

# A Survey on Stock Market Prediction

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## ABSTRACT

Prediction of a stock market is a technique of predicting the future value with help of past and the current data available into the market. Market prediction is a very important issue in the financial market. There are various skills are used for stock market prediction. In this survey paper we will discuss and analyzed different techniques for stock market. Specially we use the artificial neural network for stock market prediction. In this paper, we propose various methods to provide better accuracy rather traditional method. This paper surveys recent literature in the area of Neural Network, Data Mining system used to predict the stock market fluctuation. This paper gives a brief introduction to various techniques used for prediction so that it is easy for buyer/seller to decide.

**Keywords :** Data mining ,Stock market prediction ,Neural network.

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## I. INTRODUCTION

Prediction of stock price or financial markets has been one of the biggest challenges now a days. Stock market forecasters focus on developing a successful approach for forecasting index values or stock prices. Formerly forecaster/predictors uses tradition methods to predict stock value. By its nature the stock market is mostly vast, non-linear and volatile. But ancient methods are not so much predictive as human beings are not judicious at recognizing patterns. Artificial intelligence has made impressive work in prediction. With the progress of artificial neural networks investors are expecting that the market mysteries can be resolve because networks have great efficiency in pattern perception and machine learning problems such as classification and prediction. Artificial neural network is particularly use as the data mining method like business, industry, economy, and science. The application of artificial neural networks is very gifted due to some special features. 1st artificial neural network find the pattern between given input and output irrespective of its complexity. It is applied when the relationship among the data set is to be find out. 2 artificial neural network has the ability to find the relation among the previous data sets and the current data sets based on that it gives the prediction. In case if the training data sets are not present the also the value is forecasted. 3 artificial neural network has proven to be the general function of

approximation. It is proved that it can approximate various kind of complex linear function by which we can learn all the approximately possible relationship among the input and output data sets.

## II. HISTORY OF STOCK MARKET

We In this section we are going to explain some basics of the stock market ,i.e. what is a stock market , Essential of stock market, Stock market index, Stock market exchanges. There are different kinds of customers with different requirements and preferences. The Bombay Stock Exchange (BSE) is an Indian stock exchange is established in 1875 the BSE is Asia's fastest stock exchanges, with a speed of 200 microseconds and one of India's leading exchange groups and the oldest stock exchange in the South Asia region. Bombay Stock Exchange is the world's 11th largest stock market by market capitalization at \$1.7 trillion as of 23 Jan 2015. More than 5,000 companies are listed on BSE. The total markets are divided into the different sections that are called the market segmentation.

### What is stock market?

A stock market is a public market in which traders can trading the company's stocks and obtained at an approved stock price. This is called securities, listed on a stock exchange as well as an investor also traded privately. In the

stock market also known as secondary market is monitored by a regulatory body called SEBI (Security and Exchange Board of India). Stock market allows companies to buy and sell their shares. It depends upon the demand and supplies and then the prices are varied. When the demand is high the price will increase and when the share is heavy to sell then the price will automatically decrease. This type i.e. buying and selling of shares is called trading and the companies, those company which are listed are called “Listed companies” and they have permitted to do the trading.

### Essential of stock market:

Companies can raise their capital with the help of stock market. This will allow businesses can trade in public and it produces additional capital expansion to discharge shares of ownership of the corporation in public market. The earlier period has shown that the price of shares of corporation and also other assets is important part of the financial activity. In fact, the stock market is one of the major indicators of a country’s economic strength and development. Increasing share price will raise the business investments and growth of the company profitability. Share prices will affect the assets of households and their consumption. Therefore, central banks tend to keep an eye on the control and performance of the stock markets.

### III. LITERATURE REVIEW

Shweta, Rekha and Vineet put forward that by using decision tree we can predict the future trends in stock market by decision tree by using hybrid system with HHMM. Hybrid system based on decision tree rough set, for predicting th trends in the Bombay Stock Exchange (BSESENSEX) with the combination of Hierarchical Hidden Markov model. It also predict the future on the basis of hike in price and dividend. Analysis of earning data of previous years on averaged can predict the future value and present.

Association rule and sequential pattern matching methods of data mining are used by Y.L. Hsieh, Don-Lin Yang and Jungpin Wu to predict the stock value. In association rule things noted are the customer pattern of buying single good or a combination of goods. Seller also doesn't know when the customer is going to buy a good and in how much quantity. What will be the preferable choice of buying couple of goods together. By this paper it can be achieved by using association and sequential pattern matching which will give 70% confidence.

Chen, Leung and Daouk put forward an application of neural network to an most fluctuating and unpredictable financial market. Taiwan stock market is analyzed fully by this model to give the more beneficial output of returnon market index. This can be calculated by probabilistic neural network(PNN) is used to forecast direction of market index return. Previous data in the history is examined and on analysis using generalized methods of moments(GMM) with different filters. This forecast are used for many market

trading strategies and the accuracy is calculated using buy and hold theories.

Halbert White using neural network modelling and learning strategies in her ongoing projects to remove the random regularities in the goods price. Author, took an example of IBM common stock daily returns that is totally related to the economic data and transactions using standard supervised learning techniques it can be proved useful.

### IV. PROPOSED SYSTEM

#### Neural Network

ANN are relatively raw electronic structure based on the neural theme. This neural structure totally depend on brain. The brain experimentally learns from experiences. It is naturally determined that some problems that are beyond the scope of current computers are indeed solvable by energy efficient packages. This new approach to computing also provides a retrogression during system overload than its more traditional counterparts. Now, advances in biological research promise an initial understanding of the natural thinking and interpretation mechanism. This research shows that brains store information as patterns. Some of these patterns are very complex and allow the ability to recognize individual faces from many different ways. This process of storing information as sequencing graphs,patterns, utilizing those pattern, and then solving problems encompasses a new field in computing. In this field, as mentioned before, does not utilize traditional programming but involves the creation of huge linear-parallel networks and the training of those networks to solve specific problems. An ANN handle by creating connections between many various processing elements, each analogous to a single neuron in a biological brain. These neurons may be physically build by a digital computer. Each neuron takes many input signals and then based on an internal weighing system produces a single output signal that's considerably sent as input to another neuron. Neurons are tightly connected and consolidated into various layers. The input layer get the input, the output layer produces the output. This structure creating it impossible to predict or know the actual flow of data.

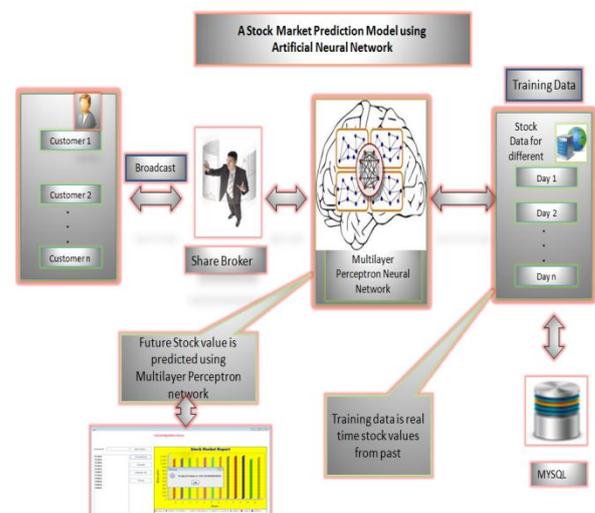


Fig 1. System Architecture

A stock market prediction using artificial neural network has multiple customers who broadcast. With share broker who suggest them weather to buy or sell share on that basis of that customers do the transactions. In this the share broker is using the multiple perceptron neural network which takes input from training data sets. Training data set is the data recorded in past days. All the stock value upgradation and degradation are learned by the network to give most perfect prediction next time.

We are used the different algorithm for prediction and find the different prediction. Then we will made one accuracy formulae. After that we will choose the best prediction who will give the better accuracy. Once Neural network was trained it will automatically give the best prediction using the accuracy formulæ.

### Moving Average

Moving average algorithm is basically work on the average of moving stock value it is also called as rolling mean or sometimes running average. It is a type of finite impulse response filter for analysing a set of data points by creating series of averages of different subsets of the total data set in the stock market area. The short-period stock fluctuations can be predicted by cycles and graphs using previous data from dataset and can be used for little longer time period. This will help in financial transaction regarding stock value, returns, trading volumes.

### Regression

This method summaries the dependency, relationship among the set variables based on this status the job of prediction is done. This is fallen down in machine learning on the basis of its working. The relationships among the total dependant variables on independent variables and to explore the mutuality. Various methods like linear regression, ordinary least squares regression are parametric, which is defined in terms of unknowns criterion that are estimated from the stored data set. This is going to work in the worst case also like even if the data is corrupted.

### V. ADVANTAGES

1. ANN is nonlinear model that is easy to use and understand compared to statistical methods.
2. ANN is non-parametric model while most of statistical methods are parametric model that need higher background of statistic.
3. ANN with Back propagation (BP) learning algorithm is widely used in solving various classification and forecasting problems. Even though BP convergence is slow but it is guaranteed.
4. However, ANN is black box learning approach, cannot interpret relationship between input and output and cannot deal with uncertainties..

5. Training large amount of data sets.

6. The output performance will depend upon the trained parameters and the data set relevant to the training.

7. Artificial neural network is a powerful data-driven, self-adaptive, flexible computational tool having the capability of capturing nonlinear and complex underlying characteristics of any physical process (e.g. damage detection) with a high degree of accuracy.

### VI. CONCLUSION

This paper surveyed the different techniques for stock market prediction such as Data mining, Neural Network. We also studied the model of Artificial Neural Networks (ANN) to forecast financial market prediction. The Neural Network has ability to extract useful information from the data set so it is widely play very important role in stock market prediction. These approaches are used to control and monitor the entire the stock market.

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