Investment Decision Making Using Technical Analysis: A Study on Select Stocks in Indian Stock Market

*Pushpa BV[1], Sumithra C.G[2], Madhuri Hegde[3]

Assistant Professor, M.P. Birla Institute of Management, Associate Bharatiya Vidya Bhavan, Bengaluru.
Associate Professor, M.P. Birla Institute of Management, Associate Bharatiya Vidya Bhavan, Bengaluru..
MBA Student Executive, M.P.Birla Institute of Management, Associate Bharatiya Vidya Bhavan, Bengaluru,
Corresponding Author: Pushpa BV

Abstract: *Investment decision by investors can be based on both fundamental and technical analysis. Technical analysis as a part of investment decision making of an investor helps predicting the future share prices which can help in formulating buy-hold- sell decisions. It helps in identifying trend reversals at an earlier stage to formulate the buy or sell strategy. It relies on price movement of a security and uses this data to predict its future price movements. This paper aims at technical analysis of select companies under Nifty 50 based on different sectors for a period from January 2011 to December 2016. The tools used for analysis include moving averages, RSI, Bollinger bands and MACD. The paper concludes that most of the stocks analyzed revealed technically strong position.*

Keywords: *Technical analysis, MACD, RSI, Moving averages, Nifty*

I. Introduction

Efficient market hypothesis describes the behaviour or prices in speculative markets. Security analysis of stocks helps in the evaluation of different resources in a portfolio and aides in finding the reason impacting the variances in the present market on evaluation of the securities. Security Analysis turns into an essential investment choice in finding the estimation of stocks. This is relevant mainly because stock market investment is high risk high return platform. Security analysis is done using fundamental analysis, technical analysis and quantitative analysis.

Technical analysis provides information based on weak form market efficiency as it depends mostly on past price history, and is based on the assumptions that stock price reflect every information that could affect a company, price move in trends and history repeats . Technical analysis is an estimating system to decide the future value developments in sight of the previous recorded information. It is a tool through which investors can anticipate the changes in prices over time mainly used by traders, market makers and financial analysts.Technical analysis indicators are price, value, volume and so on to decide the entry, hold and exit time and levels.Charts form few activity to predict the changes in the shares of a company. It is a technique that claims the ability to forecast the future direction of prices through the study of past market data. The strength of analysis depends on the how accurately the price movements are predicted.

II. Literature Review

Menkhoff (1997) investigated the behaviour of foreign exchange professionals, dealers and fund managers in Germany in 1992. The results showed around 87% of the foreign exchange dealers and 35% professionals use technical analysis in their decision making. Around 34% of times it was used for intraday decision making and 40% for decisions ranging from 2 to 6 months. Other interesting findings is that there was no relationship between institutional size and the preferred use of technical analysis and chartists and fundamentalists both indicated no significant differences in their educational level.

Jelena Stankovic, Ivana Markovic, Milos Stoanovic (2015) this paper examines the efficiency of technical analysis and predictive modeling in defining the optimal strategy for investing in stock markets. The paper covers emerging market economies and uses technical indicators such as moving averages, MACD, RSI etc. it is based on least squares support vector machines model. The paper concludes that machine learning techniques capture nonlinear models adequately and this model outperforms buy and hold strategy in maximization of profitability on investment.

THE STATEMENT OF PROBLEM

Market efficiency concept is tested several times but no conclusive evidence is derived out of the previous studies. Forecasting stock prices is done by using fundamental as well as technical analysis. In spite of various tools available, investors and analysts face difficulty in coming out with right forecasting of a company's share prices. Predicting stock movements is difficult especially when the markets are highly volatile. Investors are required to make the entry and exit strategies in order to make profits or avoid losses. From the previous Literature we can identify that an investor should base his interpretation based on both fundamental and technical analysis but technical indicators play a prominent role in predicting stock movements and also determining entry and exit points. And also stock prices move in trends and cycles which are never stable. Hence this study is taken up in order to use technical indicators and suggest the investors on buy-hold and sell strategies by looking at the price movement in securities.

III. Objectives Of The Study:
1. To analyse the share price movement of select companies to find out returns.
2. To employ various technical tools to analyze the price movements.
3. To group the overbought and oversold companies based on RSI.
4. To suggest the investors on buy hold or sell strategies based on technical indicators.
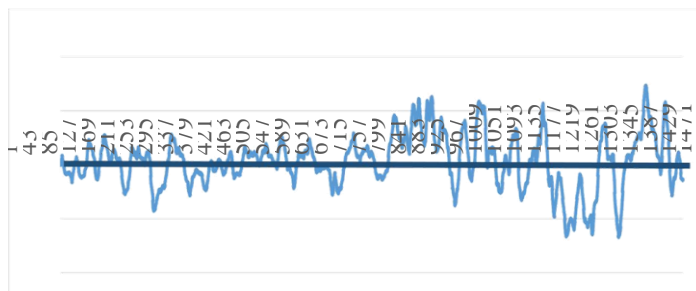
SCOPE OF THE STUDY

The study is analytical in nature and is based on secondary data. The main tools used here are moving averages, Relative strength Index, MACD and line charts. A sample size of 44 selected stocks from NIFTY 50 from NSE India is considered for the study, as the data were not adequately available of the remaining companies out of which one company from each sector is considered for the sample based on RSI signal as on 31/12/2016. Hence the study includes 9 companies. A time span of 5 years from January 2011 to December 2016 is considered for the study. The data for the study is collected from the, Yahoo Finance contains Closing price of stocks traded for last 5 years, data is also collected from Capital query and NSEINDIA.COM, Chart nexus etc. computations of technical indicators are shown in annexures.

SL.NO.	SECTOR	COMPANY
1	PORTS	ADANI PORTS
2	CEMENT	AMBUJA CEMENT
3	CONSUMER GOODS	ITC
4	PHARMA	AUROBINDO
5	ENERGY	BPCL
6	AUTOMOBILES	HERO MOTO CORP
7	IT	TCS
8	BANKING AND FINANCIAL SERVICES	HDFC
9	ENTERTAINMENT	ZEE

IV. Data Analysis And Interpretation
1. ADANI PORTS LTD
MACD   **SMA 14 AND 20 DAYS**

Source: Authors

From SMA chart investors can takes these hints, when the closing prices line is above the moving average line it indicates right time to invest on a company's shares. From the SMA chart we can interpret that there is a close association between closing prices and 20 day moving average and 14 day moving average lines. We can conclude that ADANIPORTS shares prices are moving along with moving averages line

TECHNICAL CHART as on 31/05/2017

Source: **capitalquery.com**

From the Technical Analysis we can interpret that ADANIPORTS shares are trading better with a previous close of 327.80 and as on 31st May 2017 the closing price being 340.35. On the same day RSI was 66.28 which means the shares are overbought, the volume traded was 3.32 million shares. The average 1 year returns on the stock is 78.90%. Moving Average analysis indicates strong position of trading as the prices closed are above SMA 100 and 200 day. Bollinger band and MACD indicators show technically strong position of the stock.

2. AMBUJA CEMENTS:
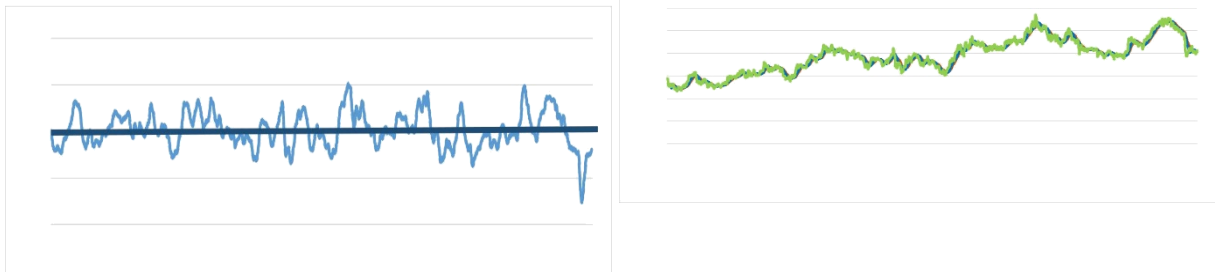
Source: Authors

From the graph showing MACD signals we can interpret that the company's share prices show positive zone majority of times which means the stock is a good buy. On the dates 15/4/2014 and 1/4/2016 share price moved high on positive zone and touched the points +10.23 and +9.85 respectively and, bottom/trough on - 15.10 and -7.35 on 23/11/2016 and 31/08/2015 respectively. We can conclude that the years 2014 and 2016 were the best season for investors to make supernormal profits by investing in AMBUJA CEMENT stocks. There is a close association between closing prices and 20 day and 14 day moving average lines.

TECHNICAL CHART as on 31/05/2017

Source: **capitalquery.com**

The shares of AMBUJA CEMENTS witnessed a major decline on 24/05/2017 to the extent of 9.77 (ROC), RSI was 34.88 which means the shares were under bought and 2.13 million shares were traded on the day. Lower Bollinger band and Upper Bollinger band on 24/05/2017 being 234.73-266.43. We can interpret that AMBUJA CEMENTS shares aretrading weak with a previous close of 242.45 and as on 31st May 2017 the closing price being 241.25. The share price of the company witnessed a high time peak on 27/01/2017 to the extent of 11.16. On the same day RSI was 70.93 which means the shares are overbought, volume traded being 2.17 million shares, average 1 year returns on the stock is 5.63%. Bollinger band indicates buy signal and MACD indicates technically weak signal.

3. ITC
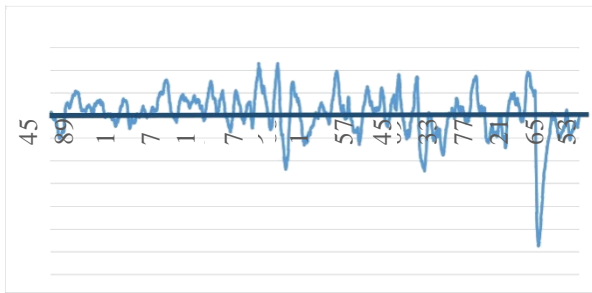
Share prices are trading in the positive zone which means good time to buy shares. On 27/03/2015 and 14/7/2016 the prices moved bottom/trough at -12.23 and -28.71 respectively.There is a close association between closing prices and 20 day moving average and 14 day moving average lines. ITC shares prices are moving along with moving averages line.

TECHNICAL CHART as on 31/05/2017

Source: Capital query

The share price of the company witnessed a high time peak on 10/01/2017 to the extent of 11.07, RSI was 63.26 which means the shares are overbought, and 11.98 million shares were traded. The average 1 year return on the stock is 33.23%. Moving Average analysis indicates strong position of trading as the prices closed above SMA 100 and 200 days. On 27/01/2017 RSI of 69.01 indicates shares are over bought. Bollinger band top shows 319.05 and Bollinger band bottom shows 259.69 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically strong signal.
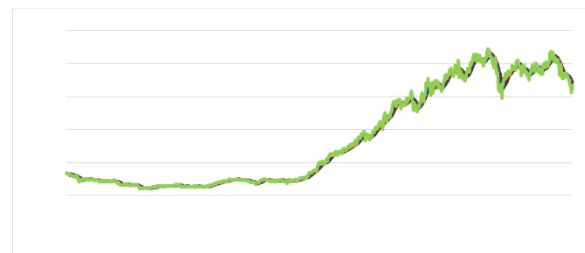
4. AUROBINDO PHARMA

MACD   SMA
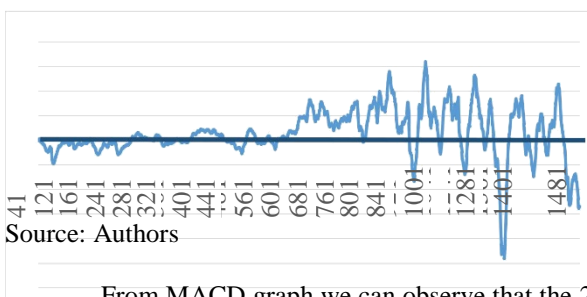
Source: Authors

From MACD graph we can observe that the 2 major points on which shares touched bottom/trough are -48.103 and -27.66 on 25/02/2016 and 27/12/2016 respectively. There is a close association between closing prices and 20 day moving average and 14 day moving average lines. Aurobindo Pharma shares prices are moving along with moving averages line.
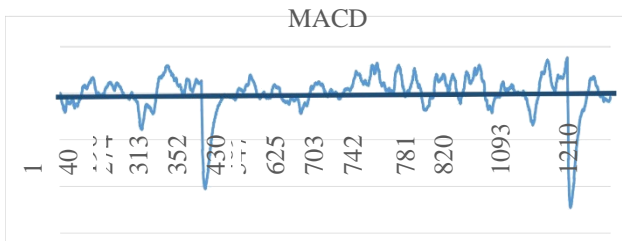
TECHNICAL CHART as on 31/05/2017

Source: capitalquery.com

The shares of AURO PHARMA witnessed a major decline on 29/05/2017 to the extent of 17.67 (ROC), RSI was 20.93 which means the shares were under bought and7.50 million shares were traded on the day. Lower Bollinger band and Upper Bollinger band on 29/05/2017 being 513.89-653.42. From the Technical Analysis we can interpret that AUROPHARMA shares are trading weak with a previous close of 512.40 and as on 31st May 2017 the closing price being 580.30. The average 1 year returns on the stock is -23.08%. Moving average analysis indicates weak position of trading as the prices closed below SMA 100 and 200 day. RSI shows 47.75 which indicates shares are trading stable and there is a down trend as compared to the RSI of 53.05 computed from 1/01/2011 till 31/12/2016. Bollinger band top shows 652.34 and Bollinger band bottom shows 513.31 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically weak signal.

5. BPCL LTD

SMA

MACD

Source: Authors
From the above chart we can interpret that there is a close association between closing prices and 20 day moving average

and 14 day moving average lines. We can conclude that BPCL shares prices are moving along with moving averages line.
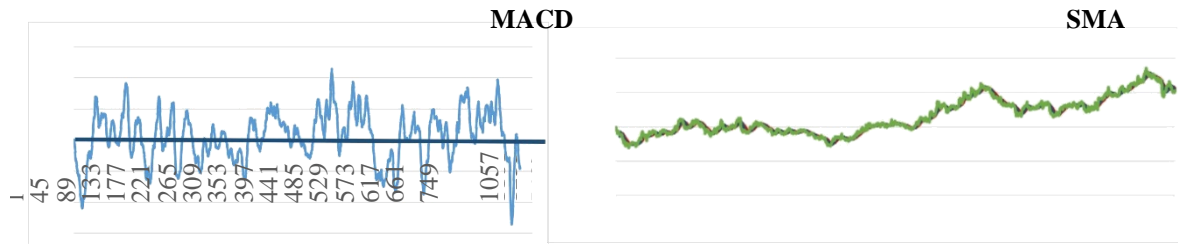
TECHNICAL CHART as on 31/05/2017

Source: capitalquery.com

The shares of BPCL witnessed a major decline on 15/03/2017 to the extent of 11.63 (ROC), RSI was 41.86 which means the shares were stable and 1.50 million shares were traded on the day. Lower Bollinger band and Upper Bollinger band on 15/03/2017 being 603.66-727.08. From the Technical Analysis we can interpret that BPCL shares are trading better with a previous close of 754.85 and as on 31st May 2017 the closing price being 738.75. The average 1 year returns on the stock is 47.83%. Moving Average analysis indicates strong position of trading as the prices closed above SMA 100 and 200 day. Bollinger band top shows 755.05 and Bollinger band bottom shows 695.41 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically strong signal.

6. HEROMOTOCORP

MACD   SMA

Source: Authors

From the above chart we can interpret that there is a close association between closing prices and 20 day moving average and 14 day moving average lines. We can conclude that HEROMOTOCORP shares prices are moving along with moving averages line.
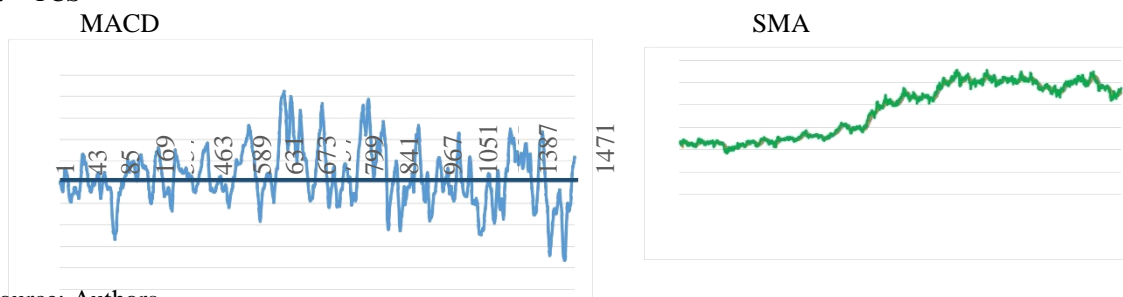
TECHNICAL CHART as on 31/05/2017

Source: capitalquery.com

The shares of the company witnessed a major decline on 26/12/2016 to the extent of 9.30 (ROC), RSI was 37.21 which means the shares were under bought and 0.41 million shares were traded on the day. Lower Bollinger band and Upper Bollinger band on 26/06/2016 being 2979.23-3326.86. From the Technical Analysis we can interpret that HERO MOTOCORP shares are trading better with a previous close of 3740.35 and as on 31st May 2017 the closing price being 3745.45. The share price of the company witnessed a high time peak on 05/06/2016 to the extent of 12.09(ROC). On the same day RSI was 53.49 which means the shares are overbought, the volume traded was 0.33 million shares. The average 1 year returns on the stock is 20.86%. Moving Average analysis indicates strong position of trading as the prices closed above SMA 100 and 200 day. RSI shows 73.80 which indicates shares are over bought and there is an upward trend. Bollinger band top shows 3796.00 and Bollinger band bottom shows 3287.84 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically strong signal.

7. TCS

MACD   SMA

Source: Authors

From the above chart we can interpret that there is a close association between closing prices and 20 day moving average and 14 day moving average lines. We can conclude that TCS shares prices are moving along with moving averages line.

TECHNICAL CHART AS ON 31/05/2017

Source: capitalquery.com

The shares of TCS witnessed a major decline on 28/04/2017 to the extent of 6.51 (ROC), RSI was 31.40 which means the shares were under bought and 1.27 million shares were traded on the day. Lower Bollinger band and Upper Bollinger band on 28/04/2017 being 2248.14-2468.17. From the Technical Analysis we can interpret that TCS shares are trading better with a previous close of 2546.60 and as on 31st May 2017 the closing price being 2553.60.The share price of the company witnessed a high time peak on 20/02/2017 to the extent of 13.05. On the same day RSI was 68.60 which means the shares are overbought, the volume traded was 1.99 million shares. Lower Bollinger band and Upper Bollinger band being 2152.02-2505.01. The average 1 year returns on the stock is -3.04%. Moving Average analysis indicates neutral position of trading as the prices closed above SMA 100 and 200 day. RSI shows 63.16 which indicates shares are over bought and there is an upward trend as compared to the RSI of 52.19 computed from 1/01/2011 till 31/12/2016. Bollinger band top shows 2667.74 and bottom shows 2271.28 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically strong signal.

8. HDFC BANK

MACD   SMA
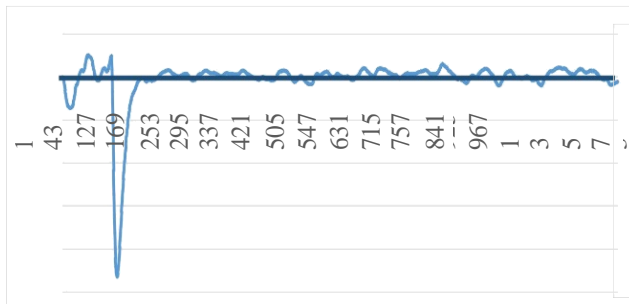
Source: Authors

From the above chart we can interpret that there is a close association between closing prices and 20 day moving average and 14 day moving average lines. We can conclude that HDFC BANK shares prices are moving along with moving averages line.

TECHNCAL CHART AS ON 31/05/2017

The shares of HDFC BANK witnessed a major decline on 19/04/2017 to the extent of 1.40 (ROC), RSI 62.79 which means the shares were over bought and 1.08 million shares were traded on the day. Lower

Bollinger band and Upper Bollinger band on 19/04/2017 being 1413.70-1459.12.The share price of the company witnessed a high time peak on 27/04/2017 to the extent of 9.30. On the same day RSI was 84.88 which means the shares are overbought, the volume traded was 4.05 million shares. The average 1 year returns on the stock is 38.44%. Moving Average analysis indicates strong position of trading as the prices closed are above SMA 100 and 200 day. RSI shows 80.98 which indicates shares are over bought and upward trend as compared to the RSI of 52.9 computed from 1/01/2011 till 31/12/2016. Bollinger band top shows 1640.92 and Bollinger band bottom shows 1501.89 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically strong signal.

9. ZEE ENTERTAINMENT
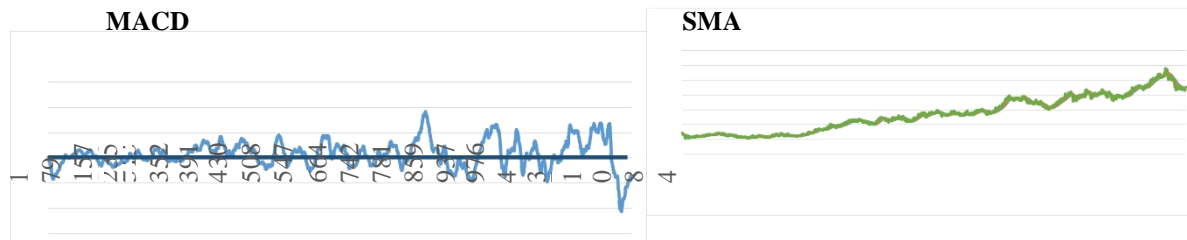
Source: Author

From the above chart we can interpret that there is a close association between closing prices and 20 day moving average and 14 day moving average lines. We can conclude that ZEE shares prices are moving along with moving averages line.

TECHNICAL CHART as on 31/05/2017

Source: capitalquery.com

The shares of ZEE witnessed a major decline on 09/05/2017 to the extent of 7.56 (ROC), RSI was 32.56 which means the shares were under bought and 1.88 million shares were traded on the day. As on 31st May 2017 the closing price being 514.85. The share price of the company witnessed a high time peak on 11/01/2017 to the extent of 10.58. On the same day RSI was 62.79 which means the shares are overbought, the volume traded was 2.46 million shares. The average 1 year returns on the stock is 16.13%. Moving Average analysis indicates neutral position of trading as the prices closed are above SMA 100 and 200 day. RSI shows 47.03 which indicates shares traded in stable position and there is a down ward trend as compared to the RSI of 52.79 computed from 1/01/2011 till 31/12/2016. Bollinger band top shows 537.42 and Bollinger band bottom shows 496.85 which indicates buy signal as the closing price is above the Bollinger band lower limit. MACD indicates technically strong signal.

V. Conclusion

As previous evidences show price move in trends, investors should evaluate their decisions based on both fundamental and technical analysis. Stock market provides great opportunity both in short term and long term only for informed investors and professionals. Indicatorssuchas RSI & MACD gives strong signals as to the direction in which the company is heading as well as it helps to identify oversold, overbought and trend reversals. RSI value of 50 and above indicates the company's shares are overbought and it is a good signal for selling the stocks. At this point buying pressure exhausts which indicates selling option. If the RSI value indicates 40 and below, it is a signal for investors to buy the shares. At this point selling pressure is overtaken by the buying action which leads to the downward movement of the stocks.If moving average lines are below the closing price of the company then the company is said to be performing well.According to MA indicators

investors can take long position when there is bullish divergence.If the MACD lines show maximum movements above zero, it is an indication that the company is technically strong.

ANNEXURE 1 - Computations

DATE	SMA-14	B-UPP	B LOW	EMA	MACD	RSI
03-01- 2011				1074.4	0	
04-01-2011				1074.26	-0.08376	
05-01-2011				1072.945	-0.86239	
06-01-2011				1066.226	-4.80107	
07-01-2011				1057.703	-9.44759	
10-01-2011				1052.156	-11.8795	
11-01-2011				1049.088	-12.6085	
12-01-2011				1046.323	-13.0997	
13-01-2011				1045.227	-12.5575	
14-01-2011				1039.716	-14.7178	
17-01-2011				1035.641	-15.8239	
18-01-2011				1034.775	-14.9146	
19-01-2011	957.4821	1007.415	907.5497	1031.985	-15.2528	33.56852
20-01-2011	1030.111	1078.692	981.5291	1029.961	-15.1086	34.61539
21-01-2011	1024.536	1068.959	980.1124	1025.479	-16.4548	31.20636
24-01-2011	1019.514	1055.203	983.8256	1022.489	-16.7875	33.52087
25-01-2011	1016.243	1040.899	991.5869	1021.97	-15.6165	39.58617
27-01-2011	1017.421	1044.803	990.0399	1024.247	-12.8896	54.15618
28-01-2011	1016.696	1046.254	987.1392	1019.968	-14.3476	47.74596
31-01-2011	1014.95	1047.406	982.4938	1016.192	-15.3663	44.22942

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