

# Determinants of stock prices in telecommunication industry: An application of fundamental analysis

Razia Nagina<sup>1</sup>, Mahdy S. Othman<sup>2,\*</sup>

<sup>1</sup> Mittal School of Business, Lovely Professional University, Jalandhar 144411, India

<sup>2</sup> Department of Accounting, College of Business Administration, University of Business and Technology, Jeddah 21448, Saudi Arabia

\* **Corresponding author:** Mahdy S. Othman, [m.othman@ubt.edu.sa](mailto:m.othman@ubt.edu.sa)

## CITATION

Nagina R, Othman MS. (2024).  
Determinants of stock prices in  
telecommunication industry: An  
application of fundamental analysis.  
Journal of Infrastructure, Policy and  
Development. 8(5): 5358.  
<https://doi.org/10.24294/jipd.v8i5.5358>

## ARTICLE INFO

Received: 21 March 2024

Accepted: 25 April 2024

Available online: 9 May 2024

## COPYRIGHT



Copyright © 2024 by author(s).

*Journal of Infrastructure, Policy and Development* is published by EnPress Publisher, LLC. This work is licensed under the Creative Commons Attribution (CC BY) license.  
<https://creativecommons.org/licenses/by/4.0/>

**Abstract:** The present study attempted to assess the impact of fundamental ratios on the share prices of selected telecommunication companies in India. India has dramatically expanded over the past ten years to become the second-biggest telecoms market worldwide, with 1.17 billion users. The Indian telecom industry has proliferated thanks in part to the government of India's liberal and reformist policies and strong customer demand. It has become a lucrative investment sector for investors due to its recent and prospective growth. Data on 13 telecom firms indexed in the S&P BSE telecommunication index from 2013 to 2022 were taken from companies' annual reports, the BSE website (Bombay Stock Exchange), and other secondary sources. Six firm-specific fundamental factors viz. Debt to Equity ratio (D/E), Current ratio (CR), Total Assets Turnover ratio (ATR), Earnings per share (EPS), Price to earnings ratio (P/E), Return on equity (ROE), and three country-specific fundamental factors viz. Gross Domestic Product, Inflation rate, and S&P BSE Sensex return were considered. Fixed effect panel regression through Generalized Least Square (GLS) model was performed to find inferences. Debt Equity ratio and Inflation rate were found to impact share price negatively. Conversely, the Total Assets Turnover ratio (ATR), Earnings per share (EPS), Price to Earnings ratio (P/E), and Return on Equity (ROE) positively impacted selected companies' share prices. The study results will benefit individual & institutional investors in formulating their investment and portfolio diversification strategies for gaining a high effective rate of return on their investments.

**Keywords:** fundamental analysis; fundamental ratios; macroeconomic variables; panel regression; share price determinants; telecommunication sector

**JEL Classification:** G10; G11; G15; G17; E44

## 1. Introduction

In an age defined by exponential technological growth and regulatory reform, India's telecommunications sector has soared to unprecedented heights, earning the accolade of its "golden age". With a staggering 1.17 billion users, encompassing both wireless and wireline services, India's telecom landscape stands as the world's second-largest as of September 2022 (GSM Association and Boston Consulting Group analysis). This meteoric rise, propelled by robust demand and progressive governmental policies, has spurred a proliferation foreseen to profoundly impact the nation's Gross Domestic Product (GDP).

The Indian Telecommunication Industry operates within a tripartite framework, comprising Mobile (Wireless), Fixed Line (Wire-line), and Internet Services segments, adeptly catering to the diverse communication needs spanning the nation. This structural tapestry, woven with both public and private entities, symbolizes the

dynamic essence of India's telecom milieu. Government-owned stalwarts like Mahanagar Telephone Nigam Ltd (MTNL) and Bharat Sanchar Nigam Ltd (BSNL) alongside private sector giants such as Bharti Airtel, Vodafone Idea Limited, and Reliance Jio Infocomm, form the backbone of this thriving ecosystem.

Central to this narrative of success are the pivotal government policies that have ushered in each new phase of growth. From the seminal National Telecom Policy (NTP) of 1999, through NTP 2012, to the transformative National Digital Communications Policy (NDCP) 2018, each iteration has been a catalyst for innovation and expansion (Invest India Report, 2022). NTP 1999 initiated liberalization, fostering competition and driving rapid expansion, particularly in mobile telephony and internet services. Subsequently, NTP 2012 addressed challenges such as spectrum allocation, promoting inclusive growth and enhancing connectivity across rural and urban areas. Building upon these foundations, NDCP 2018 aims to propel India towards a digitally empowered society by emphasizing universal broadband connectivity, investment attraction, innovation-led start-ups, and robust data protection and cybersecurity measures. These policy frameworks, focusing on liberalization, spectrum allocation, and inclusive connectivity, have not only fueled economic growth but also positioned India as a global contender in the digital arena.

The telecom sector's significance reverberates through India's economic landscape, contributing a notable 6% to the GDP in the fiscal year 2020–2021 (Invest India Report, 2022). Moreover, it stands as the third-largest recipient of Foreign Direct Investment (FDI), reflecting investor confidence in its potential. The sector directly sustains 2.2 million jobs and indirectly supports another 1.8 million, underlining its socio-economic significance.

Looking ahead, the impending advent of 5G technology promises to be a game-changer, poised to inject a staggering \$450 billion into India's economy from 2023 to 2040 (Invest India Report, 2022). Such prospects have magnetized both domestic and foreign investors to explore telecom sectoral funds as a lucrative avenue for investment. However, navigating the stock market demands prudence and strategic foresight. Investors have the potential to achieve extraordinary returns by strategically investing in sectoral funds, as sectors exhibit cyclical patterns and respond differently to economic shifts. For instance, investors who allocated their investments into Pharma Sectoral Funds at the onset of the Covid-19 pandemic experienced significant gains, with returns surpassing 27%. Yet, the inherent risks of stock market underscore the importance of informed decision-making and rigorous analysis for cautious stock valuation to identify profitable shares (Herawati and Putra, 2018).

In today's fiercely competitive environment, the vitality of market economies and share prices cannot be overstated, with the stock market serving as the pivotal axis (Göçken et al., 2016). Hence, acquiring a comprehensive understanding of financial and capital markets is imperative. Forecasting these markets poses significant challenges due to the multitude of uncertainties, spanning broad economic landscapes, societal intricacies, and geopolitical shifts both domestically and internationally (Lin, 2018; Rajashree et al., 2014). The valuation of shares, also known as "stock price" or "share price," in the financial or capital market, dictates trading in equities and other financial instruments of publicly traded corporations (Ghaznavi et al., 2016). Various prediction methods guide stock market investments, among which three fundamental

approaches stand out: technical analysis (charting), fundamental analysis, and technology-driven methodologies like machine learning (Ahmadi et al., 2018; Bagheri et al., 2014; Gyan, 2015; Sankar et al., 2015). Despite the diversity, scholars often amalgamate these methods into two overarching categories: fundamental analysis and technical analysis.

The analyst makes stock price predictions by examining stock price's past and present trends in technical analysis (Ahmadi et al., 2018; Thirunavukarasu and Maheswari, 2014). Numerous researchers corroborate the efficacy of technical analysis in accurately predicting short-term fluctuations in stock prices (Adebayo et al., 2017; Vasantha et al., 2012; Laboissiere et al., 2015; Umoru and Nwokoye, 2018). Contrarily, Fundamental analysts prioritize assessing firm value over share or stock value, focusing on extensive research to predict stock prices reliably (Agarwal et al., 2017; Ballings et al., 2015; Checkley et al., 2017; Thirunavukarasu and Maheswari, 2014). Leveraging publicly available information on the economy, industry, and company, they analyze the multidimensional movement of stock prices, drawing from financial statements like Balance Sheets, Income Statements, and Cash Flow statements (Dumiter and Turcas, 2023). Additionally, fundamental analysts utilize various financial ratios to calculate a firm's intrinsic value and forecast its share price movement.

The fundamental analysis essentially examines how micro- and macroeconomic factors affect a company's operations to forecast future financial and economic impacts on a company's stock value. Its objective is to determine the Intrinsic value (actual worth) of a company's stock by considering its financial health and performance, as well as its industry, marketplace, rivals, and overall economy (Dumiter and Turcas, 2023). In contrast, technical analysis bases its judgments on previous prices on the presumption that past actions impact the future performance of stock market returns (Patel et al., 2015). Technical analysis is more effective for short-term trading and market timing, whereas fundamental analysis is best for long-term investments (Nagendra et al., 2018). Both techniques can be integrated to plan and carry out investments throughout the medium and long term. Integrating both techniques can enhance investors' ability to make precise investment decisions in the financial markets.

Amidst the vibrant growth and bright horizons of the Indian Telecommunication Industry, this study ventures to unveil compelling insights into the wealth of opportunities beckoning both domestic and foreign investors. With the application of fundamental analysis, the research meticulously probes the impact of key company-specific fundamental ratios and economy-specific variables on the share prices of selected Indian telecommunication firms. Recognizing the pressing need for informed decision-making in today's dynamic market landscape, the findings of this study are poised to serve as indispensable guides for savvy investors. By empowering them with foresight and confidence, investors can navigate the complexities of the market and seize the abundant potential offered by India's telecommunications sector.

The subsequent sections present a comprehensive exploration of pertinent literature, followed by an outline of the research aims and methodology employed. Data analysis procedures and findings are then detailed, paving the way for extensive discussion. Managerial and policy implications derived from the study are elucidated,

leading to a conclusive section summarizing key insights. Finally, the paper addresses its limitations and outlines avenues for future research, providing a holistic framework for understanding and advancing discourse in the fields

## **2. Literature review**

The most significant internal component in explaining movements in stock prices across all industries is a financial ratio, such as the price-to-earnings ratio, the book value of a share, net profit margin, current ratio, debt to equity ratio, and total assets turnover ratio (Ergun, 2012). The financial ratio connects several assumptions in the financial statements, allowing for the interpretation of a company's financial situation and operational outcomes. The financial ratio can also be used to spot irregularities in how the company's operating activities are carried out by comparing it to previous years. The ratios are broadly categorized as liquidity, solvency, profitability, valuation, and activity/ efficiency ratios.

### **2.1. Liquidity ratios and share price**

Liquidity ratios help assess a firm's capacity to meet its immediate obligations. The prime liquidity ratio is the current ratio (CR) that gauges how well current assets can cover current liabilities. It demonstrates how the short-term assets that will soon be turned into cash are used to cover existing short-term obligations. Various researchers have given contradictory results regarding the impact of CR on stock prices. Studies by Meythi and Rusli (2011), Deitiana (2013), and Herawati and Putra (2018) showed no effect of CR on stock prices. As per the results of these researchers, a greater CR does not always point to a successful outcome; it may simply point to the holding of excess cash or other current assets compared to what is now required.

Kohansal et al. (2013) concluded that the current ratio positively impacts share prices, observing a decrease in the market price of the relevant stock with a low current ratio. In contrast, Daniel (2015) demonstrated conflicting results, suggesting a negative relationship between the current ratio and share prices.

### **2.2. Leverage and share price**

Leverage represents how a business uses borrowed money to boost the Return on the owner's equity. Leverage ratios quantify the ownership financing contribution in relation to the financing provided by the company's creditors. The debt to equity ratio (D/E), a critical measure of leverage, reveals how much external equity there is in the capital structure of the organization in comparison to internal equity. The external equity represents the debts and liabilities owed to other parties.

Results from earlier research work by Dewi and Suaryana (2013) and Daniel (2015) demonstrated that the D/E negatively impacts the stock price, in contrast to other studies by Pandansari (2012), which found a favourable impact. According to studies by Safitri (2013) and Herawati and Putra (2018), there is no correlation between the solvency ratio and stock price.

### **2.3. Profitability ratios and share price**

Profitability ratios measure the capability of a company to earn profits from the

capital invested in the business. Profitability ratios can be general and overall. Return on Equity (ROE) summarizes how effectively the shareholder's funds are utilized and the profit obtained from its investment. Low ROE suggests that shareholder funds are not spent effectively (Nti et al., 2020).

ROE measures the ability of the business to make money from equity utilized. This ratio can be used to evaluate how effectively a corporation uses its equity for business operations (Suryanto et al., 2017). Studies by Pandansari (2012), Kohansal et al. (2013), Polii et al. (2014), Daniel (2015), and Permana (2017) support the findings that reveal the positive ROE effects on stock prices. According to the findings of research work done by Meythi and Rusli (2011), Buigut et al. (2013), Safitri (2013), and Utami et al. (2015), profitability ratios have little or no effect on stock prices.

#### **2.4. Valuation ratio and share price**

The valuation ratio measures a firm's capacity to produce value for the general public (investors) or shareholders. Price to Earnings (P/E) ratio and Earnings Per Share (EPS) are key ratios for determining the company's capacity to create value for its shareholders. The findings of earlier research by Safitri (2013), Daniel (2015), Utami et al. (2015), and Subing et al. (2017) demonstrate a positive and significant effect of the P/E ratio on stock prices specifically stock returns. Conversely, Herawati and Putra (2018) concluded an insignificant impact of the P/E ratio on Stock prices.

One of the most popular ratios in the financial industry is earnings per share or EPS. This figure reveals the profit generated by a corporation for each share of stock that is currently outstanding (Baker, 2022). The findings of earlier research by Hunjra et al. (2014), Idawati and Wahyudi (2015), and Purnamawati and Ayu (2015) demonstrate a positive and significant effect of the EPS ratio on stock prices.

#### **2.5. Activity ratios and share price**

The activity ratio gauges how efficiently a corporation uses its financial resources. This financial ratio helps assess how productively the company can utilize its assets to produce revenue. A greater asset turnover ratio figure suggests improved performance for the business. The results of a study by Herawati and Putra (2018) showed that ATR positively impacts stock prices. In contrast, Deitiana's (2013) research indicates no impact of ATR on stock prices.

#### **2.6. Macroeconomic variables (economic indicators) and share price**

As discussed earlier, fundamental analysis's primary goal is forecasting future stock earnings. Since the Global and country-specific economic condition significantly impacts the company's performance, that reflects through its share value. So, it necessitates the consideration of macroeconomic variables for fundamental analysts for accurate and reliable prediction of stock earnings. Existing literature established the presence of impact of various macroeconomic variables viz. Index of Industrial Production (IIP), Foreign Direct Investment (FDP), Foreign Institutional Investment (FII), Inflation rate, Wholesale Price Index (WPI), Consumer Price Index (CPI), Interest rates, Gross Domestic Product (GDP), and more on Share market movements (Dadhich et al., 2015; Tripathi et al., 2016).

Inflation characterizes a country's economic condition. It occurs when the cost of goods and services rises, leading to a decline in the currency's value. Persistent inflation can weaken the entire economy and pose a threat to a nation's political and national stability. Agustina and Sumartio (2014), Garba (2014), Purnamawati and Ayu (2015), Zulkarnaen et al. (2016), and Subing et al. (2017) concluded that the inflation rate had an insignificant negative impact on the share price. In contrast, Benakovic and Posedel (2010), Zaheer and Rashid (2014), and Utami et al. (2015) demonstrated a significant negative impact of inflation rate on the share price.

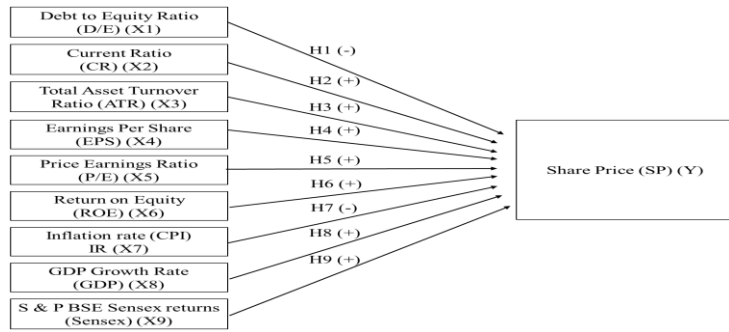
The Gross Domestic Product (GDP) serves as a pivotal metric for assessing economic growth, providing a comprehensive measure of a nation's total output across various sectors and industries, thus offering invaluable insights into the overall health and trajectory of an economy (Reddy, 2012). GDP is a critical macroeconomic variable explaining companies' profitability (Jain et al., 2019). Previous research by Naveed and Ramzan (2013) suggests that Gross Domestic Product (GDP) negatively affects share prices. Meanwhile, Simbolon and Purwanto (2018) and Huy et al. (2020) showed a significant influence of GDP growth rate on stock prices. Conversely, Nguyen (2021) found a significant positive effect of GDP and its growth rate on share prices. The researcher concluded that an increase in GDP would boost stock market performance.

One of the world's top stock exchanges is the Bombay Stock Exchange (BSE). The BSE's bellwether index is the S&P BSE Sensex. It evaluates the performance of 30 BSE Ltd. listed companies, also referred to as "blue-chip companies." The S&P BSE Sensex's performance and the individual companies' performance are interconnected but not directly proportional or causally linked. Overall market performance directly influences individual companies' share price movements (Challa, 2020). Thus, S&P BSE Sensex is also considered an overall market performance indicator to predict the individual company's share prices in the present study.

While the impact of company-specific financial ratios and macroeconomic variables on share price movements has been well-documented across sectors such as banking, real estate, food and beverage, automotive, and others, there is a notable scarcity of reviewed studies focusing on the Indian context. Amidst its pivotal role as one of the most crucial sectors in the Indian economy, the telecom industry boasts a noteworthy 6.5% contribution to the country's GDP. Despite its significant impact and potential for substantial returns, existing studies have yet to explore the Indian Telecommunication Industry's dynamics comprehensively. Thus, the present study aims to fill the identified research gap and analyze the Indian Telecommunication Industry by considering firm-specific ratios and economic indicators. The study results will benefit individual and institutional investors and traders.

### **3. Research aims and methodology**

The following conceptual framework depicted in **Figure 1** is derived from reviewed literature to study the impact of identified fundamental factors on the share price.



**Figure 1.** Conceptual framework.

### 3.1. Research hypotheses

Based on the above conceptual model, the following research hypotheses are formulated.

Ha1: Debt equity (D/E) ratio negatively influences the selected telecom firms' share prices.

Ha2: Current ratio (CR) positively influences the selected telecom firms' share prices.

Ha3: Total Asset turnover ratio (ATR) positively influences the selected telecom firms' share prices.

Ha4: Earnings per share (EPS) positively influences the selected telecom firms' share prices.

Ha5: The price-earnings (P/E) ratio positively influences the selected telecom firms' share prices.

Ha6: Return on Equity (ROE) ratio positively influences the selected telecom firms' share prices.

Ha7: Inflation rate (IR) negatively influences the selected telecom firms' share prices.

Ha8: Gross Domestic Product (GDP) growth rate positively influences the selected telecom firms' share prices.

Ha9: S&P BSE Sensex returns (Sensex) positively influence the selected telecom firms' share prices.

### 3.2. Research and sample design

The present study followed a quantitative approach and causal research design. It considered the companies listed in S&P BSE Telecommunication Index. The S&P BSE Telecommunication is made to give investors a benchmark that reflects the S&P BSE AllCap firms classed as telecom sector companies. Sixteen telecom companies were listed in it. Yet, the researcher employed purposive sampling and chose thirteen telecom companies for which all necessary data was available from 2013 to 2022.

### 3.3. Study variables

Company-specific independent variables taken in the study are a debt to equity ratio (D/E) as a solvency measure, Current Ratio (CR) as a liquidity measure, Total Asset Turnover Ratio (ATR) as an efficiency measure, Earnings per share (EPS) and Price to earnings ratio (P/E) as valuation measures, and Return on Equity (ROE) as a

profitability measure. The data of the selected ratios are sourced from the companies' financial statements, website of top stock research, and money control. Data on independent macroeconomic variables, the inflation rate (CPI annual %), and GDP growth rate are sourced from the world bank website. The data on S &P BSE Sensex (market-specific independent variable) are sourced from the BSE India website. The companies' share price is the dependent variable for the study, and related data is taken from the BSE India website.

### 3.4. Regression model and data analysis method

Panel regression is used for testing the formulated hypotheses. The regression equation of the model is given below:

$$SP = \alpha_i - \beta_1 DE_{it} + \beta_2 CR_{it} + \beta_3 ATR_{it} + \beta_4 EPS_{it} + \beta_5 PE_{it} + \beta_6 ROE_{it} - \beta_7 IR_{it} + \beta_8 GDP_{it} + \beta_9 Sensex_{it} + e_{it} \quad (1)$$

where the constant is  $\alpha$ , and regression coefficients are  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$  and  $\beta_9$  are regression coefficients, and error term is  $e$ . All the variables are already defined in **Figure 1** above.

There are numerous methods available to estimate the model's parameters using panel data, including Common Effect or PLS (Pooled Least Square), FEM (Fixed Effects Model), and REM (Random Effects Model). Additionally, testing was done to determine which of the three estimating techniques was most appropriate for the panel data regression model under the study. Stage tests, such as the F or Chow tests, were conducted to choose between PLS or FEM. Following the Chow test, the Hausman test was conducted to select between FEM or REM (Herawati and Putra, 2018; Purnamawati and Ayu, 2015; Subing et al., 2017; Sriram, 2018; Utami et al., 2015).

Time series data should be stationary to avoid a spurious regression model. Therefore, unit root tests were utilized to assess the stationarity of the data. Further, the assumptions of normality, heteroscedasticity, autocorrelation, and multicollinearity were also checked (Herawati and Putra, 2018; Purnamawati and Ayu, 2015; Utami et al., 2015; Subing et al., 2017). Data analysis was performed through EViews 10.

## 4. Data analysis

Data series should be stationary at the same level for effective estimations (Herawati and Putra, 2018). Thus, all selected variable data series were checked for stationarity through the unit root test in EViews 10. All the original data series for selected variables were found stationary at a 5% significance level. After confirming that the data is stationary, data analysis proceeded to select the best estimation model for the selected data. Chow test was undertaken to decide between PLS and Fixed effect. Table 1 depicts the Chow test/Redundant Fixed effects test results.

### 4.1. Redundant fixed effects tests

H010: POLS is best model.

Ha10: FEM is the best model.

As per the chow test statistics given in **Table 1**, H010 is rejected at a 5% significance level. Thus, FEM is selected as the best model for the selected data.

After confirming that FEM is better than POLS, the Hausman test was conducted



to further decide between fixed and random effect models. **Table 2** depicts the results of the Hausman test.

**Table 1.** Chow test.

Redundant fixed effects tests			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.771312	(12,108)	0.0000
Cross-section Chi-square	114.837911	12	0.0000

Source: Authors' analysis through EViews.

**Table 2.** Hausman test.

Correlated random Effects-Hausman test			
Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	9	1.0000

\* Cross-section test variance is invalid. Hausman statistic set to zero. Source: Authors' analysis through EViews.

#### 4.2. Hausman test

H011: REM is the appropriate model.

Ha11: FEM is the appropriate model.

**Table 2's** findings indicate no random effect (REM) because the cross-section test variance is inaccurate, and the Hausman statistical test is set to zero. Thus, H011 is rejected. As per the result, there is no need to perform a Lagrange Multiplier test. Therefore, this study's panel data regression should employ the fixed effect (FEM) model (Indrajaya and Hakim, 2019). It is required to undertake classic test assumptions before estimating the final model.

#### 4.3. Classic test assumptions

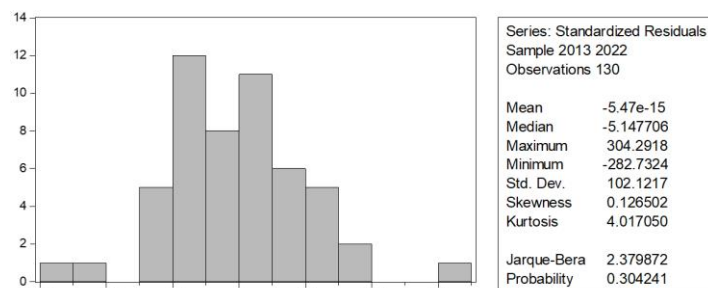
Several classical assumption checks must be performed as the first stage in running a panel data regression model. The tests include those for heteroscedasticity, multicollinearity, autocorrelation, and normality (Subing et al., 2017).

A normality test using Jarque Bera was conducted to assess data distribution.

H012: Data is normally distributed.

Ha12: Data is not normally distributed.

As per the results of **Figure 2**, Ha12 is rejected, which signifies that the data is normally distributed.



**Figure 2.** Jarque Bera test results.

Source: Authors' analysis through EViews.

Furthermore, the multicollinearity test using Variance Inflation Factors (VIF) for each independent variable resulted in no multicollinearity between independent variables as the value of Centered VIF is less than 10 for each variable, as seen in **Table 3**. Thus, it is concluded that data is free from the issue of multicollinearity.

**Table 3.** Multicollinearity test through VIF.

Variance inflation factors			
Variable	Coefficient	Uncentered	Centered
	Variance	VIF	VIF
DE	4.877948	1.252965	1.245374
CR	959.6692	3.134201	1.171085
ATR	4.455738	1.169860	1.047788
EPS	0.215367	1.157353	1.152108
PE	0.000927	1.101938	1.086635
ROE	0.027213	1.234969	1.234578
IR	174.7217	12.08791	1.233043
GDP	47.10243	4.880903	1.786710
SENSEX	1.863192	2.814427	2.025217
C	7514.888	15.54672	NA

Source: Authors' analysis through EViews.

Heteroscedasticity test:

H013: No Heteroscedasticity.

Ha13: There is Heteroscedasticity in the model.

As per the results in **Table 4**, Ha13 is rejected; thus, there is no problem of Heteroscedasticity. Furthermore, there is no autocorrelation problem as the Durbin-Watson statistic is 1.5, which is less than 4 (refer **Table 5**). Thus, after confirming that the data fulfills classic assumptions, FEM is run with the Generalized Least Square approach to get the best-unbiased estimations. The results are given in **Table 5**.

**Table 4.** Heteroscedasticity test.

Statistics	Value	Statistics	Value
F-statistic	1.037118	Prob. F(9,42)	0.4276
Obs*R-squared	9.455149	Prob. Chi-Square(9)	0.3964
Scaled explained SS	15.49769	Prob. Chi-Square(9)	0.0781

Source: Authors' analysis through EViews.

**Table 5.** Panel regression model results.

Dependent variable: SP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	410.0077	66.46011	6.169230	0.0000
DE	-3.065709	1.529887	-2.003879	0.0476*
CR	-24.34378	35.68579	-0.682170	0.4966
ATR	14.03131	5.957689	2.355160	0.0203*

**Table 5. (Continued).**

Dependent variable: SP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EPS	1.854478	0.514653	3.603357	0.0005*
PE	0.038958	0.021783	1.788511	0.0765**
ROE	0.231023	0.120051	1.924378	0.0569*
IR	-23.14699	9.059362	-2.555035	0.0120*
GDP	0.835045	4.703673	0.177530	0.8594
SENSEX	1.110393	0.925266	1.200080	0.2327
R-squared	0.803831	Durbin-Watson stat		1.536335
Adjusted R-squared	0.765687	-	-	-
F-statistic	21.07365	-	-	-
Prob(F-statistic)	0.000000	-	-	-

Source: Authors' analysis through EViews. \* significant at a 5% level of significance. \*\* significant at 10% level of significance.

$$SP = 410.00766729 - 3.06570926965 * DE - 24.3437841947 * CR + 14.0313088613 * ATR + 1.85447825509 * EPS + 0.0389583815898 * PE + 0.231023360852 * ROE - 23.1469906661 * IR + 0.835045046761 * GDP + 1.11039339831 * SENSEX$$

## 5. Results and discussion

Debt Equity (D/E) Ratio influence on Share Price: The *P*-Value of D/E is 0.0476, which is less than 0.05; however, its coefficient sign is negative. Thus, H01 is rejected, and Ha1 is accepted at a 5% level of significance, which suggests that if the company's debt increases significantly, it will negatively influence the share prices of the telecom company. The result of the study is supported by the results of Dewi and Suaryana (2013) and Daniel (2015).

Current ratio (CR) influence on Share Price: The *P*-Value of CR is 0.4966, and its coefficient is negative; thus, Ha2 is rejected at a 5% significance level. It signifies that a company's Current ratio does not positively influence the share price of the company. The study finding is consistent with the findings of Meythi and Rusli. (2011), Deitiana (2013), and Herawati and Putra (2018).

Total Asset Turnover Ratio (ATR) influence on Share Price: The *P*-value of ATR is 0.0203, which is significant at a 5% significance level, and its coefficient is positive. Thus, H03 is rejected, which suggests that if a company effectively utilizes its assets and earns a high return on them, it positively impacts its share price. The study result is backed by the findings of Herawati and Putra (2018).

Earnings Per Share (EPS) influence on Share Price: The *P*-value of EPS is 0.0005, which is less than 0.05, and its coefficient value is positive. Thus, H04 is rejected, which signifies that the company's EPS positively influences its share price. The findings of Hunjra et al. (2014), Idawati and Wahyudi (2015) and Purnamawati and Ayu (2015) support the study result.

Price Earnings (P/E) Ratio influence on Share Price: The *P*-Value of the P/E ratio is 0.0765, which is more than 0.05 but less than 0.10, and its coefficient sign is positive. Thus, H05 is rejected at a 10% significance level. The study result follows the findings

of Safitri (2013), Daniel (2015), Utami et al. (2015) and Subing et al. (2017).

Return on Equity (ROE) influence on Share Price: The P-Value of ROE is 0.0569, and its coefficient value is positive. Thus, H06 is rejected at a 10% level of significance. The findings of Pandansari (2012), Polii et al. (2014), Daniel (2015) and Permana (2017) are consistent with the study result.

Inflation Rate (IR) influence on Share Price: The P-Value is 0.0120, which is less than 0.05, and its coefficient sign is negative. So, H07 is rejected at a 5% level of significance. It implies that an increase in the inflation rate in the country negatively affects the share value of companies listed in the S&P BSE Telecommunication index. The study result is consistent with the results of Benakovic and Posedel (2010), Zaheer and Rashid (2014) and Utami et al. (2015).

GDP growth rate influence on Share Price: The P-Value is 0.8594, which is more than 0.05, so Ha8 is rejected. The result signifies that the Gross Domestic Product (GDP) growth rate does not influence the Share prices of Indian telecom firms listed in the S&P BSE Telecommunication index. The result is in contradiction with the results of Nguyen (2021).

Sensex returns influence on share Price: The P-Value is 0.2327, which is more than 0.05. Thus, Ha9 is rejected at a 5% significance level. The result states that overall market performance does not affect the share prices of Indian telecom companies listed in the S&P BSE Telecommunication index. The result is in contradiction with the findings of Challa (2020).

All selected variables significantly influence the share prices of companies chosen as the R-Squared value is 80%, which signifies that all independent variables together exhibit fluctuations in the share prices up to 80%. The F statistics' P-Value is 0.0000, which implies that the selected model (all selected variables) is fit for estimating the fluctuations of share prices of telecom companies. Thus, investors can predict telecom companies' share price movements with the derived model.

## **6. Managerial implications**

Debt to Equity ratio (D/E), Total Assets Turnover Ratio (ATR), Earnings Per share (EPS), Price to Earnings ratio (P/E), and Return on Equity are the fundamental variables that significantly impact the share prices of Indian telecom companies indexed in S&P BSE Telecommunication index. The study results show that if the D/E ratio of selected companies' increases, then the returns in terms of change in share price earned by investors will decrease. In other words, the higher the firm's level of existing debt, the lower the investor's rate of Return since it will utilize its profits to pay off debt first. Thus, individual and institutional investors should invest in those companies with a low debt component in their capital structure, as these companies will be more solvent and create wealth for shareholders. Considering the other significant fundamental factors, it is found that telecom companies that invest huge amounts in their non-current assets must utilize the assets effectively to generate returns on the amount blocked in assets. The study's results prove that ATR has a significant positive effect on the company's share price. Thus, individual and institutional investors should prefer companies with high total assets turnover ratios as it reflects the company's effectiveness in utilizing every single rupee invested in

assets, thereby increasing its profitability. Other fundamental factors that signify the company's overall performance are EPS, P/E ratio, and ROE. As per the study results, these three profitability indicators positively influence the share price of telecom companies in a significant manner. Thus, individual and institutional investors should prefer telecom companies with high ATR, EPS, P/E ratio, ROE, and low D/E ratio to gain better investment and portfolio returns. Present and potential investors should consider Indian telecom companies listed in the S&P BSE Telecommunication index for their investments to diversify their investment risk. They may consider the aforementioned fundamental variables for selecting telecom companies for their portfolios for better returns. Investors should also consider the country's inflation rate when making investment decisions, as the Inflation rate negatively impacts the companies' share prices. Thus, if inflation is increasing at a high rate, the investors should strategize their investments so that their effective portfolio return rate is favorable.

The regulators and government should also develop effective policies that can further boost the growth rate of the Indian telecommunication industry, as the contribution of the telecommunication sector to the country's GDP has been increasing in the last few years.

Overall Indian telecom companies' performance seems promising in the future. Thus, individual and institutional investors should consider the telecom sector at times of making investment and portfolio decisions.

## **7. Policy implications**

The findings of this study bear significant implications for policymakers tasked with steering the course of India's telecommunications sector. First and foremost, the results underscore the critical importance of implementing policies that encourage responsible debt management among telecom companies. Given the observed negative impact of increasing debt-to-equity ratios on share prices, there is a clear imperative for regulatory frameworks that promote prudent financial practices and discourage excessive leveraging. By fostering an environment conducive to sustainable debt levels, policymakers can safeguard investor interests while fostering a more stable and resilient telecommunications landscape.

Moreover, the study highlights the pivotal role of asset utilization in driving shareholder value. With the Total Assets Turnover Ratio (ATR) emerging as a significant predictor of share price performance, policymakers should prioritize initiatives aimed at enhancing operational efficiency and maximizing asset productivity within the telecommunications industry. This may entail incentivizing investments in technological innovation and infrastructure development, thereby enabling companies to extract greater value from their existing assets and bolstering overall industry competitiveness.

Furthermore, the study underscores the importance of profitability metrics such as Earnings Per Share (EPS), Price to Earnings ratio (P/E), and Return on Equity (ROE) in influencing share prices. In light of these findings, policymakers should champion policies that incentivize profitability and financial soundness, thereby fostering an environment conducive to sustained shareholder value creation. This may involve

measures to encourage transparency and accountability in financial reporting, as well as initiatives aimed at promoting a culture of corporate governance and responsible stewardship.

Additionally, the study's insights into the impact of inflation rates on share prices underscore the need for policymakers to adopt a proactive stance in addressing inflationary pressures. By implementing measures to mitigate inflationary risks and maintain price stability, policymakers can instill greater confidence in the investment climate, thereby supporting sustained growth and investor returns within the telecommunications sector.

Overall, the study's policy implications underscore the importance of a multifaceted approach to policymaking, one that prioritizes financial prudence, operational efficiency, profitability, and macroeconomic stability. By heeding these insights and crafting policies that align with these imperatives, policymakers can play a pivotal role in unlocking the full potential of India's telecommunications sector, driving growth, innovation, and prosperity for years to come.

## **8. Conclusion**

The present study was conducted to empirically analyze the influence of selected fundamental factors on the share price movements with the prime motive of assisting the investors, regulators, and government with the study findings. Indian telecommunication sector was selected for the study, and 13 telecom companies listed in one of the benchmark indexes, the S&P BSE telecommunication index, were chosen. Based on the literature review findings, six firm-specific fundamental factors and three country-specific fundamental factors were taken. It was found that solvency and profitability indicators significantly impact the share prices along with the general increase in the inflation price level. Liquidity measures, GDP growth rate, and overall market performance do not significantly influence the share price movements of selected telecom companies as per the results. Thus, investors must consider firm-specific (internal) factors along with external factors, precisely the Inflation rate, to assess the effective rate of return on their investment when making investment decisions. This is how investors can earn high returns and diversify their investment risk.

## **9. Limitation and future research scope**

The study's exploration of nine fundamental factors within India's telecom sector uncovers both limitations and promising paths for future research. While the analysis sheds light on crucial aspects specifically fundamentals, it overlooks significant influences such as future expectations, governmental policies, and disruptive external factors like aggressive marketing practices. Moreover, the absence of consideration for institutional investors, including both Domestic Institutional Investors (DIIs) and Foreign Portfolio Investors (FPIs), leaves room for a more holistic understanding of share price dynamics in the telecom industry. Moving forward, researchers can broaden their scope to encompass additional fundamental factors like quick ratio, return on assets, and net profit margin. By delving into diverse sectors and global regions, acknowledging institutional perspectives, and scrutinizing the impacts of

external disruptions, future studies hold the potential to offer comprehensive insights into market dynamics. These insights can inform investment strategies and contribute to ongoing discussions surrounding equity market efficiency and behavior.

**Author contributions** Conceptualization, RN and MSO; methodology, RN and MSO; software, RN; validation, RN and MSO; formal analysis, RN; investigation, MSO; resources, RN; data curation, RN; writing—original draft preparation, RN and MSO; writing—review and editing, RN; visualization, MSO; supervision, RN and MSO; project administration, RN and MSO; funding acquisition, RN and MSO. All authors have read and agreed to the published version of the manuscript.

**Conflict of interest:** The authors declare no conflict of interest.

## References

- Adebayo, A. D., Adekoya, A. F., & Rahman, M. T. (2017). Predicting stock trends using Tsk-fuzzy rule based system. *JENRM*, 4(7), 48-55.
- Agarwal, P., Bajpai, S., Pathak, A., & Angira, R. (2017). Stock market price trend forecasting using machine learning. *International Journal for Research in Applied Science and Engineering Technology*, 5, 1673-1676.
- Agustina, A., & Sumartio, F. (2014). Analysis of Factors Affecting Stock Price Movements in Mining Companies. *Jurnal Wira Ekonomi Mikroskil*, 4(1), 51-60. <https://doi.org/10.55601/jwem.v4i1.213>
- Ahmadi, E., Jasemi, M., Monplaisir, L., et al. (2018). New efficient hybrid candlestick technical analysis model for stock market timing on the basis of the Support Vector Machine and Heuristic Algorithms of Imperialist Competition and Genetic. *Expert Systems with Applications*, 94, 21–31. <https://doi.org/10.1016/j.eswa.2017.10.023>
- Bagheri, A., Mohammadi Peyhani, H., & Akbari, M. (2014). Financial forecasting using ANFIS networks with Quantum-behaved Particle Swarm Optimization. *Expert Systems with Applications*, 41(14), 6235–6250. <https://doi.org/10.1016/j.eswa.2014.04.003>
- Ballings, M., Van den Poel, D., Hespeels, N., et al. (2015). Evaluating multiple classifiers for stock price direction prediction. *Expert Systems with Applications*, 42(20), 7046–7056. <https://doi.org/10.1016/j.eswa.2015.05.013>
- Benaković, D., & Posedel, P. (2010). Do macroeconomic factors matter for stock returns? Evidence from estimating a multifactor model on the Croatian market. *BSRJ*, 1(1-2), 39-46. <https://doi.org/10.2478/v10305-012-0023-z>
- Buigut, K., Soi, N., Koskei, I., & Kibet, J. (2013). The effect of capital structure on share price on listed firms in Kenya. A case of energy listed firms. *European Journal of Business and Management*, 5(9), 29-35.
- Challa, M. L., Malepati, V., & Kolusu, S. N. R. (2020). S&P BSE Sensex and S&P BSE IT return forecasting using ARIMA. *Financial Innovation*, 6(1). <https://doi.org/10.1186/s40854-020-00201-5>
- Checkley, M. S., Higón, D. A., & Alles, H. (2017). The hasty wisdom of the mob: How market sentiment predicts stock market behavior. *Expert Systems with Applications*, 77, 256-263. <https://doi.org/10.1016/j.eswa.2017.01.029>
- Dadhich, G., Chotia, V., & Chaudhry, O. (2015). Impact of Foreign Institutional Investments on Stock Market Volatility in India. *Indian Journal of Finance*, 9(10), 22. <https://doi.org/10.17010/ijf/2015/v9i10/79561>
- Daniel, H. (2015). The Effect of Internal Factors on Stock Price of the Company LQ 45 Listed on the Indonesian Stock Exchange (IDX). *EMBA Journals*, 3(3), 863-876.
- Deitiana, T. (2013). Influence of Current Ratio, Return on Equity and Total Asset Turn Over against Dividend Payout Ratio and Implication on Stock Price Company LQ 45. *Journal of Business and Accounting*, 15(1), 82-88.
- Dewi, S. P., & Hidayat, R. (2014). Effect of Net Profit Margin and Return on Assets on Stock Prices on Automotive Companies Listed in Indonesia Stock Exchange. *ILMAN*, 1(1), 1-10.
- Dumiter, F. C., & Turcaş, F. M. (2023). Fundamental Analysis versus Technical Analysis. In: *Technical Analysis Applications: A Practical and Empirical Stock Market Guide*. Springer International Publishing.
- Ergun, U. (2012). Internal determinants of the stock price movements on sector basis. *International Research Journal of Finance and Economics*, 92, 111-117.
- Garba, A. (2014). Impact of macroeconomic factors on common stock returns: A study of listed manufacturing firms in Nigeria.

- European Journal of Business and Management, 6(13).
- Ghaznavi, A., Aliyari, M., & Mohammadi, M. R. (2016). Predicting stock price changes of Tehran Artmis company using radial basis function neural networks. *International Research Journal of Applied and Basic Sciences*, 10(8), 972-978.
- Göçken, M., Özçalıcı, M., Boru, A., et al. (2016). Integrating metaheuristics and Artificial Neural Networks for improved stock price prediction. *Expert Systems with Applications*, 44, 320–331. <https://doi.org/10.1016/j.eswa.2015.09.029>
- Gyan, M. K. (2015). Factors influencing the patronage of stocks, Knu. Kwame Nkrumah University of Science & Technology (KNUST).
- Herawati, A., & Putra, A. S. (2018). The influence of fundamental analysis on stock prices: The case of food and beverage industries. *European Research Studies*, 21(3), 316-326.
- Hunjra, A. I., Ijaz, M., Chani, D. M. I., & Mustafa, U. (2014). Impact of dividend policy, earning per share, Return on equity, profit after tax on stock prices. *International Journal of Economics and Empirical Research*, 2(3), 109-115.
- Huy, D. T. N., Dat, P. M., & Anh, P. T. (2020). Building an econometric model of selected factors' impact on stock price: A case study. *Journal of Security & Sustainability Issues*, 9.
- Idawati, W., & Wahyudi, A. (2015). Effect of earning per shares (EPS) and return on assets (ROA) against share price on coal mining company listed in Indonesia stock exchange. *Journal of Resources Development and Management*, 7, 79-91.
- Indrajaya, D., Ramdhan, D., & Hakim, L. (2019). The Influence of Profitability and Solvency Ratios on Stock Prices with Inflation as Moderating Variable (Case Study on BUMN). *International Journal of Technology and Business*, 3(2), 73-86.
- Jain, R. K., Metri, B., & Rao, K. V. (2019). Determinants of profitability of Indian commercial banks. *Indian Journal of Finance*, 13(1), 8-19.
- Kohansal, M. R., Dadrasmoghadam, A., Mahjori Karmozdi, K., & Mohseni, A. (2013). Relationship between financial ratios and stock prices for the food industry firms in stock exchange of Iran. *World Applied Programming*, 3(10), 512-521.
- Laboissiere, L. A., Fernandes, R. A., & Lage, G. G. (2015). Maximum and minimum stock price forecasting of Brazilian power distribution companies based on artificial neural networks. *Applied Soft Computing*, 35, 66-74.
- Lin, Z. (2018). Modelling and forecasting the stock market volatility of SSE Composite Index using GARCH models. *Future Generation Computer Systems*, 79, 960-972. <https://doi.org/10.1016/j.future.2017.08.033>
- Meythi, E. T. K., & Rusli, L. (2011). The Influence of Liquidity and Profitability on Stock Price of Manufacturing Companies Listed on Indonesia Stock Exchange. *Journal of Business Management and Economics*, 10(2), 2671-2684.
- Nagendra, S., & Kumar, S. (2018). Implications and usefulness of fundamental and technical analysis in stock market decision making. *Indian Journal of Finance*, 12(5), 54-71.
- Naveed, M. Y., & Ramzan, M. (2013). A view about the determinants of change in share prices: A case from Karachi stock exchange (banking sector). *Interdisciplinary journal of contemporary research in business*, 4(12), 41-57.
- Nguyen, P. H. (2021). Impact of macroeconomic factors and interaction with institutional performance on Vietnamese bank share prices. *Banks and Bank Systems*, 16(1), 127-137.
- Nti, I. K., Adekoya, A. F., & Weyori, B. A. (2020). A systematic review of fundamental and technical analysis of stock market predictions. *Artificial Intelligence Review*, 53(4), 3007-3057. <https://doi.org/10.1007/s10462-019-09754-z>
- Patel, J., Shah, S., Thakkar, P., & Kotecha, K. (2015). Predicting stock and stock price index movement using trend deterministic data preparation and machine learning techniques. *Expert systems with applications*, 42(1), 259-268. <https://doi.org/10.1016/j.eswa.2014.07.040>
- Permana, D. (2017). Toward the best model of strategy implementation in Indonesian Islamic banking from the lens of strategic clarity. *European Research Studies Journal*, 20(4B), 3-15. <https://doi.org/10.35808/ersj/870>
- Polii, P. J. V., Saerang, I., & Mandagie, Y. (2014). The Influence of Financial Ratios on Stock Price in National Private Foreign-Exchange Commercial Bank Listed on Indonesia Stock Exchange. *EMBA Journals*, 2(2), 993-1004.
- Purnamawati, I. G. A., & Ayu, G. (2015). The Influence of corporate characteristic and fundamental macroeconomy factor of automotive company stock price on Indonesia stock exchange. *International Journal of Business, Economics and Law*, 6(1), 55-62.
- Reddy, D. L. (2012). Impact of inflation and GDP on stock market returns in India. *International Journal of Advanced research in Management and Social sciences*, 1(6), 120-136.
- Safitri, A. L. (2013). Influence of Earning Per Share, Price Earnings Ratio, Return on Asset, Debt to Equity Ratio and Market Value Added on Stock Price of the Jakarta Islamic Index. *Management Analysis Journal*, 2(2), 1-8.
- Sankar, C. P., Vidharaj, R., & Kumar, K. S. (2015). Trust based stock recommendation system—a social network analysis



- approach. *Procedia Computer Science*, 46, 299-305. <https://doi.org/10.1016/j.procs.2015.02.024>
- Simbolon, L., & Purwanto, (2018). The Influence of Macroeconomic Factors on Stock Price: The Case of Real Estate and Property Companies. *Global Tensions in Financial Markets*, 34, 19-39. <https://doi.org/10.1108/S0196-382120170000034010>
- Sriram, M. (2018). Determinants of RoE of S&P BSE Sensex companies: A panel data analysis. *Indian Journal of Finance*, 12(9), 56-65.
- Subing, H. J. T., & Kusumah, R. W. R. (2017). An empirical analysis of internal and external factors of stock pricing: Evidence from Indonesia. *Problems and Perspectives in Management*, 15(4), 178-87.
- Thirunavukarasu, A., & Maheswari, U. (2013). Technical analysis of Fuzzy Metagraph based decision Support system for capital market. *Journal of Computer Science*, 9(9), 1146.
- Tripathi, R., Singh, A. B., & Singh, P. T. (2016). Impact of key macroeconomic variables on movement of the Indian stock market with reference to BSE Sensex. *Indian Journal of Finance*, 10(6), 38-50.
- Umoru, D., & Nwokoye, G. A. (2018). FAVAR analysis of foreign investment with capital market predictors: evidence on Nigerian and selected African stock exchanges. *Academic Journal of Economic Studies*, 4(1), 12-20.
- Utami, W. R., Hartoyo, S., & Maulana, T. N. A. (2015). The Effect of internal and external factors on stock Return: empirical evidence from the Indonesian construction subsector. *Asian Journal of Business and Management*, 3(5), 370-377.
- Vasanth, S., Dhanraj, V., & Varadharajan, R. (2012). Stock price movement through technical analysis: Empirical evidence from the information technology sector. *Indian Journal of Finance*, 6(10), 4-17.
- Zaheer, A. L. A. M., & Rashid, K. (2014). Time series analysis of the relationship between macroeconomic factors and the stock market returns in Pakistan. *Yaşar Üniversitesi E-Dergisi*, 9(36), 6361-6370.