Chapter 5

Conclusion

We used neural network with sigmoid activation function and one hidden layer to forecast the values for all ten data sets. A comparison between the MSE obtained from ARMA and obtained from ANN is presented below in table 4.3,

Grain	MSE by ARMA	MSE by ANN
Cotton	230.2	201
Jeera	3156	2769
Rm seed	437.9	436.99
Soyabean	1256	1129.39
Coriander	7138	6003
Sugar	91.09	80.74
Castorseed	2314	1843
Chana	1608	1655
Guarseed	4980	5766
Turmeric	1756	1653

Table 5.1: MSE obtained by ARMA and ANN method

It can be seen that there is no consistency in terms of reduction of MSE values when we move from ARMA to ANN. This may be due to the linear behaviour of time series in some cases. One can use BDS test for non-linearity before applying ANN.
Finally, we conclude that due to high volatility present in the data, there is no model which can be consistently used for forecasting of price data.

While comparing the errors in both the cases, we observe that in some cases (Cotton, Jeera, Soyabean, Coriander, Sugar, castorseed & turmeric) the error is decreased when ANN is used. However, for chana & Guarseed the error in ANN is more than that of ARMA. In case of Rmseed, the two errors are almost same. The thesis is divided into two parts.

1. Technical analysis to predict the pattern.

2. Use of ARMA and ANN for forecasting.

We have discussed several technical indicators, such as Moving Average (Simple and Exponential), Typical Price, RSI, PVO, Bollinger bands and a new generalized band. These indicators are useful for short term investors to see buying and selling patterns. All the indicators need a historical pattern to predict the futuristic behaviour of the stock price. However, there are no standard rules for window size and volume of transactions. Also, none of the indicators use fundamental information to analyse the pattern.

The second part is on the discussion of forecasting of time series data by using ARMA and ANN. We gave a brief description of ANN and applied it to BSE data. We applied both ARMA and ANN on ten agriculture price data to forecast the future values. Each of the ARMA models has different order which has been calculated by ACF and PACF. When this model was applied on the series of returns, it was observed that percentage fit is decreased.