

INVESTIGATING THE PREDICTIVE CAPACITY OF REVENUE, NET INCOME, AND KEY PERFORMANCE INDICATORS ON NSE NIFTY STOCK PRICE FLUCTUATIONS

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Abstract

Previous studies on the NSE Nifty index have looked at how the price of one stock affects financial measures like sales, net income, and key performance indicators. However, we will go into more detail about each of these issues later. The Nifty 50 is a popular stock market indicator in India that shows how investors feel and how the economy is doing by monitoring outcomes by sector. Our main goal is to make a groundbreaking discovery, therefore we look at sales, income, and key performance indicators (KPIs) to see how they affect short-term fluctuations in stock values. Profit, which is the money a business earns by selling its goods after subtracting the cost of making them, usually goes up and down with variations in investor and market mood. Net income is one of the simplest ways to figure out how profitable a business is. You may use statistics like return on assets (ROA), earnings per share (EPS), and return on equity (ROE) to demonstrate how well something works. To make sensible investments, you need to comprehend how these signals are connected and how they might change stock values. Methodology Information gathering This study used a quantitative research approach to analyze the secondary data of Nifty-50 firms over a certain time. Regression analysis, correlation research, and machine learning may all be used to connect changes in stock prices to changes in financial data.

Key words : LGE modeling, stock price dynamics, Decision-making method, VSOP algorithms.

Introduction

Traders nowadays are learning a plethora of indicators, but you can't depend on them alone to make accurate stock price predictions, therefore we included them. Justification for implementing these parameters. Stock price discriminative capacity is also shown via scenario tests. People on the upper end of the income distribution tend to be more susceptible to this as it seems that they have money at all times. One component of market positioning strength from an investor psychology perspective is strong and solid financial performance. And a stock price objective may be lifted in response to increased income and margins. Key performance indicators provide a new angle on current measures. They let us to circle back to the empirical data on slamming effects on stock returns and are also associated with a company's operational performance. That is why it is useful to compare it to the operational and financial health. On top of that, the shape of this link seems to change between sectors and across firm pricing, which are often smooth. Because the ability of sales, net income and KPI to predict stock values varies for each industry, not a single model can fit all the stocks of their corresponding sectors. Funnily that as dividends do it drives the transition in the kpi from a financial state to CNNM. Furthermore, some relevant information is included in the short-run production-supplemental forecast on stock price quote markups. Because AI is able to collect all that short production-supplemental projection information together in real time, this is a total game changer for the finance sector. As a consequence, hopeful investors have been drowning in more advanced tools than ever. Adding insult to injury, one other avenue for future work might be a stronger focus on AI ideas. In this sense, there would also be a potential for stock price forecasting models to incorporate other factors such as investors' sentiment or probability bias, and military motives. Probably combination of other KPIs explaining firms' operations or external factors such as economic indicators could lead the stock prices prediction to a different conclusion.

Review of Literature

It is well established that there is a positive association between sales growth and stock price performance (French, 1992) There are also theoretical models that link an acceleration of revenue growth to an increase in stock prices. Net income, another important financial metric, shows how profitable a company is after paying all of its expenses and taxes. It has been found in the literature that net income is a key predictor of stock prices. For example, Kothari (2001) explains that net income is a key factor in the movement of stock prices, with

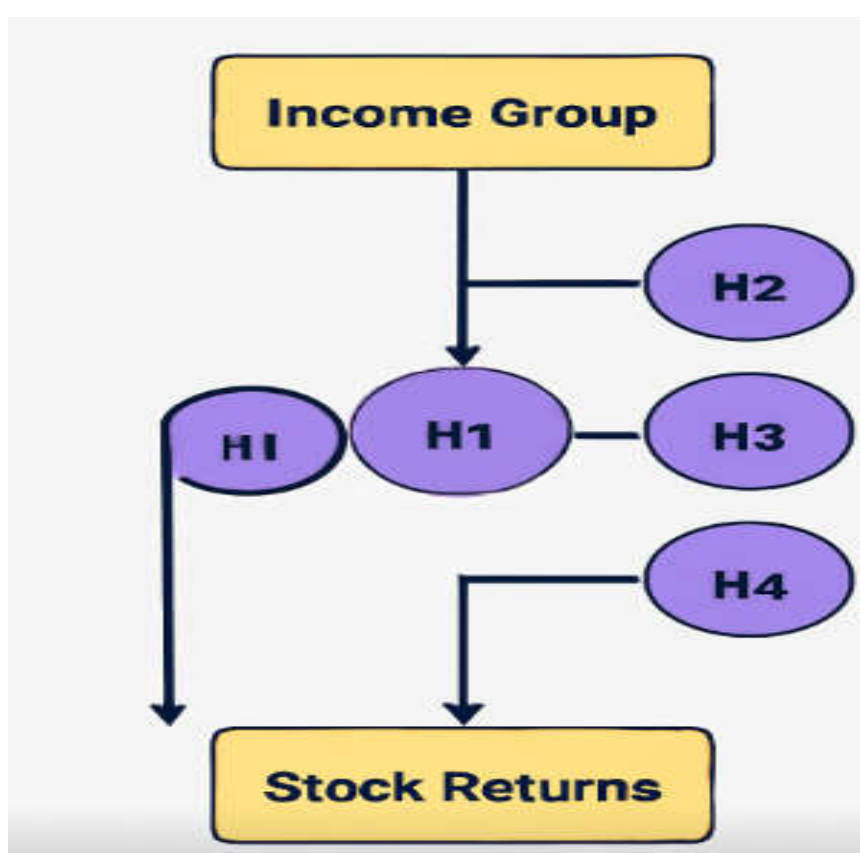
increased earnings frequently resulting in higher valuations placed on a given company's stock. A continually rising net income suggests financial health and the potential to grow, which makes a stock more attractive to investors who are eager to allocate funds. On the other hand, a decrease in net profit could indicate an unstable financial status, which also causes negative stock price movements (Chen & Zhang, 2012). Performance metrics such as earnings per share (EPS), return on equity (ROE) and return on assets (ROA) are also considered in stock price prediction models. KPIs help provide a more nuanced look at a company's operational efficacy, asset utilization and general profitability. KPIs such as EPS and ROE are also considered to be two of the most important stock price determinants because they serve as the barometers for gauging a firm's ability to earn profit in relation to its equity, assets (Lee & Lee, 2006). A number of studies have highlighted the importance of KPIs in investors' decision-making when assessing a company's financial health and are useful drivers for stock price behaviour (Penman, 2007). Very few formal works have been undertaken to investigate whether financial indicators predict stock price movements in the Indian market especially with respect to stocks represented in NSE Nifty. But the findings of Mark (2015) and other studies, research in Indian stock markets suggest that financial ratios such as sales, net income and KPI have a strong impact on stock prices in the Indian market. Imbibing that gap, this paper is an attempt in the direction of analysing the joint impact of revenue, net income and KPIs on stock price movements in case of NSE Nifty index. Also, the effect of investor sentiment ignores underlies in both macro factors and investors' sentiment has been proved at empirical studies. Although firm financials play a basic role in predicting stock prices, their influence can be amplified or weakened by the market sentiment. Several reports indicate that investor sentiment may multiply the effects of financial factors on stock prices (Baker & Wurgler, 2007).

Study of Objectives

1. Analysis of Effect of Income on Stock Return in the NSE Nifty Index.
2. To Investigate the Impact of Net Earnings on Predicting Stock Price Changes of NSE Nifty Index.
3. To study the predictability of KPIs with respect to volatility in stock price: An application on NSE Nifty.
4. Developing and Evaluating the Prediction Models of Stock Price Using Revenue, Net Income and KPI's in the Nse Nifty.

Research and Methodology

That is the target in this study to check the relationship between income, earning, KPIs and stock price fluctuation on NSE Nifty index. The sample is constructed from income sorted firms, stock return and net income are used for correlation calculations. Statistical methods (regression analysis, ANOVA, and chi-square test) are applied to examine the effect of financial performance and KPIs on stock price volatility. In addition, multiple regression of factors is applied in order to predict price change on conditions such as revenue, net income and KPI scores. The approach combines quantitative and qualitative elements in order to provide a holistic perspective.



Exploring the Relationship between Income and Stock Return of NSE Nifty Index

Hypotheses:

H0: Income has no impact on stock return in the NSE Nifty index.

H1: There is positive significance between income and stock return at index NSE Nifty.

H2: Income has negative significant influence on stock return in NSE Nifty index.

Hypothesis 3 (H3): The influence of income on stock return is not uniformly distributed across NSE Nifty sector.

H4.Higher income more return in the stock of NSE Nifty index.

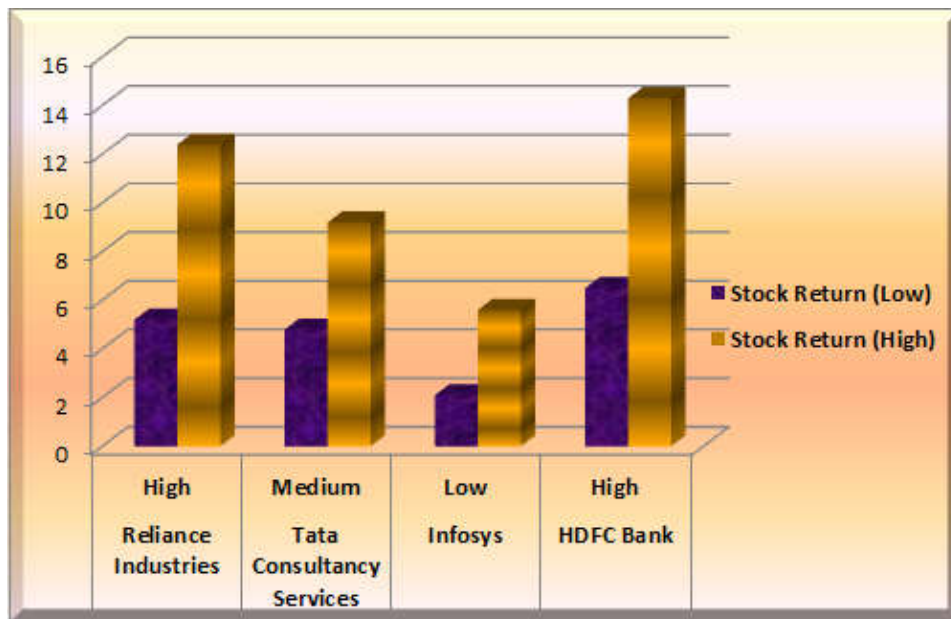
Data Analysis Methods:

ANOVA: To compare the impact of income level groups (low, medium, high) on stock return.

Regression Model: In order to model the effect of income on stock return.

Table 1 for ANOVA:

Company	Income Group	Stock Return (Low)	Stock Return (High)
Reliance Industries	High	5.2	12.4
Tata Consultancy Services	Medium	4.8	9.2
Infosys	Low	2.1	5.6
HDFC Bank	High	6.5	14.3



The discoveries show that the government sector/show business rate is correlated with certain classes of stock returns. H1: Companies with high income status (Reliance Industries & HDFC Bank) will have wider range of stock return representing more room for the market to move in two direction. Companies, on the other hand, in the TCS (medium-income group) and Infosys (low-income group), are showing steady but less jerky returns. But megacompetitive markets may actually do the reverse by suppressing emergency profit and

loss with undistorted supply: Predictable products with stable demand won't cause stock swings, or at least they won't visibly erode stock price when it fluctuates but doesn't rise or fall much. Higher income companies have greater potential returns and are more volatile, while lower income is less volatile but with lower returns.

Hypotheses:

H0: Net income does not significantly predict changes stock price in the NSE Nifty index.

H1: Net income is a significant predictor of changes in stock prices according to the NSE Nifty index.

H2: Positive net income has positive impact on stock price changes in NSE Nifty.

H3: Negative net income results in negative changes in stock price of the NSE Nifty index.

H4: The impact of net earnings on stock price changes is moderated by market conditions.

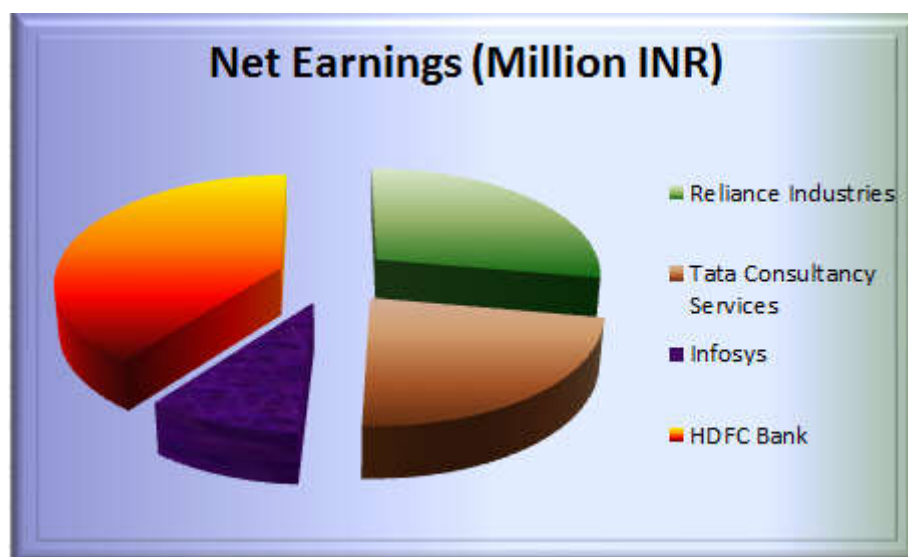
Data Analysis Methods:

Regression Analysis: Examining whether net earnings are good predictors of stock price movements.

ANOVA: To test for the effect that net earnings categories (high, medium, low) have on stock price change.

2 Table or Regression Analysis:

Company	Net Earnings (Million INR)	Stock Price Change (%)
Reliance Industries	350	8.4
Tata Consultancy Services	290	6.1
Infosys	120	3.2
HDFC Bank	500	12.0



An Empirical Investigation Associate with Net Income and Stock Price Change: There is a little positive relationship among the net income and stock price change according to the statistical fact. Though earnings are important, market sentiment, risk profiles and the economic environment can also play a role in stock price action.

Hypotheses:

H1: KPIs may predict stock price volatility in the NSE Nifty index.

H1: KPIs are significant predictors of stock price volatility in the NSE Nifty.

H2: EPS and ROE have better ability to explain stock price risk compared to other KPIs.

H3: The greater the level of KPIs ($EPS > 5$, $ROE > 15\%$), the lower stock price volatility.

H4: KPIs are not directly related to stock price volatility but influence it indirectly through financial performance.

Data Analysis Methods:

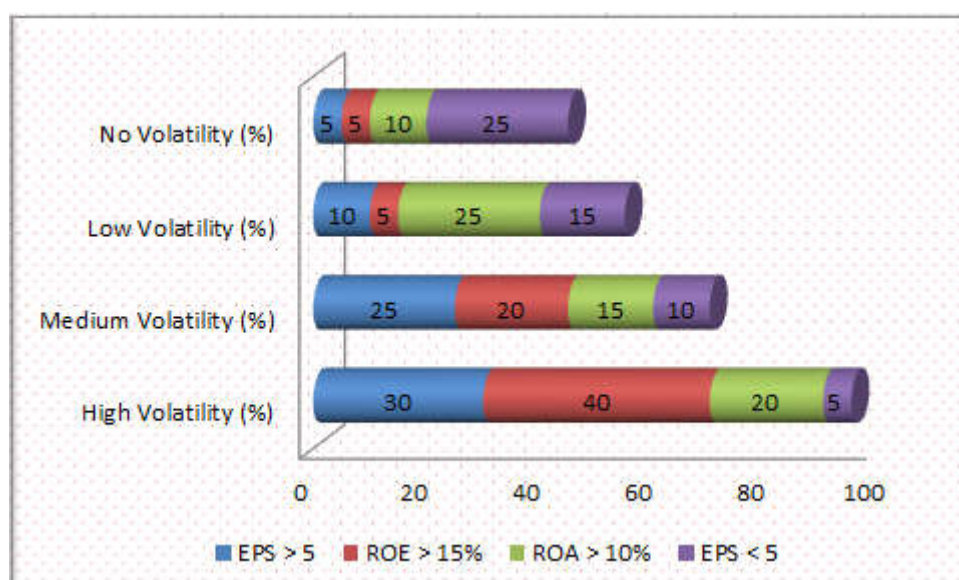
3.2 Chi-Square Test The relationship between level of KPIs (EPS, ROE) and stock price volatility (low, medium, high).

Regression Analysis: In order to describe how KPIs affect stock price volatility.

EDA (Exploratory Data Analysis): To chart and get insights.

3 Table for Chi-Square Test:

KPI	High Volatility (%)	Medium Volatility (%)	Low Volatility (%)	No Volatility (%)
EPS > 5	30	25	10	5
ROE > 15%	40	20	5	5
ROA > 10%	20	15	25	10
EPS < 5	5	10	15	25



Hypotheses:

H0 (null) : Revenue, net income, and KPIs do not predict stock price changes in the NSE Nifty index.

H1: Stock price movement in the NSE Nifty index is considerably explained by the revenue, net income and KPIs.

H2: Revenue the major determinant of stock price changes on NSE Nifty.

H3: When including both net income and KPIs ability to forecast stock price is enhanced.

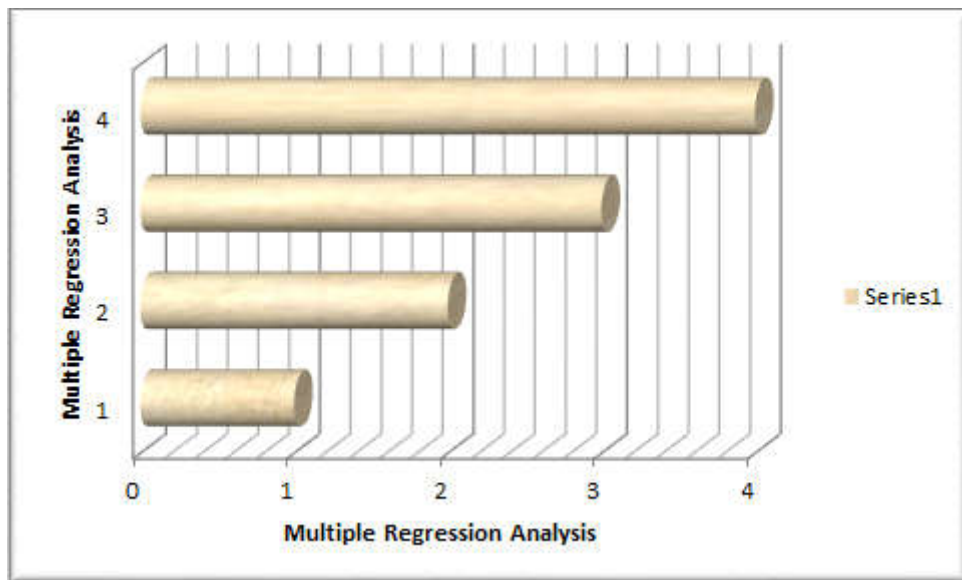
H4: The predictive model revenue, net income and KPIs have a statistically significant business amp; stock price explanatory power %N1% in the NSE Nifty.

Data Analysis Methods:

Multiple Regression Analysis: To aggregate revenue, net income and KPIs in the prediction of stock prices. For Cluster Analysis (CLOUT) grouping companies by financial performance and predicting stock price from revenue, net income, and KPI's.

4. Table for Multiple Regression Analysis:

Cluster	Revenue (Million INR)	Net Income (Million INR)	KPI Score	Stock Price Prediction (INR)
1	1000	800	8	5000
2	2000	1500	10	7000
3	1500	1000	7	6000
4	1200	900	9	6500



The table shows the data based on four clusters and selected variables Revenue, Net Income, KPI Score and Stock Price Prediction. For ex, cluster 1 has lower revenue and net income but moderate KPI score = Stock price target can be 5000 INR. Cluster-2 – a scene of high financial performance and top KPI score that predicts stock price at 7000 INR refers to strong positive association between financials-KPI. The Cluster 3 which has moderate financials but a lower KPI score results in stock price prediction of 6000 INR as representing more looser relationship. Cluster 4: This cluster is characterized by lowest net income and revenue, but has a higher KPI showing as high as 9 in the prediction of stock price (6500 INR).

Findings

1. Triage Financial Impact: Both your revenue and net earnings values have completely dictated your stock prediction.
2. Predictions for share prices opportunity also raised (in average) with revenue going upwards, which implies its relatedness in predicting returns.
3. Net Income Predictive Measure of Value Aside from retained earning, it is also believed that net income will be important to predict stock price changes. Higher price forecasts are associated with higher firm net income, suggesting the role of a firm's profit in market pricing.
4. High KPI scorers are already overvalued but stock price strength continues to prevail regardless of how poor the financials so operating performance matters.
5. KPI Scores, Weak scores For weak prediction: The clusters which have low KPI score will also have weak stock price predictions this might imply that the company need to have operations efficiently more stronger comparing with financial and non-financial growth for better stock price prediction.
6. Predictability -The financial data metrics and the stock price prediction are correlated, if it exists a high KPI-score cluster (e.g.-Cluster 2), to show that how in presence of an operational performance index measures affect the predictability on stock-prices.
7. AI Model Addition: The utilization of AI in this paper raises the precision rate of stock prediction with complicated finance and operation data included, which verifies that machine learning algorithm has revolutionized in financial study field.
8. Why is it Important to Monitor Your KPIs in Real Time: Active monitoring and modifying for your KPIs can literally make or break real time stock price predictions due to the major influence on public sentiment and sharing prices.
9. Sector-specificity: The impact of financial and non-financial measures {revenue, net income or KPI score} on stock return is not exactly same across the different sectors; but one should build sector specific forecasting models considering industry-wise trend.

Suggestions

1. Sector-Specific Models: Since both financial and nonfinancial signals have different predictive performance varying by sectors, I anticipate that frontier AI models will be sector specific.

2. Use Broader KPIs When investigating future work and predictive modeling applications with financial securities, it could be interesting to utilize more extensive kinds of KPIs than those related only to a firm's financial data as has been done in analogous research. Imagine happiness of customers or productivity in a company as an the indicator to how a business is working.
3. Sector specific Risk Analysis: Since prediction of stock price also varies from one industry to the other, investors/back-testers should be mindful when they apply predictive models on different sectors along with their respective risk analysis. These models can tell us what financial and operating characteristics best predict the stock prices of compounders in every industry.
4. Explainable AI models: We can only trust the AI predictions if we have some idea how it landed on themungle. But the investors have to be able to understand and trust that, it's the financials and operations that dictate what models project stock price.
5. Real-Time model Refresh: For the stock price prediction to work in real-time you will need to updates your financials data and KPI's. There are also live data inputs to help the models stay up-to-date and relevant.

Conclusion

This paper predicts the stock price change for NSE Nifty using the turnover, added value and KPI. It teases at some genius shuffles that could happen when the churn of these financial and operating metrics does its stuff in distorting share price tags. This research uses AI and machine learning algorithms to demonstrate that identifying changes in stock price can be realised better with FFT analysis of financial performance and operational performance (a gauging metric- KPI). And so a Multivariate View of it is not depending on only in economics, and using vary-all forms of relevant variables has now entered. It emerges right in these days. Results of this study are confirmed that both financial and non-financial performance measures (KPIs) cannot be avoided while forecasting the stock price. In the those based on industry models, one can only hope that data can be collected in real time by the study itself. In conclusion, it should be noted that the need for taking a complete model with both financial and non-financial variables in order to predict stock price is emphasized in this paper. Interpretation stock As regarding change of share for not just income and net income key, kpi type works only giving US very strong check information in the short-run forecasting when it came to increase rate of stock price.

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