

# A Systematic Literature Review and Research Agenda of Share Price Movement of the Indian Pharmaceutical Industry

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## ABSTRACT

**Purpose:** *This paper aims to systematically review the literature published over the past two decades on the share price movement of the Indian Pharmaceutical Industry. The paper emphasizes finding the major gaps in the existing studies on the share price movement of the Indian Pharmaceutical industry to address such gaps by raising specific questions about future research.*

**Design/Methodology/Approach:** *To identify the research gap and define the research agenda a systematic review of literature (SLR) method is employed for the present study. Over hundreds of peer-reviewed research articles published in two decades are analyzed and considering the theoretical prospect behind the study a few articles published since 1953 are also analyzed. The vitality of this research article is determined by studying the journal of publication, year of publication of the article, types of statistical techniques used, citation analysis, and text analysis on the literature on share price movements of the pharmaceutical industry and other related areas. The literature survey revolves around key areas such as share price behavior, fundamental analysis, technical analysis, volatility, stock valuation models, risk-return analysis, and investing psychology. Finally, the research gap, as well as the research agenda, are scrutinized for further studies using ABCD and SWOC frameworks.*

**Findings:** *Much of the existing literature on the Indian Pharmaceutical industry's share price movement suggests that limited research in this domain is undertaken. This literature review suggests investigating the share price movement of the Indian Pharmaceutical industry for a crucial time frame covering both the pre-Covid-19 and Covid-19 phases.*

**Originality/Value:** *The article spans a significant period (1953-2021). To the best of the author's knowledge, this is the first study to explore the share price movement of the Indian Pharmaceutical business using a systematic review of the literature approach. Academicians, researchers, and professionals working in the area of capital markets would find this article valuable in understanding the present status and the existing gap in the literature on the share price movement of the Indian Pharmaceutical industry.*

**Paper Type:** *Literature Review*

**Keywords:** Pharmaceutical Industry, Stock Price, Volatility, Fundamental Analysis, Technical Analysis, ABCD listing, SWOC analysis

## 1. INTRODUCTION :

The Indian stock market is a vital source of a fundraiser that caters to the various industries' huge investment needs. The investment thirst of the companies is satisfied by issuing Initial Public offerings (IPOs), Follow on Public offers (FPOs), shares, bonds, and debentures. All of these investment instruments are mobilized and channelized through the stock market to the investors. The main

objective of the investors is to reap the maximum profit on their investment bearing minimal risk. To attain this objective, it is important to have a better understanding of stock market trends and especially the knowledge of the performance of different sectors. The Indian Pharmaceutical industry is one of the most prominent subdivisions of the Indian stock market, contributing considerably to the country's economic development.

The Pharmaceutical industry takes the credit for saving the lives of people by providing various remedies to numerous diseases. Hence, the Pharmaceutical industry can be termed as the 'life liner' (Akhtar, 2013) [1]. The Indian Pharmaceutical business is responsible for the inventing, manufacturing, and marketing of pharmaceuticals or pharmaceutical drugs that are self-administered or widely prescribed to patients to diagnose, vaccinate or treat symptoms. Indian Pharmaceutical companies sell both generic and branded medicines, as well as medical gadgets. The industry is divided into three categories: a top tier of large domestic, foreign, and joint venture companies, a few hundred medium-scale units, and thousands of small-scale producers (Chaudhuri & György, 1997) [2]. The major divisions of the pharmaceutical industry in India are Generic drugs, Vaccines, Active Pharmaceutical Ingredients (API)/Bulk drugs, Over-the-Counter (OTC) medicines, Biologics, Biosimilars, and Contract Research & Manufacturing. The Indian Pharmaceutical industry has a number of distinguishing characteristics that sets it apart from the rest of the globe. To begin with, 70% to 80% of the retail market is made up of branded generics. Secondly, local players have benefited from commanding positions as a result of variables such as early investment possibilities and development capabilities, and lastly, the price of pharmaceutical drugs has remained low due to intense competition.

Since India's independence, the pharmaceutical industry has grown tremendously and progressed significantly. Western multinational corporations ruled the pharmaceutical business in India at the time of independence in 1947, owing between 80 to 90 percent of the market share mostly via importation. Foreign businesses possessed almost 99 percent of all pharmaceutical patents in India at the time, and domestic Indian medicine costs were among the highest in the world [3]. From the 1960s until the government implemented policies emphasizing self-sufficiency and employing local production the pharma business in India remained import-dependent (Rao, 2008) [4]. The stringent government reforms including the elimination of product patents through the Patent Act, 1970 on pharmaceuticals, agricultural products, and atomic energy and price limitations on some formulations and bulk drugs through the Drug Price Control Order (DPCO), 1970 led to the withdrawal of MNCs from Indian Pharma market. This resulted in local manufacturers stepping in to fill the void created by the MNCs abandoning the Indian Pharma market. By the 1990s in the manufacturing of bulk drugs, India became self-sufficient. Currently, the Indian pharmaceutical sector is the third-largest pharmaceutical producer in the globe and stands at the fourteenth position in terms of the value of production. This splendid ranking of the Indian pharmaceutical sector lauds the achievement of this industry. The Pharmaceutical Sector in India now accounts for 1.72 percent of the country's GDP. A noteworthy fact is that India is the leading supplier of generic drugs and Indian pharmaceuticals are favored and accepted worldwide. This preceding information is sufficient to justify why the country has earned the moniker 'The Pharmacy of the World' [5].

The implementation of a new product patent regime in January 2005 has instilled the confidence of global corporations searching for local prospects in India (Bhunja, 2010) [6]. The amendment stressed that after 1<sup>st</sup> January 1995, reverse engineering or duplicating of patented drugs is treated as illegal. Only two categories of generic pharmaceuticals are allowed in the Indian market under this act: off-patent generics and generic copies of medicines patented before 1995 (Mahajan, 2011) [7]. Through this amendment now the new patent holders can enjoy a 20-year monopoly starting from the day the patent is filed, with no generic copies allowed to be sold without obtaining a mandatory license over the patient's lifetime.

In recent years the Indian pharmaceutical department has undertaken many initiatives to boost the growth of the Pharma industry. In the year 2008 'Pharmaceutical Promotion Development Scheme (PPDS)' was launched by providing financial aid to promote export activities and to attract investment possibilities in the Pharma sector. The year 2014, proved to be remarkable for the pharma industry in

India as the ‘Cluster Development Programme for Pharma sector’ (CDP-PS) was introduced to stimulate and foster quality, productivity, and innovation in the pharmaceutical sector, as well as empower the Indian pharmaceutical industry, particularly SMEs, to compete on a global level. Another milestone was reached in the year 2018 when the department approved an umbrella scheme for promoting the Pharma industry namely ‘Scheme for development of Pharmaceutical Industry’. This scheme was designed to reduce the production cost of medicines to make quality medicines available at an affordable price. Apart from these schemes, the Department of Pharmaceuticals has also administered some other major schemes such as ‘Promotion of Medical Devices Parks (2020)’, ‘Promotion of Bulk Drug Parks (2020)’, ‘Production Linked Incentive Scheme for promoting domestic manufacturing of medical devices (2020)’, ‘Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSM)/ Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs) (2020)’ [8]. These initiatives are aimed at propelling India’s pharmaceutical industry to the top of the worldwide rankings.

In the succeeding years, the Indian Pharmaceutical sector appears to be changing its facet to flourish in a changing environment. The Indian Economic Survey 2021 predicts that the domestic pharmaceutical sector would triple in size during the coming decade. This gigantic growth will be perceived because of the impact of key factors such as the expanding level of disposable income, the sharp rise in middle-class households, the development of medical infrastructure, the penetration of health insurance companies in the market, the rising prevalence of chronic diseases, the uptake of product patents, and aggressive market penetration propelled by relatively smaller enterprises, as well as the technological advancements. By the end of the year 2030, the Indian pharmaceutical sector is estimated to have grown to a total market value of USD 130 billion [9]. Also, in the aftermath of the Covid-19 pandemic, the pharmaceutical business was seen to be one of the few on the stock market to benefit from the disease’s outbreak. The fundamental reason for this is that many investors believed pharmaceutical and healthcare businesses will engage in research and development to brace for the present pandemic and any such catastrophic events in the future, and this fact has led them to invest in Pharma and Healthcare companies (Mittal & Sharma, 2021) [10].

As discussed above the road ahead of the pharmaceutical sector appears to be very promising and attractive. Hence, investing in the pharmaceutical sector may bring lots of joy for the retail and institutional investors as it could lead to receiving a phenomenal reward. However, it is advised to investors play safely in the stock market by making more informed decisions. An investor can succeed in getting the maximum profit in investment by selecting the optimum portfolio. To select the right stock and construct the optimum portfolio it is imperative to watch and analyze the economy, company’s financial performance, prospects, market price, the risk involved and returns expected. In this light, an in-depth analysis of share price movement would prove to be beneficial for the investors.

This literature survey article intends to assist investors and other relevant stakeholders by identifying the current state and analyzing the existing gaps in the domain of share price movement of the Indian Pharmaceutical business in seeking to address such gaps by proposing an ideal research plan.

## **2. OBJECTIVES OF SCHOLARLY REVIEW :**

This literature review aims to study the literature related particularly to the share price movement of the Indian pharmaceutical sector and in this connection, the various pharma businesses across the globe are also analyzed. The paper provides a glimpse of a comprehensive literature review on pharma and other sectors belonging to a variety of financial markets all around the globe covering the key issues about share price behavior, financial performance, stock market risk, return, volatility, fundamental analysis, and technical analysis using systematic review methods. The assortments of research articles are evaluated to explain the data and fundamental concepts. An attempt is made to search, analyze and classify the existing and accessible literature on share price movement, financial performance, stock market risk, return, volatility, fundamental and technical analysis, and other areas related to equity analysis. The key objectives of this literature review are as follows:

(i) To synthesize the existing literature available on the share price movement of pharmaceutical companies /industries.

- (ii) To identify the research gap and search for opportunities to address the research gap.
- (iii) To develop a research agenda and bridge the gap between the present status and ideal status.
- (iv) To evaluate the research agenda using SWOC analysis.
- (v) To construct a research proposal and perform an ABCD analysis on the same.

### **3. RESEARCH METHODOLOGY OF LITERATURE REVIEW :**

The present study is undertaken by referring to various renowned electronic databases and major depositaries of research that include Google Scholar, Research Gate, Academia, Social Science Research Networks (SSRN), PubMed, ShodhGanga, Bielefeld Academic Search Engine (BASE), ScienceDirect, EBSCOHOST, ProQuest, JSTOR, Directory of Open Access Journals (DOAJ), Scopus, Web of Science, and other such resources from the worldwide web have been searched to locate the journal articles, books, book chapter, and conference proceedings. The paper spans majorly the time horizon of around two decades. In addition, a few articles published since 1953 are also referred to. Further, this piece of study only comprises peer-reviewed articles written in English with full-text access. Also, different article types such as case studies, research papers, review papers, conceptual papers, and working papers, articles having the search keywords in the article title, keywords, or abstracts are chosen as study samples.

A string-based database search was employed to collect the research articles based on the research statement, research objectives, abstract, and keywords. The relevance of the article to include in the literature review is determined by analyzing the title, place of reference, the information described, and the abstract at the initial stage. Further, the chosen article is scrutinized to check appropriateness to include in the sample literature review. If no relevance was discovered even after a thorough review the manuscript was excluded from the sample. Moreover, if no other significantly relevant literature was found to answer the research question the content of the existing literature was reviewed for analysis. The same process was continued to assimilate, synthesize and compile the ultimate sample into the literature review which is presented in the subsequent section.

The literature survey has broken down into two segments. The first segment briefs about the theoretical prospect and summarizes other relevant literature related to the study undertaken. The second part highlights challenges, gaps, advancement opportunities, and conclusions in the proposed research area. A database search was conducted from January 2022 to May 2022 and it included all the articles that satisfied the above-mentioned search criteria. After a thorough review, 102 articles have been cited in this study. The suitability of the title, keywords, and abstract of this paper was decided by a cross verification with the chosen sample of literature review articles.

### **4. SCHOLARLY REVIEW OF RESEARCH LITERATURE :**

The stock market provides a lucrative opportunity for investors to obtain handsome profits. The present-day investors strongly believe that investment in the stock market doesn't go futile and results in getting an attractive reward in comparison to the other investment avenues. According to the efficient market hypothesis, investors' decision-making behavior is aggregated in market dynamics and is subsequently manifested in share price and index fluctuations (Haryanto & Mawardi, 2021) [11]. It is important to monitor the stock price movement because it's a key factor that impedes the stock market and consumer spending. The share price doesn't remain constant; it's subjected to change frequently. Several studies have attempted to explain the stock market's behavior in the past, with an emphasis on investors' issues of entering and exiting the market with a profit (UR Rahman, 2019) [12]. Among the theoretical prospects that have been adopted to explain the stock price behavior 'Random Walk Theory (RWT) and Efficient Market Hypothesis (EMH)' is of more prominence. Kendall and Hill drew attention to this for the very first time in the year 1953 (Kendall & Hill, 1953) [13] in their paper titled 'The Analysis of Economic Time Series. It was also used in Fama's paper 'Random Walk in Stock Market Prices' from 1965 (Fama, 1965) [14]. Further, in the year 1973, when Burton Malkiel coined the term in his book 'A Random Walk down Wall Street [15] and compared random price fluctuations to a drunken man meandering aimlessly, the idea that financial markets follow random walks raised many eyebrows and became a more contentious issue. The random-walk theory claims that a stock's present market price is exogenous and independent of historical market price trends. It also suggests that the current

market price of a stock represents the market's best assessment of the stock's intrinsic worth based on all available information at any given time. The basic assumptions of this theory are: (a) In the stock market, the price of each stock follows a random walk (b) The movement of one security's price is unrelated to the movement of another security's price. Another investment theory that was developed by Fama in the year 1970 which is closely linked to the random walk theory is the 'Efficient Market Hypothesis' (EMH) (Fama, 1970) [16]. The Efficient Market Hypothesis (EMH) postulates that individual investors will act arbitrarily, there is no logic required for the investment. The EMH stresses that all available information about capital assets such as stocks has already been factored into the prices of the securities and no amount of fundamental and technical research will be of any help to beat the market; the market is always right.

Over the recent decades, a significant number of empirical studies are undertaken to test the validity of the random walk theory and efficient market hypothesis in both the developed and developing stock markets. Even though most early research supports the weak and semi-strong variants of the efficient market hypothesis in both established and emerging capital markets, recent research has found that stock market returns are predictable (Jayakumar et al., 2012) [17]. Also, the opponents of the random walk theory and efficient market hypothesis believe that stock prices do follow patterns or trends, even over a long period, indicating that the theories are faulty. They argue that since multiple factors are swaying the security's price, discovering the pattern or trend that the price pursues may be challenging. However, the fact that a pattern isn't apparent doesn't mean it doesn't exist. Another claim that goes against these theories is that the stock market has a big number of investors, and each one spends a varying amount of time there. As a result, short-term trends with inside the values of securities are feasible, and a smart investor may also outperform the market via way of means of intentionally buying equities while they are reasonably priced and selling them after they emerge as pricey inside a quick time frame.

The proponents who believe that stock prices can be predicted to near accuracy adopt two approaches to anticipating the stock prices. They are a) fundamental approach and b) technical approach. The fundamental approach is concentrated on analyzing the share prices based on vital elements such as economy, industry, and company statistics. The fundamental analysis technique broadly includes macroeconomic factors. The economic analysis is carried out to anticipate the direction of the national economy that impacts corporate profit, investors' decision-making, and expectation and ultimately affects the stock price. The industry assessment is performed to gain a greater comprehension of the industry in which the company operates and finally, the company analysis is done with the prospect of evaluating the projected performance of the company (AS, 2013), (Nti et al., 2020), (Bettman et al., 2009) [18]-[20]. The purpose of fundamental analysis is to identify whether a stock is overvalued or underpriced by determining an organization's underlying worth. For the investments that are held for a prolonged period fundamental analysis is of greater advantage. On the other hand, the technical analysis takes into account the historical stock price of the company and trading volume information in determining what the stock price will be? and thus, helps in making a trading decision. Technical analysis is relevant for the investments that are held for a shorter duration of time (Pinches, 1970) [21]- (Bhat, 2009) [22]. The purpose of technical analysis is to figure out the optimal time to enter or exit a market. The result of both these viewpoints is that traders with superior market comprehension and trading talents can significantly outperform the market average.

Equity investment is treated as a complex process that requires taking into account a variety of factors while selecting and dodging the stocks. One major factor is share price or index volatility which is in turn influenced by many other variables such as financial performance of the firm, cooperate decisions, macroeconomic aspects, demand for and supply of stocks, stakeholder views, and so on. Another factor influencing the equity investment decision is the monetary performance of the company. This can be better understood with the help of various financial ratios. The key accounting ratios such as profitability ratios, liquidity ratios, solvency ratios, turnover ratios, and earning ratios help the investor know about the financial well-being of the company and hence, help them to make more informed decisions. In addition, socioeconomic characteristics are considered to be affecting investment decisions. Yet another critical consideration is the behavioral aspects. The advocates of the behavioral finance paradigm strongly believe that investment decisions are triggered by emotional elements such

as endowment, regret aversion, loss aversion, herding behavior, mental accounting, and cognitive dynamics including overconfidence, gamblers fallacy, and hindsight bias.

The basic objective of an investor is to earn satisfying returns and protect wealth over time by recognizing and making informed decisions that are compatible with the risk appetite of the investor (Rangi & Aithal, 2021) [23]. In this direction, carrying a risk-return analysis way ahead of time of the chosen stocks for investment helps the investor make the right decisions. The term ‘return’ refers to the earnings obtained or losses realized by trading securities. The ‘risk’ of investment, on the other hand, refers to the likelihood of the investor losing money. Any security investment entails some level of risk, which might be extremely high or low. The risk-return tradeoff states that there exists a positive association between risk and return. An investor can realize higher returns in exchange for greater risk and there comes the probability of lower returns in exchange for lower risk. Henry Markowitz who pioneered Modern Portfolio Theory (MPT) in the year 1952, argued that the investors can construct the optimal portfolio and get the maximum returns by adopting the diversification strategy.

The relationship between risk and return is widely assessed using various models. One of the popular models is the ‘Capital Asset Pricing Model’ (CAPM) developed by Sharpe, Linter, and Mossin is a fundamental asset pricing model that describes stock returns in terms of systematic risk. However, there is a widespread belief that the simple CAPM does not sufficiently represent the behavior of stock returns. In the succeeding years, Fama and French brought to light that other factors that have been shown to affect stock returns include the earnings to price ratio, market capitalization (size), and book to market ratio. Furthermore, macroeconomic influences are thought to play a vital role in asset pricing. Ross developed the Arbitrage Pricing Theory (APT), which improved the CAPM’s ability to explain asset returns by incorporating additional macroeconomic variables. The macroeconomic elements that stimulate the stock market include the country’s Gross Domestic Product (GDP), inflation, industrial production, economic growth, political stability, exchange rates, unemployment rate, global commodity prices like gold and oil, and the outburst of the epidemic, endemic and pandemic diseases. Many research results evaluating the influence of macroeconomic parameters on the stock market show that the variation in the stock price is not only a result of the behavior of important macroeconomic elements but is also one of the major causes that triggers the movement in other macroeconomic dimensions [24]-[31].

The investor can adopt different strategies to minimize the risk in equity investment. The risk can be reduced by forecasting equity returns and volatility. In recent times, several forecasting techniques to predict the equity returns to accuracy are employed that make use of modern technological breakthroughs such as machine learning. The other approach to minimize the risk in light of stock market volatility calls for diversification of portfolio to traverse with ease irrespective of whatever the market pitches in.

To identify the research gap in the present study a variety of related research articles are accessed and evaluated. The following table summarizes the research findings on equity analysis of the Indian Pharmaceutical sector and other relevant works.

**Table 1:** The list of academic publications related to equity analysis of the Indian Pharmaceutical Industry, and other related topics.

S. No	Research Area	Focus Area	References
1	Share Price Behavior	The authors have investigated the share price behavior of Indian Pharma companies that were involved in mergers from 2007 to 2011. The mean of the abnormal return and the cumulative average abnormal return was computed. The study found that the announcement of a merger had no effect on share price movements and that no significant abnormal returns were gained over the study period.	[32]
2	Share Price Behavior	The paper examines the forecasting behavior of share prices of selected stocks of the pharma industry in India, using trend value analysis. Trend analysis is used to test if the share price is prospering in the future or not. The inference drawn from trend value analysis indicates that the share price of some stocks taken	[33]

		for the study has increased and the share price of some other stocks has dwindled.	
3	Share Price Behavior	The paper highlights the impact of a) earnings per share b) dividend per share, and c) the price-earnings ratio on the share price movement of selected stocks of pharma companies listed on NSE. The statistical tools adopted for the study are mainly regression and multiple regression. The outcome of the research demonstrates that EPS is strongly linked with the share price movements of Dr. Reddy, Cipla, Lupin, Torrent, and Sun Pharma. The Price-earnings ratio has a strong positive link with Dr. Reddy and Torrent and the third crucial element i.e., dividend per share also exhibited a great influence on companies undertaken for the study.	[34]
4	Share Price Behavior	The article assesses the relationship between cash flow from operating activities on the share price by focusing on the Nifty Pharma Index companies. The statistical analysis has revealed that the cash flow from operating activities has a significant positive relationship with the market price per share of Nifty Pharma Index companies.	[35]
5	Share Price Behavior	The repercussions of the Covid-19 pandemic on Vietnam's pharmaceutical industry's share price were examined in this paper. The study revolved around three main events. The outcome of the study has revealed that the stock price of the industry mainly reacted after the date of the announcement of the event with the industry reacting negatively following the second event date.	[36]
6	Share Price Behavior	The paper inspects the influence of the Covid-19 pandemic on Indian Pharmaceutical companies' stock returns. It is found through the study that the pharmaceutical sector's abnormal returns and cumulative abnormal returns are positive and statistically significant during the study period.	[37]
7	Share Price Behavior-Event Study	A few more articles cited in this segment emphasize the share price reaction to different events. (a) The key event dividend announcements were taken for the study and the impact of the same on share price behavior was investigated to determine the Ghana Stock Exchange's (GSE) efficiency in impounding pertinent information in share prices. The outcome of the study was that the GSE wasn't semi-strong efficient. (b) The research reports how much of an impact the lockdown imposed due to Covid-19 has on the Indian stock market and whether the market response is the same before and after COVID-19. The event study conducted is based on the Market Model. (c) The main purpose of the research was to look at the information content of the companies' quarterly earnings reports to see how quickly quarterly earnings data gets translated into share prices in a fair and timely manner. To find the linear normal return of daily share prices of sample companies the data set is integrated into the linear regression model. (d) To examine the consistency of the Nigerian stock market, the 'Efficient Market Hypothesis (EMH)' is used in its semi-strong form, with bonus issues serving as the evidence-generating event. Between 2002 and 2006, an overall 121 bonus issues were discovered and investigated using daily data. According to the	[38] [39] [40] [41] [42] [43]



		<p>findings, small bonus issues responded more quickly than mediocre and big bonus issues. Furthermore, the comparison between blue-chip stocks and penny stocks reveals that only penny stocks were considerably impacted.</p> <p>(e) An event study was performed to watch how dividend announcements affected the Indian stock market using the 'Market Model' and the 'Capital Asset Pricing Model' (CAPM). The study's findings imply that when a dividend announcement is made, large abnormal returns are more evident under the CAPM model.</p> <p>(f) The impact of the demonetization announcement on the S&amp;P (Standard &amp; Poor's) BSE SENSEX index and the 30 topmost trading equities that make up S&amp;P BSE SENSEX was studied taking into consideration the pre-and post-announcement period. Empirical findings indicate that the occurrence of the event had no discernable impact on stock performance during the study period.</p>	
8	Fundamental analysis	The financial performance of ten selected pharma and healthcare companies was examined as part of the fundamental analysis. The study primarily hinges on ratio analysis. The companies were ranked based on various criteria. Torrent has grabbed the top spot followed by Piramal Healthcare in 2nd position. Sun Pharma has appeared at the bottom of the list among all the ten companies by delivering poor financial performance.	[44]
9	Fundamental Analysis- Macroeconomic Variables	A top-down approach has been used in this research paper that covers a detailed a) macroeconomic analysis including analysis of Gross Domestic Product (GDP), Public and Private Investment, The Consumption. b) Sectorial Analysis consisting of study of competitors, suppliers, customers, and others; and c) Company Analysis comprising of financial and non-financial perspective. This fundamental analysis is pertinent to Peruvian non-listed Real Pharma companies.	[45]
10	Fundamental Analysis	The research article expounds on the construction of a portfolio based on fundamental analysis. Banking, Pharma, and automobile sector are the three sectors taken for the study. Sales of the company, net profit, operating profit, tax, and operating margin factors are the various tools that are employed for the analysis. Based on the fundamental analysis carried out, the outcome of the study directs to choosing the best companies from each of the above-mentioned sectors to construct the optimum portfolio.	[46]
11	Fundamental / Technical Analysis	This piece of research has used the survey method to determine whether the brokers/fund managers in the Indian stock market rely on fundamental or technical analysis to construct their forecasts of share price movements while taking a position in Large Cap, Mid Cap, and Small Cap companies. The findings of the research reveal that a larger portion of the respondents depends upon both methods to forecast the price movements at different time horizons. The outcome of the study also validates that when the market is bullish, players place greater reliance on technical indicators and when the market is bearish, participants rely on fundamental analysis.	[47]
12	Fundamental Analysis- Macroeconomic	The following articles explain the impact of macroeconomic variables on the stock market/stock prices:	[48] [49] [50]

	mic Variables	<p>(a) The association between the macroeconomic factors and the stock market in two rising economies (Egypt and Tunisia) is studied. The study spans the timeframe January 1998 to January 2014. The money supply, exchange rate, Consumer Price Index (CPI), and interest rate are the four macroeconomic elements considered for the study. The findings of the study suggest that the four macroeconomic parameters in both countries are interlinked with the stock market.</p> <p>(b) Granger Causality and co-integration tests are used to evaluate how the GDP, inflation rates interest rates, and exchange rates are impacting the stock prices in Pakistan. The study's findings show that in the short term, the dependent variable and explanatory variables have no relationship. However, a robust association is found in the long run between these two variables.</p> <p>(c) The purpose of the research was to investigate the joint influence of global and indigenous macroeconomic factors on stock returns, as well as to extend this relationship to the Bangladeshi developing market. Findings from the Vector Autoregression (VAR) model show that money supply has a momentous impact on Dhaka Stock Exchange stock returns (DSE).</p> <p>(d) The study utilizes correlation, unit root stationarity tests, and the Granger Causality test to investigate the causative relationship between the BSE Sensex and three main macroeconomic indicators of the Indian economy (industrial production index, exchange rate, and wholesale pricing index).</p> <p>(e) The macroeconomic elements such as money supply, inflation, rate of exchange, interest rates, and industrial production, are taken into consideration and their impact on Islamic stock returns in India is studied using Ordinary Least Square (OLS) regression. Findings indicate that the Islamic stock market is majorly stimulated by exchange rates and interest rates.</p> <p>(f) By taking into account the various sectors of the Indian economy, represented by sectoral indices, a study has been conducted whereby five macroeconomic variables: the exchange rate (USD), foreign institutional investments, crude oil prices, current account balance, and foreign exchange reserves are tested to investigate their influence on sectoral Indices. The multiple Regression Equation Model was employed for the study. The findings indicate that, among the five factors, only Foreign Institutional Investments affected all sectoral indices.</p>	<p>[51] [52] [53]</p>
13	Financial Performance	<p>The profitability status of the five leading Indian pharmaceutical businesses is examined from 2011 to 2016. Various ratios are calculated. Further, various statistical tools such as mean, standard deviation, coefficient of variation, and multiple regression are used on the calculated ratios. The analysis shows that during the study period, return on equity capital, gross profit ratio, operating ratio, and earnings per share had a substantial impact on the net profit ratio of the selected pharmaceutical companies. Also, the profitability stance of the selected pharmaceutical companies during the study period is found to be satisfactory.</p>	<p>[54]</p>

14	Financial Performance	The financial performance of pharmaceutical companies in India is investigated taking into account the top three pharmaceutical giants Dr. Reddy's Laboratories, Cipla, and Ranbaxy for the period 2003-2012. Applying the Dupont analysis, the 'Return on Equity (ROE) and 'Return on Investment (ROI) are measured. The result of the analysis states that Cipla Pharmaceutical ROE and ROI have the highest returns on equity and investment followed by Dr. Reddy's and Ranbaxy.	[55]
15	Financial Performance	The influence of liquidity management on the financial results of Cipla and Sun Pharma is investigated using ratio analysis, Spearman's rank correlation analysis, comprehensive rank test, and t-test for the period 2009-10 to 2018-19. The outcome of the study indicates that Cipla's liquidity position is better than Sun Pharma and the examined hypothesis disclosed that there exists no significant difference between liquidity management on the financial performance of Cipla and Sun Pharma.	[56]
16	Financial Performance	A detailed analysis has been carried out on the financial position of India's leading stockbroker Motilal Oswal Financial Services Ltd by making use of ratio analysis as a tool.	[57]
17	Volatility	This research paper dated back to 1982 has introduced ARCH i.e., the autoregressive conditionally heteroscedastic model. In this piece of research, the ARCH model is used to calculate the means and variances of inflation in the UK. In the subsequent paper, the ARCH model is employed to estimate the variance of U.S inflation.	[58] [59]
18	Volatility	The researchers have examined the influence of the advent of derivative products on spot market volatility in the Indian stock market using the ARCH/GARCH approach.	[60]
19	Volatility	The paper sheds light on validating a good volatility model by considering its potential to foresee and capture the widely recognized stylized facts regarding conditional volatility. GARCH, i.e., generalized autoregressive conditional heteroscedasticity family models are used in this study to capture the stylized facts.	[61]
20	Volatility	The authors have explained the relationship between trading volume and stock return volatility in the Indian stock market over the study period from January 2005 to January 2010. To predict the volatility various models such as GARCH, asymmetric TAR, EGARCH, PGARCH, and CARSH models are used.	[62]
21	Volatility	The paper suggests that in comparison to SV and GARCH models RV-type models (HAR-RV and HAR-CJ) are effective in predicting future volatility. On this ground, HAR-CJ-M based on the HAR-CJ model is used by adding irrational factors of investors in improving the forecasting performance of the volatility of the Chinese stock market.	[63]
22	Volatility	TGARCH and EGARCH, two widely used asymmetric volatility models, were deployed to study the impact of good and bad news on the volatility of the Indian stock market during the global financial crisis of 2008-09.	[64]
23	Stock Valuation Model-Accounting Model	In this paper, the researchers have deployed Lyle, Callen, and Elliott's (2013) technique to estimate expected returns (cost of capital) in the Brazilian capital market.	[65]

24	Stock Valuation Model	In the Japanese equity market, the relative valuation model is employed to spot undervalued and overvalued stocks.	[66]
25	Stock Valuation Model	The CAPM, EBO Model, P/B Model, P/E Model, Dividend Discount Model, and Excess Return valuation models were used in the study to demonstrate the framework for evaluating BSE Bankex equities. The empirical findings show that the linear accounting-based valuation model (EBO Model), which contains both stock and flow components, has greater explanatory power and hence more accurately represents the various characteristics of bank stock values in India.	[67]
26	Stock Valuation Model	To investigate the formation of stock prices at the Tehran stock exchange a set of four stock valuation models namely the present value model, the Gordon valuation model, the Walter valuation model, and the Price to Book value (P/B) model are used.	[68]
27	Stock Valuation Model	The study aims at obtaining a better understanding of the P/E earning models. It also briefly summarizes their calculation and application alternatives.	[69]
28	Stock Valuation Model	The relevance of the P/B-ROE model in estimating expected shareholder return, investment horizon, and market consensus expected return on equity using historical data is explained in this study. It also aids in establishing the relationship between dividend policy, stock price and earnings stability, leverage, and beta.	[70]
29	Stock Valuation Model	The purpose of the study was to evaluate valuation models' accuracy in valuing the firms in Europe. The findings indicate that when valuing companies in Europe, researchers favor cash flow-based models over accrual-based models.	[71]
30	Stock Valuation Model	The research investigates whether the valuation model adopted affects the accuracy of target prices. Using two indicators of target price accuracy and two measures of forecast error, the accuracy of the target price and forecast error of PE and DCF models are verified.	[72]
31	Stock Valuation Model	The empirical investigation has been carried out on the Price-to-Book ratio (P/B ratio) as a valuation model on Singapore data. The analysis reveals that the fundamental variable that defines the firm's worth explains a substantial proportion of the variability in its P/B ratio, leading to the conclusion that the P/B ratio model is a sound valuation model.	[73]
32	Risk-Return Analysis	This research establishes empirical proxy measures of information technology (IT) risk, which are then incorporated into the standard empirical models for measuring production function, IT returns, and market value specifications. The findings reveal that IT capital investments significantly contribute to overall firm risk than non-IT capital investments.	[74]
33	Risk-Return Analysis	To examine the risk-return characteristics of Islamic indices across various timelines wavelet analysis, a relatively novel approach in finance has been utilized. The research is focused on the multi-horizon nature of, average return, volatility, systematic risk (market beta), and correlation. Between 2008 and 2012, Dow Jones indices from 11 nations, especially emerging economies, and ten worldwide industries were used to conduct the research.	[75]

34	Risk-Return Analysis- Emerging Markets	<p>(a) The relevance of multifactor asset pricing models, idiosyncratic volatility, and conditional idiosyncratic volatility, in pricing Vietnamese stocks at the portfolio and company levels is investigated empirically in this paper.</p> <p>(b) The trade-off between risk (conditional volatility) and projected returns for the Egyptian and Saudi Arabian stock indices are investigated in this article.</p> <p>(c) The researchers have investigated the veracity of risk-return and information-return relations using a GARCH-M estimation technique. As a benchmark for the arrival of information to the market, volume is employed in both the variance and return calculations. It is revealed that there is a positive risk-return relationship and that the positive interaction between volume and risk and return continues when the volume is included in both the return and variance equations.</p>	[76] [77] [78]
35	Risk-Return Analysis	A risk-return comparison is made between the Sensex and selected Indian banking equities. The major tools employed in this study were descriptive, correlation, and regression analyses.	[79]
36	Risk- Return Analysis	To quantify portfolio performance, the researchers have developed a new model named the A-Y model, which is based on risk and returns. The portfolio performance was measured using the proposed methodology, which included lost profit and unrealized loss.	[80]
37	Risk-Return Analysis	The research concentrates on evaluating the risk associated with the selected scrips, as well as doing a comparative study on the risk and return of scrips. The research was carried out utilizing descriptive research techniques.	[81]
38	Risk-Return Analysis	Researchers in this study have analyzed nine stocks from the software, healthcare, and infrastructure sectors listed on Sensex to estimate beta values and create an optimal portfolio of low beta values.	[82]
39	Risk-Return Analysis	The risk and return of selected companies belonging to the Indian Financial Services industry are examined. Descriptive statistics, correlation, and Beta are among the statistical techniques employed.	[83]
40	Portfolio Performance Evaluation	This study attempts to construct an optimal portfolio using Sharpe's single index model. Further, Sharpe, Jensen, and Treynor ratios are used to analyze portfolio and market returns.	[84]
41	Financial Statement Analysis	The paper highlights the types and methods of financial analysis. A detailed description is provided of the methods of financial analysis including common-size statement analysis, comparative statement analysis, trend analysis, cash flow analysis, fund flow analysis, net working capital analysis, and cost volume profit analysis.	[85]
42	Determinants of Share Price	The study assesses the fundamental determinants of share price in India using a panel data approach. The random-effects model and the Fixed Effects model are employed for the study.	[86]
43	Event Study Methodology	A comprehensive study is conducted by incorporating three stages of primary analysis to identify supplemental strategies, influential works, and intellectual agglomerations in the domain of business event study methodology.	[87]

44	Technical Analysis	The research paper demonstrates the application of technical analysis in the Indian stock market to forecast share price patterns. ‘Candlestick chart, Exponential Moving Average (EMA), Relative Strength Index (RSI), and Moving Average Convergence Divergence (MACD)’ are the main tools employed in this study. This piece of research provides a good implication to the investor in deciding the right time to purchase or sell the stock.	[88]
45	Technical Analysis	Technical analysis is performed on the large-cap stocks of the Indian steel sector using the Candlestick pattern.	[89]
46	Technical Analysis	To create an applied approach to optimal portfolio construction and stock price performance analysis a synthesis of Technical Analysis, Fundamental Analysis, and Artificial Intelligence is made. The findings of the study indicate that by adopting this methodology investors can experience positive returns and select the optimum portfolio that will help enhance the returns while minimizing the risk of investment.	[90]
47	Technical Analysis	This investigation proposes a novel decision support system for creating effective stock trading strategies that may offer investors enticing returns. The model has integrated trend analysis with machine learning techniques to create effective stock trading decisions.	[91]
48	Technical Analysis	Deep learning architecture is designed for stock price prediction which uses 4 models i.e., Recurrent Neural Networks (RNN), Multilayer Perceptron (MLP), Convolutional Neural Network (CNN), and Long Short-Term Memory (LSTM). Also, a comparative study is made whereby the performance of the above-mentioned models is compared with the linear model i.e., the ‘Autoregressive Integrated Moving Average’ (ARIMA) model. The outcome of the study reveals these deep learning models are capable of detecting stock market trends and they surpass the ARIMA model.	[92]
49	Investing Psychology	The research papers discussed in this segment are related to behavioral aspects of investors which influence investment decisions. (a) The first paper speaks about psychological biases such as overconfidence, conservatism, availability bias, and herding. (b) In the second paper more cognitive biases are discussed which include mental accounting, framing, representativeness, and the disposition effect. (c) The third paper identifies various behavioral biases and has developed a reliable and accurate scale to estimate them. (d) Fourth paper takes into account the risk appetite and attitude of investors. (e) The fifth paper describes the relationship between financial literacy and investment decisions.	[93] [94] [95] [96] [97]
50	SWOC Technique	The research papers explain the usefulness of situation analysis in domains that require strategic planning by incorporating the SWOC Framework.	[98] [99]
51	ABCD Scheme	The articles address the applications of the ABCD framework to a business strategy. The model is built around four prototypes namely advantages, benefits, constraints, and disadvantages.	[100] [101] [102]

**5. PRESENT STATUS :**

The literature review directs that many event studies are undertaken to learn the impact of the noteworthy events on the share price behavior of different industries in different markets. These events include corporate announcements such as mergers and acquisitions, dividend announcements, bonus issue announcements, etc. Further, the influence of macroeconomic events such as changes in the exchange rate, interest rate, GDP, inflation rate, the impact of the outbreak of epidemic diseases, etc. on share price or stock market is learned across various sectors and nations. Also, many studies are conducted on fundamental analysis (including economic, industry, and company analysis), technical analysis, and risk and return analysis to help investors make informed investment decisions.

The literature survey reveals that some of the research undertaken in recent times i.e., during the Covid-19 pandemic has explained the repercussions of Covid-19 on the share price behavior of various sectors across the globe including the Pharma sector in India. However, no amount of investigation has been carried out on the Indian Pharmaceutical industry's share price movement for a significant time frame. In most cases, the study period taken into account to learn the effect of Covid-19 on share price movement has hovered around the Covid-19 pandemic period and has ignored pre Covid-19 period. Therefore, the research proposal is designed to address the said gap which includes the significant time frame of 7 years (2015 to 2022) to study the share price movement of the Indian Pharmaceutical sector covering the pre-Covid-19 and Covid-19 pandemic period. In the wake of the Covid-19 pandemic, it is appropriate and timely to learn and understand the share price movement of the Indian Drug and Medicinal Industry for a substantial time frame which will help answer the research question 'Did the share price movement of the Indian Pharma unit in the Bombay Stock Exchange's Healthcare (BSE Healthcare) index throughout the research period demonstrate volatility?'

An investigation that covers both the pre-pandemic and pandemic period will help to understand how well off the industry was in terms of its financial performance before the hit of Covid-19 and how it has performed after the outbreak of the disease. Also, the inquiry will expose the trend in the share price movement before and after the outbreak of disease and help analyze the volatility level during the study period.

### **5.1. Why Indian Pharmaceutical Industry?**

Investors may consider investing in various sectors based on the historical performance and the current market scenario. The Indian Pharma industry started gaining momentum after the patent act which was amended in the year 2005 and thereafter no looking back. The industry has witnessed robust growth over the years and in the present scenario, the Indian Pharma sector appears to be the hot sector capturing the attention of retail and institutional investors. Especially the outbreak of Covid-19 turned out to be a boon for India's Pharmaceutical industry. During this tenure, several crucial moves were taken by Union Cabinet to strengthen the Pharma business in India. The amendments were made to the current Foreign Direct Investment Policy, which permits FDI to invest up to 100% in medical device manufacturing under the automatic route, subject to specific terms and conditions. Sterilization equipment and germicidal cabinets, portable and refillable car sanitizers, alcohol and bleach-free sanitizers, and a hospital-specific wheeled sterilization unit were some of the investments made by researchers from reputable organizations in the pharmaceutical sector during the Covid crisis. Several Indian Pharma companies have signed the MoUs and made license agreements during this period with the pharmaceutical giants of other countries. India has announced plans to partner with the Netherlands to develop digital health services. Also, more emphasis is given to research and development activities by investing in R&D to invent the medicines and vaccines that will fight against the disease. Along with this many initiatives and schemes have been undertaken by the Indian central and state government to boost the growth of the pharma industry. The pharma sector appears to be a promising sector for retail and institutional investors. However, the investor would like to get the maximum returns with their investments. At this juncture considering both the pre-pandemic and pandemic period carrying out an in-depth study of the Indian Pharma industry will help to understand the conditions of this sector in this period in terms of financial performance, share price trend, and volatility. This study would prove to be favorable in taking the right investment decisions for the investors who like to build a portfolio in the Indian Pharma sector.

## **6. SUMMARY OF RESEARCH FINDINGS RELATED TO SHARE PRICE MOVEMENT OF INDIAN PHARMACEUTICAL INDUSTRY BASED ON LITERATURE SURVEY :**

A review of research findings related to the Indian Pharmaceutical Industry's Share Price Movement is identified in Table 2.

**Table 2:** Summary of key research findings related to the Indian Pharmaceutical Industry's Share Price Movement acknowledged from the literature review.

S. No	Research Area	Focus Area	References
1	Share Price Behavior	The share price reaction to the occurrence of various events has been investigated. These events include dividend announcements, mergers, quarterly result announcements, bonus issue announcements, the outbreak of Covid-19 disease, etc.	[32]-[43]
2	Fundamental Analysis	The real influence of a bunch of macroeconomic parameters such as interest rate, exchange rate, inflation, GDP, money supply, and other factors on the stock returns of various developing and developed countries has been studied.	[44]-[53]
3	Financial Performance	The financial performances of various Pharmaceutical and other companies are examined mainly using the ratio analysis technique.	[54]-[57]
4	Volatility	A variety of volatility models are used to forecast the stock market movement and evaluate stock market performance. Majorly asymmetric and symmetric GARCH family models were among the models used in the investigations.	[58]-[64]
5	Stock Valuation Model	To value the stocks, several stock valuation models are used, including the P/E, P/B, Dividend discount model, EBO model, and others.	[65]-[73]
6	Risk-Return Analysis	Mainly, the relationship between risk and return of various securities has been investigated.	[74]-[83]
7	Technical Analysis	Technical analysis is employed to predict the stock prices making use of vital tools such as the Candlestick chart, Relative Strength Index (RSI), Moving Average Convergence Divergence (MACD) Exponential Moving Average (EMA), artificial intelligence, and deep learning techniques.	[88]-[92]

## 7. RESEARCH GAPS AND PROPOSAL :

A thorough review of the literature has brought to light that the research is lagging in the area to learn the share price movement of the Indian Pharmaceutical Industry for a significant period covering both the pre-Covid-19 and Covid-19 period. The following research gaps are identified through this survey, and the best remedy is suggested to minimize the research gap.

- Research Gap 1:** To learn about the financial Performance of the Selected stocks of the Indian Pharma Industry during the study period.  
The financial health of a corporation is determined by its financial performance. This information can assist the interested parties to intake the right investment decisions. There is a scope for the research to investigate the financial soundness of the selected stocks of the Indian Pharma Industry during the pre-pandemic and pandemic period.
- Research Gap 2:** To study the monthly share price behavior of selected stocks of the Indian Pharmaceutical Industry during the study period.  
By conducting an equity analysis risk involved and the return expected in a particular stock can be estimated. There lies the tremendous opportunity for research to investigate the share price movement of selected scrips of the Indian Pharma sector during the pre-pandemic and pandemic period.
- Research Gap 3:** To examine the volatility persistence of selected scrips of the pharmaceutical industry during the research period.  
The study of share price volatility is a major factor influencing the investment decision of the investor. The stock which exhibits less volatility is preferred over the stock which exhibits more



volatility. Accordingly, there exists an opportunity to assess the volatility level of the selected scrips of the Indian pharma sector during the study period.

- **Research Gap 4:** To forecast the share price trends of the selected stocks of the Indian Pharma industry using technical analysis and ascertain the risk and return involved.  
The usage of technical analysis would help in anticipating the swings in the share price. The scope of the research persists in conducting the technical analysis of chosen stocks of the Indian pharmaceutical industry following the outburst of the Covid-19 Pandemic.
- **Research Gap 5:** To study different impacting factors in Pharmaceutical Industry which influence share value developments.  
An in-depth study of the determinants shaping the share value price of the Indian pharmaceutical industry can be carried out.
- **Research Gap 6:** To provide a detailed explanation of the share value behavior of the Indian pharmaceutical sector's selected stocks chosen for the study.  
The overall performance of the selected stocks in the pharmaceutical industry will be assessed and valuable suggestions could be provided to the investors in buying/selling the shares.

### 8. RESEARCH AGENDAS :

- (1) To investigate the financial performance of the selected stocks of the Indian Pharmaceutical industry before Covid 19 and during Covid 19.
- (2) To examine the monthly share price movement of selected scrips of the Indian Pharmaceutical industry before and during Covid 19.
- (3) To study the volatility dynamics of selected stocks of the Indian Pharmaceutical industry using GARCH family models before and during Covid 19.
- (4) To foresee the stock price trends using the technical analysis and to check the return and risk associated with the stocks.
- (5) To study different impacting factors in Pharmaceutical Industry that shapes share value developments.
- (6) To provide a detailed explanation of the share value behavior of the selected stocks of the Indian Pharmaceutical sector chosen for the study.

### 9. SWOC ANALYSIS OF RESEARCH AGENDA :

SWOC is a framework to assess the strengths, weaknesses, opportunities, and challenges systematically. The main goal of the SWOC analysis is to develop a full awareness of the forces influencing the strategy [98][99]. Internal factors influencing the strategy include strengths and weaknesses, whilst opportunities and challenges are the external elements affecting the proposal. Strengths are the characteristics that give competitive advantages to the business. On the other hand, weaknesses are those hindrances that the business needs to overcome to improve performance. Weaknesses must be identified and addressed in a timely fashion before they could damage the business or strategic plan. Opportunities are those rudiments that could add value to the business and challenges are those elements that could hamper the scope of attaining the objective of the business. Challenges abound, and they must be handled wisely. SWOC analysis performed on the research proposal has identified the following result.

#### Strengths:

- (1) The proposal is first to inspect the Indian Pharmaceutical industry's share price movement covering the pre-Covid -19 and Covid-19 periods.
- (2) The agenda will exclusively focus on the Indian Pharmaceutical sector providing a clear picture of financial performance, share price trend, and volatility of the industry.
- (3) The study is robust as it covers both the crucial components i.e., fundamental and technical analysis to learn about the share price behavior.
- (4) Agenda caters to assist the investors in understanding the share price pattern of selected stocks of the Indian Pharmaceutical sector which helps the investor make more informed investment decisions.
- (5) The inclusion of a technical analysis approach in the study will serve as an added advantage to the investors to know about the future trends in the share price.

- (6) The agenda includes a system for ranking stocks based on the return they generate.
- (7) The cost involved in carrying out the research is minimal. Hence, it's cost-effective.

#### **Weaknesses:**

- (1) The accuracy of the research result is subjected to the precision of the source of data collection.
- (2) The above-mentioned agendas are judgmental and time-bound.

#### **Opportunities:**

- (1) The agendas can be applied to check the share price movement of pharmaceutical industries in various developed and developing markets.
- (2) Adoptable by relevant stakeholders researching equity analysis.
- (3) The development of new theories and models will open the door to achieving further novelty in the research.
- (4) The objective will contribute to helping the investors make more informed investment decisions.

#### **Challenges:**

- (1) The validity of the research outcome depends on the data which is reported and publically available. If the company has incorrectly reported the data, then the result of the analysis may be incorrect leading to provide a false conclusion.
- (2) Any other new inventions or discoveries or innovations in the field could be disrupting the execution of the agenda.

### **10. FINAL RESEARCH PROPOSAL ON CHOSEN TOPIC :**

After thoroughly examining the literature and considering the identified research opportunities in this paper, the following is proposed as a final research proposal:

#### **10.1. Title:**

Share Price Movement of the Indian Pharmaceutical Industry.

#### **10.2. Purpose:**

As outlined in the present status segment, there is an opportunity to study the share price movement of the Indian Pharmaceutical industry covering both the pre-Covid-19 and Covid-19 periods. A holistic approach will be applied taking into account both the fundamental and technical analysis to determine the share price trend in the past and future. This combined approach will provide more useful insights to the investors in making their investment decisions and help build an optimum portfolio of pharmaceutical stocks.

#### **10.3. Research Objectives:**

- (1) To investigate the financial performance of the selected stocks of the Indian Pharmaceutical industry before Covid 19 and during Covid 19.
- (2) To examine the monthly share price movement of selected scrips of the Indian Pharmaceutical industry before and during Covid 19.
- (3) To study the volatility dynamics of selected stocks of the Indian Pharmaceutical industry using GARCH family models before and during Covid 19.
- (4) To foresee the stock price trends using the technical analysis and to check the return and risk associated with the stocks.
- (5) To study different impacting factors in Pharmaceutical Industry which shapes the share value developments.
- (6) To provide a detailed explanation of the share value behavior of the selected stocks of the Indian Pharma sector chosen for the study.

#### **10.4. Proposed Methodology:**

##### **Study Population:**

The study comprises the Bombay Stock Exchange's (BSE) sectorial index namely BSE Healthcare Index.

### Study Sample:

As of February 28, 2022, the S&P BSE Healthcare index consists of 89 reputed Pharmaceutical and Health companies of which 13 Pharmaceutical companies will be chosen for the study based on the highest market capitalization. The study sample accounts for about 15 percent of listed companies on the BSE Healthcare index.

### Instruments:

The investigation will be based on secondary data. Various tools and instruments proposed to be put in place for this study include:

- (a) Mean, Median, Range (min-max), Standard Deviation, Skewness, and Kurtosis to arrive at the descriptive statistics of the return.
- (b) Beta and correlation analysis of stock returns.
- (c) The financial performance of the companies will be assessed by making use of the “Technique for Order of Preference by Similarity to Ideal Solution” (TOPSIS) method.
- (d) Volatility analysis will be carried out using the symmetric and asymmetric model which includes symmetric ARCH & GARCH and asymmetric GJR GARCH, TGARCH, and EGARCH.
- (e) Test of normality and t-test, Trend analysis.
- (f) Technical analysis will be performed employing the Simple Moving Average, Relative Strength Index (RSI), and other relevant tools/models.

E-view, MS-EXCEL, and SPSS are the critical instruments proposed to be utilized for the study.

### Study Procedure:

An inductive approach will be used whereby the postulates/tentative hypothesis will be defined on the relationship between variables. A conceptual model/theory on the research issue based on the postulates will be developed which will be then proved empirically with the deductive approach. The conceptual model built grounded on the secondary data composed from the various credible sources and literature will be tested using various statistical tools and will be enhanced to provide a more effective outcome.

### Analysis & Interpretations of the Study:

After testing the secondary data with relevant statistical tools, the results will be interpreted based on scientific and experimental inferences to provide accurate judgment.

### 10.5. Results and Findings from Study:

For the scholarly portrayals, the results and findings of the outcome will be published in diagrammatic, tabular, and figurative forms.

### 10.6. Final Conclusion & Implications:

The conclusion will highlight the study problem, summarizes the research objectives, and displays an outline of the arguments or findings to illustrate how they all work together to solve the research challenge and achieve the study's overall goals. Also, the implication of the outcome to the stakeholders will be discussed. The scope for further study will also be revealed to the stakeholders.

### 10.7. Research Ambit and Constraints:

The proposal concentrates only on chosen Indian Pharmaceutical companies and is not extended to study other companies or Pharma industries across the globe. Also, due to time constraints, the sample size is restricted to thirteen. Further, any other new inventions or discoveries, or innovations in the field could be disrupting the execution of the agenda.

## 11. ABCD EVALUATION OF RESEARCH PROPOSAL :

ABCD analysis is a useful model to evaluate the individual traits, system attributes, concepts, ideas, or efficacy of the plan, decisions, and business models [100]-[102]. By adopting the ABCD framework before the execution of the proposal success or critical factors influencing the proposal can be identified by various stakeholders. In the present scenario, the stakeholders are identified as academicians, investors, companies, industry professionals, and researchers who are working in the area of capital markets, finance, and wealth management.

### Advantages to Academicians, Investors, Companies, Industry Professionals & Researchers:

- (1) The above-mentioned proposal is useful in knowing the Indian Pharmaceutical sector's monetary performance before and during Covid-19.
- (2) The study sheds light on various factors influencing the share price development of the Indian Pharma industry.
- (3) The study provides the past and future share price trend hints to the investors as it covers trend analysis of prices of shares of the pharmaceutical sector of India for the time duration of 7 years (2015-2022).
- (3) The study is useful for the investors to comprehend the relative scope of fundamental and technical analysis in portfolio construction.
- (4) The study would help the investor make informed decisions about choosing the right stocks from the Indian Pharma sector and constructing the optimum portfolio.
- (5) The outcomes of the research are significantly helpful for companies to stable their price of shares up to a considerable extent by taking corrective possible measures.

#### **Benefits to Academicians, Investors, Companies, Industry Professionals & Researchers:**

- (1) The study holds potential relevance to academicians, researchers, and industry professionals in understanding the share price status of the Indian Pharmaceutical industry during the most significant timeframe covering the Pre and Post Covid19 period.
- (2) The holistic approach which is going to be adopted for the study comprising of both fundamental analysis and technical analysis will serve as a boon to the investors in taking the right investment-related decisions as it will provide a clear picture of the share price trend.
- (3) The outcome of the research will help the company to stable its share prices to a considerable extent by taking corrective measures.

#### **Constraints Towards Academicians, Investors, Companies, Industry Professionals & Researchers:**

- (1) The proposal is time-bound and because of the time constraint, the sample size has been limited to 13.
- (2) The coverage of the study is limited to studying the share price movement of the chosen Pharma companies listed on the BSE Healthcare index and not extended to studying other Pharma companies listed on the BSE Healthcare index.
- (3) The study's purview is also restricted to only the Indian Pharmaceutical sector and does not extend to studying the share price movement of various pharma sectors across the globe.

#### **Disadvantages Applicable to Academicians, Investors, Companies, Industry Professionals & Researchers:**

- (1) Any breakthroughs, discoveries, or developments in the field could jeopardize the proposal's execution.
- (2) The Proposal is solely concerned with the equities of the Indian Pharma sector. Respecting the universal truth, it is always better to diversify the portfolio by investing in stocks of different sectors and multiple asset classes. This would minimize the risk of investment.
- (3) The proposal is subject to personal biases. The inferences drawn from the analysis are sometimes subjected to personal observations and experience of the investigator and may lack universality in the application.

## **12. RECOMMENDATIONS TO EFFECTIVELY IMPLEMENT THE RESEARCH ACTIVITIES ACCORDING TO THE PROPOSAL :**

### **(1) Study Population:**

The study's population is comprised of pharmaceuticals stocks featured on the S&P BSE Healthcare index.

### **(2) Study Methods and Methodology:**

The investigation of the collected secondary data will be carried out by applying various tools and techniques. Descriptive statistics including Mean, Median, range (min-max), Standard Deviation, Kurtosis, and Skewness of stock returns will be estimated. Correlation analysis of stock returns and Beta values will be calculated. The Technique for Order of Preference by Similarity to Ideal

Solution (TOPSIS) model will be applied to evaluate the financial soundness of the company. Further, trend analysis will be introduced to learn the share price movement during the study period. Volatility analysis will be carried out using GARCH family models. To forecast the share price technical analysis will be made use of wherein Simple Moving Average, Relative Strength Index, and other relevant tools/models will be put into force.

**(3) Perform and Collect Data:**

Secondary data will be collected by accessing various sources of information such as BSE, Moneycontrol, and Yahoo Finance websites. Also, company websites, published financial statements, and other relevant and trustworthy data repositories will be accessed to collect the data.

**(4) Execute Data Analysis:**

Data analysis will be carried out using various statistical tools. Descriptive analysis consisting of Mean, Median range (min-max), Standard Deviation, Kurtosis, and Skewness of stock returns will be estimated. Correlation analysis of stock returns and Beta values will be calculated. The TOPSIS model will be applied to examine the financial performance of the firms. Further, trend analysis will be introduced to learn the share price movement during the study period. Volatility analysis will be carried out using GARCH family models. To forecast the share price of the selected stocks technical analysis will be made use of wherein Simple Moving Average, Relative Strength Index, and other relevant tools/models will be put into force.

**(5) Result Interpretation & Conclusions:**

The findings of the research will be published in diagrammatic, tabular, and figurative forms for scholarly representations.

**(6) Bibliography and References:**

Related literary works, books, and websites will be acknowledged to back up and strengthen the conclusions and recommendations driven by the outcome of the research.












### 13. CONCLUSIONS :

The ultimate purpose of this study was to perform a comprehensive literature survey of the published literature in recent years about the share price movement of the Indian Pharmaceutical industry. This piece of research is aimed to identify the important gaps in the existing literature about the share price movement of the Indian Pharmaceutical industry and formulate a research agenda to fill those gaps by posing specific research questions that would serve as a springboard for the future research. While investing in the stock market, the investor intends to produce the best portfolio possible, one that yields the highest returns and renders the least amount of risk. This is accomplished by a thorough comprehension of the share price trends of the various segments of the economy and stocks. In recent times, especially after the outbreak of Covid-19 the Indian Pharmaceutical Sector has grabbed the attention of retail and institutional investors as it appears to be a hot sector for investment for several reasons. At this juncture, carrying out an in-depth fundamental and technical analysis of this sector would prove to be extremely valuable for the investors who are considering investing in this particular sector. The review of literature conducted on the share price movement of the Indian Pharmaceutical Industry has pointed out the essential gap in this domain, which includes tracking the share price behavior over a substantial period of the Pre-Covid-19 and Covid-19 phases. In addition, numerous gaps have been identified that cover learning the Indian Pharma business financial performance and volatility dynamics during this crucial phase. To address the identified research gap, research agenda is constructed. Further, the SWOC analysis is performed to recognize the strengths, weaknesses, opportunities, and challenges of the research agenda. Following the research agenda, a detailed research proposal is established and an ABCD analysis of the same is performed to ascertain the advantages, benefits, constraints, and disadvantages of the proposal to the concerned stakeholders affected by the proposal.

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