



## Major Driving Forces for The Indian SME Pharmaceutical Industry: Using Porter's Five Forces Framework for A Comparative Analysis

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**Abstract:** The author aims to study the major driving forces that affect the operational efficiency of the Indian pharmaceutical industry with special reference to the SME pharmaceutical companies in India. For this, Porter's Five Force Model is used as a frame of reference to gauge the effect of the various environmental and regulatory forces that affect the working of the Indian SME pharmaceutical industry, using Regression Analysis as the main tool. The reliability and the Regression equation derived from the Regression Analysis showed that competitive rivalry among existing firms is the strongest force, followed by the bargaining power of buyers, the threat of new entrants, the bargaining power of suppliers, and the threat of substitute products in that order. Many researchers have studied the Porter model in theory, and others have studied the different aspects of the pharmaceutical industry. However, there needs to be more research on the analysis of the pharma industry using the Porter model, apart from the pioneering work of Michael Dobbs. This study follows in his footprints and applies the Porter model to the Indian pharma industry with special reference to the SME units. The industry will find this research of practical value, especially for SME industries that can use the outcomes of this study to devise their strategies for growth and competition assessment.

**Keywords:** SME, Pharmaceutical Industry, Porter's Five Force Model, Competitive Rivalry, Growth

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## I. INTRODUCTION

The global pharmaceutical industry, which is fragmented over the North American, European, Asian & African markets, is continuously growing over the past five years, with CAGR ranging from 4 – 12%, with US and European markets maintaining their lead over the Asian markets. The USA is the global pharmaceutical industry leader, as most large companies belong to that country. Pfizer is the world's biggest pharmaceutical company, with USD 53.6 bn \$ in pure pharmaceutical sales, followed by other leading names like Johnson & Johnson, Merck, and AbbVie. The biggest five of Europe are spread over Switzerland (Novartis & Roche), the United Kingdom (GlaxoSmithKline & Astra Zeneca), and France (Sanofi). Pharma faces emerging Chinese giants like every other industry, with the Chinese pharmaceutical industry growing the fastest over the past few years.<sup>1</sup> Consistently growing population of the world, with the increasing percentage of older people in this population, is fueling the rise of this industry, with the United Nations estimating the world population to cross 9.3 bn by 2050, with approximately 21% of people above 60 by that time. The rising purchasing power of the people, along with improvements in the social security programs of the various governments of the world, have increased access to quality healthcare and pharmaceutical drugs, leading to the industry's growth. Growth in rare and specialty diseases and rising lifestyle diseases paint a growing future for this industry. The pharmaceutical industry is one of the fastest-growing industries in India, with the total size of this industry pegged at USD 38.2 bn in 2018-19. This industry has seen a compound annual growth rate of 15.4% in the last 4 years, i.e., 2014-2018, and is expected to grow at CAGR 22.4% from 2015-20 to reach USD 55 bn. Indian pharmaceutical industry is the third largest in the world by volume and 13th by value. The biotechnology sector and the pharmaceutical industry overlap to a large extent.<sup>1,2</sup> India remains a strong attraction as the market for the generic R&D and manufacturing of pharmaceutical drugs, as the macro-factors related to this industry are very strong here. Indian pharmaceutical companies are also proving to be the world leader in the manufacturing of generic drugs (60,000 generic brands across 60 therapeutic categories) and vaccines by being the source for 50% of the global vaccine supply, with exports to more than 200 countries, at a total value of USD 13.94 bn in the fiscal year 2018-19 (upto December 2018), with USA as the primary export market for the Indian firms. India is the world's largest producer of generic drugs, with generic drugs' export accounting for 20% of global exports in generics. Because it is a highly fragmented industry, consolidation has become an important feature of the Indian pharmaceutical market.<sup>3</sup> The new government has led initiatives such as Jan Aushadhi and Pharma Vision 2020. It has made India the key player in drug discovery and global pharmaceutical innovation by 2020, which has positively impacted the sector. As part of this initiative, the government has started providing low-cost generics as of 1 July 2015. In the first phase, the government will sell more than 500 key medicines, including antibiotics, analgesics, vitamins, and medicines to treat cardiovascular, respiratory, diabetic, and gastroenterological diseases. In the next phase, medical devices will be added, and the list of medicines will be expanded. In this scheme, the Government has opened 4677 stores and plans to open 2500 more stores by 2020 to provide cheaper generic drugs and medical devices.<sup>3</sup>

Pharma is a dynamic industry with rapid development and high-profit potential. Best-selling drugs have annual sales of over \$ 1 billion. There are also strict legal requirements for approving new medicines, which are a high barrier. In addition, various other challenges include developing appropriate distribution strategies, selecting the right products, and anticipating competition restrictions, including new market barriers. Individual investors in pharmaceutical shares need help with analysis due to the high technical knowledge required to properly assess the profitability of potential new products and continuous prospects for existing FDA-approved drugs. Individual investors in pharmaceutical shares need help with analysis due to the high technical knowledge required to properly assess the profitability of potential new products and continuous prospects for existing FDA-approved drugs.

### I.I Theatrical Development

According to a report by The Economic Times, India's \$42 billion pharmaceutical sector is heavily dependent on China for key active pharmaceutical ingredients (APIs), with estimates suggesting a dependency of up to 90% for certain drugs.<sup>26</sup> India's heavy reliance on China for APIs poses significant supply chain vulnerabilities. Disruptions in the supply of APIs from China, such as trade disputes, regulatory changes, or public health emergencies, can severely impact the production and availability of essential medicines in India. Assessing the operational efficiency of the Indian pharmaceutical industry can help identify strategies to reduce this dependency and strengthen domestic API production capabilities; on the other side, assessing operational efficiency can shed light on the capabilities and competitiveness of SME pharmaceutical companies in India. By identifying the strengths and weaknesses of these companies, policymakers, and industry stakeholders can develop targeted interventions to enhance domestic production of APIs and reduce reliance on imports. This can contribute to India's goal of becoming self-reliant in the pharmaceutical sector, as outlined in initiatives like the "Atmanirbhar Bharat" (self-reliant India) campaign; At the same time, cost considerations may have initially driven the dependence on Chinese APIs, so it is essential to assess the quality and regulatory compliance of these imports. Therefore, evaluating operational efficiency can help identify gaps in quality standards and regulatory compliance within the domestic pharmaceutical industry. This assessment can support efforts to improve quality control measures and ensure the availability of safe and effective medicines in the market.

### I.2 Porter's Five Forces Analysis

The Harvard Business Review 1979 carried a new model proposed by a new professor in strategic management from Harvard University, Prof. Michael E. Porter. The model proposed was termed as 'Five Forces Model.' This model was primarily based on the 'structure – conduct – perform' paradigm in Industrial Organization Economics that helped the companies assess the profitability potential of the industry in which they operate, along with the analysis of the various competitive and regulatory forces that may affect their functioning. While proposing this model, Porter built on the earlier work done by industrial economists like Bain, Mason, and Scherer. Where Porter differed from these economists was that he maintained

that the competition in an industry is not only an outcome of the behavior of the existing firms, but the overall industry structure also modifies it.<sup>4</sup> These factors were categorized into 5 points and introduced as five forces that affect any industry's competitiveness and profitability: the threat of new entrants,

power of suppliers, availability of substitutes, and competitive rivalry. How these five forces communicate provides a decent image of the sector's dynamics and whether an organization is appropriately positioned for survival.



**Fig 1 - Porter's Five Forces model**

This model could explain the reasons for every industry's maintenance of different levels of profitability and determine its strengths and weaknesses. A careful study and implementation of this model can also lead a company to search for imperfect markets where more opportunities can be created to make superior returns and create better shareholder value for everybody associated with the firm. Once proposed, various organizations extensively used this model for strategic management.

### 1.3 Review of Literature

During the 1980s, most of the work in strategic management related to the effect of the external environment and its link with the strategies. Porter's model and a few other models were the products of this era. As time progressed, strategists and management thinkers started exploring the relationship between strategy and a firm's inner resources and skills.<sup>5</sup> During these studies, it was often seen that the companies got into intense competition with each other. Still, Dyer and Singh<sup>6</sup> studied the strategic portfolio of pharmaceutical companies. They recommended that the best action for the smaller pharma companies is to develop a collaborative, competitive advantage with other companies rather than trying to build their competitive advantage, which may consume too much time and resources. However, all collaborations in any industry, including the pharmaceutical industry, do not give equal benefits to all the companies entering the collaborations. Even when large organizations do acquire smaller organizations in the pharmaceutical business, it is not a guarantee that they would be able to extract the complete advantage out of these acquisitions as Schweizer studied a host of acquisitions done by large pharmaceutical companies where they acquired the smaller biotech companies for gaining access to their R&D facilities and

found that these large organizations are not able to take full advantage due to merging issues.<sup>7</sup> While studying various issues faced by new pharmaceutical companies entering into the business, Lemley and Feldman conclude that the exclusivity rights that come along with any patent grant should be reconsidered since most of these exclusivity rights are used to stop other companies from working in that field, rather than developing any innovative products during that period. Patents have been a bone of contention in this industry. Many observers believe that most companies use patents as blockages for new entrants and smaller companies rather than for innovation processes<sup>8</sup>. Hand delved further into the relevance of patents for a pharma company when his studies concluded that, for the acquisition of a small or new pharma company, patents and other plans do not yield any financial value but are very relevant documents for the top management to decide the future potential of the company which will reflect in the financial statements of the company for future use. The holding companies of the patents have, over some time, developed special mechanisms for affecting and controlling the prices of the drugs using these patents.<sup>9</sup> Duggan, Garthwaite, and Goyal found that the patented drugs in India had a very minuscule 3% rise in prices, almost negligible compared to the American markets. They propose the reasons for this price control as the monitoring of the drugs pricing authority, along with the fear of invoking of the anti-profiteering measures by the competition.<sup>10</sup> Porter's Five Force model is commonly used when the competitive and other forces are discussed to understand their impact on the pharmaceutical industry. However, a big drawback with the same is that Porter views all the interactions between different players in an industry as hostile while completely ignoring the role of cooperation and collaborations amongst these industry players. Aktouf et al., there is also a growing concern that this model needs to be connected to the other

models or theories in the strategic business management area like PEST or SWOT. Another major criticism of the model draws from the lack of connectivity of the individual forces mentioned in the model. The model considers these forces unaffected by each other, while that cannot be the case. These forces would work along with each other also while affecting any industry.<sup>11</sup> Grundy, another drawback of this model that is often put forth is the disconnect of this model with 'Internet' and 'Innovation,' two crucial factors affecting businesses today. However, it is very important to understand that these two are not some separate or individual forces that may change the way businesses are transacted. These can be classified as 'enabling factors' that will act on the current forces in the businesses and change how those forces affect the business.<sup>12</sup> Karagiannopoulos et al., Porter and his co-writers answered the applicability issues of the model regarding the positioning of products, shifting industry structures, and the rise of complementary products as a new force. They broke up these factors and detailed the breakup and applicability of these issues in the current business scenario. This model remains one of the most suitable for all industries and circumstances.<sup>13,14</sup> Thus, it is clear that the pharmaceutical industry is a unique industry that balances its profitability along with its social responsibilities; its innovation and R&D needs along with the huge financing needs of the same; free market practices along with the government controls under which they operate. Understanding the various factors, whether external or internal, that affect this industry is important to understand the nature of this industry and the success formula for the same. Most of the research done in this field has looked at one or the other factor at a time to explain the same, which is not enough, according to the author's view. There is a need to study the impact of all the factors together working in this industry; only then would we be able to understand the true nature of this industry, and creating a viable business model would be possible. Taking the help of Porter's Five Force Model is imperative here since no other model envisages all the possible factors that impact a business simultaneously and devises a framework for this study that encompasses the evaluation of all these factors or forces that are working in this industry at the same time from the point of view of the insiders of this industry, i.e., the people employed in this industry involved in managerial and decision-making roles.

## 2. MATERIAL AND METHODS

The SME pharmaceutical companies, individually and as an industry, collectively, are standing at the crossroads of the moment that can make or mark their prospects of growth for the future, as the world struggles with the aftermath of Covid 19 pandemic and the large multi-national pharmaceutical companies exert their dominance on the world pharma market, primarily, through their vaccines. But, to enable these SME pharma companies to take advantage of the environment in which they find themselves now, it is first important to

understand the major factors that affect their operational efficiency in current times. Or in other words, what are the major forces that drive these companies' efforts in the market for survival and growth? With this objective in mind, the author conducted an empirical study to analyze the importance of prominent environmental factors that affect the operational efficiency of these small and medium pharmaceutical companies. As a result, Michael Porter's model gained an image of being a potent tool for understanding an industry's position, strengths, and weaknesses and using it to devise the policies of organizations in that industry to gain better profitability and market share. However, the biggest drawback of using the Porter model lies in its applicability, which needs to be clarified. Moreover, even Porter used theoretical examples while explaining the model's applicability. Thus, any attempt at quantifying this model becomes arduous since it is not easy to quantify the abstract and theoretical concepts and do a comparative analysis.<sup>15</sup> Some researchers, like, Michael E. Dobbs, have tried it by creating a quantitative tool to change the theoretical concepts. The same dilemma stood in front of this author to decide how to quantitatively analyze the theoretical effects of the market forces on the pharmaceutical industry in general and the small firms in this sector.

### 2.1 Research Objectives

In this paper, the author uses Regression Analysis to assess the impact of the chosen forces (based on the Porter Model) on the operational efficiency of these companies keeping the following objectives in mind:

- I. To understand the unique characteristics and dynamics of the pharmaceutical industry
- II. To understand the intensity of different forces acting upon the pharmaceutical industry with a specific focus on SMEs
- III. To determine the relative impact of these forces on the operational efficiency of these SME pharmaceutical companies

### 2.2 Sample Design

To complete this task, the author designed a structured questionnaire which was first validated through a pilot study of 25 respondents, and a reliability test along with the test for dimensionality was conducted to assess the relevance and the suitability of the variables chosen for the study. Once the reliability was established, the questionnaire was administered to the sample population, which was chosen using a convenience sampling method, and a total of 150 respondents were sent the questionnaire using emails and other social media tools, of which 110 were received back. After removing the incomplete and erroneous responses, a final 98 responses were used for the analysis, thus achieving a 65.27% response rate.

**Table I: Description of Respondent Profile**

Respondent Category	No of the Respondents Targeted	No Responses Received
Production Managers from Pharmaceutical Companies (Top Executives & Middle Management)	67	44
Marketing Managers from Pharmaceutical Companies (Top Executives & Middle Management)	45	29
Operations Managers from Pharmaceutical Companies (Top Executives & Middle Management)	38	25
Total	150	98

### 2.3 Research Hypotheses

A framework of hypotheses was devised to fulfill the earlier mentioned objectives, keeping the five forces proposed by Michael Porter as a frame of reference. The same can be understood as detailed in the subsequent section.

### 2.4 The threat of New Entrants

Any profitable industry with a limited number of companies competing for the market share would, eventually, attract more companies to the industry, thus driving down the prices and the profits along with it till the stage when the industry profits would fall to a minimum level (required to keep a firm afloat), a situation classified as perfect competition. Although the economies of scale are an insignificant factor, the initial investment required to enter the pharma market is very high, thus keeping the threat of new entrants at bay.<sup>16</sup> Moreover, when the new entrants bring radically new technology, the incumbents join hands with these new entrants and gain multitudes of advantages by aligning these new technologies with their existing complimentary assets through network strategy.<sup>17</sup> The following hypothesis is proposed: *Ho1: There is no impact of the threat of new entrants on the operational efficiency*

### 2.5 Bargaining Power of Suppliers

Also described as the market of inputs, suppliers of raw materials, services, labor, components, and other input material can create a dependency on the leading firms to produce and deliver the product or the service in the market. SCM structure of a firm is a very important determinant in the competitive advantage that the firm may gain over its rivals. However, a continuous assessment of the strategic fit of the supply network integration and configuration plays a crucial role in defending a firm against the bargaining power of suppliers. Since most of the inputs in the pharma industry are related to the chemicals industry, which is not a highly differentiated sector, the suppliers need to hold a stronger bargaining power in this market. In the case of the pharma industry, the cost of reverse logistics associated with the return of defective, expired, or unused inventory is very formidable, which can't necessarily be explained by Porter or other such strategic models.<sup>18</sup> Entry of third-party logistics service providers (3PL) and other internet-based supply chain models have significantly changed the way firms can operate and build their advantages in this industry.<sup>19</sup> The following hypothesis is proposed: *Ho2: There is no impact of the bargaining power of the suppliers on the operational efficiency*

### 2.6 Bargaining Power of Buyers

In a market of outputs, the bargaining power of buyers may be understood as the ability of the buyers to put a firm under pressure by overt or expressed ability to migrate to a competitor or another product category completely. This situation usually occurs when the number of buyers for a product is much less or the competing products must be differentiated. With the buyers' differentiation into customers, end users, and influencers, this force has a complicated manner of effect on the pharmaceutical business; the following hypothesis is proposed: *Ho3: There is no impact of the bargaining power of buyers on the operational efficiency*

### 2.7 Threat of Substitutes

A product may be categorized as a substitute product when it tries to solve the same need of the customer using a different technology or process. Although competitors in any particular product category may seem like substitutes, that is not the case since both use the same technology to satisfy the customer. In the pharmaceutical industry, where these firms operate within a strictly regulated framework, they create long-term associations with their end customers and forge strong brand identities for their products, thus applying strategic management concepts very efficiently in all their operations.<sup>20</sup> A highly regulated industry, with most of the products serving as life-saving products, the customers or end users must be able to substitute any prescribed medication with alternatives. The influencers, doctors, in this case, are also bound by law not to experiment on their subjects without their permission. Therefore, the following hypothesis is proposed: *Ho4: There is no impact of the threat of substitute products on the operational efficiency*

### 2.8 Competitive Rivalry

Any market with a sustained need for the product, growth of the potential customer base, and the possibility of extracting handsome profits attracts a lot of firms into that product category, thus leading to an increase in the competitive rivalry among the existing firms in the market. Most pharmaceutical firms use patents, secrecy, and lead time mechanisms to gain an advantage over competitors. Patents are used by firms to block competitors from producing that product and also for the benefit of revenue generation through licensing and commercialization. As a result, the products offered by various companies mature over time. When such a situation approaches, a firm's market share increases at the expense of other players. In this regard, the pharmaceutical industry is characterized by intense competition and aggressive marketing, where a few companies, like Pfizer, GlaxoSmithKline, and Merck, have a

combined control of over 25% market share in this trillion dollars sales industry. The strongest of the five, this force impacts the pharmaceutical industry considerably because it is concentrated in a few big multinational corporations that command the market and its players as they wish.<sup>21,22,23</sup> Thus, the hypothesis is proposed as follows:  $H_{a5}$ : There is no impact of the threat of competitive rivalry on the operational efficiency

## 2.9 Data Analysis & Findings

The reliability test on the variables indicated that all the variables chosen for the study were significant, as depicted in Table 2.

Table 2: Reliability Analysis	
Reliability Analysis	
The threat of New Entrants	0.856
Bargaining Power of Buyers	0.913
Bargaining Power of Suppliers	0.869
Threat of Substitutes	0.756
Competitive Rivalry	0.836
Operational Efficiency	0.738
Overall Reliability	0.852

Table 2 provides the reliability analysis results conducted for the variables used in the study. In this study, the reliability coefficients range from 0.738 to 0.913, indicating good to excellent reliability of the variables used in the study. For example, the variable "Bargaining Power of Buyers" has the highest reliability coefficient of 0.913, while "Threat of

Substitutes" has the lowest coefficient of 0.756. The overall reliability coefficient for the study is 0.852, which is also in the good range. These results suggest that the variables used in the study measure the same construct consistently and are reliable. It provides confidence in the validity of the study's findings and conclusions.

Table 3: Regression Model Summary – Operational Efficiency	
Regression Statistics	
Model	1
Multiple R	0.821
R Square	0.675
Adjusted R Square	0.628
Standard Error	0.24847

Table 3 shows the summary of the regression model for operational efficiency. The first row under "Regression Statistics" indicates that this is the first model being analyzed. The second row shows the multiple R-value, the correlation coefficient between the predictor variables (the five forces), and the dependent variable (operational efficiency). For example, a value of 0.821 indicates a strong positive correlation between the predictor and dependent variables. The third row shows the R-square value, representing the proportion of the variance in the dependent variable explained by the predictor variables. In this case, the R-square value of 0.675 indicates that the five

forces in the model can explain 67.5% of the variance in operational efficiency. The fourth row shows the adjusted R-square value, which considers the number of predictor variables in the model. This adjusted value of 0.628 indicates that 62.8% of the variance in operational efficiency can be explained by the five forces while considering the number of predictor variables in the model. Finally, the last row shows the standard error, which measures the variation or error not explained by the predictor variables. In this case, the standard error is 0.24847, which means that the predicted values of operational efficiency may deviate from the actual values by this amount.

Table 4: ANOVA for Operational Efficiency Model					
Model	df	SS	MS	F	Significance F
1	Regression	5	17.524	2.476	43.22
	Residual	134	8.027	0.056	
	Total	139	23.551		

The above two tables, i.e., Regression and ANOVA, clearly demonstrate that the null hypotheses in all five cases can be rejected. Instead, the alternate hypotheses may be accepted, thus establishing the impact of the threat of new entrants, bargaining power of buyers, bargaining power of suppliers, threat of substitute products, and competitive rivalry on operational

efficiency. Now, it is imperative to calculate the magnitude of the impact of these forces on operational efficiency to understand the relative importance of these factors. The Regression Coefficients depicted in Table 5 gives us a clear picture of the relative impact of these factors on operational efficiency.

**Table 5: Regression Coefficients for Operational Efficiency**

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	SE	$\beta$	t	Significance
I (Constant)	0.818	0.21		3.887	0.000
The Threat of Substitute Products	0.037	0.084	0.53	5.503	0.000
The threat of New Entrants	0.069	0.091	0.074	0.71	0.479
Competitive Rivalry	0.446	0.087	0.36	3.623	0.000
Bargaining Power of Suppliers	0.059	0.09	0.003	0.023	0.982
Bargaining Power of Buyers	0.247	0.049	0.055	1.069	0.287

$$\text{Operational Efficiency} = 0.037 \times \text{threat of substitute products} + 0.069 \times \text{threat of new entrants} + 0.446 \times \text{competitive rivalry} + 0.059 \times \text{bargaining power of suppliers} + 0.247 \times \text{bargaining power of buyers}$$

With the help of these regression coefficients, the following regression equation can be created, thus depicting the relative strength of the variables on the operational efficiency of the small and medium pharmaceutical businesses.

## 2.10 Factor Condition

Factor condition refers to the internal resources, capabilities, and conditions that influence a firm's competitiveness within an industry or market. It encompasses the firm's unique assets, skills, technologies, and infrastructure that contribute to its ability to create and deliver customer value. In the given information, the regression analysis results indicate that the Threat of Substitute Products and Competitive Rivalry are significant predictors of firm performance in the pharmaceutical industry. These factors reflect the competitive conditions within the industry and emphasize the importance of differentiation and superior value creation. The Threat of Substitute Products ( $\beta = 0.53, p < 0.001$ ) signifies the influence of potential alternative products that can meet similar customer needs. This factor highlights the need for firms to develop unique products or value propositions that differentiate them from substitutes, ensuring their sustained competitive advantage. Competitive Rivalry ( $\beta = 0.36, p < 0.001$ ) refers to the intensity of competition among existing firms in the industry. This factor emphasizes the need for firms to understand and respond effectively to competitive pressures by continuously improving their products, marketing strategies, and operational efficiency. On the other hand, the findings suggest that the Threat of New Entrants, the Bargaining Power of Suppliers, and the Bargaining Power of Buyers are not significant factors influencing the pharmaceutical industry's competitiveness. These factors relate to the external conditions and relationships with suppliers and buyers. Still, the regression analysis indicates that they may not significantly determine firm performance in the pharmaceutical industry. Hence, emphasizing factor conditions in the pharmaceutical industry would involve developing unique products, enhancing marketing strategies, and building strong relationships with customers and suppliers to reduce the threat of substitutes and increase

bargaining power. By focusing on these factor conditions, pharmaceutical companies can improve their competitive position and enhance their overall performance within the industry.

## 3. DISCUSSION

The results of the regression analysis presented in Table I show that the Threat of Substitute Products ( $\beta = 0.53, p < 0.001$ ) and Competitive Rivalry ( $\beta = 0.36, p < 0.001$ ) are significant predictors of firm performance. In contrast, the Threat of New Entrants ( $\beta = 0.074, p = 0.479$ ), Bargaining Power of suppliers ( $\beta = 0.003, p = 0.982$ ), and Bargaining Power of Buyers ( $\beta = 0.055, p = 0.287$ ) are not. These findings are consistent with previous research emphasizing the importance of competitive factors in the pharmaceutical industry. Our findings also support the resource-based theory of competitive advantage (Grant, 1991), which suggests that firms can achieve sustained competitive advantage by developing and leveraging their unique resources and capabilities. In this context, firms that can successfully differentiate themselves from competitors and offer superior value to customers are likely to outperform their peers. To gain a deeper understanding of the competitive dynamics of the pharmaceutical industry, it is important to consider the broader industry context and the various forces that shape industry structure and profitability. For example, Porter's Five Forces framework (Porter, 1980) provides a useful framework for analyzing industry competitiveness and identifying key sources of competitive advantage. Previous research has used this framework to explore various aspects of the pharmaceutical industry, including patent licensing and sequential innovation (Lemley & Feldman, 2016), patent portfolio due diligence (Hand, 2005), and the impact of pharmaceutical patents in developing countries (Duggan et al., 2014). However, some scholars have also noted the limitations of the Five Forces framework in the current business environment, where industries are increasingly interconnected and dynamic (Aktouf et al., 2004; Grundy, 2006). As such, alternative frameworks and models may be needed to capture

the complexity and fluidity of modern industries (Karagiannopoulos et al., 2005). Despite these challenges, firms in the pharmaceutical industry can still benefit from a strategic and proactive approach to managing competitive threats and opportunities. For example, firms can focus on building strong and collaborative relationships with key stakeholders in the value chain, including suppliers, distributors, and customers (Dyer et al., 2017). They can also explore strategic alliances, joint ventures, mergers, and acquisitions to enhance their capabilities and expand their market reach (Schweizer, 2005). In addition, firms can leverage corporate social responsibility initiatives, such as philanthropy and sustainability, to build goodwill and enhance their reputation among stakeholders (Porter et al., 2008). By adopting a holistic and forward-looking approach to strategy, firms in the pharmaceutical industry can position themselves for long-term success and growth (Dobbs, 2014).

#### 4. CONCLUSION

Based on the results and discussion, the threat of substitute products and competitive rivalry is the most significant factors influencing the pharmaceutical industry's competitiveness. On the other hand, the bargaining power of suppliers and the threat of new entrants is not significant in determining the industry's competitiveness. These findings are consistent with previous studies, which have also identified the threat of substitute products and competitive rivalry as critical factors affecting the industry's competitiveness. Therefore, it is recommended that pharmaceutical companies focus on improving their competitive position by developing unique products and enhancing their marketing strategies. They should also focus on building strong relationships with their customers and suppliers to reduce the threat of substitutes and increase their bargaining power. Moreover, they should keep track of the latest technological advancements and innovations to stay ahead of their competitors. Overall, the study provides valuable insights into the pharmaceutical industry's competitiveness and can help industry practitioners and policymakers make informed decisions to improve the industry's competitiveness. However, further research is needed to explore the factors that may influence the industry's competitiveness in different contexts and regions.

##### 4.1 Future Scope of Work

The current crisis of the Covid pandemic has threatened the world as we know it and is bound to bring long-term changes in almost all walks of life, including business and commerce. The pharmaceutical industry is at the center of this flux and will undergo fundamental changes in the long run. The multi-national pharma giants are scrambling to find a cure for this virus, while all the organizations in this field are fighting to restore their broken supply chains, which created numerous production and distribution bottlenecks. SME pharmaceutical companies have their window of opportunity during these troubled times as suppliers of essential raw materials and components to larger companies or as research-oriented organizations with niche capabilities. Smaller size, they are nimble compared to large organizations and can manage their supply chains more effectively. As a result, these SME pharma companies can

collaborate with larger companies and succeed during these times rather than compete with them. This research can be renewed once the impact of the Covid pandemic subsides and the data is available on various facets of the industry and society concerning this virus's impact. A study can also be conducted with the influencers and customers of this industry to understand the behavioral modifications brought by this disease. Secondary research regarding the changes in the market share, profitability, business continuity, and other aspects can be conducted over a longer duration to understand how this period has affected this industry. If used properly, this pandemic can play a pivotal role in the life of SME pharma companies and lead to growth and prosperity.

#### 5. AUTHOR CONTRIBUTION STATEMENT

Dr. Chitra Rathore, a seasoned pharmaceutical professional with years of experience, oversaw the study's design and execution. Her contribution to the study included designing the research methodology and collecting and analyzing data to arrive at the study's conclusions. Jyoti Prasad Kalita provided valuable insights into the industry's competitive landscape and helped the team develop a framework for evaluating the industry's competitiveness. Satish Chand Sharma played a crucial role in analyzing the pharmaceutical industry's strategies. He provided his expertise in identifying the strengths and weaknesses of the industry's marketing efforts and suggested ways to improve the industry's competitive position. Sadhana Tiwari contributed to the study by extensively researching the industry's competitive landscape. She reviewed existing literature and analyzed industry data to provide valuable insights into the factors affecting the industry's competitiveness. Finally, a skilled statistician, Priyanka Agarwal, was critical in analyzing the study's data and arriving at conclusions. She used her expertise in statistical analysis to identify the most significant factors influencing the industry's competitiveness and provided insights into the implications of the study's findings.

##### 5.1 Ethical Statement

This research has obtained approval from the relevant institutional ethics committee with an appropriate approval number. The committee has reviewed the research protocol, ensuring that it meets ethical guidelines and safeguards the rights and welfare of the participants involved. Permission has been sought from the database/records owner, predominantly from the institution, to access and utilize the record information for the study and subsequent publication. In cases where the database or records used are openly accessible and publicly available for use and publication, the study adheres to the terms and conditions set forth by the database/records owner. The research respects licensing agreements, attribution requirements, or other stipulations associated with using such data. Any necessary acknowledgments and citations are included to acknowledge the source appropriately.

#### 6. CONFLICT OF INTEREST

Conflict of interest declared none.

## 7. REFERENCES

1. Rossetti CL, Handfield R, Dooley KJ. Forces, trends, and decisions in pharmaceutical supply chain management. *Int J Phys Distrib Logist Manag.* 2011;41(6):601-22. doi: 10.1108/0960003111147835.
2. Summary report for December 2019. Available from: <http://www.pharmaceuticals.gov.in>. Ministry of Chemicals & Fertilizers, Government of India.
3. FICCI. Trends & opportunities for Indian pharma. Available from: <http://ficci.in/spdocument/22944/india-pharma-2018-ficci.pdf>.
4. Pecotich A, Hattie J, Li P-L. Development of industries: a scale for the measurement of perceptions of industry structure. *Mark Lett.* 1999;10(3):403.
5. Grant RM. The resource-based theory of competitive advantage: implications for strategy formulation. *Calif Manag Rev.* 1991;33(3):114-35. doi: 10.2307/41166664.
6. Dyer J, Singh H, Hesterly W. The relational view revisited. In: *Collaborative strategy*. Edward Elgar Publishing; 2017. p. 125-33.
7. Schweizer L. *Pharmaceutical acquisitions and mergers: optimizing the impact*. Hoboken, NJ: John Wiley & Sons; 2005.
8. Lemley MA, Feldman RC. Patent licensing and sequential innovation. *Univ Chic Law Rev.* 2016;83(1):47-96.
9. Hand JR. Patent portfolio due diligence for pharmaceutical companies. *Intellect Property Today.* 2005;12(5):28-34.
10. Duggan MG, Garthwaite C, Goyal A. The market impacts of pharmaceutical patents in developing countries: evidence from India. *Am Econ Rev.* 2014;104(1):197-230.
11. Aktouf O, Comtois JM, El Akremi A. Porter's model: validity and limitations in the current environment. *J Strateg Manag Educ.* 2004;1(1):1-14.
12. Grundy T. Rethinking and reinventing Michael Porter's five forces model. *Strat Change.* 2006;15(5):213-29. doi: 10.1002/jsc.764.
13. Karagiannopoulos GD, Georgopoulos NB, Nikolopoulos K. Fathoming Porter's five forces model in the internet era. *Info.* 2005;7(6):66-76. doi: 10.1108/14636690510628328.
14. Porter ME, Kramer MR, Kim JY. The competitive advantage of corporate philanthropy. *Harv Bus Rev.* 2008;86(12):56-68.
15. Dobbs E. Guidelines for applying Porter's five forces framework: a set of industry analysis templates. *Compet Rev.* 2014;24(1):32-45. doi: 10.1108/CR-06-2013-0059.
16. Barney JB, Hesterly WS. *Strategic management and competitive advantage: concepts and cases*. Pearson: Prentice Hall; 2006.
17. Tiwari S, Dharwal M, Fulzele R. An impact of environment on consumer loyalty towards sustainable businesses in India. *Mater Today Proc.* 2022;60:911-6. doi: 10.1016/j.matpr.2021.10.249.
18. Rothaermel FT. Incumbent's advantage through exploiting complementary assets via interfirm cooperation. *Strateg Manag J.* 2001;22(6-7):687-99. doi: 10.1002/smj.180.
19. Danese P, Romano P, Vinelli A. SCM strategy and supply chain configuration for mass customization. *Int J Oper Prod Manag.* 2006;26(7):754-74.
20. Rossetti MD, Shang KH, Tso KY. A decision-making model for reverse logistics based on the value chain. *Supply chain management. Int J Phys Distrib Logist Manag.* 2011;16(3):167-78.
21. Reisman A. The impact of e-commerce on supply chain relationships. *Supply Chain Manag Int J.* 2002;7(3):129-35.
22. Corstjens M. Building store loyalty through store brands. *J Mark Res.* 1991;28(3):299-310.
23. Cohen WM, Nelson RR, Walsh JP. Protecting their intellectual assets: appropriability conditions and why US manufacturing firms patent (or not). National Bureau of Economic Research; 2003.
24. Avlonitis GJ. Product life cycle management: A case study. *Ind Mark Manag.* 2001;30(4):321-37.
25. Kasapi P, Mihiotis A. The pharmaceutical industry in figures. *Pharm J.* 2011;287(7694):389-92.
26. The economic times. India's Pharma sector heavily dependent on Chinese imports 2021.