Detecting the impact of share prices using data mining technique in stock market with case study

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Abstract

Data mining is a process of mining and discovering of new information. The term data mining refers to new methods for the intelligent analysis of large datasets. Data mining involves the use of sophisticated data analysis tools to discover previously unknown valid patterns and actionable information from vast amount of data using it to make crucial business decision. Data mining tools become important in finance and accounting .Their classification and prediction abilities enable them to be used for the purpose of stock market prediction .We have taken Fast Moving Consumer Goods (FMCG) sector of Indian stock market for case study. In the present paper we have applied data mining techniques for the prediction of stock market trends.

Key words – Data mining, Prediction, Stock market, FMCG

Introduction:

Forecasting stock market, currency exchange rate, bank bankruptcies, understanding and managing financial risk, trading futures, credit rating, loan management, bank customer profiling, and laundering analyses are core financial task for data mining. Some of these tasks such as bank customer profiling have many similarities with data mining for customer profiling in other fields.

Stock market forecasting includes uncovering market trends, planning investment strategies, identifying the best time to purchase the stock and what stock to purchase. Financial institution produces huge datasets that build that build the foundation of approaching these enormously complex and dynamically problems with data mining tools. Potential significant between these problems motivated extensive research for a year.

Mining: Mining is characterizing the process that finds a small set of precious nuggets from a great deal of raw material

Data Mining: Data Mining refers to extracting or Mining Knowledge from large amount of data or data mining is a collection of techniques which is used to find undiscovered patterns by manipulating large volumes of data .It is a process of mining or discovering of new Information

    Data mining consists of five major elements
   1. Extract, Transport and load transaction data in to the data ware house system
   2. Store and manage the data in a multidimensional database system
   3. Provide data access to business analysis and Information Technology
   4. Analysis the data by application Software
   5. Present the data in useful formats such as a graphs or tables

Techniques used in data mining

The most commonly data mining techniques are as follows

1. Genetic Algorithm: It is based on optimization process such as genetic mutation; combination and natural selection are designed based on concepts of evolution.

2. Artificial neural Network: Non linear predictive model, that learn through tanning and resembles biological neural networks in structure.

3. Rule Induction: The extraction of useful If-than rules form Data based on statistical significance.

Data Mining tools : Various data mining tools are as followed

1.Text term searching tools.
2.Sequence similarity search tools .
3.Sequnce submission tools .
4.Comuter assisted passenger prescribing system (CAPPSIS)
5.Teromisum information program (T.I.A)
6.Querry Managers and reporter writer
7. Multidimensional Data base tools
8.Exporation and discovering tools
Application of data mining in financial sector with special reference to stock markets**.**

What is Stock Market?

A stock market is a market form the trading company stock / shares/ derivatives market is a place where buyers and sellers of securities can enter into the transaction to purchase and sell shares bonds , debentures etc .
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What is mean by securities?

The definition of securities as per the security contracts regulation act (SCRA)1956 includes instruments such as shares, bonds , script , stock or other marketable securities of similar nature in or any incorporate company or body corporate government securities , derivatives of securities , Investment Schemes interest and rights in securities receipt or any other instrument so declared by the central government .

Fast Moving Consumer Gods (FMCG)

Fast moving consumer gods are simply the essential items that one must have in order to live or at least leave well. The items are referred to "fast moving" due to the fact that they are quickest item to leave the sales at a super market. These are consumer's goods products that sell quickly at relatively low coast – items such as milk, tea. Coffee , bread , butter , cheese , bisects , shops , detergents , toilet paper , soda , bear .Many of these products being virtual necessities, there sales remain largely unaffected by any economic or political issues that may affect the country. FMCG goods are all consumable items (other than groceries /pulses) that one need to buy at regular intervals these are items which are used daily and so have a quick rate of consumption and high return . FMCG can broadly be categorized in to three segments which are as follows

1. Household items as – Television, air conditioner, furniture, glassware, sewing machine and other household accessesories etc.
2. Personal care items as – Toothbrush .toothpowder, saving cream, hair drier , curling iron etc.
3. Food and beverages as – Packed foods, snacks, tea, coffee , cold coffee , cold drinks , fruit bears ,milk , biscuits etc.

TECHNIQUE USED

Daily moving averages or simple moving averages:

Simple moving averages (SMA) or daily moving averages (DMA) frequently in technical analysis showing the average value of security price over a set of period. Moving averages are supported and resistance stock trading above its 30,50,150 or 200 SMA are consider as those stocks that are trading above their resistance and are likely to go up on the other hand stock trading below their 30,50,150 or 200 SMA considered as those stocks that are below their support level and are likely o come down
This is not only the simple factor that should be taken in account while purchasing and scaling stocks, it is largely depend up on the market condition.

Case study

We have taken Indian Tobacco Company (ITC) for the case study we have taken the data of ITC for the month of September 2014 of cash segment as well as future segment .

Table of future segment of ITC

Symbol	Date	Expiry	Close
ITC	1-Sep-14	25-Sep-14	353.15
ITC	2-Sep-14	25-Sep-14	356.05
ITC	3-Sep-14	25-Sep-14	351.05
ITC	4-Sep-14	25-Sep-14	352.45
ITC	5-Sep-14	25-Sep-14	351.95
ITC	8-Sep-14	25-Sep-14	354.35
ITC	9-Sep-14	25-Sep-14	359.25
ITC	10-Sep-14	25-Sep-14	352.9
ITC	11-Sep-14	25-Sep-14	352.65
ITC	12-Sep-14	25-Sep-14	356.8
ITC	15-Sep-14	25-Sep-14	351.9
ITC	16-Sep-14	25-Sep-14	354.7
ITC	17-Sep-14	25-Sep-14	355.4
ITC	18-Sep-14	25-Sep-14	360
ITC	19-Sep-14	25-Sep-14	360.25
ITC	22-Sep-14	25-Sep-14	371.75
ITC	23-Sep-14	25-Sep-14	371.5
ITC	24-Sep-14	25-Sep-14	377.65
ITC	25-Sep-14	25-Sep-14	376.85

Table 1.

Table of future segment of ITC average value of days

Symbol	Average value of days	Close Price
ITC	5	352.93
ITC	10	354.06
ITC	15	354.86
ITC	19	358.96

Table2.

Moving average price for future segment: 355.21

Graph Average value of days Vs Close Price
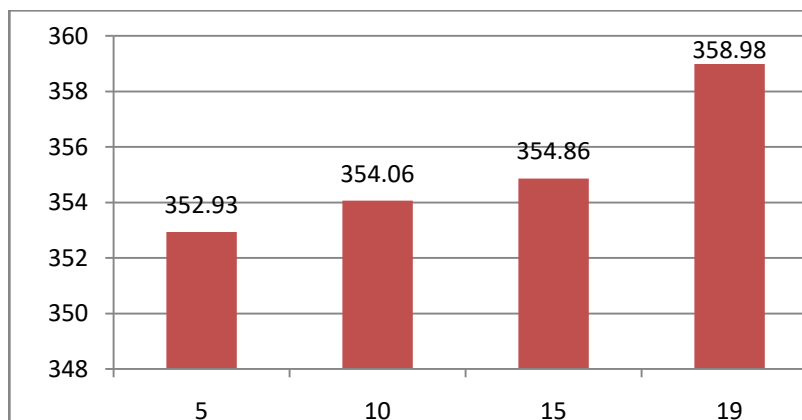
Graph 1.

Table of cash segment

Symbol	Series	Date	Close Price
ITC	EQ	1-Sep-14	350.55
ITC	EQ	2-Sep-14	354.7
ITC	EQ	3-Sep-14	348.9
ITC	EQ	4-Sep-14	350.4
ITC	EQ	5-Sep-14	350.8
ITC	EQ	8-Sep-14	353.95
ITC	EQ	9-Sep-14	358.2
ITC	EQ	10-Sep-14	351.05
ITC	EQ	11-Sep-14	351.2
ITC	EQ	12-Sep-14	355.65
ITC	EQ	15-Sep-14	351.7
ITC	EQ	16-Sep-14	353.15
ITC	EQ	17-Sep-14	354.75
ITC	EQ	18-Sep-14	358.7
ITC	EQ	19-Sep-14	359.4
ITC	EQ	22-Sep-14	370.75
ITC	EQ	23-Sep-14	370.8
ITC	EQ	24-Sep-14	377.2
ITC	EQ	25-Sep-14	376.65
ITC	EQ	26-Sep-14	371.7
ITC	EQ	29-Sep-14	366.1
ITC	EQ	30-Sep-14	370.2

Table 3.

Table of cash segment with average value of days

Symbol	Average value of days	Close Price
ITC	5	351.07
ITC	10	352.54
ITC	15	353.54
ITC	20	358.51

Table 4.

Moving average price for cash segment: 353.92

Graph Average value of days Vs Close Price
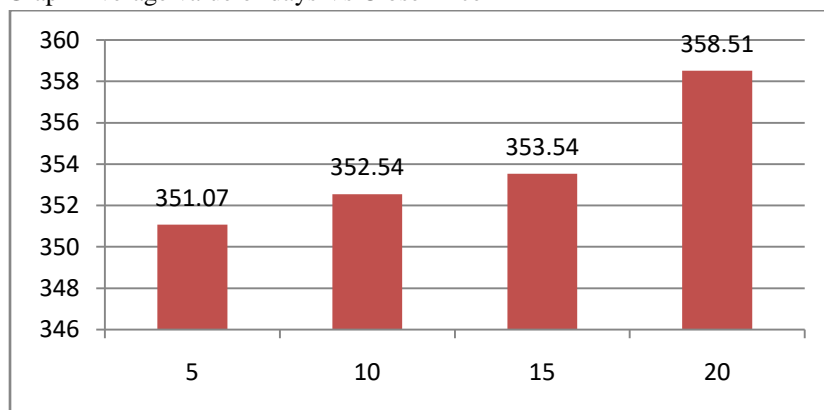
Graph 2

Conclusion

In this case study we have conceded that moving average of ITC share shows through graph1 and graph 2 that trend is shifting up and creates a signal to buy a share.

Moving average can be utilized to determine the trends. For instance, if the moving average is rising, then the trend is considered up. On the other hand, if the moving average is falling, the trend is considered to be down. It also helps in identifying supports & resistance. Moving average helps to identify the trend and keeps you on the right side of the trend. However, an investor should not solely rely on the moving average to enter at bottom and exit at top

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