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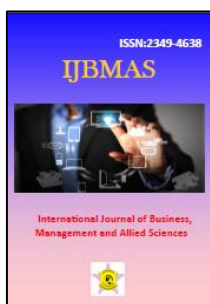## Application of AI in Stock Selection

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ABSTRACT

In recent time, the technology is very applicable and advanced. The application of artificial intelligence (AI) techniques for BSE small cap gr A index stock price prediction leads to be voluminous growth of the wealth of investors. The several predictions are coming up for the all sectors of the BSE small cap gr A stocks. The stock price prediction is not suitable without excessive data manipulating. The systematic statistical data is effective when the suitable business intelligence (BI) as well as the artificial intelligence (AI) techniques are applied. Truly the stock market in India is running throw a very complex scenario and it is always needed excessive data mining. The several works regarding BSE small cap gr A index stock price prediction are done better only by the advent of data mining techniques. In this paper, I proposed a scientific model for all BSE small cap gr A index stocks price prediction by using the data mining techniques as well as the time series prediction with the help of Fuzzy logic.

Keywords: small cap gr A, BI, AI, time series.

Introduction

Our country has the largest population and economic growth is very high. BSE small cap gr A index stocks price movement are greatly influenced by the participation of the people. The foundation knowledge or basic financial education is essential of the maximum people for country's development. The participation of maximize people are added voluminous data in stock market. The participation of foreign investors is made BSE small cap gr A stocks more strong, more energetic. For first growing economic country, the stock market is very tightly tied up. In the fast-growing economies (Indian stock

market) the growth is very tightly tied up with the BSE small cap gr A index stocks. Its movement are mainly influenced by consumer price index (C.P.I.) and whole sale price index (W.P.I.). In a particular time, the market is highly volatile and the investors are affected by sudden unexpected loss or profit. The loses or profit are incurred in BSE small cap gr A index stocks are affecting if the people are not participated in that market. The India's economic growth is dependent on the BSE small cap gr A index stocks with upper price movement. The most of India's people are uneducated in finance and the people are involved in the market with no proper financial research. The peoples are wrongly believed that the investment is an act of the gambling or good and bad luck. The several data mining techniques has been broken the myth of financial illiterate people. The research is generated the suitable time series prediction in view of Fuzzy logic which must be promised the growth of the investor's portfolios.

The scientific way of BSE small cap gr A index stocks price prediction techniques is classified in to the five significant types, they are

A. Technical analysis
B. Fundamental analysis
C. Variable model
D. Machine learning algorithm-based methods
E. Time series prediction

A. Technical Analysis

The technical analysis approach is basically same as the charting approach. It deals with the voluminous of the historical data collection of BSE small cap gr A index stocks.

B. Fundamental analysis

The Fundamental analysis approach is referred to the true price prediction which is focused on the fundamentals of the BSE small cap gr A index stocks price movement. This approach gives us the weightage of the true value prediction which is not depend on the current market price.

C. Variable Model

The variable model is actually worked on the selected parameters by examining the analyses to predict the future price of the BSE small cap gr A index stocks.

D. Machine learning algorithms

Machine learning algorithms approach attempts to predict the movement of BSE small cap gr A index stocks prices based on the training given by all the past value movements with application of Fuzzy logic.

E. Time Series analysis

Time series analysis approach is considered the time for the important parameter to generate the series of the BSE small cap gr A index stocks price movement with the help of Fuzzy theory.

Significance of the techniques

To predict BSE small cap gr A index stock price movement, some important works has done by which it based on charting historical market price. Most of the investors are failed to promise the results which could not be accommodated the truly market price. The data mining techniques are used for the such issues where the hidden chart patterns are discovered by applying the business intelligence (BI), the artificial intelligence (AI), and the machine learning (ML) with the help of Fuzzy logic. It can be served with preliminary stage for gathering the business information which are estimated to the

future needs. Most of the methods are failed to deliver in those issues. The Data mining techniques are very effective when it is addressed to the challenges in the traditional methods. It can be failed to deliver the promising results, i.e.

1. Investors friendly analysis

2. Pattern generated by the historical data

3. Effectiveness of the business capital

4. Economic development with time

5. The stock price prediction

The Analysis

The prediction of BSE small cap gr A index stocks prices is very complex task. The time series (TS) techniques and suitable Artificial intelligence (AI) techniques with Fuzzy logic are applied to take decision for trading as well as investing in BSE small cap gr A index stocks. It is observed that the finding of the lowest point to invest in a stock are needed the outstanding research and analysis. Haoming Huang is created the Irregular shaped membership function (ISMF) which would be applied with the hierarchical co evolutionary genetic algorithm and automatic derive with every input feature to it. The systems are continued with buy and hold with real world financial data. The Trading signals are generated in the price percentage oscillator (PPO) which is the top technical indicator. Chang Liu and Hafiz Malik (2014) identified a suitable analysis that made a relation between return and volatility. They are very intelligently sort out the low performing sectors in terms of BSE small cap gr A index stocks. They are intelligently predicting the investment decisions (buy and sell). It has a strategy for highest profit from the investment and also the resultant of trading decisions leads to larger profitability of particular investors. Xiaoxiao Guo in 2014 is introduced the supply chain management system under the large cycle. His approaches are combined the inventory with the information which is searched on website to conduct a demand prediction with optimization of that inventory and also back propagation is used to train of that predictive model. The traditional inventory policy should be used to find out a normal distribution with the demand by historical data as well as inventory cost. The results should be promised to the inventory policy which is lied on demand and the superior in terms of total cost of the inventory. Yunus YETISl has used the set of the input parameters to predict the stock value which is applicable to BSE small cap gr A index stocks. He is used the feed forward networks as well as the regression technique to confirm the network's performance. He is generated plots to render the outputs in training, validation and test cases. Anthony J. T. Lee, Ming-Chih Lin, Rung-Tai Kao has introduced the Hierarchical agglomerative and recursive K-Means clustering (HRK) that can be predicted the short-term share movements with reference to the financial reports of the company. This method has three phases. First, the financial reports of the given company are converted to the feature vector and the Hierarchical agglomerative and recursive methods are applied to divide them into the clusters. Secondly, the K-Means clustering method partitions of each of the cluster devide into sub-clusters and the each sub-cluster belongs in equal classes. The third step is very advanced. Every sub cluster of the centroid is chosen by the representative feature vectors that can be used for the future movement of the BSE small cap gr A index stocks price prediction.

Haoming Huang has proposed hierarchical co evolutionary Fuzzy system that should be applied to BSE small cap gr A index stocks which is known as HiCEFS of the predictive model. The prudent trading strategy is depend on the price percentage oscillator (PPO). The constitution of precise predictive model that is related to the Irregular shaped membership function(ISMF) which is employed with the hierarchical coevolutionary genetic algorithm (HCGA) should be adopted to the automize

ISMF for each of the input in HiCEFS. Dongsong Zhang, Lina Zhou (2004) are identified a need for atomizing the approaches for the effective utilization of financial data to the corporate planning for every individual with systematic decision which are made. The applied process is uncovered with the hidden patterns and the future trend to the BSE small cap gr A index stocks prediction. The gain of increased profit margin with the cheaper of cost and the sound of marketplace are responded. The several data mining techniques are analysed and proposed the financial data analysis. Lay-Ki Soon, Sang Ho Lee(2007) has compared the numeric date with the symbolic data in a particular sector stocks. It can be identified the normalized dataset of the empirical study is concluded to the numeric of the stock data is more consistent with compared to the symbolic stock data that are explored the possibility of combining numeric and symbolic data with the identified stock data on trend of the model. To incorporate the temporal semantics of the dataset is incorporated with the growth of the casual relationships in the stocks with the time the gain is interested. Depei Bao(2008) has proposed a high level representation with time series that should insensitively to the noise more than the intuitive to humans. The professional investors or traders are gathered knowledge from many technical indicators are depicted the aggregation of the market in a particular time period. To join high level representation with probabilistic model of uncertainty and collected random data are reduced to the further levels in this way the prediction with time is improved. Kelvin Sim, Vivekanand Gopalkrishnan, Clifton Phua and Gao Cong(2012) have introduced a model which is based on Graham's rules of investment. They are proposed the 3D subspace in clustering of rule generation to choose the potential of truly undervalued stocks. This method is most effective in dealing with multi-dimensional financial data that can adaptively new data. The findings are not influenced by human emotions or human biases i.e., the investors psychology. The results are promised the 2.45 times more gain than the simple application of Graham's investment law alone. P.K. Sarkar (2023) has proposed a suitable scientific application with the back propagation algorithm and the artificial intelligence (AI) technique with efficient training in view of Fuzzy logic which is applied to the fundamental analysis approaches should render promising the higher accuracy of results. S. Prasanna, D. Ezhilmaran has introduced a method with very intelligence to estimate the true value of a stock using using the hybrid Mcniven approach. The researcher is applied to BSE small cap gr A index stocks. The predictions are three categories i.e., Undervalued stocks, Fair valued stocks, and Overvalued stocks. The system is helped to select the best stocks are undervalued which are increasing the profit of the investors or traders. This method gives the best results than the 3D subspace clustering method or any other methods in stock market for some selected cases.

Conclusion

The improvement of the application is explained the work done for BSE small cap gr A index stocks price prediction. The finding is very complex to use the technical or charting approach, the fundamental analysis approach, the variable model, the machine learning algorithm-based method and also with the time series prediction methods at a time in view of Fuzzy logic. The share prices cannot be determined with the help of only historical data of a particular stock. The BSE small cap gr A index stocks prices are influenced by many other factors, they are market sentiments, investors psychology, government policy, news etc. For more accuracy, it is needed various data from different sources. In this case, uses of data mining technique are very complex due to some different sources which has heterogeneous nature. The combination of the data from the different sources which has heterogeneous nature for BSE small cap gr A index stocks will be taken in one method and efficiently applied the time series prediction with the Fuzzy system to increase highest profits of the investors as well as traders.

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