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CONTENTS

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INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESIS (ES)

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

LIMITATIONS

SCOPE FOR FURTHER RESEARCH

REFERENCES

APPENDIX/ANNEXURE

The manuscript should preferably be in ***2000 to 5000 WORDS***, But the limits can vary depending on the nature of the manuscript.

12. **FIGURES & TABLES:** These should be simple, crystal **CLEAR**, **centered**, **separately numbered** & self-explained, and the **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. *It should be ensured that the tables/figures are referred to from the main text*.

13. **EQUATIONS/FORMULAE:** These should be consecutively numbered in parenthesis, left aligned with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word may be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.

14. **ACRONYMS:** These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section e.g. Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.

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BOOKS

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
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ONLINE RESOURCES

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

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PREDICTION OF BLUE CHIP STOCK PRICES USING ARTIFICIAL NEURAL NETWORK (ANN)

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ABSTRACT

The fluctuations in the Stock prices has a considerable amount of attention. This paper is built on the previous research and seeks to determine whether improvements can be made in forecasting of ten most active Blue-Chip Stocks. This study is an attempt to predict the direction of the movement of the closing value of stocks of IT and Banking Sector. The attempt of several methods like fundamental analysis, technical analysis, statistical analysis and time series analysis to predict the price were not consistently successful. Artificial neural network (ANN) helps to recognize unknown or hidden patterns in data which are optimum to predict the share market. Time series data is considered for the analysis. The sample used for this analysis consists of five-year data of sectoral indices of IT and Bank, with 5 IT companies and 5 Banks, from 1st April 2015 to 31st March 2020. The network model was built on feed-forward algorithm and back propagation algorithm and the highest accuracy was reported by the back propagation model. There can be fluctuations in the prices due to the ongoing pandemic to which we can witness huge insignificant in the forecast.

KEYWORDS

artificial neural network (ANN), feed-forward, back propagation, hidden patterns.

JEL CODES

G11, G14, G31.

INTRODUCTION

With the ever-increasing and expanding economy, the Indian economy is seen as a growth engine of the world economy, and the stock market of such a robust economy is the face of the growing market and enterprises within it. India has one of the oldest and fastest forum on the stock market, namely the Bombay Stock Exchange (BSE). Essentially the stock market is an online forum where the firm's equity is listed and exchanged. Because of this innovative framework, businesses can efficiently and effectively raise money from the market. In terms of foreign institutional investment and transaction turnover, stock exchanges have grown exponentially with the country's economic reforms. This increase is mainly due to liberalized and supportive along with the regulative role of government.

Stock market prediction, despite its prevalence, remains a secretive, empirical art. Few people, if any, are willing to share what strategies they have for success. The hope is that investors will be better equipped to prevent another financial crisis, with a greater understanding of how the market moves. Portfolio management is largely an extra step after an investor has predicted which direction any particular stock is going to move in. The investor may choose to allocate funds across a variety of stocks in a way that minimizes its risk. For example, the investor may choose not to spend all of their funds in a single enterprise, lest the enterprise takes an unexpected turn. A more common approach would be for an investor to invest across a wide range of stocks, depending on certain parameters that he has previously decided on. This research would focus solely on forecasting the daily pattern in sectoral indices (price movement). The proposal would 4 make no attempt to determine how much money each forecast should be allocated. More so, the project will evaluate those predictions ' accuracies.

STOCK EXCHANGES IN INDIA

Stock Exchange (also known as the stock market or share market) is a significant integrated part of India's capital market. It plays an essential role in a country's growing industries and trade which ultimately affects the economy. It is a well-organized market for buying and selling corporate and other securities which facilitate companies to raise capital by pooling funds from various investors as well as serving as an investment intermediary for investors. In addition, it ensures that securities are traded according to certain predefined rules and regulations. There are 7 stock exchanges in India out of which the two largest indices are NSE and BSE. Many Indian Stock Market trade happens on those two stock exchanges. All markets observe the same trading hours, system of trade, method of settlement, etc. BSE consists of 5800 listed firms at the last count, while its counterpart NSE consists of 1659 listed firms at the other.

BLUECHIP STOCKS

Blue-chip stocks are usually referred to as stocks that have a high return and high market capitalization. These stocks usually comprise of companies that have a very good reputation in the market. The market capitalization of blue-chip stocks is often in the billions. Commonly, the market leader or the top companies in the respective sector are the blue-chip stocks. Blue-chip stocks are a preferred investment option to many investors for achieving their long-term financial goals. Blue-chip stocks offer returns that are usually high, they provide corpus building, provide portfolio diversification. These reasons make blue-chip stocks even more desirable.

REVIEW OF LITERATURE

Noraini Abdullah (2015), the paper attempted to forecast the export price of Sabah Sawn timber using a neural network. The study incorporates a mathematical approach for a more competitive industry, using Artificial Neural Network (ANN) to model the export price of sawn timber. Using the MATLAB version 7.11.0 R2010b Toolbox, ANN is solved with one dependent (export price) and two independent variables (quantity and unit value). Sabah Department of Statistics from 1991 to 2009 collected data on the sawn timber export price of 228 observations. The best model in ANN is determined based on the eight selection criteria (8SC) with the maximum decision coefficient value (R2) and the minimum square error mean (MSE) and residual standard values. The mean average prediction error

(MAPE) is essentially used to check the validity of the 12 best models. Statistics show the best approximation using ANN is the fourth single layer with a polynomial of fifth-degree.

Murtaza Roondiwala et.al. (2017), in their article study the use of d Long Short-Term Memory (LSTM) in stock price prediction. In order to forecast stock market indices, the paper focuses on the recurrent neural network (RNN) and long short-term memory (LSTM) approaches. The paper has been modeled and it forecasted NIFTY 50 stock returns using LSTM. Five years of NIFTY 50 historical data were collected and used for the model's training and validation purposes. After running various simulations with a different number of parameters and epochs, it was found that with 4 features set (High/Low/Open/Close) with 500 epochs, the best results were obtained with 0.00983 RMSE training and 0.00859 RMSE research. The authors concluded that in order to help predict the stock indices, a forecasting model with good accuracy is required.

Dr. Nigama. K, Dr. R Alamelu, et. al. (2019), in their study explores the Bombay's stock market trend's forecasting potential for stock prices using genetically engineered neural networks, the input being the closing price of the previous five years and the output being the price for the next day. As measures of success, risk (standard deviation), average return, variance and market price are selected. The purpose of this article is to provide an overview of the use of an artificial neural network to forecast the stock market. The analysis also explains the conceptual context and characteristics of ANN in the forecasting of stock prices. The conventional financial forecasting approaches were outperformed by neural networks. The predicted outcome showed that ANN was able to more accurately forecast stock prices. The use of the artificial neural network in stock market forecasts is calculated by a very low forecasting error shown by testing and training results.

Wajira Dassanayake, Chandimal Jayawardena, et. al. (2019),The aim of this review is to discuss various techniques used in stock market price forecasting, with particular focus on hybrid models. This review paper classifies, in accordance with its input characteristics, the literature relating to hybrid models applied to stock market price prediction, allows distinctions between hybrid models and presents the performance assessment measures used. It summarizes the salient features of the latest models used in stock market price and index forecasting. The research papers indicate that hybrid models are frequently used for stock market forecasting.

Penglei Gao, Rui Zhang, et. al. (2020), in their paper in machine learning, implement four different techniques, including three standard models of machine learning: Multilayer Perceptron (MLP), Long Short Term Memory (LSTM) and Convolutional Neural Network (CNN) and one neural network focused on attention. As inputs containing the daily trading results, technical indicators and macroeconomic variables, seven variables are selected. The findings show that among the alternative models, the attention-based model has the best results. In addition, in the developed financial market, all the models adopted have better accuracy than those developed.

RESEARCH GAP

Usually, time series strategies are used for the predictions of various Securities in the Stock market. There is some work that needs to be redesigned with the help of the econometrics issue, but the usage of multivariate strategies that go above traditional regression modelling, which are constrained work in nature.

NEED FOR THE STUDY

In a developing country like India, stocks in the stock market play an important factor in generating income, and the price movements in the stocks have a major impact on economic performance. Growing and leading companies, hospitals, educational institutions, textile and steel plants, chemical industries, pharmaceutical companies, and so forth are making huge investments in the stock markets. Investors must be fully aware of the futures market to avoid any risk that occurs at any time due to the market trend's chaotic behavior. The ultimate goal of the investor is to make a profit from their investments in the shares related to their respective stock price index. Consequently, the potential stock market forecast becomes the method of warning for both short-term and long-term investors against the unforeseen business scenario danger. Therefore, forecasting stock prices serves as a key input for the economic development policy planning and formulations. Making attempts in forecasting various stock prices using advanced economic models which were used for short to medium term actual stock forecasting.

OBJECTIVES OF THE STUDY

To Forecast the stock prices of the companies under study using Feed-Forward method under Artificial Neural Network (ANN) Model
To Forecast the stock prices using Elman Back Propagation under Artificial Neural Network (ANN) Model
To compare the accuracy between the methods with real data.

METHODOLOGY

TYPE OF RESEARCH

It is a comparative analysis. Quantitative research is the systematic empirical study of observable phenomena through statistical, mathematical, or computational techniques. The scientific work seeks to establish and recruit phenomena-related mathematical models, theories, and hypotheses. Quantitative research is a kind of strategy that focuses on collection and analysis of numerical data. The measuring method is crucial to quantitative research, as it provides the fundamental link between empirical observation and mathematical interpretation of quantitative relationships.

PERIOD OF STUDY

Data were collected on a daily frequency from 01, April 2015 to 31, March 2020

TYPE OF DATA

The dataset consists of ten dependent variables and two independent variables. The ten dependent variables are the top 3 Companies of IT sector and the top 3 banks of the Banking sector which are listed in the Stock exchange of India (both BSE and NSE) and the independent variables are the Nifty IT Index and Bank Nifty Index.

The variables can be categorized under following factors:

Independent variable:

- Nifty IT Index Price
- Bank Nifty Index price

Dependent variables:

- TCS stock price
- Wipro stock price
- HCL stock price
- HDFC stock price
- Kotak stock price
- SBI stock price

SOURCE OF DATA

The data were collected from various reliable secondary data sources online.

TOOLS FOR ANALYSIS OF DATA

Artificial Neural Networking

An artificial neuron network (ANN) is referred to as a computational model based totally at the shape and capabilities of biological neural networks. The Statistics that has movement via the network influences the form of the ANN due to the fact a neural network change - or learns, in a feel - based mostly on that input and

output. ANNs are considered nonlinear statistical information modelling tools wherein the complex relationships among inputs and outputs are modelled or patterns are determined. ANN is also referred to as a neural network. An ANN contains several blessings but, one of the maxima identified of those is the reality that it is able to certainly examine from observing information sets. In this way, ANN is used as a random function approximation device.

STATISTICAL TOOLS FOR ANALYSIS OF DATA

1. Normalising data using Excel
2. FF method of Artificial Neural Network using MATLAB
3. BP method of Artificial Neural Network using MATLAB

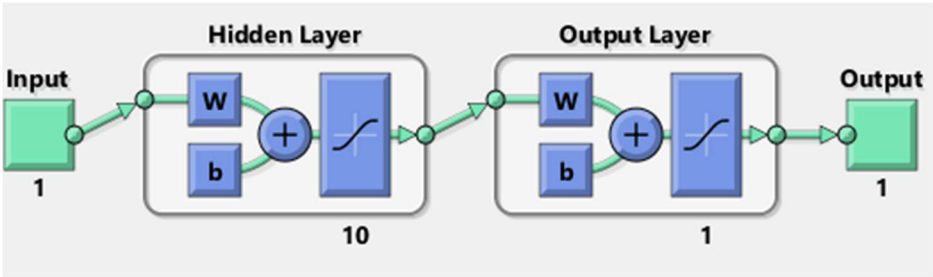
RESULTS AND DISCUSSIONS

ARTIFICIAL NEURAL NETWORKING ANALYSIS

FFBP and BP model Using MATLAB was performed with the 10,000 iterations and with max error as 1e-12 specification and the results are as follows:

Feed-Forward Neural Network

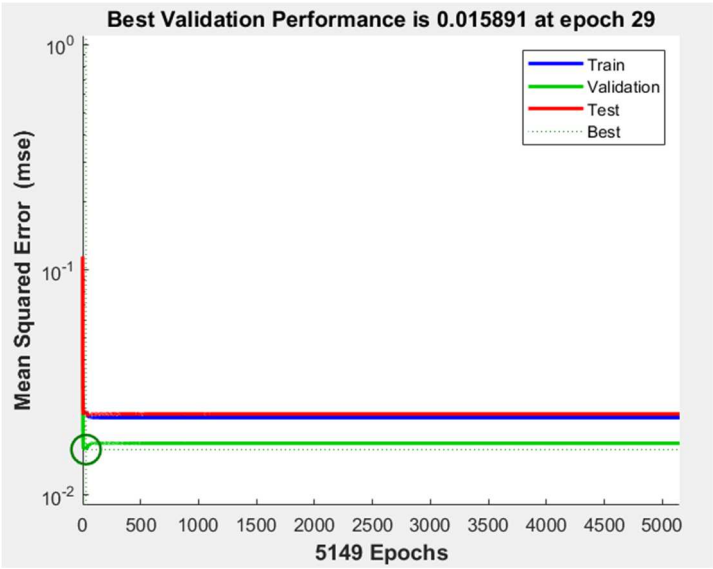
FIGURE 1: SHOWING ANN MODEL USING FFBP



IT INDUSTRY using FFBP

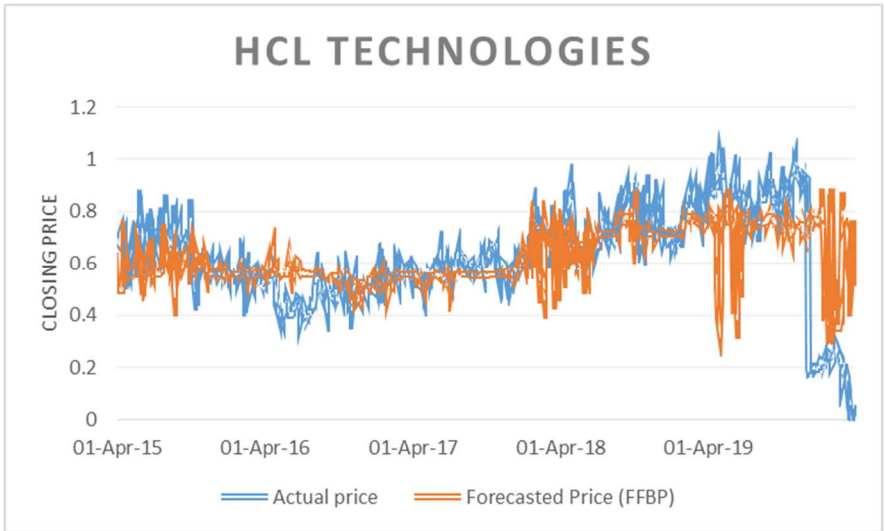
- Company: HCL Technologies

FIGURE 2: SHOWING NEURAL NETWORK OF PERFORMANCE OF HCL TECHNOLOGIES



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted. The graph shows the line of best fit for all the data; it is basically a representation of y=mx+c.

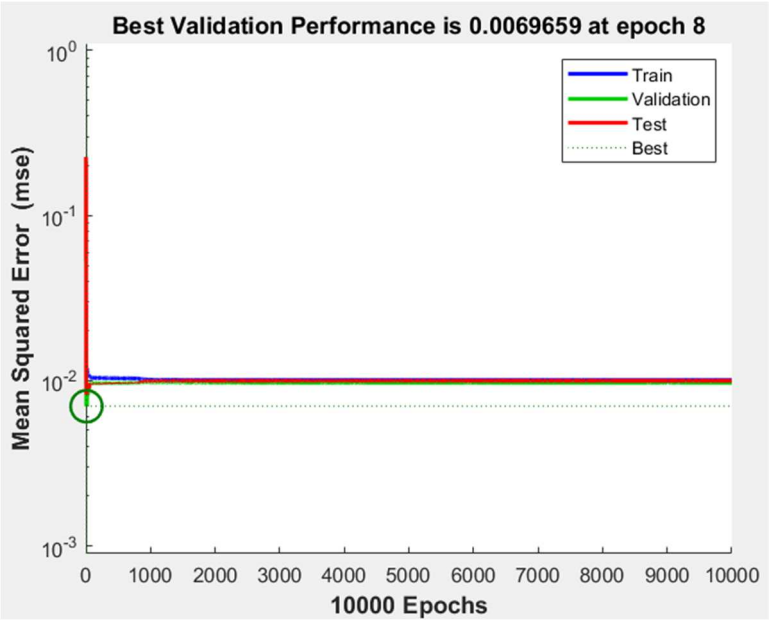
CHART 1: COMPARING ACTUAL AND FORECASTED PRICE OF HCL TECHNOLOGIES



The forecasted values are following a downward or bearish trend. It denotes that the share prices of HCL Technologies are falling. In a situation like this it is advised for existing shareholders to sell the shares. Investors can sell the shares and buy them back at a lesser price thus making a capital gain. Investors can also go for short selling, and investors who are not holding shares of HCL are advised to wait and buy later.

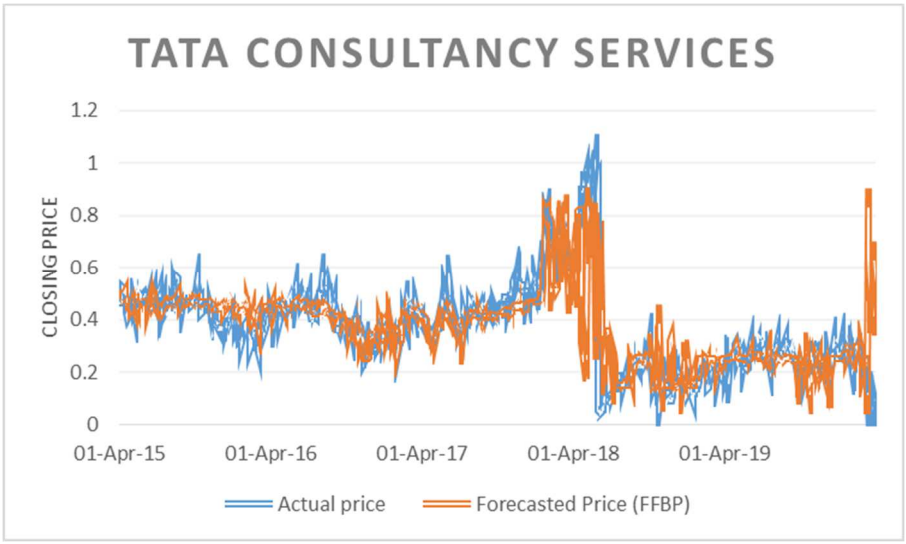
- Company: Tata Consultancy Services (TCS)

FIGURE 3: SHOWING NEURAL NETWORK OF PERFORMANCE OF TCS



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted. The graph shows the line of best fit for all the data; it is basically a representation of y=mx+c.

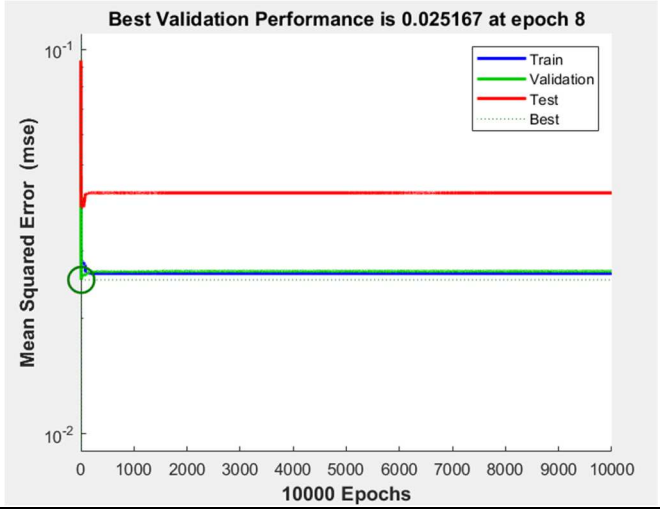
CHART 2: COMPARING ACTUAL AND FORECASTED PRICE OF TCS



The forecasted values show an upward or bullish trend. It denotes that the share prices of TCS are rising. In a situation like this it is advised for existing shareholders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of TCS are advised to buy them.

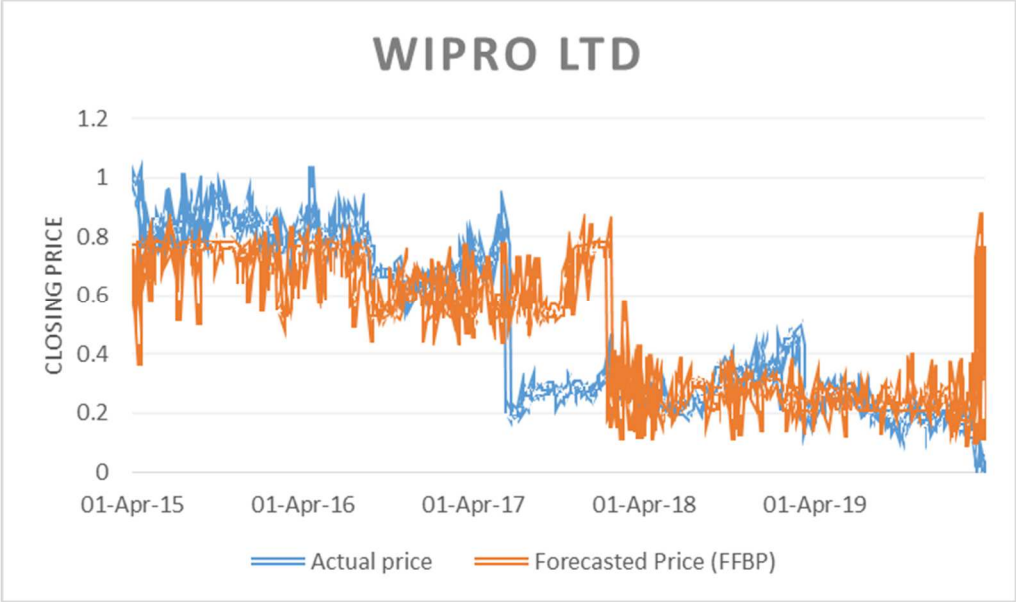
- Company: Wipro Ltd

FIGURE 4: SHOWING NEURAL NETWORK OF PERFORMANCE OF WIPRO LTD



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted. The graph shows the line of best fit for all the data; it is basically a representation of y=mx+c.

CHART 3: COMPARING ACTUAL AND FORECASTED PRICE OF WIPRO LTD

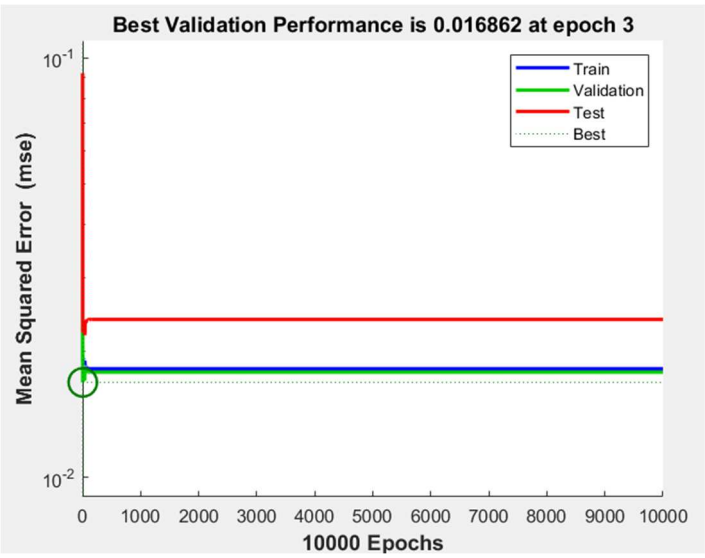


The forecasted values show an upward or bullish trend. It denotes that the share prices of Wipro are rising. In a situation like this it is advised for existing share-holders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of Wipro are advised to buy them.

BANKING INDUSTRY USING FFBP

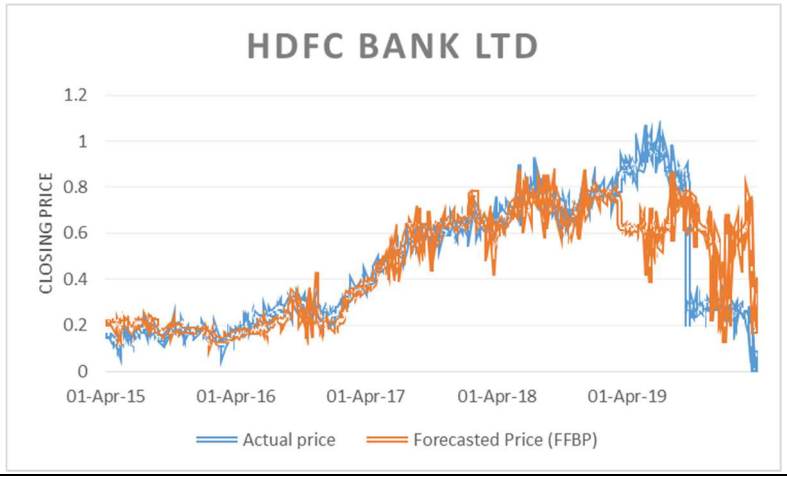
- Company: HDFC Bank Ltd

FIGURE 5: SHOWING NEURAL NETWORK OF PERFORMANCE OF HDFC BANK LTD



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted. The graph shows the line of best fit for all the data; it is basically a representation of y=mx+c.

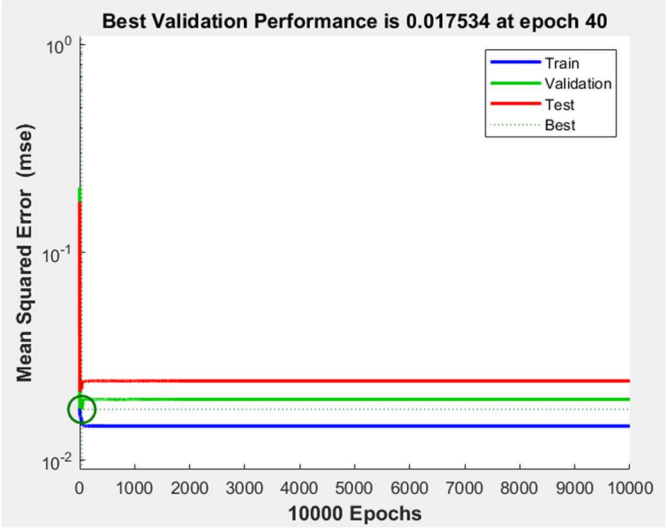
CHART 4: COMPARING ACTUAL AND FORECASTED PRICE OF HDFC BANK LTD



The forecasted values indicate a downward trend and it is expected to see an upward trend in the near future. It is observed that the share prices of HDFC will rise in coming days. In a situation like this it is advised for existing shareholders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of HDFC are advised to buy them as there is going to be a rise.

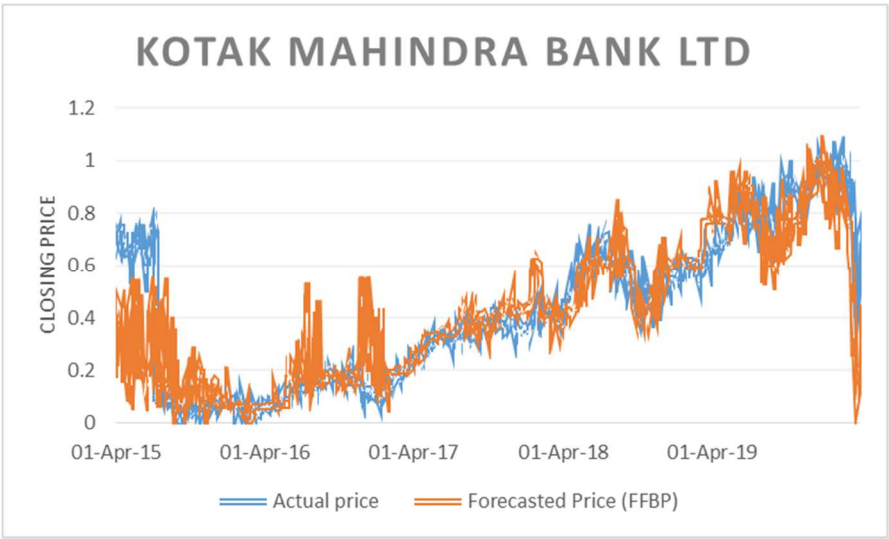
- Company: Kotak Mahindra Bank Ltd

FIGURE 6: SHOWING NEURAL NETWORK OF PERFORMANCE OF KOTAK MAHINDRA BANK



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted. The shows the line of best fit for all the data; it is basically a representation of y=mx+c.

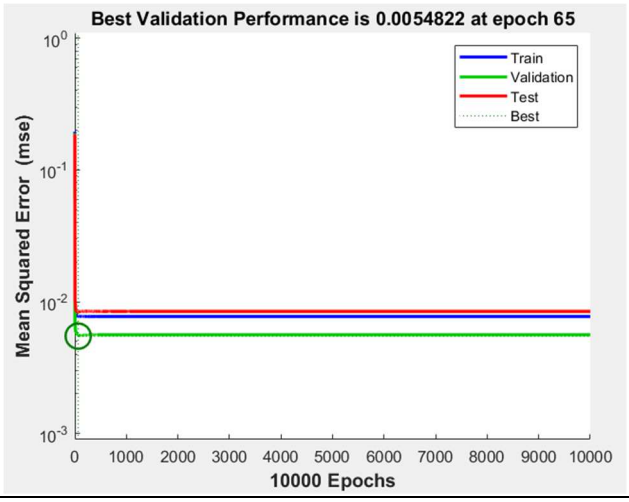
CHART 5: COMPARING ACTUAL AND FORECASTED PRICE OF KOTAK MAHINDRA LTD



The forecasted values are following a downward or bearish trend. It denotes that the share prices of Kotak Mahindra Bank are falling. In a situation like this it is advised for existing shareholders to sell the shares. Investors can sell the shares and buy them back at a lesser price thus making a capital gain. Investors can also go for short selling, and investors who are not holding shares of Kotak Mahindra Bank are advised to wait and buy later.

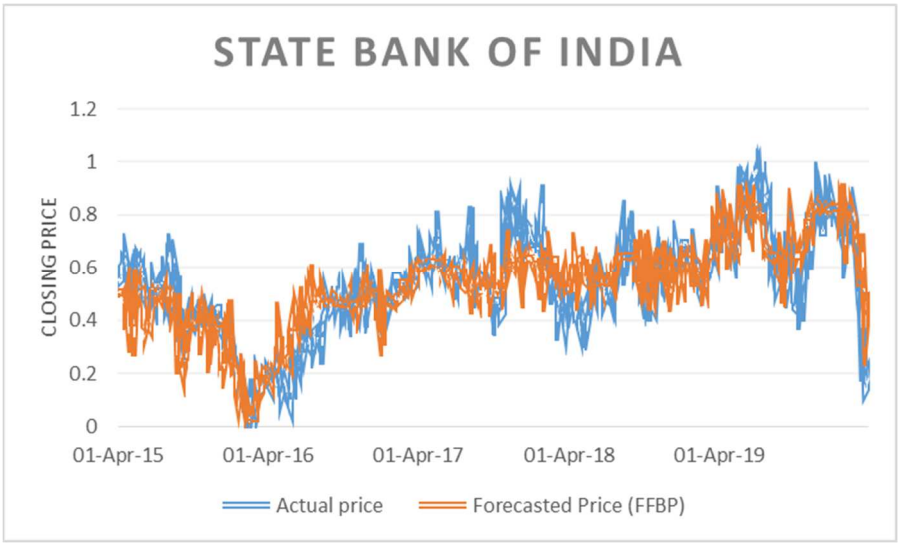
- Company: State Bank of India

FIGURE 7: SHOWING NEURAL NETWORK OF PERFORMANCE OF SBI



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted. The graph shows the line of best fit for all the data; it is basically a representation of y=mx+c.

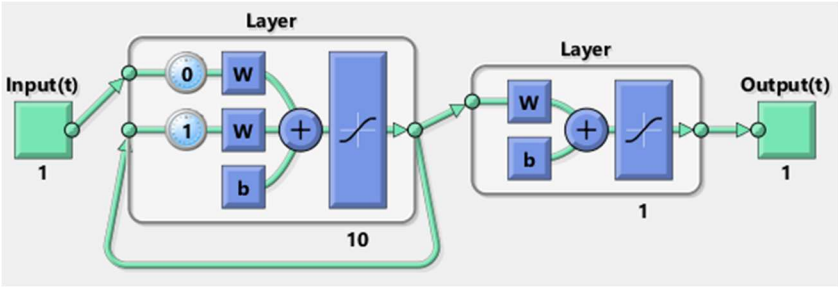
CHART 6: COMPARING ACTUAL AND FORECASTED PRICE OF SBI



The forecasted values indicate a downward trend and it is expected to see an upward trend in the near future. It is observed that the share prices of SBI will rise in coming days. In a situation like this it is advised for existing shareholders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of SBI are advised to buy them as there is going to be a rise.

Elman Back Propagation

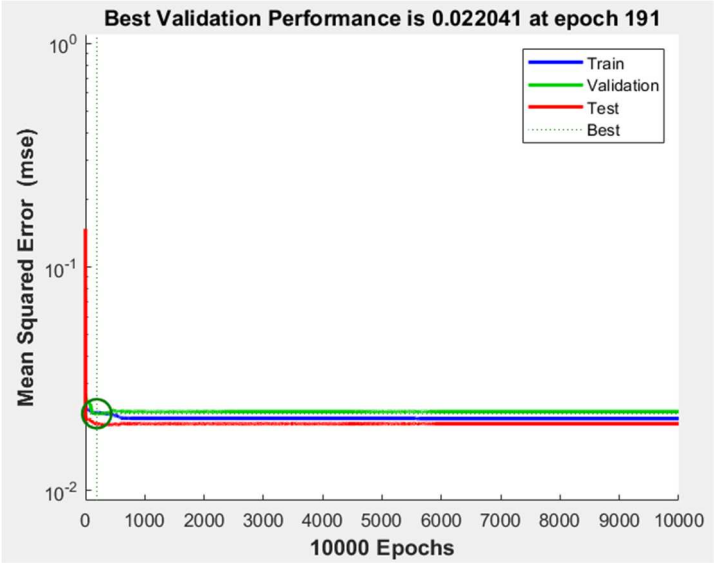
FIGURE 8: SHOWING ANN MODEL USING BP



IT INDUSTRY USING BP

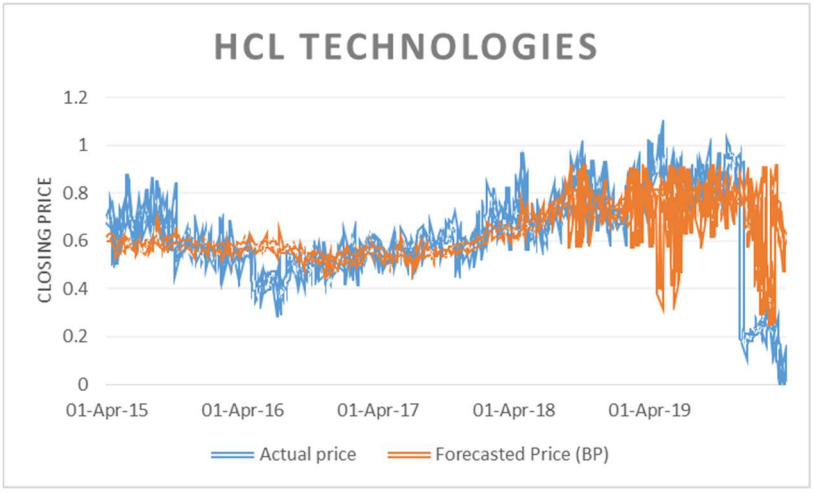
- Company: HCL Technologies

FIGURE 9: SHOWING NEURAL NETWORK OF PERFORMANCE OF HCL TECHNOLOGIES



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted.

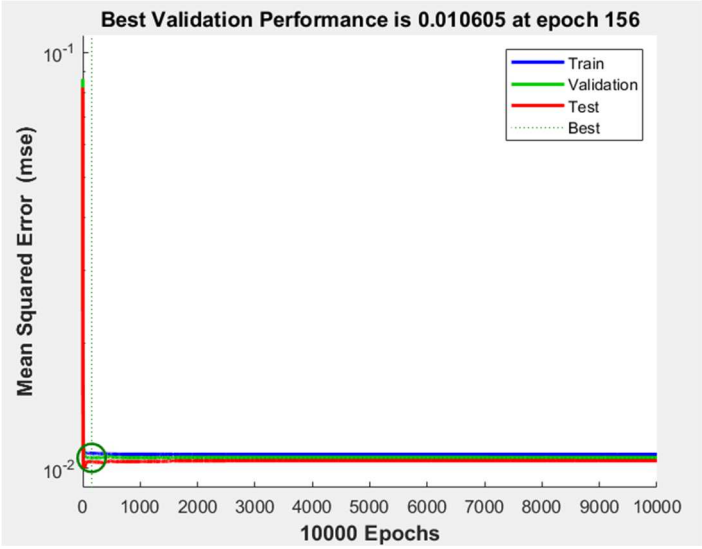
CHART 7: COMPARING ACTUAL AND FORECASTED PRICE OF HCL TECHNOLOGIES



The forecasted values are following a downward or bearish trend. It denotes that the share prices of HCL Technologies are falling. In a situation like this it is advised for existing shareholders to sell the shares. Investors can sell the shares and buy them back at a lesser price thus making a capital gain. Investors can also go for short selling, and investors who are not holding shares of HCL are advised to wait and buy later.

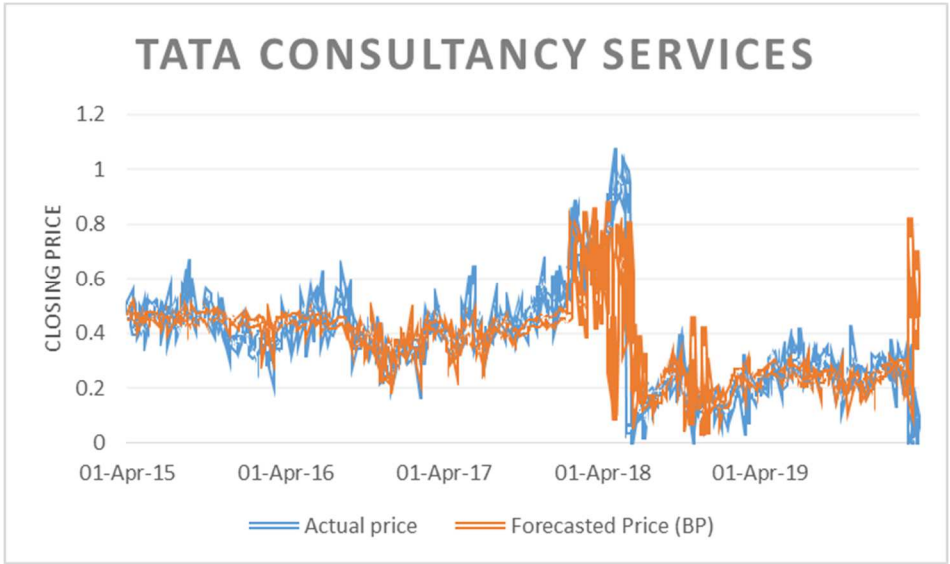
- Company: Tata Consultancy Services (TCS)

FIGURE 10: SHOWING NEURAL NETWORK OF PERFORMANCE OF TCS



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted.

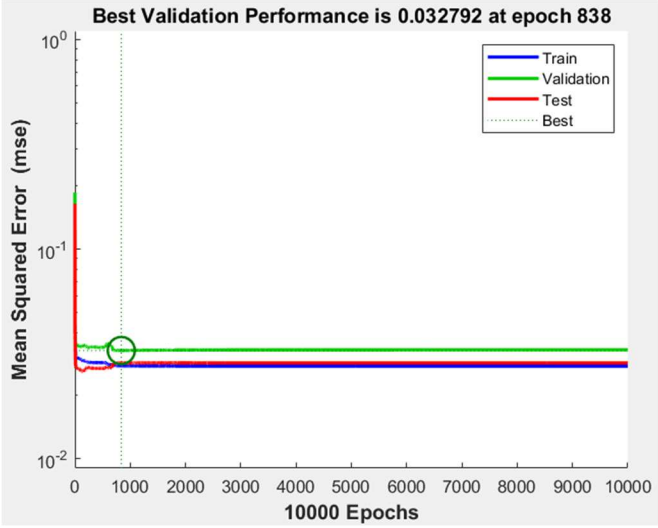
CHART 8: COMPARING ACTUAL AND FORECASTED PRICE OF TCS



The forecasted values show an upward or bullish trend. It denotes that the share prices of TCS are rising. In a situation like this it is advised for existing shareholders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of TCS are advised to buy them.

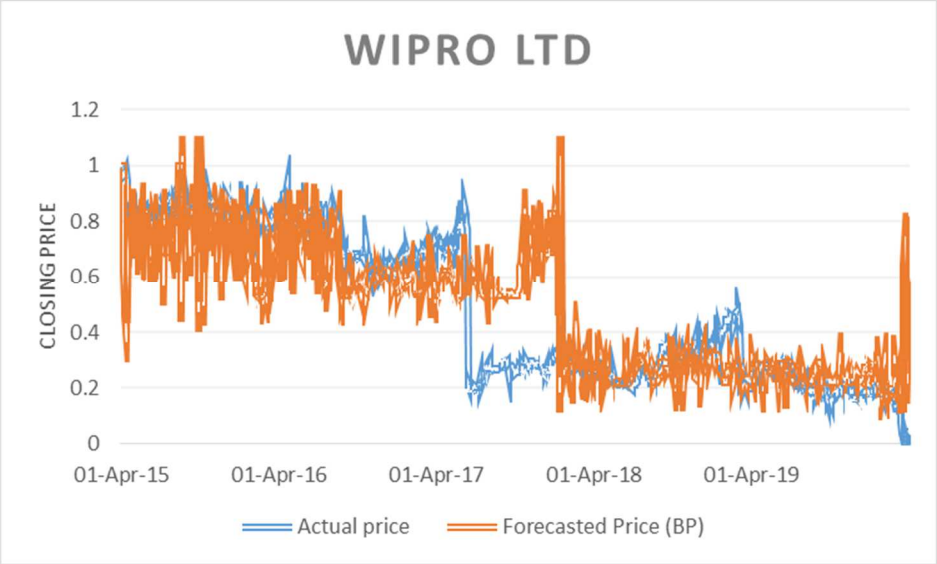
- Company: Wipro Ltd

FIGURE 11: SHOWING NEURAL NETWORK OF PERFORMANCE OF WIPRO LTD



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted.

CHART 9: COMPARING ACTUAL AND FORECASTED PRICE OF WIPRO LTD

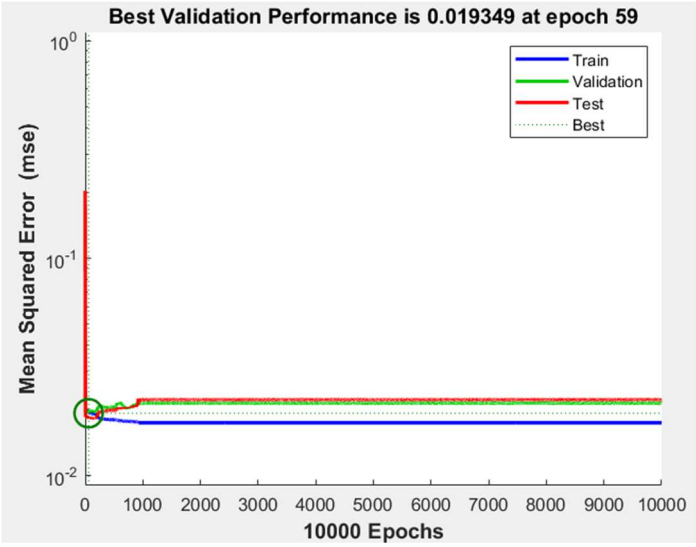


The forecasted values show an upward or bullish trend. It denotes that the share prices of Wipro are rising. In a situation like this it is advised for existing share-holders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of Wipro are advised to buy them.

BANKING INDUSTRY USING BP

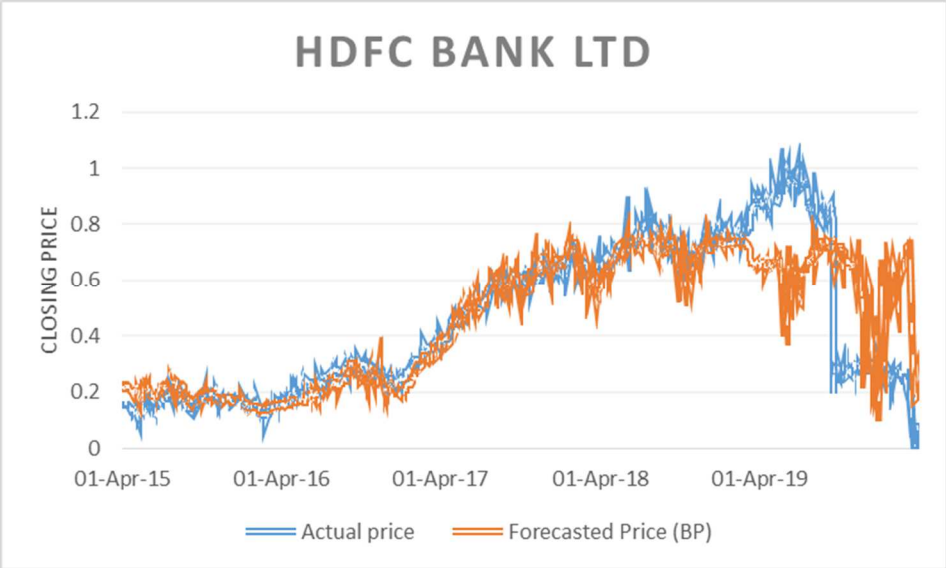
- Company: HDFC Bank Ltd

FIGURE 12: SHOWING NEURAL NETWORK OF PERFORMANCE OF HDFC BANK LTD



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted.

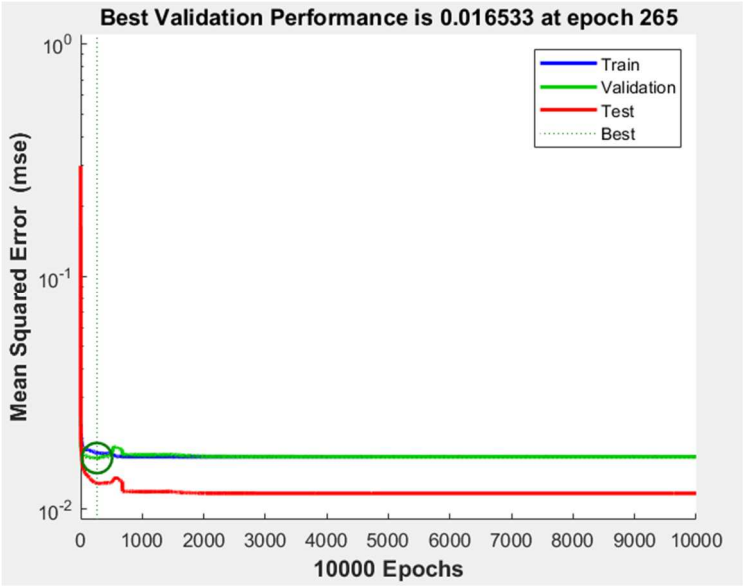
CHART 10: COMPARING ACTUAL AND FORECASTED PRICE OF HDFC BANK LTD



The forecasted values indicate a downward trend and it is expected to see an upward trend in the near future. It is observed that the share prices of HDFC will rise in coming days. In a situation like this it is advised for existing shareholders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of HDFC are advised to buy them as there is going to be a rise.

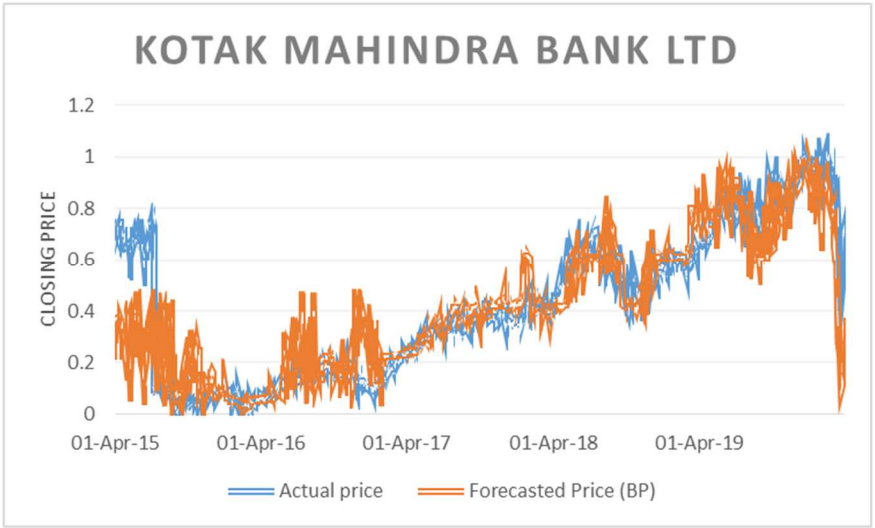
- Company: Kotak Mahindra Bank Ltd.

FIGURE 13: SHOWING NEURAL NETWORK OF PERFORMANCE OF KOTAK MAHINDRA BANK LTD



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted.

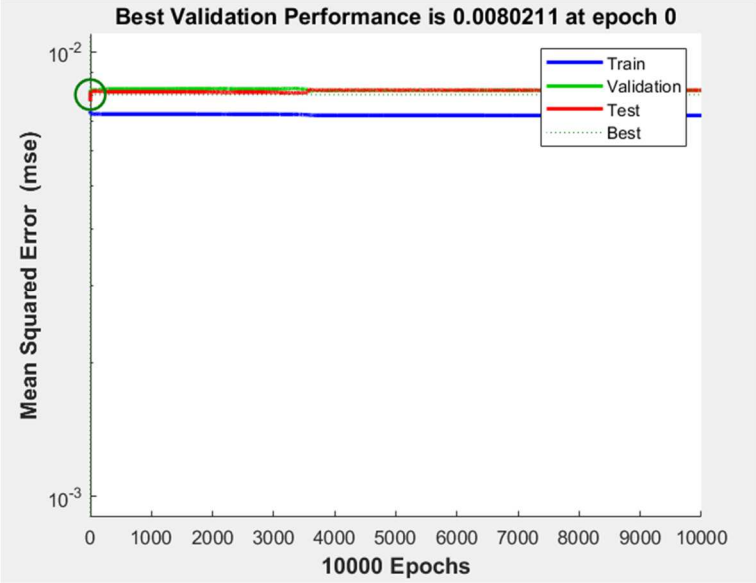
CHART 11: COMPARING ACTUAL AND FORECASTED PRICE OF KOTAK MAHINDRA BANK LTD



The forecasted values are following a downward or bearish trend. It denotes that the share prices of Kotak Mahindra Bank are falling. In a situation like this it is advised for existing shareholders to sell the shares. Investors can sell the shares and buy them back at a lesser price thus making a capital gain. Investors can also go for short selling, and investors who are not holding shares of Kotak Mahindra Bank are advised to wait and buy later.

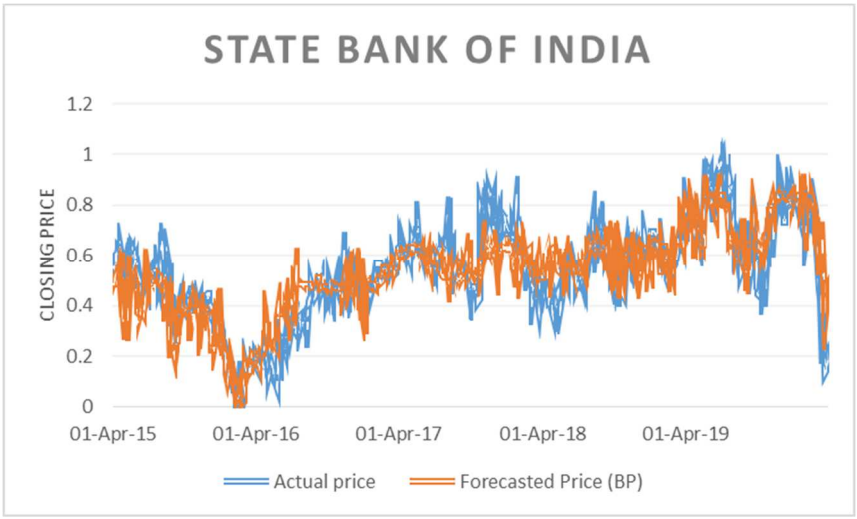
- Company: State Bank of India

FIGURE 14: SHOWING NEURAL NETWORK OF PERFORMANCE OF SBI



Indicates that for every instance of prediction what was the amount of error observed and the least error instance is highlighted.

CHART 12: COMPARING ACTUAL AND FORECASTED PRICE OF SBI



The forecasted values indicate a downward trend and it is expected to see an upward trend in the near future. It is observed that the share prices of SBI will rise in coming days. In a situation like this it is advised for existing shareholders to hold the shares as the values are going to increase more. Investors can sell their shares once it has gone pretty up and make a profit by selling them later. Investors who are not holding shares of SBI are advised to buy them as there is going to be a rise.

TABLE 1: SHOWING SUMMARY OF FORECASTING UNDER FEED-FORWARD AND BACK PROPAGATION

SL. No	COMPANY	Feed-For-ward	Back Propagation	Comment
1	HCL Technologies	Sell	Sell	Both the model indicates a fall in price. Therefore, it is advised to Sell the shares.
2	TCS	Buy	Buy	Both the model indicates a rise in price. Therefore, it is advised to Buy and Hold the shares.
3	Wipro Ltd	Buy	Buy	Both the model indicates a rise in price. Therefore, it is advised to Buy and Hold the shares.
4	HDFC Bank	Buy	Buy	Both the model indicates a rise in price. Therefore, it is advised to Buy and Hold the shares.
5	Kotak Mahindra Bank	Sell	Sell	Both the model indicates a fall in price. Therefore, it is advised to Sell the shares.
6	State Bank of India	Buy	Buy	Both the model indicates a rise in price. Therefore, it is advised to Buy and Hold the shares.

TABLE 2: SHOWING COMPARISON OF RMSE BETWEEN FEED-FORWARD AND BACK PROPAGATION

SL. No	COMPANY	Feed-Forward's RMSE	Back Propagation's RMSE	Best Fit
1	HCL Technologies	0.148853373	0.147920975	Back propagation
2	TCS	0.102806343	0.103741823	Feed-Forward
3	Wipro Ltd	0.171483185	0.169177321	Back Propagation
4	HDFC Bank	0.139227756	0.139738916	Feed-Forward
5	Kotak Mahindra Bank	0.129141124	0.128735394	Back Propagation
6	State Bank of India	0.086686053	0.086691778	Feed-Forward
	OVERALL RMSE	**0.778197834**	**0.776006207**	

Root Mean Square Error indicates the variance of the residuals. RMSE represents the absolute fit of the model to the data. A smaller RMSE indicates that the model is good at predicting the observed values. Comparing the RMSE obtained under both the methods, it is evident that the Back Propagation's RMSE is lower than the Feed-Forward's proving that Back propagation is a much better fit.

INTERPRETATION

The Feed-Forward neural network has performed on par with Back Propagation neural network to generalize, granting the use of learned models to previously unseen arise. The NN models have been able to accept the out-of-sample information. The produce for the higher performance than Feed-Forward neural network is the Back Propagation neural network. Both the models make use of data from all variables. The Back Propagation neural network model as in comparison with Feed-Forward neural network model has performed better. The iterative quality of the forecasting in the both neural network models helps in obtaining optimal results due to the repetition of computational procedure applied to the result of previous application. The increase in epochs leads to change in weights in the neural network which in turn provides an optimal curve. It helps to optimize the output efficiently and quickly.

In term of errors, the Feed-Forward Neural Network model is on par with the Back Propagation Neural Network model and in terms of performance and generalization Back Propagation neural network model is better than Feed-Forward neural network. Out of the runs performed on various companies and banks, the Neural Network models have provided within the first three runs performed. Unprecedented events such as the pandemic may disrupt the forecasting of various companies and banks. The time performance for Neural Network models are advanced in terms of preventing primarily based exceptional model. The time vs. Generalization alternate-off have become higher for the Neural Network models.

SUMMARY OF FINDINGS

- Stocks of Infosys Ltd, Wipro Ltd, TCS, State Bank of India, ICICI bank and HDFC bank are recommended for "Buy and hold" decision.
- Stocks of HCL Technologies, Tech Mahindra Ltd, Kotak Mahindra Ltd and Axis Bank are recommended for "Sell" decision.
- Back Propagation had the lowest Root Mean Squared Error (RMSE) of 0.776006207 compared to that of Feed-Forward of 0.778197834 for all the stocks put together. Therefore, the best fit model for prediction is the Back Propagation method.

CONCLUSIONS AND SUGGESTIONS

The machine learning techniques used in this study are Artificial Neural Networks, to predict IT sector and Banking sector stock prices. Neural network indicates good capability for use in multivariate forecasting of Stock prices. The Neural Network models used in this study have been a simple feed forward model and Elman Backpropagation model. The ANN model has been trained with historical data. The dataset is subsequently divided into training and test sets for the formation and accuracy testing of the ANN model. Nevertheless, price change forecasts are only guided regularly by the Sectoral Index. The precision reveals that it can be used as a scientific instrument to forecast price path. From the study, we can conclude that ANN models can be consistently successful in predicting price movements compared to other statistical and technical tools. The predicted sectoral stock prices can help investors make smart investment decisions as well as help analysts to predict and study trends in sectoral indices and the model can be further applied to specific stocks.

Advanced models like Recurrent Neural Networks (RNN) and lengthy short-time period memory (LSTM) neural network models can be used in the future. Because statements and views of well-known personalities influence the prices of stocks, such sensor studies may help to achieve a further advantage in the estimation of stock prices. Recurrent Neural network and Lengthy short time period Memory may be more appropriate for time series forecasting due to their capability to recurrently take a look at beyond data points while studying new data points. A network must be retrained on a regular basis for effective and realistic estimation of closing rates and market path. This is important because the market relies on current characteristics. In order to increase accuracy of the neural network, the data fed should be in huge volume.

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