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3rd
International
Conference

on
“MICROFINANCE & DIGITAL
ECONOMY - OPPORTUNITIES AND
CHALLENGES” (IC-MFDEOC 2020)

Organised & Hosted by



JAGRAN INSTITUTE OF MANAGEMENT

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EDITORS

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Dr. Anil Kumar Singh
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Study of ARIMA Model in Forecasting HCL Stock Returns

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ABSTRACT

Forecasting of stock returns is and will always be a vitally important financial notion confronted by investors. Their exit fluctuations in stock returns and investors are always keen to show their interest as they want to take the advantage of potential returns from the organization by way of investing in stocks. Hence, it becomes a matter of concern for investors to predict future stock returns so that they can attain their objective of wealth maximization. This reason creates a urge to explore forecasting of stock returns empirically. This research paper employed ARIMA methodology, developed by Box and Jenkins in 1970, which rely on the previous values of the variable itself. In the paper, this methodology is applied on the stock returns of one of the top IT companies listed on NSE, i.e. HCL. Data of daily return was collected from 1 April 2008 till 31st March 2018. Results concluded that ARIMA model had strong capability of forecasting in short run.

Keywords: ARIMA, Stock Returns, Forecasting.

1. INTRODUCTION

Forecasting stock returns is always been a topic for discussion in contemporary financial literature. Investors try hard to contemplate possible future returns of a company's given common stock. In the present research paper, an effort has been made to envisage our variable by way of the lagged values of the variable itself. Based on the popular notion of letting the data speak for itself (Gould, 1981). Therefore, ARIMA (Auto Regressive Integrated Moving Average) technique has been applied on daily stock returns of HCL from 1 April 2008 till 31st March 2018 to forecast the stock returns on the basis of its previous values and error term. There have been many studies conducted on different sectors that have applied ARIMA model for prediction of various time series variables which might include stock prices as well. However, fewer studies have been conducted on IT sector to envisage stock returns of IT company using ARIMA model. More specifically, no study, as per review of literature, has been done using the daily stock returns of IT company. The present work initiates to fill this gap by taking daily stock returns of one IT sector company in India i.e. HCL. HCL Technologies Limited firstly emerged as a separate company in 1991 when HCL (Hindustan Computers Limited) entered into the software services business. It is an Indian multinational company, a subsidiary of HCL Enterprise, headquartered in Noida, Uttar Pradesh. It was founded by Shiv Nadar.

2. REVIEW OF LITERATURE

Afeef, M & et.al (2018) employed ARIMA methodology to forecast stock prices of a Pakistan based company namely Oil & Gas Development Company Limited (OGDCL). The researcher considered daily adjusted closing stock prices of OGDCL for almost 15 years starting from 2004 till 2018 with 3632 observations. Results depicted that for the purpose of prediction in short-run, ARIMA modeling has great potential. Gay (2016) made an effort to investigate the relationship of

macroeconomic variables on stock returns of BRIC countries that include Brazil, Russia, India and China. He made use of the Box-Jenkins method to serve the purpose. The factors taken into account were the exchange rates and the oil prices. No statistically significant association was found to be there between the given macroeconomic factors and stock returns for any of the BRIC economies. Gupta, S & Kashyap, S. (2015) did endeavour to generate prediction of exchange of Indian currency vis-a-vis USD, GBP, YEN and EURO. They applied Box-Jenkins methodology (ARIMA) on the collected data of twelve months starting from April 2014 to March 2015. Harnjah (2014) also used ARIMA for prediction of rice production in Bangladesh. He compared the actual data of rice production with the predicted values and concluded that model had a very short run prediction capability. Mondal, P & et.al. (2014) studied 56 stocks from seven different sectors listed on NSE. Results indicated that ARIMA provides best accurate results as above 85% of predictions using ARIMA model for all sectors were accurate. Moving to specific sectors, forecasting of FMCG sector was more accurate as compared to the predictions for Banking and Automobile sectors. Devi, B & et.al. (2013) selected top four companies. The historical data of selected companies for past five years was collected and trained by applying ARIMA model with different parameters.

3. OBJECTIVES

- To forecast the stock returns of HCL company.
- To analyze the variation in actual and forecasted stock returns of HCL.
- To check the applicability of ARIMA model in predicting stock returns of HCL.

4. ARIMA MODEL

ARIMA model is explained in Box-Jenkins methodology. ARIMA models are generally expressed like "ARIMA(p,d,q)". "AR" in ARIMA is called Autoregressive term in the model. ARIMA is called