**DRAFT FOR PAPER**

**Predictor model to maximize returns from Indian stock market investments**

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**PROJECT GUIDE**

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**Abstract**

This research aims at developing a model that can effectively analyze the information provided and predict the future performance of the companies in the Indian Market scenario. Training data for developing this predictor model has been taken mostly from moneycontol.com, a website that gives advices by various experts regarding investments and portfolio management from the Indian Market perspective. Frequently used keywords in the advices have been identified and assigned suitable values, in a scale of 1 to 5, where 1 suggests a strong sell and 5 suggests a strong buy. Best values have been obtained keeping in mind the diverse needs and expectation of the investors, for short term, mid-term and as well as for long term investments using genetic algorithm to arrive at the best possible result.

***Keywords****:* Web-Crawler, Correlation Coefficient, Stock Market, Genetic Algorithm, Portfolio Management, Efficient Market Hypothesis.

1. **Introduction**

Understanding the volatility of the stock market and utilizing it to reap out good returns has always been a subject of interest for many. One of the key theories to understand the behavior of the stock market is Efficient Market Hypothesis (EMH).

EMH believes that all the data required for understanding the value of the company, its future can be extracted from the stock prices, leaving no room for superior returns. But it is possible only in the ideal scenario, where all the investors have a homogeneous perspective and mindset and all are reasonably well informed. But in reality this situation does not arise. Stock markets are affected due to factors including social, technological, economic, political, and even idiosyncrasies of investors and other stakeholders and heterogeneous decisions are taken by the buyers, depending on their own interpretations of the market.

**Speculators vs. Investors**

All those who buy stocks are not necessarily investors; rather a vast majority is speculators. The main difference between them is in the mindset. A speculator tries to evaluate a company analyzing its present performance, and is not always well-informed about the company whereas an investor tries to base his predictions on the fundamentals of the company, its past trends, cash flow, market demand, goodwill, management and its business principles to predict the future prices.

In reality, the speculators play a huge role and information cascading further changes the company’s stock price, which may not always reflect the company’s real condition.

**Why invest in stocks??**

This is a question which can arise very frequently. Why should people invest in stock market when there is no guarantee for return of investment when banks and bonds already have schemes ensuring the return of investment with a certain amount of interest??

This is because, if properly managed and intelligently selected, stock market can give huge returns, much more than investing in banks or bonds possibly.

So, considering ideally, the stock which is priced at 100 units today and priced at 107 units after a year, from an investor’s point of view, investing in that stock may not be a very good option. Not being able to recover the principal with an interest at least equal, if not more than what banks and bonds provide is a loss for the investor.

**Things to look for before you buy**

So, now the question arises, where should you invest? To this question there is no best answer.

Best way to answer this would be to ask a question: “Would I be happy to be a part of the company in the long term?” If the answer is a yes, chances are high that the company is good. If not, then it might be a calculated risk, a gamble or a speculation which may or may not pay off.

A variety of factors influence an investor’s decision and the stock prices. Some of them in layman’s terms can be expressed by the following:

* **Price to Earnings ratio** (P/E) - This is given by the price of the stock divided by earnings from the stock.

P/E ratio=(price of the stock)/(earnings from the stock)

A high P/E ratio means investors are anticipating higher returns from the company.

* **Return on equity** (ROE) - ROE is expressed as a percentage and calculated as:  
  **Return on Equity = Net Income/Shareholder's Equity**  
  Net income is for the full fiscal year (before dividends paid to common stock holders but after dividends to preferred stock.)

A high ROE means the company has better growth prospects.

* **Earnings growth** – Earnings growth is the annual rate of growth of earnings from investments. The companies with a high earnings growth are considered to be safer investment bets than those which have a lower earnings growth.
* **Debt to assets ratio-** This is a measure of the risk of the company. If its burdened with huge amount of debt, this value will surely be high, making it a high risk company. The companies which have a low ratio are safer bets than those which have a higher ratio.

It is calculated by:

D/A ratio= (Short term+Long term debts)/(Value of total tangible and intangible assets)

* **Yield-** The yield of a company determines the future stock price. For an investment to be attractive, the yield percentage must be higher than what banks and bonds normally offer. Sometimes, the yield percentage tends to hide the real information of the company. Percentage can be higher because the valuation of the company can be low.

Assuming that the experts have taken into consideration all the factors that could possibly influence the stock prices in the foreseeable future, keyword-value pairs best reflecting the overall scenario of the companies have been identified and used for prediction purposes.

The basic assumption used in this research is that the rate of inflation in currency is more or less constant in a particular time frame.

This research has two dimensions:

* Considering the advices given by the experts correctly and wholly reflect the company’s value as a portfolio stock, keyword-value sets were optimized, allowing a ±20% change to the initial values assigned.
* Keeping in mind that some experts may have an unrealistic preference or disinclination for a particular company and his accuracy percentage, suitable bias points were introduced in their advices, so that proper weight could be assigned to their advices.

Hence these refined values were used for analyzing the company’s performance, and combined with real-life stock price and trends of the company to suggest the best portfolio for the investor.

Close to 360 different keywords have been identified, which are most frequently used by the experts in their advices. About 75 companies, which occurred more frequently than others did in the experts’ advices, were chosen. They were further categorized broadly on the basis of their spheres, be it pharmaceutical industry, IT industry, banks or FMCG business.

To find the best possible fit for the keyword-value pairs, genetic algorithm was used to optimize the values, considering the correlation coefficient of the keyword-value set as a measure of fitness of the gene involved for arriving at the subsequent generation.

To account for the unrealistic preference or disinclination of the experts for a particular company, suitable bias points have assigned to the experts, thus providing the best possible values for future prediction.

This research contains data sets from 2008, a time when Indian markets saw a boom in stock returns, and also from 2013, where the growth scenario became quite bleak, thereby drastically changing the yield and dividend of returns from companies which were otherwise considered ‘safe’ earlier.

This research can help provide investors a choice of companies, keeping in consideration the expert advices, thereby giving them a good and realistic choice for their portfolio management and resource diversification for maximizing their returns.

The rest of the paper is organized as follows. Section 2 addresses the relevance of this research against the real-life stock market price volatility. Section 3 defines some key aspects used in the study, and to propose the predictor model. Section 4 describes the methodology used for making the predictor model. Section 5 presents the predicted data, compares it with the real life events which have occurred in the past and its significance. Section 6 draws concluding remarks.

1. **Stock market price volatility, trend analysis**

What are the things that govern stock market prices of a company?

* **Investor sentiment-**Cases arise when people go on investing, following the general public sentiment, which sometimes may be unrealistic, governed mostly by media, analysts and results of collective trading of other stakeholders. If it is favorable, then prices soar. If not, then repercussions of this negative sentiments can reflect in the prices of the stock, which is likely to be hit, as a manifestation of the general negative consensus.

* **Marketing policies-** How a company chooses to market its product can largely determine the stock prices. If its marketing strikes the right cord with the customers, sales will improve, value will increase and thus stock prices will soar. If not, then the effects can just be the reverse.
* **Cash flow-** For a company’s stock prices to surge, it has to show its cash flow, that it is still a safe destination to keep your money, lure the investors for example with news of expansion coupled with rich dividend benefits.
* **Debt repayment ability-** If a company which is apparently performing well is crippled under huge debt burdens and do not have the necessary finances to repay the loan, then probably it is not a right stock to own.
* **Past performance-** How a company is likely to perform in the future is largely determined by its past performance. Was it consistent? What are its fundamentals of business? Was it regular with its dividend pays? These factors can determine the stock prices of the company.

* **Managerial excellence-** A company with an able manager leading up front is bound to have confidence of the investors. If the manager has a proven track record, it is a further boost. Investors’ confidence can again help in the company’s rebound.
* **Customer base-**What kind of customers do the company cater to? Does it have a steady demand for its goods or services? If so, how loyal are its customers? If a company has a loyal customer base and a steady demand, prices are not likely to take a plunge.

All these factors affect the price of the stocks. Real life data of the concerned companies were taken (Source Yahoo Finance) and used to analyze the trends for 6 month, 1 year and 2 year time frames. Data obtained from this analysis were used to optimize the keyword-value pairs in the predictor model.

When new advices are used for analysis, the predictor compares it with the stored keywords, looks for a match. If a match is found, the advices are rated accordingly.

From the past prices and trends of the company and the weight assigned to the particular advice, the model could predict with reasonable amount of accuracy the price of the stock in the foreseeable future.

The predictor model uses the average of all the weights of the advices of a particular company to arrive at a better perspective, which more or less reflects the expert’s take on the stock prices of the company.

The values thus obtained are again compared with the original market trend, with the prices and the corresponding change in the value of the company which is likely to bring about that weight, and thus we can get a fair idea about how the company is going to fare in the future. This is of course, assuming that the experts’ advices takes into due consideration of all the factors that could possibly influence the movement of the stocks.

This predictor model assumes that the sudden changes which may occur in the future must have occurred at least once in the past, as it is present in the training data set. This could give a fair idea about the slope of the price change for a specific period of time. Along with the known values for the training set, the predictor could fairly predict the price of the stock after a certain period of time.

Another assumption is that the rate of inflation is fairly constant over a particular time duration which is under consideration. This means that the inflation from the period of 2005-2007 is reasonably similar to the inflation from the period of 2007-2009 and so on.

Adhering to these basic assumptions, the predictor identifies the best possible companies from the list and suggests the investors the best investment portfolio.

It can also be used for risk assessment. If given the name of a particular company, based on the latest advices, it can suitably advise the investor whether to buy stocks, or to hold, or to exit from the company.

1. **Aspects involved in making the predictor**

Where from we should try collecting advice? This is the first question which arises. There are newspapers, television and other reports. But none of them has data in the organized form which can help in a detailed study of the stock market. Moneycontrol.com, a website which contains advices is an exception. This website contains advices for a variety of companies and by a number of experts, with different takes on the same company, which in turn helps to get an unbiased view about the stock.

Most of the advices of moneycontrol.com are also tweeted from their official Twitter account, and the experts also express their views on CNBC 18. So it has a widespread public reach.

* 1. **Web-crawler**

Web-crawler is a basic software application capable of visiting the hyperlinks and storing the corresponding web pages. A Web-Crawler was designed which could do the same. After going through the way data is structured in moneycontrol.com, the web-crawler was suitably modified so that it could store subsequent pages of moneycontrol.com when given the starting page number and the number of pages.

This web-crawler was used for data collection from the internet and storing it in structured form along with the date of the advice obtained.

* 1. **Correlation Coefficient**

For a particular set of keyword-value pairs, with values adjusted for a ±20% range of the previously assigned user values were considered.   
The weights of the advices for a particular company were sorted date wise and it was used to compare with the real life data. The correlation coefficient has been used as a measure of fitness for gene recombination and generation for subsequent generations.

Correlation coefficient is given by:

## (n×∑xy-∑x×∑y)/((sqrt(n×∑x2-(∑x)2)×sqrt(n×∑y2-(∑y)2))

n=total number of cases

x=data obtained from the advices

y=data obtained from real life

* 1. **Genetic Algorithm**

The predictor uses genetic algorithm to optimize the values to be assigned to the keywords for the specific time frame. Genetic algorithm considers each set of keyword-value data as a gene. It is based on the survival of the fittest principle. Genes that have higher correlation coefficient are likely to be the ones that have higher possibility of being transferred as a characteristic trait to the next generation.

Suitable genes, based on their level of fitness, can be chosen in a probabilistic model, adhering to the roulette wheel model, where genes having higher fitness are likely to produce more offspring and its offspring will thrive whereas genes which are relatively unfit will produce less number of offspring, which will gradually perish in the subsequent generations.

This basic principle has been used to optimize the values of the keywords to get a more sound and practical picture of the true significance of these values, comparing it with the real life happenings.

As it happens in real world, mutation has also been introduced, with the probability of mutated gene adjusted to a certain extent, such that there is a scope of adjustment left for suitably enhancing the data set.

**3.3a) Why Genetic Algorithm?**

Genetic algorithm has been used as an optimization technique. Initially assigned values assigned to the keywords were not in resemblance with the original market values whatsoever. So, these values needed to be tweaked into something which could reflect the market fluctuations in a better way.

Genetic algorithm uses the survival of the fittest principle, something very much evident in the real world. The species which are less fit slowly fade away from existence, and the fitter ones remain. It is likely, that the offspring from the relatively fit species will stand a better chance to strive in the environment.

This feature of genetic algorithm has been used for optimizing the value set. The evolutionary characteristic of the biological world has been replicated in this case to arrive at a solution. It is thus evident that the genes in the subsequent generations will be a better solution than its immediate predecessors. Data sets thus made are used to train the genes (setting up the learning model) and the best solution is used later (predictor model).

* 1. **Assumptions and Constraints**

**Assumptions:**

* Rate of change of inflation of the currency is more or less constant for a specific amount of time for any span of the time frame. For example, the increase in Rs. 100 from 2005-2006 is same as increase in Rs. 100 from 2008-2009, which is not really the scenario.
* The price of the company is a true indicator of its value as a stock. A company may be crippled with external debts but still could be priced at a higher value depending on the tides of investor sentiment.
* For a sudden and drastic fluctuation which might have been caused by external factors like management policies or marketing campaigns, the prices may not reflect the company’s true scenario in the long run.

**Constraints:**

* As genetic algorithm uses an evolutionary process to arrive at the best fit solution, there is no perfect solution to this case.
* If the advices given by experts and initial values are totally out of sync with the market values, it is likely to take more time to converge to a good solution.
* Genetic algorithm has a tendency to give better results at local maxima rather than global maxima, might giving inferior outputs.
* The best set of values for all the companies, when individually applied to certain companies may not be in sync with the market trends.
* Experts giving advices may be unrealistically biased, favorably or unfavorably to certain companies. They may or may not be accurate in their predictions consistently. Hence, the expert with highest consistency is more likely to give a reasonably correct forecast about a company.

1. **Implementation and methodology**
   1. **Web-Crawler**

The first step of this research was to store and collect concise data in an organized and structured manner. Initially, live tweets were taken and converted in the structured form, but the information extracted was not sufficient for a full proof thorough analysis.

For creating a significant data set for analyzing purposes, the web crawler made initially for saving live tweets was customized so that it could extract information from moneycontrol.com, a website which contains advices from the Indian market perspective.

If provided with the starting URL and the number of pages to be saved, the web crawler can successfully store all the information in a file. The web crawler can thus update its record and work with the latest data, as is available from the aforesaid website.

**How it works:**

* User provides with the staring URL. The web crawler is customized for moneycontrol.com website.
* For our purpose, we used <http://www.moneycontrol.com/news/expert-advice-250-1-next-250.html> as starting URL, and incremented the position (increment 250-1 to 250-2 and so on). This procedure went on till 2500 pages.
* It was found by manual inspection that every advice from the aforesaid website comes in a specific pattern. First, “**colr**” followed by “**title=**”, which is followed by the expert advice. For our purposes we found the occurrences of these patterns and used these for extraction.
* Date was also extracted in a similar procedure. Here the date was preceded by “**date pt3**”.

These organized features of the webpage were effectively exploited for data extraction and storing. Advices dating till 22nd November 2004 were stored successfully.

The web crawler can be used for extracting latest advices from the aforesaid website and keep its data set updated. The advices thus extracted can be used by the software for making predictions.

* 1. **Trend analysis**

Data for real life stock movements were used as training data for the predictor model. Stock quotes of the companies in the National Stock Exchange were downloaded from Yahoo Finance. The data set thus obtained, was divided into 3 categories for each company.

The steps involved are:

* Consider 3 different time frames, 180 trading days (for short term investors), 365 trading days (for mid-term investors) and 730 trading days (for a long time investor). Prices were considered in the said time frame and the rate of change in the price for the time frame was calculated.
* After obtaining the rate of price change a suitable formulation was devised, which took into account the absolute maximum and minimum rate of price change, assigning the most negative rate a value of 1, and the best case as 5. All the other values were suitably interpolated, considering 3 as a neutral outlook.
* Data thus obtained from analyzing the real life scenario was compared with the given keyword-value pairs to arrive at the best fit combination.

For optimization purposes, genetic algorithm was used. 3 sets of keyword-value pairs were made, catering to the diverse interests of short term, mid-term and long term investors alike.

To make the trend analysis more realistic, instead of using just 180 trading days or 365 trading days, it was considered that the investor might want to sell or buy the stocks a few trading days before or after. To accommodate this, the average price for the next ten days was used to generate the data set.

**For the discussions below, it is considered that Column B would contain the official prices of the stock on that specific day and Column C would contain the average of the stock prices for the next 10 days.**

Steps involved:

* For all the trading days, instead of the price of the stock on that specific day, the average of the prices across a 10 day time frame was taken.

For example,

**Value in row 2 = Average of the prices from day 2 to day 12 and so on.**

**C = AVERAGE (A2:A12)**

Let this be stored in Column C of the excel sheet.

* Taking the changed values (average of the prices as discussed above instead of the stock price for that specific day), the slope was calculated for the specific period.

For example in a **6 month time** **frame** it would be,

**D2= (C181-B2)/180**, here D is considered as the slope.

* To represent the value obtained in the Column D in a scale of 1 to 5, the following formula was used.

**E2=IF(D2>0,ROUND(D2\*2/MAX(cod),2),ROUND(D2\*2/ABS(MIN(cod)),2))+3**

By using this formula, it was ensured that the minimum value obtained in Column D would have a value of 1 in Column E, representing a strong sell option. Similarly, the maximum value obtained in column D would correspond to a value of 5 in Column E, thereby representing a strong buy option. These values obtained are used for assigning the value of keywords for that particular time frame. Values obtained here are up to 2 decimal places.

**4.3 Implementation of genetic algorithm**

**Process is repeated to get values for short term, mid-term and long term time frames.**

A probabilistic model of genetic algorithm is considered here, where the degree of fitness of a particular gene is directly proportional to the chances of it being a characteristic trait in the next generation, a slightly different take on what is called survival of the fittest.

Each gene comprises of the set of all the keyword-value pairs which are used for assigning weights to the advices by the user, keeping a room for ± 20% change. Adhering to this basic principle, random numbers are generated in the specified range.

Genes having correlation coefficients greater than -0.01 were considered fit to exist. There were two processes for gene creation.

* For 40% of the genes, the values of the keywords were changed(by random value assignment within a range) and the data obtained after the file analysis were compared with real market data, and the correlation coefficient of the genes were calculated using weighted mean of the number of matches for each company.

**Correlation Coefficient of a gene** = (Correlation coefficient of each company) x Number of matches (date-wise with original market dates)/ (Total number of matches for all companies).

* For the remaining 60% of the genes, efforts were made to synchronize the keywords closer to the market value. For this following procedure was adopted.
  + 1. Take an array, assign random 1's for 60% of its elements (array length=keyword-value (string array's) length).
    2. For keywords, which are in the position corresponding to 1's in the array are to be forcibly matched.
    3. Have a variable, storing how many companies' advice to be read for finding the keyword.
    4. In the event the keyword is found in those randomly chosen companies, go to the original market data and store the data in a variable. In case of occurrence in multiple companies, take the average of the values.
    5. If the keyword does not occur in any of the randomly chosen companies, then stick to the original value assigned.

The gene, with its refined values, is used now for analyzing the advices. Now the correlation coefficient for the gene is calculated. The higher the correlation coefficient, chances are higher that it will be carried over to the next generation.

A single gene is considered for all the companies, and the mean of the correlation coefficient of the gene arrived at after analyzing each companies, is considered to be the correlation coefficient of the gene.

For choosing two genes as parents, a random number was generated between -0.01 to 1. Then from the gene pool, a random gene was chosen. If this gene had a correlation coefficient below the chosen random number, then it was chosen as a parent gene. Similarly two such parents were chosen.

For arriving at the subsequent generation, following method was used:

1. For every even numbered child gene generation, the value for each keyword was taken to be in the ratio of its parent’s correlation coefficient (fitness).

By this logic,

**Value (child) = ((Value parent 1) x Correlation Coefficient of parent 1 + (Value parent 2) x Correlation Coefficient of parent 2) / (Sum of the correlation coefficients).**

Similarly, for all the keywords refined values were taken.

1. For every odd numbered child gene generation, the average of the values of each keyword for the parent genes was taken to be the value corresponding to that keyword for the child gene.

Hence, **Value (Child) = ((Value parent 1) + (Value parent 2)) x 0.5.**

1. To allow the process of mutation, random numbers were generated. If the random number generated (within 0 to 1) came within 0.01 to 0.05, the parent gene was chosen randomly from the population pool, thus allowing the scope of mutation.

**COMPANIES USED FOR ANALYSIS:**

* **IT:**

1. SATYAM - **SATYAMCOM.NS**
2. MPHASIS – **MPHASIS.NS**
3. HCL – **HCLTECH.NS**
4. TECH MAHINDRA – **TECHM.NS**
5. INFOSYS/INFY – **INFY.NS**
6. WIPRO - **WIPRO.NS**
7. TCS/TATA CONSULTANCY SERVICES – **TCS.NS**

* **BANKS & FINANCIAL INSTITUTIONS:**

1. PNB/PUNJAB NATIONAL BANK/PSU BANK – **PNB.NS**
2. UBI/UNITED BANK OF INDIA/PSU BANK – **UNITEDBNK.NS**
3. ICICI BANK – **ICICIBANK.NS**
4. HDFC BANK – **HDFCBANK.NS**
5. SBI/STATE BANK OF INDIA/PSU BANK – **SBIN.NS**
6. AXIS BANK – **AXISBANK.NS**
7. CANARA BANK – **CANBK.NS**
8. ANDHRA BANK/PSU BANK – **ANDHRABAN.NS**
9. YES BANK – **YESBANK.NS**
10. INDUSIND – **INDUSINDBK-EQ.NS**
11. ALLAHABD BANK/PSU BANK – **ALBK.NS**
12. DCB – **DCB.NS**
13. DENA BANK – **DENABANK.NS**
14. UCO BANK.PSU BANK – **UCOBANK.NS**
15. IDBI – **IDBI.NS**
16. FEDERAL BANK – **FEDERALBN.NS**
17. LIC HOUSING FINANCE – **LICHSGFIN.NS**

* **TELECOM SERVICE PROVIDERS**

1. BHARTI – **BHARTIART.NS**
2. IDEA – **IDEA.NS**
3. RCOM/RELIANCE COMMUNICATIONS – **RCOM.NS**

* **TRANSPORT**

1. SHRIRAM TRANSPORT – **STFC.BO**
2. MARUTI – **MARUTI.NS**
3. M&M/MAHINDRA AND MAHINDRA – **M&M.NS**
4. TATA MOTORS – **TATAMOTOR.NS**
5. HERO – **HEROMOTOC.NS**
6. BAJAJ AUTO – **BAJAJ-AUTO-EQ.NS**
7. JET – **JETAIRWAY.NS**
8. SPICEJET – **SPICEJET.BO**
9. KINGFISHER – **KFA.NS**

* **PHARMACEUTICALS**

1. REDDYS – **DRREDDY.NS**
2. RANBAXY - **RANBAXY.NS**
3. CIPLA – **CIPLA.NS**
4. GLENMARK - **GLENMARK.NS**
5. WOCKHARDT – **WOCKPHARMA-EQ.NS**
6. SUN PHARMA – **SUNPHARMA.NS**
7. AUROBINDO – **AUROPHARM.NS**
8. LUPIN – **LUPIN.NS**

* **CHANNEL AND CHANNEL SERVICE PROVIDERS**

1. SUN TV – **SUNTV.NS**
2. ZEE – **ZEEL.NS**
3. DISH TV – **DISHTV.NS**

* **CONSUMER GOODS AND ITEMS**

1. VOLTAS – **VOLTAS.NS**
2. EXIDE – **EXIDEIND.NS**
3. ITC – **ITC.NS**
4. HUL/UNILEVER – **HINDUNILVR-EQ.NS**
5. UNITED BREWERIES – **UBL.NS**
6. BATA – **BATAINDIA.NS**
7. TITAN INDUSTRIES – **TITAN.NS**
8. CHAMBAL – **CHAMBALFER.NS**
9. TATA GLOBAL BEVERAGES – **TATAGLOBAL-EQ.NS**
10. UNITED PHOSPHORUS – **UNITEDPHSL.BO**
11. GRASIM – **GRASIM-IL.NS**
12. GODREJ CONSUMER PRODUCTS LIMITED – **GODREJCP.NS**

* **HEAVY INDUSTRIES AND OTHER SERVICES**

1. CUMMINS – **CUMMINSIND-EQ.NS**
2. RELIANCE POWER – **RPOWER.NS**
3. TATA STEEL – **TATASTEEL.NS**
4. JSW STEEL – **JSWSTEEL.NS**
5. CAIRN – **CAIRN.NS**
6. RIL/RELIANCE INDUSTRIES LTD – **RELIANCE.NS**
7. BHEL – **BHEL.NS**
8. SAIL – **SAIL.NS**
9. ADANI ENTERPRISES – **ADANIENT.NS**
10. ULTRATECH – **ULTRACEMC.NS**
11. HINDALCO – **HINDALCO.NS**
12. L&T/LARSEN & TOUBRO – **LT.NS**
13. SIEMENS – **SIEMENS.NS**
14. SINTEX – **SINTEX.NS**

These 73 companies were used for gene analysis. Genetic algorithm was used in ways as explained above to get the list of top ten companies with highest correlation coefficient for the predictor model designed.

After obtaining the list of top ten companies with highest correlation coefficients for the predictor model, then genetic algorithm was used again to optimize the keyword values and arrive at the best fit model. Basically the aim of the predictor is to optimize the output and give the best possible prediction for the ten companies.

**The “/” in the name of the company suggests that the company may be known by more than one name in the market. For example, the advice for PSU banks will hold true for all the PSU banks whose data set is under investigation. This was done to extract maximum number of advices which were available for a particular company from the database.**

* 1. **Stock market experts, how accurate they really are!!**

Can everyone be accurate? This can never be. This would mean if everyone felt that a company would perform well, the stock price will experience a rapid surge, which might make it overpriced, maybe to such an extent that it may no longer be an attractive bet.

In the digital media, be it television or websites, one comes across a number of advices. Some of these advices can be biased; some of these can even be contradictory. Cases may arise where one adviser feels that the company will not perform poorly, whereas other may feel that it will beat street estimates by posting an unprecedented growth in its report. So, who is more likely to give the correct advice? Here comes the doubt in an investor’s mind.

In our research, we have tried to address this doubt. We have made an attempt to find which of the experts are reasonably accurate, if not perfect in their estimates.

A list of 25 experts were made, who have given their advices in **moneycontrol.com** frequently. Their advices were assigned values, obtained from the keyword-value pairs by implementation of the genetic algorithm.

The values obtained from the advices are compared with the real life market data, and the list of experts is sorted in the descending order of their correlation coefficients. **The expert having the maximum correlation coefficient means his advices bear a better resemblance to the market data and hence his advices are likely to be more accurate than the others.**

**Process adopted:**

**Data used for trend analysis has been obtained from Yahoo Finance and stock quotes dated till 12th August 2013 is considered for analysis.**

* **LIST OF EXPERTS ANALYZED:**

1. SUKHANI
2. TULSIAN
3. EMKAY
4. BHAMRE
5. TATER
6. DOCTOR
7. LILLADHER
8. ANGEL
9. ICICIDIRECT
10. KAPUR
11. MOTILAL
12. DOLAT
13. FIRSTCALL
14. MITTAL
15. MEHTA
16. AGARWAL
17. MERANI
18. NIRMAL
19. JOSHI
20. WAY2WEALTH
21. VIJAY
22. SEKHAR
23. BALIGA
24. MADAN
25. MOHINDER

To get the accuracy of the experts listed above with respect to our model, we find the correlation coefficient between the advice given by the experts for the best fit ten companies in our database with the value we obtained by trend analysis.

**Correlation coefficient of the expert**

**= (Correlation coefficient of expert for a company x Number of advices for the company) / Total number of advices given by the expert for the top ten companies.**

This weighted average is taken to get the list of the most accurate experts for our designed prediction model.

1. **Predicted results and calculations:**

So for the predictor model we have designed keeping in mind the requirements of mid-term investors, ten companies which are most likely to follow the model are found out. These prices of these ten companies can be said with higher amount of precision by the model we have designed for this time frame.

A list of 25 experts was made. The correlation coefficient between the values of the keywords in their advice and the original value obtained by analyzing the stock market trends are calculated and compared. The list of experts is arranged in decreasing order of their correlation coefficients. The expert having the highest correlation coefficient is most likely to give correct advice for the ten companies which we have used in our predictor model.

Similar strategy has been used for obtaining the names of companies and experts for short term (6 months) as well as for the long term investments (2 years).

**The value of keywords obtained for our predictor model for different time frames is written in the Annexure.**

* 1. **For mid-term investments (1 year time period)**

The ten companies having the highest correlation coefficients were shortlisted and the results are displayed here.

**5.1 a)** **List of companies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of company** | **Number of matches**  **(M)** | **Correlation Coefficient**  **(C)** | **MxC** |
| ULTRATECH CEMENT | 63 | 0.34420925 | 21.68518 |
| INDUSIND BANK | 136 | 0.26169243 | 35.59017 |
| FEDERAL BANK | 60 | 0.25140792 | 15.08448 |
| MAHINDRA AND MAHINDRA | 246 | 0.24030201 | 59.11429 |
| TECH MAHINDRA | 132 | 0.23914129 | 31.56665 |
| ITC | 400 | 0.199258 | 79.7032 |
| BATA | 103 | 0.19217893 | 19.79443 |
| ANDHRA BANK | 195 | 0.16065091 | 31.32693 |
| PUNJAB NATIONAL BANK | 288 | 0.12696357 | 36.56551 |
| HDFC BANK | 222 | 0.11166925 | 24.79057 |

**TABLE 1: List of companies arranged in decreasing order of their correlation coefficients**

**∑MxC** = 355.2214

**∑M** = 1845

**Correlation Coefficient of the gene obtained= ∑ (MxC)/∑M = 0.192532**

**5.1 b) List of Experts**

|  |  |  |
| --- | --- | --- |
| **Expert Name** | **Correlation Coefficient** | **Number of matches** |
| EMKAY | 0.692056 | 21 |
| MADAN | 0.47434 | 3 |
| DOLAT | 0.421443 | 6 |
| LILLADHER | 0.375203 | 30 |
| TATER | 0.323983 | 1 |
| MEHTA | 0.30023 | 41 |
| MOTILAL | 0.237501 | 33 |
| BHAMRE | 0.162266 | 15 |
| SUKHANI | 0.150078 | 149 |
| AGARWAL | 0.113484 | 23 |
| SEKHAR | 0.107925 | 14 |
| ANGEL | 0.104583 | 49 |
| TULSIAN | 0.100051 | 41 |
| BALIGA | 0.024325 | 59 |
| WAY2WEALTH | 0.009171 | 2 |
| KAPUR | 0 | 0 |
| MERANI | 0 | 0 |
| MITTAL | 0 | 0 |
| MOHINDER | -0.0115 | 2 |
| VIJAY | -0.0132 | 53 |
| JOSHI | -0.07606 | 24 |
| DOCTOR | -0.11237 | 2 |
| NIRMAL | -0.29719 | 6 |
| ICICI SECURITIES | -0.30298 | 1 |
| FIRSTCALL | -0.43336 | 2 |

**Table 2: List of experts arranged in decreasing order of their correlation coefficients**

* 1. **For long-term investments (2 year time period)**

The ten companies having the highest correlation coefficients were shortlisted and the results are displayed here.

**5.2 a)** **List of companies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of company** | **Number of matches**  **(M)** | **Correlation Coefficient**  **(C)** | **MxC** |
| INDUSIND BANK | 91 | 0.548117 | 49.87863 |
| FEDERAL BANK | 35 | 0.489202 | 17.12208 |
| LIC HOUSING | 39 | 0.343961 | 13.41447 |
| ALLAHABAD BANK | 155 | 0.263171 | 40.79147 |
| ZEE | 169 | 0.234435 | 39.61959 |
| ULTRATECH | 45 | 0.216426 | 9.739149 |
| ANDHRA BANK | 136 | 0.193198 | 26.27495 |
| PUNJAB NATIONAL BANK | 221 | 0.189082 | 41.78716 |
| JET | 93 | 0.183927 | 17.10518 |
| YES BANK | 90 | 0.130704 | 11.76337 |

**TABLE 3: List of companies arranged in decreasing order of their correlation coefficients**

**∑MxC** = 267.4961

**∑M** = 1074

**Correlation Coefficient of the gene obtained= ∑ (MxC)/∑M = 0.249065**

**5.2 b) List of Experts**

|  |  |  |
| --- | --- | --- |
| **Expert Name** | **Correlation Coefficient** | **Number of matches** |
| EMKAY | 0.692056 | 21 |
| MADAN | 0.47434 | 3 |
| DOLAT | 0.421443 | 6 |
| LILLADHER | 0.375203 | 30 |
| TATER | 0.323983 | 1 |
| MEHTA | 0.30023 | 41 |
| MOTILAL | 0.237501 | 33 |
| BHAMRE | 0.162266 | 15 |
| SUKHANI | 0.150078 | 149 |
| AGARWAL | 0.113484 | 23 |
| SEKHAR | 0.107925 | 14 |
| ANGEL | 0.104583 | 49 |
| TULSIAN | 0.100051 | 41 |
| BALIGA | 0.024325 | 59 |
| WAY2WEALTH | 0.009171 | 2 |
| KAPUR | 0 | 0 |
| MERANI | 0 | 0 |
| MITTAL | 0 | 0 |
| MOHINDER | -0.0115 | 2 |
| VIJAY | -0.0132 | 53 |
| JOSHI | -0.07606 | 24 |
| DOCTOR | -0.11237 | 2 |
| NIRMAL | -0.29719 | 6 |
| ICICI SECURITIES | -0.30298 | 1 |
| FIRSTCALL | -0.43336 | 2 |

**Table 4: List of experts arranged in decreasing order of their correlation coefficients**

1. **CONCLUSION:**
2. **ANNEXURE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **KEYWORDS** | **VALUE (6 MONTHS)** | **VALUE (1 YEAR)** | **VALUE (2 YEARS)** |
| good trading bet |  | 4.046035 | 4.049239 |
| may see more pain |  | 2.380126 | 2.229245 |
| jump |  | 3.285085 | 3.611615 |
| not much upside in |  | 3.108564 | 2.628315 |
| profit booking |  | 2.82678 | 3.807137 |
| may go upto |  | 2.587612 | 3.126376 |
| can appreciate |  | 3.374323 | 3.206142 |
| may not fall below |  | 2.46487 | 2.922902 |
| profit booking may happen |  | 3.895982 | 3.841062 |
| good stock |  | 2.965446 | 3.694201 |
| get in |  | 2.747013 | 4.224427 |
| excellent stock |  | 4.079147 | 4.54053 |
| good choice |  | 3.876246 | 4.165172 |
| looks promising |  | 3.942951 | 3.507568 |
| a good midcap stock |  | 3.83758 | 4.044896 |
| started weakening |  | 2.203703 | 2.410974 |
| will do well |  | 3.505147 | 3.54529 |
| good fundamental stock |  | 3.92094 | 3.81323 |
| don't sell |  | 2.331462 | 1.548033 |
| a market performer |  | 3.524591 | 3.706528 |
| go down |  | 3.205447 | 2.87698 |
| not a portfolio stock |  | 1.990075 | 1.851389 |
| good long |  | 3.941593 | 3.95567 |
| speculative buying |  | 3.762778 | 3.490937 |
| advises to buy |  | 3.77314 | 3.493282 |
| not good long-term bets |  | 2.566877 | 2.310042 |
| re-rating story will continue |  | 3.017306 | 2.990507 |
| worst over for |  | 3.324955 | 2.989358 |
| why you should buy |  | 4.038586 | 3.956741 |
| will soar |  | 3.504924 | 3.517625 |
| can pullback |  | 3.835673 | 3.914698 |
| can come down |  | 4.16441 | 2.640613 |
| likely to see more short covering |  | 2.638991 | 2.47451 |
| long-term bets |  | 3.80555 | 3.695977 |
| long-term buy |  | 3.396476 | 3.730203 |
| long term |  | 3.040356 | 3.129346 |
| good short-term bets |  | 3.609082 | 3.584764 |
| best stock to own |  | 3.847019 | 3.671993 |
| core portfolio stock |  | 4.070566 | 3.850998 |
| will give good result |  | 3.881115 | 3.753403 |
| good for investment |  | 3.612264 | 3.856292 |
| a portfolio stock |  | 4.161926 | 4.007612 |
| can depreciate |  | 2.512079 | 2.357146 |
| do not expect |  | 1.944717 | 2.010657 |
| can give good returns |  | 3.188383 | 3.928638 |
| can go up |  | 2.978958 | 3.589433 |
| a good investment bet |  | 3.961132 | 4.114145 |
| can go upto |  | 3.541815 | 3.544245 |
| can hit short term target |  | 3.529004 | 3.660762 |
| can increase |  | 3.996516 | 4.119061 |
| can jump |  | 4.44577 | 4.278778 |
| can move up to |  | 3.507655 | 4.107432 |
| can rise further |  | 4.069168 | 4.013085 |
| can sell |  | 2.223849 | 2.277856 |
| can slip |  | 3.572146 | 3.507332 |
| can test |  | 3.190315 | 4.093725 |
| do not go short in |  | 3.371052 | 3.321945 |
| do not see secular upside in |  | 1.985633 | 1.986895 |
| do not see sharp rebound in |  | 2.086876 | 1.963051 |
| do not see upside in |  | 1.962722 | 1.844861 |
| do not short |  | 3.577847 | 3.320427 |
| don't buy |  | 2.715355 | 2.476352 |
| don't go long in |  | 2.245768 | 1.640895 |
| don't see major upmove in |  | 2.148419 | 2.174792 |
| don't short |  | 3.140888 | 3.577923 |
| can see smart upmove |  | 4.067641 | 3.980329 |
| continue to be negative on |  | 1.059364 | 1.158847 |
| continue to be positive on |  | 3.908735 | 4.129341 |
| continue to outperform |  | 4.075758 | 4.55621 |
| could be a safe buy |  | 3.953685 | 4.145136 |
| expect big upside in |  | 3.885771 | 4.166932 |
| could be dark horses |  | 3.362353 | 3.570938 |
| likely to appreciate |  | 3.448323 | 3.207015 |
| likely to consolidate |  | 2.633076 | 3.37444 |
| likely to depreciate |  | 1.996367 | 1.858307 |
| likely to move down |  | 1.962567 | 1.944149 |
| likely to move up |  | 3.474198 | 3.751961 |
| likely to perform well |  | 3.447341 | 3.688486 |
| not likely to outperform |  | 2.423295 | 2.602752 |
| likely to outperform |  | 3.481529 | 3.520734 |
| likely to slip |  | 3.385496 | 2.172298 |
| looking good |  | 3.162355 | 3.340639 |
| look good |  | 3.338474 | 3.500081 |
| looks good |  | 3.491387 | 3.7462 |
| looks great |  | 3.830809 | 3.807322 |
| look strong |  | 2.880391 | 3.64424 |
| looks strong |  | 3.539019 | 4.021744 |
| look weak |  | 2.616096 | 2.173369 |
| looks weak |  | 2.966496 | 2.332924 |
| looks attractive |  | 3.30695 | 4.042554 |
| look attractive |  | 3.441899 | 3.112616 |
| looks cheap |  | 2.618504 | 3.683593 |
| look cheap |  | 3.956897 | 2.92201 |
| looks expensive |  | 2.729099 | 3.304339 |
| look expensive |  | 3.702776 | 2.279478 |
| looks good |  | 3.423836 | 3.305318 |
| look good |  | 3.351301 | 3.24241 |
| looks overrated |  | 2.602699 | 2.824025 |
| look overrated |  | 2.566928 | 2.249406 |
| looks strong |  | 3.255641 | 3.585176 |
| look strong |  | 2.91937 | 3.350988 |
| looks weak |  | 2.521246 | 2.402623 |
| look weak |  | 2.633633 | 2.318346 |
| maintains a 'buy' |  | 4.053992 | 3.960235 |
| may hit further |  | 1.581685 | 1.527375 |
| may head lower |  | 1.609328 | 1.778695 |
| may appreciate |  | 3.557275 | 3.69473 |
| may bounce back |  | 2.675726 | 3.228627 |
| may damage |  | 2.51812 | 2.595828 |
| may decline to |  | 2.424911 | 2.410961 |
| may dip down |  | 1.940764 | 1.914815 |
| may dip to |  | 2.001118 | 1.90746 |
| may do well |  | 3.497548 | 3.165453 |
| may extend rally till |  | 3.917492 | 3.84372 |
| may fall further |  | 2.401029 | 2.261641 |
| may go above |  | 3.606284 | 3.901584 |
| may go below |  | 2.092593 | 2.021947 |
| may increase |  | 3.365962 | 3.354249 |
| may not appreciate |  | 2.061908 | 2.021389 |
| may not do well |  | 2.425057 | 2.474417 |
| may not go below |  | 3.511972 | 3.588743 |
| may not go beyond |  | 2.897323 | 2.385381 |
| may outperform |  | 3.270806 | 3.863896 |
| may overperform |  | 4.020804 | 4.032983 |
| may rally |  | 3.35895 | 3.435085 |
| may rise |  | 3.4594 | 3.575331 |
| may rise further |  | 4.048883 | 3.922614 |
| may see downside |  | 2.513936 | 2.589754 |
| may see further downside |  | 3.265748 | 1.992159 |
| may see good |  | 3.54691 | 3.659542 |
| may see upmove |  | 3.575015 | 3.70928 |
| may see upside |  | 3.614256 | 4.364044 |
| may sell |  | 2.105665 | 2.278861 |
| may slip |  | 3.028063 | 3.448283 |
| may slip below |  | 1.520286 | 1.784337 |
| may slip further |  | 1.606288 | 1.590858 |
| may slip to |  | 1.570245 | 1.785435 |
| may test |  | 3.615887 | 2.759796 |
| may underperform |  | 2.946638 | 2.053464 |
| momentum can continue |  | 3.389842 | 3.293991 |
| momentum could continue |  | 3.582557 | 3.459427 |
| momentum likely to continue |  | 3.608626 | 3.258277 |
| more downside seen in |  | 2.012559 | 1.909598 |
| more upside |  | 3.141072 | 3.573364 |
| neutral to underweight |  | 2.415334 | 2.48109 |
| next upmove likely to begin |  | 3.383805 | 3.648473 |
| not an outperformer |  | 2.46987 | 2.482431 |
| not an underperformer |  | 3.351762 | 3.485319 |
| not much upside in |  | 2.153725 | 2.43664 |
| offers buying opportunities |  | 3.954538 | 4.166243 |
| buying opportunity seen in |  | 4.407267 | 4.440527 |
| price decrease |  | 1.992316 | 2.134424 |
| price increase |  | 3.95717 | 4.138438 |
| prices decrease |  | 2.074953 | 2.055715 |
| prices increase |  | 4.040112 | 3.853441 |
| profits below |  | 3.377662 | 3.175716 |
| profits dip |  | 3.046833 | 3.457271 |
| profits reduce |  | 3.032959 | 2.847209 |
| remain rangebound |  | 3.007078 | 2.898529 |
| raises target price |  | 3.989067 | 4.015046 |
| recommend |  | 3.034569 | 3.548312 |
| rally further |  | 3.544397 | 3.734554 |
| recommends to buy |  | 4.019986 | 3.70593 |
| recommends to 'reduce' |  | 2.46002 | 2.386699 |
| safe bet |  | 3.899356 | 4.236511 |
| remain invested in |  | 3.375604 | 3.673162 |
| remain negative on |  | 1.494623 | 1.492875 |
| remains a buy |  | 4.070966 | 3.943956 |
| remains a 'buy' |  | 4.048301 | 4.048547 |
| remains a sell |  | 1.005267 | 1.200172 |
| remains a 'sell' |  | 1.064428 | 1.051592 |
| remains neutral |  | 3.050366 | 2.953997 |
| remains strong bet |  | 4.021707 | 4.156244 |
| see better performance |  | 3.588852 | 3.728549 |
| see further downside in |  | 1.950215 | 1.949254 |
| see further upside in |  | 3.570715 | 3.161089 |
| see gain in |  | 3.910064 | 4.127529 |
| see higher levels in |  | 3.379236 | 3.749973 |
| see limited downside in |  | 2.607653 | 2.280895 |
| see lower levels in |  | 3.355552 | 1.38476 |
| see more downside in |  | 2.209992 | 1.942926 |
| see more upside in |  | 4.059423 | 4.094551 |
| see profit booking in |  | 4.03024 | 4.014419 |
| should buy |  | 3.887178 | 3.698999 |
| return in |  | 3.609548 | 3.850623 |
| should you invest |  | 2.85369 | 3.153268 |
| see smart upmove |  | 3.617463 | 3.555613 |
| see substantial downside in |  | 1.537627 | 1.722814 |
| see substantial upside in |  | 4.516977 | 4.521846 |
| see upmove |  | 3.984386 | 4.165056 |
| see ups in |  | 4.053318 | 3.674726 |
| see upside in |  | 3.40605 | 3.279622 |
| sees good for |  | 4.069492 | 3.695839 |
| see sideways correction |  | 2.585171 | 2.909007 |
| should avoid |  | 2.128581 | 1.980634 |
| should do well |  | 3.650616 | 3.815158 |
| should exit |  | 1.950893 | 1.966721 |
| should invest in |  | 3.930906 | 3.884886 |
| should not invest in |  | 2.016523 | 2.245357 |
| should sell |  | 1.121231 | 1.073917 |
| stay away from |  | 2.552178 | 1.9255 |
| stay in |  | 3.208404 | 3.192167 |
| stay invested |  | 3.875027 | 3.942531 |
| stay long in |  | 3.593355 | 3.764807 |
| stay with |  | 3.027989 | 4.113798 |
| upgrades to buy |  | 3.491923 | 3.334353 |
| upgrades to 'overweight' |  | 3.58882 | 3.499789 |
| a better sector to be in |  | 4.059092 | 4.151413 |
| advises caution |  | 2.495883 | 2.500886 |
| cautious |  | 3.231704 | 2.404934 |
| a good dividend stock to bet on |  | 3.531269 | 3.509831 |
| a good trading bet |  | 3.038711 | 3.661394 |
| a much better story than |  | 3.57414 | 3.728446 |
| a perfect buying opportunity |  | 4.929733 | 4.991307 |
| a safe investment |  | 4.924907 | 4.690944 |
| take long position in |  | 3.922433 | 4.560274 |
| wait for correction to enter in |  | 3.491991 | 3.689411 |
| won't buy |  | 1.586899 | 1.740436 |
| will see smart upmove |  | 3.864398 | 3.72648 |
| accumulate |  | 3.285316 | 3.86454 |
| accumulating |  | 4.393444 | 4.533562 |
| add |  | 3.291775 | 3.606959 |
| advises to exit |  | 2.127637 | 1.8829 |
| an excellent pick |  | 3.31012 | 4.839195 |
| arbitrage |  | 4.369982 | 4.537827 |
| attractive |  | 3.224433 | 3.67093 |
| attractive bet |  | 3.930076 | 3.99633 |
| avoid |  | 2.999809 | 1.449358 |
| bearish |  | 2.848897 | 3.53734 |
| best bet |  | 3.583741 | 4.407912 |
| best pick |  | 3.944263 | 4.279875 |
| bet |  | 3.130495 | 3.493602 |
| bets |  | 3.526687 | 3.659883 |
| book partial profits in |  | 3.122444 | 3.625278 |
| book profit |  | 3.191089 | 3.307317 |
| book some profits in |  | 3.502506 | 3.04778 |
| bullish on |  | 3.213202 | 3.295878 |
| buy |  | 3.988424 | 4.544618 |
| buying opportunity in |  | 4.045428 | 3.865366 |
| buying opportunity seen in |  | 3.674872 | 3.714839 |
| buying opportunities seen |  | 3.987783 | 3.83306 |
| cautions |  | 1.956224 | 1.948604 |
| consolidate |  | 3.329371 | 3.611736 |
| downbeat |  | 2.400816 | 2.104853 |
| downside |  | 2.241498 | 2.532397 |
| downgrades |  | 2.040164 | 1.843345 |
| downside in |  | 2.143661 | 1.99497 |
| enter |  | 3.42581 | 4.083229 |
| exit |  | 2.534558 | 1.900787 |
| expect strong selling |  | 1.468664 | 1.706405 |
| expects the price to rally |  | 3.58064 | 3.555634 |
| expect lower levels |  | 2.20945 | 2.205251 |
| expect continued momentum |  | 3.636939 | 3.723232 |
| gainer |  | 3.238612 | 3.698852 |
| go long |  | 3.522888 | 3.700726 |
| go short |  | 2.805066 | 1.964333 |
| good bet |  | 3.930848 | 3.703466 |
| good company |  | 3.774675 | 3.673131 |
| good long term bet |  | 4.438282 | 4.271064 |
| likely to be market performer |  | 3.932539 | 3.938265 |
| good performer |  | 3.669698 | 4.210258 |
| good quality stocks |  | 4.965005 | 4.877241 |
| good short term bets |  | 3.543899 | 3.281593 |
| have not met our expectations |  | 2.030028 | 1.94849 |
| hold |  | 3.0006 | 3.100114 |
| how to trade |  | 3.615248 | 3.051195 |
| increase |  | 3.349702 | 3.838363 |
| invest in |  | 3.295068 | 4.041245 |
| is attractive |  | 3.569825 | 3.692235 |
| like |  | 3.338888 | 4.063154 |
| limited upside |  | 3.669444 | 4.631496 |
| long |  | 3.67185 | 3.899344 |
| loser |  | 2.933408 | 4.32479 |
| how to play |  | 3.104712 | 2.688443 |
| met our expectations |  | 4.027471 | 4.120015 |
| multibaggers |  | 3.970677 | 3.746366 |
| negative on |  | 3.06992 | 2.086159 |
| neutral on |  | 3.009512 | 3.039187 |
| 'neutral' on |  | 2.870684 | 3.206388 |
| optimistic |  | 3.807874 | 3.669023 |
| outperformer |  | 3.178352 | 3.371534 |
| outperform |  | 3.094193 | 3.612778 |
| overperform |  | 3.93851 | 4.157774 |
| overweight |  | 3.241484 | 3.391829 |
| pessimistic |  | 1.109981 | 1.132748 |
| top pick |  | 3.386153 | 3.608364 |
| picks |  | 3.289426 | 3.918921 |
| pick |  | 3.03676 | 3.57177 |
| positive on |  | 3.286369 | 3.220364 |
| prefer |  | 3.231373 | 3.79876 |
| possibility of downgrading |  | 1.994442 | 2.039311 |
| recommendation |  | 4.065915 | 3.861225 |
| recommended |  | 4.038254 | 4.099182 |
| recommends |  | 4.039559 | 3.932835 |
| reduce |  | 2.555398 | 2.427143 |
| safer |  | 3.230238 | 4.365805 |
| safest |  | 3.619184 | 4.118671 |
| sell on rally |  | 1.595979 | 1.807759 |
| sell partial holding in |  | 2.572568 | 2.643664 |
| to see deep correction |  | 1.793367 | 2.110804 |
| expects correction |  | 3.123043 | 3.213209 |
| selling pressure |  | 2.783618 | 3.641466 |
| selling spree |  | 1.095918 | 1.050728 |
| sell |  | 2.564863 | 1.770041 |
| shares fall |  | 1.501868 | 1.460362 |
| short |  | 3.270435 | 1.876678 |
| shun |  | 2.077693 | 2.016621 |
| skeptical |  | 2.821701 | 2.892768 |
| slips |  | 2.109319 | 2.054195 |
| stock down |  | 2.561547 | 2.406495 |
| stock up |  | 3.530838 | 3.557815 |
| strongest bet |  | 4.967256 | 4.961906 |
| surges |  | 3.862358 | 4.025995 |
| swing trading opportunities |  | 3.447598 | 3.455598 |
| to remain under pressure |  | 2.239985 | 2.069926 |
| to rise |  | 3.5731 | 3.737065 |
| top gainer |  | 3.978658 | 3.709662 |
| top loser |  | 1.073371 | 1.000597 |
| top pick |  | 3.479358 | 3.148969 |
| topping |  | 3.945078 | 4.107135 |
| traders can book profit in |  | 3.947958 | 4.148741 |
| trading opportunities seen in |  | 3.981921 | 3.883365 |
| underperform |  | 3.576202 | 3.18774 |
| underweight |  | 2.077743 | 1.83926 |
| raise |  | 3.368452 | 4.317601 |
| upbeat on |  | 3.066987 | 3.367232 |
| upmove |  | 3.950887 | 3.84207 |
| upside |  | 3.13629 | 3.546507 |
| up |  | 3.347746 | 3.244424 |
| uptrend likely to be over |  | 2.682983 | 2.365131 |
| fall |  | 2.008114 | 2.616641 |
| rally |  | 3.886452 | 3.53069 |
| uptrend |  | 3.254332 | 3.849761 |
| return |  | 3.225842 | 3.213065 |
| record high |  | 4.896432 | 4.865738 |
| low |  | 2.475074 | 2.433952 |
| high |  | 3.149883 | 3.457622 |
| accumulate xxx advises |  | 3.863736 | 4.063635 |
| add xxx to your portfolio |  | 4.023555 | 4.127429 |
| avoid xxx says |  | 2.048753 | 2.129655 |
| add xxx in your portfolio |  | 3.369334 | 4.137082 |
| buy xxx advises |  | 4.467197 | 4.231912 |
| buy xxx on every dip |  | 2.931779 | 4.05912 |
| buy xxx on correction |  | 3.50928 | 3.606362 |
| buy xxx on dip |  | 2.954541 | 3.765683 |
| sell xxx at higher levels |  | 2.94373 | 2.444506 |
| buy xxx only on correction |  | 3.490591 | 3.678646 |
| buy xxx on decline |  | 3.231974 | 4.334351 |
| cuts xxx rating |  | 2.55657 | 2.283939 |
| do not see xxx above |  | 2.61884 | 2.450836 |
| do not see xxx below |  | 3.585459 | 3.567353 |
| exit xxx on rally |  | 2.828657 | 2.403258 |
| exit xxx at higher level |  | 3.12237 | 2.570641 |
| expect another xx% rally |  | 3.982229 | 3.972986 |
| expect xxx to rally to |  | 3.463359 | 3.640187 |
| expects xx% rally |  | 3.540946 | 3.754452 |
| hold xxx in portfolio |  | 3.02497 | 3.042526 |
| see xxx above |  | 4.010017 | 4.058761 |
| see xxx below |  | 2.082182 | 2.114201 |
| short xxx with long term view |  | 2.501398 | 2.730475 |
| target xxx, expects rally |  | 4.032493 | 3.702889 |
| short xxx on |  | 2.854006 | 2.729626 |
| expect xxx to outperform |  | 3.929109 | 3.502222 |
| like xxx |  | 3.770997 | 3.738866 |
| than yyy |  | 2.401003 | 2.678983 |
| prefer xxx |  | 3.068545 | 3.042002 |
| over yyy |  | 2.58211 | 2.263191 |
| prefer xxx |  | 3.468 | 3.181148 |
| to yyy |  | 2.408296 | 2.405565 |
| switch to xxx |  | 3.382131 | 3.435381 |
| from yyy |  | 2.44873 | 2.711617 |
| no match |  | 3.895542 | 3.395805 |
| like xxx |  | 3.703952 | 3.447333 |
| than xxx |  | 2.994988 | 2.648157 |
| prefer xxx |  | 3.156381 | 3.469461 |
| over xxx |  | 2.83389 | 2.596381 |
| prefer xxx |  | 2.9856 | 3.279323 |
| to xxx |  | 2.67014 | 2.666169 |
| switch to xxx |  | 3.541785 | 3.751928 |
| from xxx |  | 2.845198 | 2.248895 |
| expect xxx to move up |  | 3.762307 | 3.736723 |

**Note:** Some of the words used in the website were not correct in terms of spelling.