

## Developing Models to Predict the Stock Prices of Indian Automobile Giant Tata Motors Company Limited : An Empirical Analysis

RAKESH KUMAR SHARMA\*

---

---

### Abstract

Tata Motors Limited is one the India's largest automobile company with overall revenue of around ₹ 1,88, 818 crores (US \$ 34.7 bn) in 2012-13. It has monopoly specifically in commercial vehicles in each segment and among the top in passenger vehicles, midsize car and utility vehicle segments. This paper attempts to identify the various financial indicators which can be used to predict the stock returns of this company. Initially, multiple regressions has been used to predict the stock returns of this company with seven fundamental variables, viz., Sales, trading volume, earning per share, net profit, price earnings ratio, net profit & price to book value ratio. Further, for developing effective models for the predicting future stock price of company stepwise regression has been used. This paper concludes with the finding the important fundamental variables which can be used to predict stock returns of Tata Motors Limited and to design effective model for prediction.

---

---

### I. Introduction

THE INDIAN AUTOMOBILE industry is fully equipped to deliver compelling value to the world in design, engineering and component manufacture. The opportunity for India is to plug into all aspects of the global value chain. It has also the opportunity and the potential to dramatically increase its share of global automobile market. There are about 700 million vehicles on the road in the world. It is estimated that this vehicle population would grow to about 1.3 billion in the year 2030. Most of this increase of 600 million will come from developing countries. These markets will look for low-cost automobiles. India has the opportunity to meet this need. And, in the process create a huge export market. Companies like Tata Motors, Maruti Suzuki and Mahindra and Mahindra have demonstrated their ability to address this opportunity. They have proven India's enormous capabilities in this sector. (SIAM-2004). The automobile industry can play a major role in enabling India to attain global leadership. It is the largest industry in the world with revenues of about 1.8 trillion US dollars.

\* Assistant Professor, Thapar University, School of Behavioral Sciences & Social Sciences, Nabha Road, Patiala, Punjab 147004, INDIA

direct investment from foreign countries in 1996, global automobile industry majors moved in. Automobile industry in India also received a boost from stringent government auto emission regulations over the past few years. Tata Motors is listed in Bombay Stock Exchange (BSE), National Stock Exchange & the New York Stock Exchange. In BSE it is in the list top 30 companies and constituent of BSE SENSEX index Tata motors was ranked 314th in the year 2012 by Fortune Global 500 ranking of the world's biggest corporations. Tata Motors is a global corporation because of its numerous automobile products as well as its shares listing in overseas countries. So, it becomes necessary to study the pattern of its future share price and to develop suitable forecasting model. This study had been carried out to develop a suitable model to forecast the future stock price of Tata Motors Ltd. For this purpose, data for the time period of March, 2007 to March 2013 of stock prices and different predictor's variables viz., Trading volume, sales, price earnings ratio, dividend yield ratio, price to book value ratio and earnings per share have been collected and used to develop a model. This study mainly aims to give the benefit to all those stakeholders those who are directly or indirectly interested to know the stock prices of Tata Motors and impact of certain variable on its stock prices. There may be numerous ups and down in the company in its near future and many new things may also emerge. Consequently, predictors' variable may change. In the present study only seven predictors' variables have been used but there are many which also influence the stock price of company. Future studies can be carried out by considering those variables which have been sacrificed in the present work. Moreover, in the present study model is developed with the help of multiple regression technique. Other forecasting methods can also be used to develop the suitable model for predicting the stock prices of the company. So keeping these things into consideration there is wider scope for the further research in this area.

### References

- Abarbanell, J., and B. Bushee, (1998), "Abnormal stock returns to a **fundamental analysis strategy**", *Accounting Review*, Vol. 73, No. 1, pp. 19-45.
- Antoniou, A., N. Ergul, P. Holmes and R. Priestley, (1997), "Technical Analysis, Trading Volume and Market Efficiency: Evidence from an Emerging Market", *Applied Financial Economics*, Vol. 7, No. 4, pp. 361-365.
- Banderlipe, Imbajon and Mc. Reynald, (2005-2006), "*Predicting Stock Returns Using Financial Ratios: Evidence From Selected Philippine companies*", De La Salle University, Manila.
- Basu, Sanjay (1977), "The Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of The Efficient Market Hypothesis", *Journal of Finance*, Vol. 32, No. 3, pp. 663-682.

Bhaktavatsala Rao, C. (1993), "Structural Configurations and Strategic Investments: Indian Automobile Industry", *Economic and Political Weekly*, Mumbai, India, Vol. 28 No. 8-9, pp. M29.

Dash, Manoj and Anil Kumar, (2013), "Background Reading Material for FDP Multivariate & Advance Data Analysis in Marketing", September 27 – October 3, 2013, ABPIITM- Gwalior, pp. 17-18.

Fama, E., and K. French (1988), "Permanent and temporary components of stock prices", *Journal of Political Economy*, Vol. 96, No. 2, pp. 246-73.

Ferson, W.E. and C.R. Harvey, (1993), "The risk and predictability of international equity returns", *Review of Financial Studies*, Vol. 6, No. 3, 1993, pp. 527-66.

Harvey, C.R., (1995), "Predictable risk and returns in emerging market", *The Review of Financial Studies*, Vol. 8, No. 3, pp. 773-816.

Jaffe, J., and R. Westerfield, (1985), "Patterns in Japanese common stock returns: Day of the week and turn of the year effects", *Journal of Financial and Quantitative Analysis*, Vol. 20, No. 3, pp. 261-272.

Jung, C., and R. Boyd, (1996), "Forecasting UK stock prices", *Applied Financial Economics*, Vol. 6, No. 1, pp. 279-286.

Mondal, Dipak, (2011), "Tips from market experts on how to predict stock movement", *Business Today*, December 2011.

SIAM (2006), "The Indian Automobile Industry: Statistical Profile 2005-06", Society of Indian Automobile Manufacturers, Delhi.

Swaranjeet (2009), "Automobile Industry in India", PR Logs. May 22nd, 2009.

Tata Motors, "Company Profile", Tata Motors Limited, University of Denver, USA.

Tripathi, Vanita (2008), "Company fundamentals and Equity Returns in India", 21<sup>st</sup> Australasian Finance and Banking Conference

Twain, Mark, "Multiple Regression", University of Denver, USA.