

"KEY FACTORS INFLUENCING THE INDIAN SME PHARMACEUTICAL INDUSTRY: ANALYZING USING PORTER'S FIVE FORCES FRAMEWORK FOR A COMPARATIVE ASSESSMENT

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Abstract:

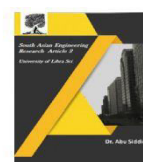
With particular reference to India's small and medium-sized pharmaceutical businesses, the author seeks to examine the key factors influencing the operational effectiveness of the country's pharmaceutical sector. Regression analysis is the primary method used to assess the impact among the several environmental and governmental authorities on the functioning of the Indian SME pharmaceutical industry, with Porter's Five Force Model serving as a frame of reference. The strongest force is the competitive rivalry among already-existing firms, which is followed in order by the threat of new entrants, the bargaining power of suppliers, the threat of substitute products, and Reliability and the regression equation that were obtained by regression analysis. While some scholars have focused on the various facets of the pharmaceutical industry, others have examined the Porter model in principle. Beyond Michael Dobbs' groundbreaking work, more research is needed on the application of the Porter model to the examination of the pharmaceutical sector. This study builds on his work by applying the Porter model to the Indian pharmaceutical sector, paying particular attention to SME units. The researcher finds this Industry to be useful, particularly for SMEs who may utilize the findings to formulate plans for evaluating competitiveness and growth.

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

1. Introduction:

Over the past five years, the pharmaceutical sector, which is divided into the markets in North America, Europe, Asia, and Africa have all expanded consistently at a compound annual growth rate. (C.A.G.R) of 7–18%, with the US and European markets

continuing to outperform the Asian markets. Because the majority of the world's major pharmaceutical companies are based there, the USA leads the world in this sector. With pure pharmaceutical sales of USD 61.5 billion, Pfizer is the largest pharmaceutical business in the world. Other well-known



brands like Johnson & Johnson, Merck, and AbbVie are next in line. The Big Five of Europe are located in France (Sanofi), the United Kingdom, and Switzerland (Novartis & Roche). Pharma, like many industries, faces the challenge of rising Chinese titans, with the pharmaceutical sector in China expanding at the quickest rate in recent years.

1. The United Nations projects that by 2050, there will be over 9.8 billion people on the planet, with 24 Percent of them being over the age of sixty. This growth in the global population is fueled by the rising proportion of older individuals in this population. The sector has grown as a result of people's increasing spending power and the various governments' improved social security programs providing access to high-quality healthcare and pharmaceuticals. This sector is expected to increase in the future because to the rise in lifestyle diseases and the growth of uncommon and specialist diseases. One of the sectors in India that is expanding the fastest is the pharmaceutical business, whose total estimated value was USD 38.2 billion in 2018–19. Over the last four years, from 2014 to 2018, this industry has grown at a C.A.G.R of 15. percent. From 2015 to 2022, it is predicted to increase at a CAGR of 22.4%, reaching USD 55 billion. The Indian pharmaceutical industry is ranked third in the world by volume, but fourteenth by value. There is significant overlap between the pharmaceutical and biotechnology sectors.

2 India continues to be a highly desirable market for pharmaceutical medication manufacture and generic research and development due to the robust macro-factors supporting this industry. With 60,000 generic brands spanning 60 therapeutic categories,

Indian pharmaceutical companies are also setting the standard for the world in the production of vaccines and generic drugs. They account for 50% of the world's vaccine supply, with exports to over 200 countries valued at USD 13.94 billion as of December 2018, with the USA serving as their main export destination. India is the world's leading producer of generic medications, making up 20% of all generic exports worldwide. Consolidation has grown in importance in the Indian pharmaceutical business due to the industry's extreme fragmentation.

3. Initiatives like Jan Aushadhi and Pharma Vision 2020 have been spearheaded by the new administration. By 2020, it elevated India to the forefront of drug research and pharmaceutical innovation worldwide, greatly benefiting the industry. As of July 1, 2015, the government began to provide affordable generics as part of this strategy. More than 500 essential medications, such as vitamins, antibiotics, analgesics, and medications for treating respiratory, digestive, cardiovascular, and diabetic illnesses, will be sold by the government during the first phase. The list of medications will be enlarged and new medical devices included in the following phase. Under this program, the government has decided to open 4516 stores and intends to open 2900 more by 2040 in order to offer prescription pharmaceuticals and medical equipment at lower costs.

1.1 Theatrical Background

The \$54 billion China is the primary source of important active pharmaceutical ingredients (APIs) for the

Indian pharmaceutical sector, with estimates of up to 90% for some medications, according to research by The Economic Times. Due to its excessive reliance on China for APIs, India's supply chain is severely vulnerable. Events like trade conflicts, regulatory changes, or public health emergencies that affect China's API supply might have a serious effect on India's ability to produce and distribute necessary medications. On the other hand, evaluating operational effectiveness can highlight the strengths Regarding the Indian SME pharmaceutical industry's level of competitiveness. Evaluating the operational efficiency of the Indian pharmaceutical industry can aid in the identification of strategies to lessen this reliance and enhance domestic API production capabilities. Through an assessment of these firms' strengths and limitations, industry stakeholders and policymakers can devise focused actions aimed at augmenting domestic API output and mitigating import dependency. It is critical to assess the quality and regulatory compliance of these imports, even though the initial reliance on Chinese APIs may have been motivated by economic considerations. As stated in programs like the "Atmanirbhar Bharat" (self-reliant India) campaign, this can assist India in realizing its objective of being self-reliant in the pharmaceutical industry. Thus, within the domestic pharmaceutical business, assessing operational efficiency can assist in identifying deficiencies in quality standards and regulatory compliance.

This evaluation can help with attempts to enhance quality control procedures and guarantee that safe and efficient medications

are sold. An analysis of Porter's Five Forces A novel model was published in the Harvard Business Review in 1979 by Professor Michael E. Porter, a recent hire at Harvard University who specialized in strategic management. "Five Forces Model" was the name given to the proposed model. Based primarily Based on the structure, conduct, and perform paradigm found in industrial organization economics, this model helped the businesses analyze the numerous regulatory and competitive pressures that may affect their operations and assess the profitability potential of their industry.

Porter expanded upon the past research of industrial economists like as Bain, Mason, and Scherer when he proposed this approach. Porter's argument set him apart from these economists: he believed that an industry's rivalry is shaped not just by the actions of its current firms but also by the industry's general structure. These elements were divided into five categories and presented as the five drivers influencing the profitability and competitiveness of any industry: the danger of new competitors.

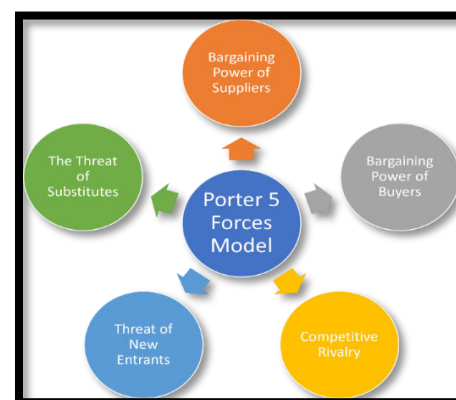
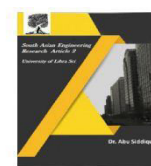


Fig 1 - Porter's Five Forces model



This approach could identify the advantages and disadvantages of each industry and explain why they maintain varying degrees of profitability. A thorough examination and use of this model may also prompt a business to look out imperfect marketplaces in which there are more chances to generate higher returns and increase shareholder value for all parties involved in the organization. This approach was proposed and then widely adopted for strategic management by a number of firms.

1.2 Review of Literature

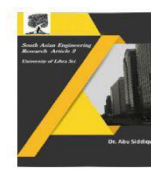
The majority of strategic management research conducted in the 1980s focused on how plans were impacted by the outside world. This era gave rise to several models, including Porter's model. As time went on, scholars of management and strategy began delving into the connection between strategy and a company's internal capabilities and assets.⁵ It was frequently seen during these research that the corporations engaged in fierce competition with one another. Nevertheless, Dyer and Singh⁶ investigated the pharmaceutical industry's strategy portfolio. They advised smaller pharmaceutical companies to work with other businesses to establish a cooperative competitive edge rather than attempting to establish their own, which could take too much time and money, But not every industry, including the pharmaceutical sector, benefits equally from collaborations for all of the participating companies.

Lemley and Feldman come to the conclusion that the substantial rights that accompany any patent grant should be reexamined after examining a number of

challenges faced by newly established pharmaceutical companies. This is because the majority of these exclusivity rights are used to prevent other companies from operating in that industry, rather than creating any novel products during that time. In this industry, patents have been a point of controversy. Many analysts think that rather than being a tool for innovative processes, most businesses utilize patents to stifle smaller businesses and potential competitors.

After his research revealed that patents and other plans have no financial value when a small or newly established pharmaceutical company is acquired, Hand further explored the significance of patents for the industry. These documents are crucial for senior management in determining the company's future potential, which will be reflected in the financial statements for future reference. Over time, the patent owning businesses have created unique systems to influence and regulate medicine prices through the use of their patents. In comparison to the American markets, Duggan, Garthwaite, and Goyal discovered that the patented medications in India had a very small 3% price increase.

They suggest that the competition's fear of invoking anti-profiteering laws and the oversight of the pharmaceuticals pricing authority are the main causes for this price restriction. When discussing the competitive and other forces and their effects on the pharmaceutical sector, Porter's Five Forces model is frequently cited. One major problem with the same, though, is that Porter completely ignores the importance of cooperation and collaborations among these industrial participants, viewing all



interactions between various players as antagonistic. Concerns about how this model should relate to other theories or models in strategic business management, such as PEST or SWOT, are also developing, according to Aktouf et al.

The lack of connection between the various forces the model mentions is the source of yet another significant critique of the paradigm. It is not possible for these forces to be independent of one another, as the model implies. These forces would influence any industry and cooperate with one another. Grundy, two more flaw in this approach that is frequently pointed out is its disconnection from the "Internet" and "innovation," two major forces influencing firms in the modern world. It's crucial to realize, though, that these two are not independent entities that have the power to alter how business is conducted. These fall into the category of "enabling factors" since they will influence the forces that are already at work in the business and alter how those forces impact it.

Porter, Karagiannopoulo et al., and his coauthors addressed the model's application concerns with relation to product positioning, changing industry structures, and the emergence of complementary items as a new driver. They dissected these elements and explained how these problems were divided up and applied to the contemporary corporate environment. This approach is still among the best for all sectors and situations. It is evident from this that the pharmaceutical industry is a special one that manages to strike a balance between its social obligations and profitability, its enormous financing requirements and its innovation

and research and development needs, and its use of free markets and government regulations.

To comprehend the nature of this sector and the formula for success in it, one must grasp the numerous internal and external forces that influence it. The author believes that the majority of study in this sector has examined one or more factors at a time to explain the same, which is insufficient. In order to truly comprehend this market and develop a workable business plan, it is imperative that we investigate the effects of all the variables operating within it collectively.

It is essential to use Porter's Five Force Model in this situation because no other model considers all the potential factors that could affect a business at the same time. It also creates a framework for the study that includes an assessment of all these forces or factors operating in this industry simultaneously from the perspective of insiders, or those employed in managerial and decision-making roles.

2. Materials/Substances and Methods

As the world struggles to contain the effects of the Covid19 Small and medium-sized pharmaceutical companies, both individually and as an industry, find themselves at a crossroads that could make or break their prospects of growth in the future due to the pandemic and the large, multinational pharmaceutical companies' primary means of maintaining their dominance of the global pharmaceutical market: the production of vaccines. However, it is first necessary to comprehend the key elements influencing these SME pharmaceutical firms'

operational effectiveness in the present in order to allow them to capitalize on the environment in which they find themselves.

In other words, what are the key factors behind these companies' efforts to survive and grow in the market? With this goal in mind, in order to determine the importance of environmental elements that affect small and medium-sized pharmaceutical enterprises' operational performance, I carried out practical research. Because of this, Michael Porter's model has gained recognition as a potent instrument for comprehending the position, advantages, and disadvantages of an industry and applying it to the development of business plans that would increase an organization's profitability and market share. But the primary drawback of applying the Porter model is its applicability, which needs more explanation. In addition, Porter employed theoretical instances to elucidate the relevance of the model.

2.1 Objectives of the study:

Regression analysis is used by the author of this report to assess how the selected factors (derived from Porter's Model) affect these organizations' operational efficiency while upholding the following Researcher goals:

1. To comprehend the distinct attributes and workings of the pharmaceutical sector
2. To gauge the intensity of various forces impacting the pharmaceutical industry, specifically focusing on SMEs
3. To ascertain the comparatively large influence of these factors on these SME pharmaceutical businesses' operational effectiveness.

2.2 Sample Design:

To accomplish this Section, the researcher developed a well-Designed survey, which underwent initial validation in a pilot study involving 25 participants. A reliability test and a test for The number of dimensions were conducted to evaluate the association and appropriateness of the selected study variables. After confirming their reliability, the survey was distributed to a sample population selected using convenience sampling methods. A total of 150 individuals received the survey via email and social media platforms, with 120 responses received. Following the exclusion of incomplete and erroneous submissions, a total of 109 valid responses were used for analysis, resulting in a 72.66% response rate.

Table 1: Selection Criteria for Sample

Respondent Category	No.of Responses Targeted	No.of Valid Responses Received
Managers of Production at Pharma Companies (Top and Middle Level Management)	71	48
Pharmaceutical company marketing managers (Top and Middle Level Management)	49	32

Pharmaceutical companies' operations managers (Top and Middle Level Management)	40	29
	150	109

2.3 Hypotheses Development Process:

Michael Porter's five forces served as a framework for the development of a series of hypotheses aimed at achieving the previously mentioned objectives. The part after this one has further information.

2.4 Description of Porter’s Five Forces Model in Current Scenario.

2.4.1 The threat of New Entrants

Eventually, additional businesses will enter any lucrative sector where a small number of firms are vying for market share. As a result of increased competition, prices and profits will decline until industry earnings approach the absolute minimum required to maintain a business, a condition known as perfect competition. The large initial expenditure needed to start the pharmaceutical business serves as a barrier to entry, even in light of the little impact of economies of scale. In addition, when new players enter the market with cutting-edge technology, established businesses frequently engage with them to take advantage of these innovations and use network strategy to strengthen their position as market leaders. We put up the following theory:

Ho1: The threat of new entrants does not affect operational efficiency.

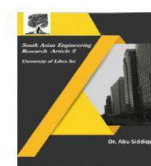
2.4.2 Suppliers Bargaining Power:

The market in which encompasses suppliers of Raw-materials, Services, Labor, Components, and other essential materials, can create a reliance on dominant firms for the production and delivery of goods or services within the industry. The structure of a company's supply chain management (SCM) plays a pivotal role in establishing its competitive edge over competitors. It is essential to continuously evaluate the strategic alignment of supply network integration and configuration to protect a company from the bargaining power of suppliers. In the pharmaceutical sector, where most inputs are linked to the chemicals industry with limited differentiation, suppliers wield considerable bargaining power. Additionally, the pharmaceutical industry incurs significant costs related to reverse logistics for the return of defective, expired, or unused inventory, which cannot be entirely accounted for by conventional strategic models. The rise of third-party logistics service providers (3PL) and internet-based supply chain frameworks has profoundly altered the operational landscape and competitive advantages within this sector..

Ho2: There is no impact of the bargaining power of the suppliers on the operational efficiency.

2.4.3 Bargaining Power of Buyers

In a competitive market, the power of buyers to influence a firm's



decisions is significant. This influence can be demonstrated through their ability to switch to a competitor's product or even a completely different product category. This situation typically arises when there are fewer buyers for a particular product or when competing products are distinct. Considering the various roles of buyers as customers, end users, and influencers, the impact of their bargaining power on the pharmaceutical industry is complex. Therefore, the following hypothesis is put forward:

Ho3: There is no impact of the bargaining power of buyers on the operational efficiency.

2.4.4 Threat of Substitutes

In the context of the pharmaceutical industry, firms establish enduring connections with their customers and cultivate strong brand identities for their products within a tightly regulated environment. Given that most products are critical, customers must have the option to substitute prescribed medications with alternatives. Furthermore, medical professionals are obligated by law to seek consent before attempting any experimental treatments. As a result, it is hypothesis as follows

Ho4: The threat of substitute products does not significantly impact operational efficiency

2.4.5 Competitive Rivalry:

In markets characterized by stable demand for a product, opportunities for expanding the customer base, and the

potential for substantial profits, many companies are attracted to that particular product category. This influx of new entrants heightens the competition among the existing market participants. To secure a competitive advantage, many pharmaceutical firms utilize strategies such as patents, confidentiality, and lead time advantages. Patents are instrumental in preventing competitors from manufacturing identical products while also facilitating revenue through licensing and commercialization efforts. Consequently, the product offerings from various companies undergo continuous evolution. As this transformation occurs, a firm's market share tends to grow at the expense of its competitors. The pharmaceutical sector is particularly noted for its intense competition and vigorous marketing strategies, with a limited number of companies, including Pfizer, GlaxoSmithKline, and Merck, collectively commanding over 25% of the sales in this trillion-dollar industry. The formidable nature of this rivalry significantly impacts the pharmaceutical industry, particularly due to the dominance of a few major multinational corporations that wield considerable influence over the market and its participants as they see fit. Hence, the hypothesis proposed is as follows:

Ha5: The threat of competitive rivalry does not impact operational efficiency.

3. *Data Analysis Interpretation:*

As shown in Table 2, the reliability test on the variables revealed that every variable selected for the study was significant.

Table No:2: Reliability Analysis

.The Threat of New Entrants	0.856
The Bargaining Power of Buyers	0.971
The Bargaining Power of Suppliers	0.869
Threat of Substituted Products and Services	0.698
The Competitive Rivalries	0.836
Efficiency in Operational Activities	0.612
Final Results	0.799

According to our research (refer to Table 2), the study's variables show good to outstanding dependability, with reliability coefficients ranging from 0.612 to 0.971. Precisely, "The Bargaining Power of Buyers" had the greatest dependability coefficient (0.971) and "The Threat of Substitutes" had the lowest (0.698). The study's overall dependability coefficient, which is in the good range at 0.799. According to these findings, the variables are dependable and consistently assess the same construct. This reassures us that the study's conclusions and findings are reliable.

Table No:3-Operational Efficiency Summary of Regression Model

Statistics of Regression	
Model-R	1
Multiple-R Value	0.889
R Square	0.716
Adjusted R Square	0.598
Standard Error	0.39

In the analysis of the regression model for operational efficiency presented in Table 3, the following key statistics are displayed. The Model-R of "Statistics of Regression" denotes that this is the initial model under

examination. A strong positive correlation of 0.889 is shown between the predictor factors and the dependent variable (operational efficiency) in the next row, which also illustrates the various R-values. The R-square value in the third row is 0.716, which indicates that 71.5% of the variance in operational efficiency can be explained by the five factors in the model. The modified R-square value, which takes into account the number of predictor variables, is shown in the next row as 0.598. This indicates that the five forces in the model can explain 69.8% of the variance in operational efficiency. Last but not least, the standard error of 0.39 illustrates the possible variance of the actual and expected operational efficiency levels by this amount.

Table no:4: ANOVA for Operational Efficiency Model

Model		<i>d.f</i>	<i>S.S</i>	<i>M.S</i>	<i>F</i>	<i>Significance F</i>
1	Regression	9	20.345	3.213	49.851	0.000
	Residuals	13	9.187	0.707		
		14	29.532			

The null hypotheses in each of the five scenarios may be rejected, as demonstrated by the tables above, particularly the Regression and ANOVA tables. The alternative hypotheses, on the other hand,

provide evidence for the impact of competition among competitors, customers' and suppliers' negotiating power, the danger of substitute products, and the threat of new entrants on operational efficiency. To appreciate these forces' relative relevance, it is imperative to ascertain the amount to which they affect operational efficiency. The regression coefficients shown in Table 5 offer a clear understanding of the respective effects of these factors on operational efficiency.

Model		B	SE	Standardized Coefficients		
				Beta	T	
I	Constant					
	The Threat of Substitute Products	0.818	0.21		3.887	0.000
	The threat of New Entrants	0.037	0.084	0.53	5.503	0.000
	Competitive Rivalry	0.069	0.091	0.074	0.71	0.479
	Bargaining Power of	0.059	0.09	0.003	0.023	0.982

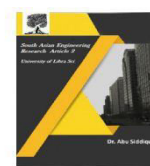
	Suppliers					
	Bargaining Power of Buyers	0.312	0.049	0.055	1.069	0.287

$$\text{Operational Efficiency} = 0.039 \times \text{threat of .substitute products} + 0.071 \times \text{threat of new entrants} + 0.551 \times \text{competitive rivalry} + 0.059 \times \text{bargaining power of .suppliers} + 0.312 \times \text{bargaining power of buyers}$$

The following regression equation, which illustrates the relative power of the variables on the operational efficiency of small and medium-sized pharmaceutical enterprises, can be generated with the aid of these regression coefficients.

4. Conclusion

The analysis and discussion reveal that the primary determinants affecting the competitiveness of the pharmaceutical sector are the threat posed by substitute products and the intensity of competitive rivalry. The industry's competitive structure, however, seems to be largely unaffected by the negotiating strength of suppliers and the possibility of new entrants. The results align with other studies that have also highlighted the importance of alternative products and competitive rivalry as critical factors influencing industrial competitiveness. It is thus advised that pharmaceutical companies concentrate on enhancing their competitive position through the development of novel medications and the improvement of their marketing strategies. In addition, cultivating robust connections with



suppliers and consumers is essential to reduce the risk of replacements and increase negotiating strength. Staying informed about the latest technological developments and innovations is also critical for maintaining a competitive advantage. In conclusion, this study provides important insights into the competitiveness of the pharmaceutical industry, aiding industry professionals and policymakers in making informed decisions to bolster competitiveness. Nonetheless, additional research is warranted to investigate the factors that may affect industry competitiveness across various contexts and regions.

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