traders anticipate victory of the DemocraticParty and it was vice versa when the labour party of those times won'.

5. Charles Adjasi, Simon K. Harvey and Daniel Agyapong (2008) in their studyfoundthat the relationship between stock market and macroeconomic variables were significant statistically. Furthermore, they suggested that volatility persisted in most of the macroeconomic variables. Their study further revealed that an increase (or decrease)in the

1.http://iimb.ac.in/research/sites/default/files/wp.iimb.169.pdf

trade deficit and the expectation in future rise of trade deficit will decrease (or increase) stock market volatility.

6. Kumar Sundaram (2009) examined that there was no long-run equilibrium relationship and causality relationship between stock returns and exchange rates. Furthermore, they foundthat FII gave positive unidirectional Granger causality results and notthe reverse i.e. stock returns Granger cause FII and no reverse causality was seen even after inserting a structural break in 2003.

**7.** Mubarik&Attiya(2009) in their result suggest that there was a unidirectional feedback systemthat was prevailing among market-return and market-volume in Pakistani stock market. Theysuggested that there wassignificant effectto the current days return based on the previous day's trading volume and it had explanatory power in explaining the current market returns. The result of Granger Causality test suggested that there was univariate causality between market return and traded volume. However, in case of individual stock returns taken for their study, the evidence indicated stronger return causing volume than volume causing returns. Their empirical result also stated that there was significant interaction between trading volume and variance equation of return volatility in the GARCH-M model.

8. Gagan deep and Mandeep(2010) in their study revealed that exchange rate and gold price had a highest correlation bearing 88.9% and 90.2% respectively, but inflation, gold price & foreign exchange reserve did not appear to have significant effect on stock return.

9. Srinivasan (2011)explored the long-run relationships among NSE-Nifty share price index and index of industrial production, money supply ($M_3$),interest rate, exchange rate, consumer price index and US stock returns. The empirical results of this study revealed that the NSE-Nifty share price index had a significant positive long-run relationship with $M_3$, interest rate, index of industrial production, and the US stock market index. Further, it was found to have anegative relationship between the NSE-Nifty share price index and exchange rate in the long run. Moreover, there was a significant short-run causality among monetary variables such as money supply, interest rate, inflation, US stock market and exchange rate.

10. Pal and Ruhee(2011) noticed that there was co-integration relationship between macroeconomicvariables and Indian stock indices, which was indicative of a long-run relationship. The ECM result showed thatthe rate of inflation had a significant impact on both BSE Sensex and the S&P CNX Nifty. On the other hand,Interest rate had a significant impact on S&P CNX Nifty and foreign exchange had a significant impactonBSE Sensex. The changing GDS was observed to be non-significant but associated with both the BSE Sensex and the S&P CNX Nifty. However the authors concluded that the capital market indices are dependent on macroeconomic variables even though the same might not have been statistically significant in all the cases.

**Table- 1**
**Summary of Literature Review**

| Sl. No | Authors | Country under Study | Estimation Method |
|---|---|---|---|
| 1 | Apte (2001) | India | Descriptive stats &E-Garch |
| 2 | Santa-Clara and Rossen (2003) | US | Descriptive stats, autoregressive coefficient (A.R.), Bootstrap Experiment, Quantile Regressions, and Bonferroni approach. |
| 3 | Joerg and Christian (2004), | Germany | VAR and PBC cycle |
| 4 | David and Mukherjee (2004), | US | GARCH, EGARCH and Markov-switching Model |
| 5 | Charles Adjasi, Simon K. Harvey and Daniel Agyapong (2008) | Ghana | ADF, Cointegration, GARCH, EGARCH |
| 6 | Kumar Sundaram(2009) | Indian | Structural Breaks, cointegration, VECM & Causality. |
| 7 | Mubarik&Attiya(2009) | Pakistan | Vector Autoregressive (VAR) model. GARCH-M model |
| 8 | Gagan deep and Mandeep(2010) | India | Correlation and casual relation |
| 9 | Srinivasan (2011) | US | Cointegration, VECM & causality |
| 10 | Karam Pal and Ruhee Mittal (2011). | India | The unit root test, the co-integration test and error correctionmechanism (ECM) have been applied to derive the long run and short-term statistical dynamics. |

## 3. Sources

### 3.1 Basic Data:

The data includes logged Sensex Returns; closing return of US Dollar (USD), Index of Industrial Production (IIP); Whole Sale Price Index (WPI) and ForeignInstitutional Investors (FII) are used on monthly basis.

### 3.2 Sensex index returns

Daily Rate of Return = $ln(Pt/P_{t-1})$*100

Where ln P*t* is the natural log of closing Index of the day, and

LnPt-1is the natural log of closing Index of yesterday

Variables are synchronized&matched with dependent variable BSE Sensex. The study was conducted in relation to governance of three Prime Ministers and the periodof study is divided into threeperiods starting from April 1998 to November 2014has been considered.The data wereanalyzed using MSExcel &Eviews.

## 4. Methodology& objective:

Following steps were followed for analysis and interpretation:

4.1 Comparison of BSE Sensex with Macroeconomic indicators during last three Prime Ministers:

**Table-2**

| Prime Minister | Abbreviation | In office[2] |
|---|---|---|
| Atal Bihari Vajpayee | **VIJAYEE** | 13 October 1999 – 19 May 2004 |
| Manmohan Singh | **MANA** | UPA I: 22 May 2004 – 2009& UPA II 2009- 26 May 2014 |
| Narendra Damodardas Modi | **NAMO** | 26 May 2014 |

**4.2 Econometric test:**

- Test for stationary of the original variables, Stability of variables and Normality of the variables.
- Descriptive stats and GARCH (1,1)
- Markov-switching Model

**4.3Objectives:**

- ✓ To understand the movement of security market and selected macroeconomic indicator.
- ✓ To find volatility of stock market during the three Prime Ministers.
- ✓ To find if it is Performance or a Bubble.

## 5. Result and Analysis

### 5.1Unit root test

Table 3 presents the results of unit root test for Sensex & five macro-economic variables, i.e. FII, FX_RESERVE, IIP, USDand WPI.

Sensex, IIP and WPI were stationary at levels and Fx-Reserves and USD became stationary at I(1), but FII was non-stationary during the period of ABVJ and became stationery during UPA government.

**Table-3**

| **Phillips-Perron test statistic** | | | | | | |
|---|---|---|---|---|---|---|
| $H_o$: variables has a unit root | | | $H_1$: variablesare stationery | | | |
| | **VIJAYEE** | | **MANA-I** | | **MANA-II** | |
| **Variables** | **Adj. t-Stat** | **Prob.*** | **Adj. t-Stat** | **Prob.*** | **Adj. t-Stat** | **Prob.*** |
| SENSEX | (5.514461) | 0.0000 | (5.235371) | 0.0000 | -8.645051 | 0.0000 |
| FII | (2.144143) | 0.2288 | -6.878494 | 0.0000 | -5.264471 | 0.0000 |
| | (13.55118) | 0.0000 | | | | |

[2] **http://pmindia.gov.in/en/former-prime-ministers/**

| | | | | | | |
|---|---|---|---|---|---|---|
| FX_RESERVE | 11.84769 | 1.0000 | -0.158938 | 0.9373 | 0.167160 | 0.9681 |
| | | | -6.302341 | 0.0000 | -7.886407 | 0.0000 |
| IIP | (11.3879) | 0.0000 | -19.75477 | 0.0000 | -11.88926 | 0.0000 |
| USD | (1.393893) | 0.5785 | -0.794922 | 0.8130 | -0.324466 | 0.9143 |
| | (4.750796) | 0.0018 | -5.083184 | 0.0006 | -5.624652 | 0.0001 |
| WPI | (7.102139) | 0.0000 | -4.046109 | 0.0024 | -7.556288 | 0.0000 |
| *MacKinnon (1996) one-sided p-values. | | | | | | |

**5.2Descriptive statistic**

**Table – 4: Shows Return and Risk for entire period of Vajpayee and Man Mohan Singh**

| **Political parties** | **NDA** | **UPA-I** | **UPA-II** |
|---|---|---|---|
| **Sensex** | **VIJAYEE** | **MANA I** | **MANA II** |
| | Oct1999 - Apr 2004 | Jun 2004 - May 2009 | Jun2009 - May2014 |
| Return | 0.548844 | 1.535466 | 1.01879 |
| Std. Dev. | 6.495015 | 7.319017 | 4.187786 |
| Skewness | (0.208446) | (0.8436) | 0.029736402 |
| Kurtosis | 2.452514 | 2.370082 | 0.483509968 |

**Table – 5: ShowsReturn and Risk for first six months period of Vajpayee, Man Mohan Singh and Modi**

| | **NDA** | **UPA** | | **BJP** |
|---|---|---|---|---|
| **Sensex** | **VIJAYEE** | **MANA I** | **MANA II** | **NAMO** |
| | **Oct1999 –Mar 2000** | **Jun 2004 –Nov 2004** | **Jun2009 – Nov 2009** | **Jun 2014 - Oct 2014** |
| Return | 2.017719 | 2.386716 | 4.295583 | 2.901965 |
| Std. Dev. | 7.140752 | 4.841260 | 5.315861 | 2.743870 |
| Skewness | 0.12155 | (2.255603) | 0.903385 | (0.076985) |
| Kurtosis | (0.48583) | 5.255018 | 0.844210 | 1.798853 |

**Interpretation:**

The above tables represents return and risk of Sensexduring the three Prime Ministers. It can be noticed that there was highest Index returnduring UPA-I. Skewness and Kurtosis explains about

symmetry & shape of the above distribution, as the skewnesshas long tail to the left andas the values are negatively skewed. In case of kurtosis, it isgreater than 3 in case of UPA-Iduring first six months period and it is positive(2.37) in case of whole period, which demonstrates its response from the impacts of the latest news. Also, the risk factor in case of MANA (UPA-I) stands first for the entire period and in case of first six monthsit is of VIJAYEE (NDA),followed by MANA II (UPA-II) as the standard deviation is high.

**5.3 Economic indicators during three Prime ministers**

Table -6

| | FII (in crores) | FX RESERVES (in crores) | IIP (%) | USD (in INR) | WPI (%) |
|---|---|---|---|---|---|
| **VIJAYEE (BJP)** | | | | | |
| Average | 1,370.856 | 2,784.514 | 0.621499 | 46.55999 | (0.712669) |
| **MANA-1 (UPA)** | | | | | |
| Average | 2,135.142 | 8,720.969 | 0.791148 | 44.22681 | 0.410928 |
| **MANA-II (UPA)** | | | | | |
| Average | 7,911.780 | 15,047.61 | 0.257447 | 51.38730 | -0.167267 |
| **NAMO (BJP)** | | | | | |
| Average | 21,758.87 | 19,309.43 | -1.468664 | 60.81083 | -0.042492 |

From the above, it can be noticed that average flow of FII is more in case of NAMO as the industrial policies are liberalized and NAMO's involvement in improvement of relationship with other countries. Second place goes to UPA-I as the GDP was the highest during the period. Other Macro economic variables such as IIP were found negative and WPI was also negative, which is a good sign as it may be cause of fall of crude oil price.

**5.4 Volatility**

Table - 7

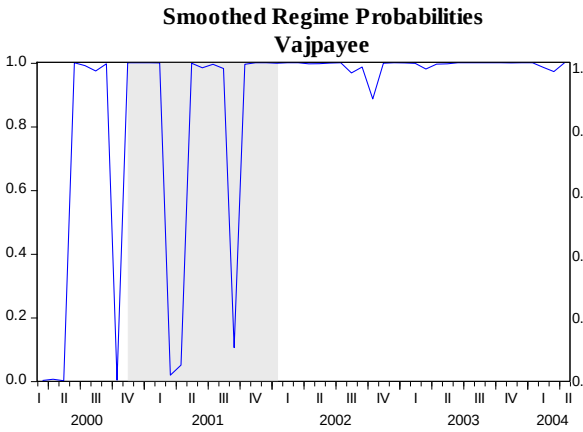
| | β | FII | ARCH | GARCH | USD | FX RESERVE | WPI | IIP |
|---|---|---|---|---|---|---|---|---|
| **VIJAYEE (BJP)** | | | | | | | | |
| **Coefficient** | 0.552140 | (0.0000959) | (0.160976) | (0.222477) | 0.782440 | 0.000118 | (0.006359) | (0.015233) |
| **p-Value** | 0.1341 | 0.1662 | 0.0517 | 0.6932 | 0.2492 | 0.5737 | 0.8309 | 0.5792 |
| **MANA-1 (UPA)** | | | | | | | | |
| **Coefficient** | 0.423786 | (0.0000204) | 0.346993 | 0.941162 | 0.071113 | 0.000572 | (0.099007) | (0.011087) |
| **p-Value** | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0460 | 0.0000 | 0.1324 | 0.1921 |
| **MANA-II (UPA)** | | | | | | | | |
| **Coefficient** | 0.057765 | (0.00000413) | (0.281982) | 1.027189 | (0.001170) | (0.0000474) | (0.004515) | 0.001379 |
| **p-Value** | 0.2690 | 0.1183 | 0.0750 | 0.0610 | 0.9227 | 0.3230 | 0.2674 | 0.7901 |

**Interpretation:**

Through GARCH model, the above volatility model has been constructed. It can be noticed that only in case of UPA –I,it had two-way volatility, as the Sensex was driven by economic indicators. In case of BJP and UPA-II, volatility was caused within Sensex and economic indicators did not pass on the rays.

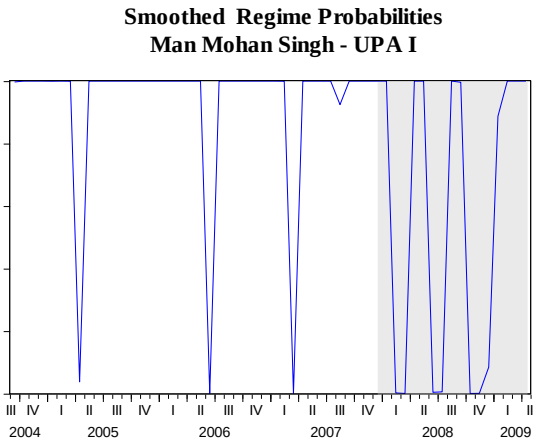
### 5.5 Markov regime switching Model

**Graph – 1 a**



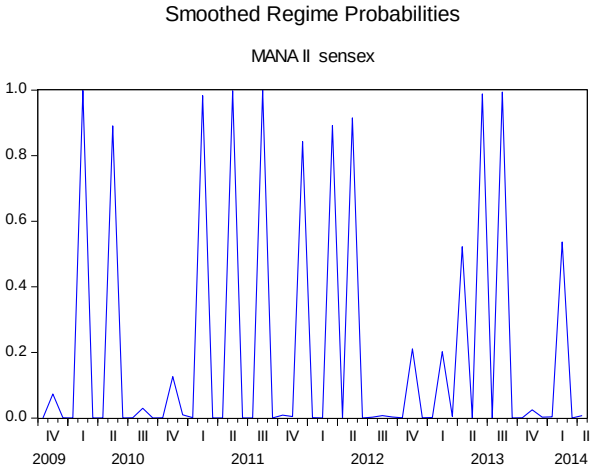

**Dot-com Bubble**

**Graph- 1 b**




**US Recession**

**Graph 1-c**




**Conclusion:**

The study considers Sensex and five economic variables during the period of the Prime Ministers Atal Bihari Vajpayee, Manmohan Singh and Narendra Modi. Returns of Sensex werehigh in MANA II (UPA-II) and followed by NAMO (BJP) 100 days' government and UPA- Iof 10years.It can also be noticed that average FII and Foreign reserves is also high during NAMO's 100 days of governance when compared with other prime Ministers and looking at IIP is a matter of importance as it is negative by (-1.468664) and the good sign that WPI is in negative (-0.042492) is may be because of decrease in the oil price. Volatility in stock market which is not driven by selected macroeconomic variables, but in case of UP-I the FII and Foreign reserves had some impact on the stock returns as it is statistically significant. Dot com bubble and US recession(i.e. Sub-prime crisis) during Atal Bihari Vajpayee and UPA-Icanbe well noticed by Markov regime switching Model which may have probably reduced the stock returns.

The scope for further researches by scholars lies in answering the yet prevailing question, as SANTA-CLARA and ROSSEN (2003) state"Do political variables cause Fluctuations in stock returns or is it the other way around?"

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