A STUDY ON PERFORMANCE EFFICIENCY ANALYSIS OF SIXTEEN PHARMACEUTICAL INDUSTRIES FUNCTIONING IN INDIA – USING DEA APPROACH

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Abstract:

Purpose: The aim of this research work is to investigate and examine the performance of the Pharmaceutical Industries Functioning in India individually and to identify the best Pharmaceutical Industries.

Design / Methodology/ Approach

For this study, the researcher collected the data of the Pharmaceutical Industries for the financial years 2009 to 2013 by considering four input variables and two output variables. The Data Envelopment Analysis technique has been employed to study the performance of the Pharmaceutical Industries individually.

Findings:

Our study reveals that

- ✓ There are four pharmaceutical industries (Divi's Laboratories Ltd,Glenmark Pharmaceuticals Ltd,Ind-Swift Laboratories Ltd and Sun Pharmaceuticals Industries Ltd) is relatively efficient based on the input oriented technical efficiency [CRS].
- ✓ Only 50% pharmaceutical industries are relatively efficient based on the input oriented technical efficiency [VRS].

Altogether fourpharmaceutical industries are functioning effectively and efficiently and the remaining pharmaceutical industries are not functioning up to that expected level.

Keywords: Data Envelopment Analysis, Decision Making Unit, Performance, Efficiency, Constant Return to Scale, Variable Return to Scale.

Introduction: It is one of the main activities of any firm to monitor its efficiency. In the current scenario, there are a number of methods based either on the traditional approach or using IT to evaluate the efficiency of a system. Efficiency measurement methods can be divided into three main categories: ratio indicators, parametric and nonparametric methods. In selecting indicators to measure efficiency one can focus primarily on a firm's inputs and outputs.

In general, the term productive unit refers to a unit producing certain outputs by spending certain inputs. The evaluation of efficiency in production units and determining the sources of their inefficiency is a precondition to effectively improve the performance of any such unit in a competitive environment. Pharmaceutical Industries can be considered as production units too. In general, they are homogeneous units performing similar activities. All inputs and outputs have an impact on the efficient operation of such units, even though some are relatively considered to be more important or less important to each other.

The **Pharmaceutical industry in India** is the world's third-largest in terms of volume. According to Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, the total turnover of India's pharmaceutical industry between 2008 and

September 2009 was US$21. 04 billion. While the domestic market was worth US$12. 26 billion. The industry holds a market share of $14 billion in the United States.

According to Brand India Equity Foundation, the Indian pharmaceutical market is likely to grow at a compound annual growth rate (CAGR) of 14-17 per cent in between 2012-16. India is now among the top five pharmaceutical emerging markets of the world.

Exports of pharmaceutical products from India increased from US$6. 23 billion in 2006–07 to US$8. 7 billion in 2008–09 a combined annual growth rate of 21.25%. According to PricewaterhouseCoopers (PWC) in 2010, India joined among the league of top 10 global pharmaceutical markets in terms of sales by 2020 with value reaching US$50 billion.

The government started to encourage the growth of drug manufacturing by Indian companies in the early 1960s, and with the Patents Act in 1970. However, economic liberalization in 90s by the former Prime Minister P.V. NarasimhaRao and the then Finance Minister, Dr. Manmohan Singh enabled the industry to become what it is today. This patent act removed composition patents from food and drugs, and though it kept process patents, these were shortened to a period of five to seven years.

The lack of patent protection made the Indian market undesirable to the multinational companies that had dominated the market, and while they streamed out. Indian companies carved a niche in both the Indian and world markets with their expertise in reverse-engineering new processes for manufacturing drugs at low costs. Although some of the larger companies have taken baby steps towards drug innovation, the industry as a whole has been following this business model until the present.

India's biopharmaceutical industry clocked a 17 percent growth with revenues of Rs.137 billion ($3 billion) in the 2009–10 financial year over the previous fiscal. Bio-pharma was the biggest contributor generating 60 percent of the industry's growth in Rs.88.29 billion, followed by bio-services at Rs. 26.39 billion and bio-Agri at Rs.19.36 billion.

In 2013, there were 4,655 pharmaceutical manufacturing plants in all of India, employing over 345 thousand workers.

The large numbers of Pharmaceutical Industries in India, the quick technological change and the increased competition have added more pressure to improve performance. Instead of studying partial productivity of Pharmaceutical Industries, with the available Financial Management Tool like Ratio Analysis, it is the order of the hour to study the total productivity. In this context, the author has introduced the concept of the DEA model in this research paper. This system has the benefit of developing a data-driven technological frontier that necessitates no specification of any scrupulous functional shape or error structure. This study fills the gap in the literature by leaving from the traditional method of evaluating the efficiency of a Pharmaceutical Industries.

DEA was first introduced by (Charnes et al., 1978) as a Mathematical Programming Model with the help of the theoretical framework given by (Farrell, 1957), for computing the relative efficiencies of multiple Decision Making Units (DMUs), and it falls under the special category of Fractional Programming. DEA is a special technique which offers a comparative ratio for each unit in terms of output and input. The ratio is stated as efficiency scores for each unit. The measure of performance lies in the range 0 to 1. If the performance measure is 1 then the organization is considered to be highly efficient and if the measure is tending towards 0, the efficiency is otherwise. One of the significant roles of DEA is that the efficiency scores indicate the gap for potential improvements and developments for inefficient DMUs. DEA firstly applied by (Sherman and Gold, 1985) for

assessing the efficiency of bank branches, is a tool for evaluating relative efficiency since it first identifies the bank's efficiency frontier and then compares it with other banks. It allows ranks to be awarded to the banks according to their technical efficiency scores and also to single out the driving forces for inefficiencies.

In the Pharmaceutical Industries, the DEA model is preferable to an econometric approach of efficiency measurement because it has a number of advantages.

There are:

- ✓ It can simultaneously analyze several inputs and outputs, which is an alternative characteristic, because production in the Pharmaceutical Industries often involves multiple inputs and outputs.
- ✓ It does not require any assumptions about the functional form of technology, and
- ✓ It calculates a maximal performance measure for each production unit relative to all other production units in the observed population with the sole condition that each production unit lies on or below the external.

This paper differs entirely from all other previous works by investigating and examining the current performance of the Pharmaceutical Industries of India individually, in terms of their efficiency for the period [2009 – 2013] using the Data Envelopment Analysis. This study classifies the Pharmaceutical Industries into two categories as efficient and inefficient. The remedial measures are discussed in order to improve the efficiency of the Pharmaceutical Industries.

Review of literature: The Financial Management Tool known as Ratio Analysis Technique [RAT] has been used for many years to evaluate the performance of the Pharmaceutical Industries. The financial statements are examined to find different ratios and then compare them with the defined Benchmark. In this research paper, the traditional parametric technique is replaced with the non – parametric method DEA to investigate the performance of the Pharmaceutical Industries.

(Seiford and Zhu, 1999) examined the profitability and marketability of the top 55 U.S. commercial banks by applying the DEA model and concluded that large banks performed better with respect to profitability than small size banks, while small size banks have the better characteristic of marketability as compared to large size banks.

(Maudos et al, 2002) studied the cost and profit efficiency of 832 European banks based on ten European Union Countries (period 1993 – 1996). The return on assets (ROE) and return on equity (ROA) were acquired as performance measures to check profit efficiency of banks using DEA. This study was made based on the four dimensions, namely the market characteristics, differences in size, other bank characteristics and specialization. Variations in profit terms were found to be greater than the variations in cost terms.

(Park and Weber, 2006) tested the profitability of all Korean banks by testing with (traditional hypothesis approach) market structure hypothesis against efficient structure hypothesis applied after examination of the panel data (for the period of 1992-2002); with the help of (DEA) model. The outcome of this study shows that the performance measures significantly affects the profitability of banks.

(Sufian, 2009) studied the efficiency of the Malaysian banking sector during the Asian Crisis of 1997 for the period of 1995-1999. The efficiency of individual banks was computed by DEA technique. They considered the Profitability as the major ingredient which was used to evaluate the efficiency with other explanatory variables, like bank size and ownership. The outcome of this study indicated that as there is a positive association between the Efficiency of banks and loans intensity and the relationship is otherwise for the economic

conditions and expense preference behavior.

(IzahMohdTahir, Nor Mazlina Abu Bakar and SudinHaron, 2009) evaluated the overall pure technical and scale efficiencies for Malaysian commercial banks during the period 2000-2006. The results suggest that domestic banks were relatively more efficient than foreign banks. They suggested that the domestic banks' inefficiency were attributed to the pure technical inefficiency rather than scale inefficiency. In contrast, foreign banks inefficiency was attributed to scale inefficiency rather than pure technical inefficiency.

(Khalid Al Khathlan and Syed Abdul Malik, 2010) analyzed the relative efficiency of Saudi Banks uses annual data from 2003 through 2008 using DEA. The results show that, on a relative scale, Saudi banks were efficient in the management of their financial resources. In addition, the results would provide crucial information about the Saudi banks' financial conditions and management performance for the benefit of bank regulators, managers and bank stock investors.

(Sufian and Habibullah, 2010) analyzed the efficiency of the Thailand banking sector covering the duration 1999-2008 with the help of DEA approach. The results have shown that inefficiency was offset during formulation of technical efficiency with respect to pure technical efficiency in the banking sector. The efficiency level of banks in data envelopment analysis is measured using a ratio of weighted sum of the outputs of the weighted sum of inputs.

(Mohammad RomelBhuia, AzizulBaten, AnatonAbdulbasahKamil and Nandini Deb, 2012) analyzed the relative efficiency of Bangladesh online banks during 2001 – 2007 by utilizing Data Envelopment Analysis. Based on the several online sampled banks, the findings reveal that the most efficient banks were AL-ArafahIslami Bank Limited, ShahajalalIslami Bank Limited, Eastern Bank Limited, and the less efficient banks over the study period were Janata Bank Limited, Uttara Bank Limited, United Commercial Bank Limited, Pubali Bank Limited, and AB Bank Limited. Among the three groups Group-1 (n=20), Group-2 (n=18), Group-3 (n=15) it was observed that the individual efficiency level of banks are increasing group by group. The efficiency level of Group-2 was slightly increased from the efficiency level of Group-1. The source of efficiency of the sampled banks was found to be lower for technical efficiency and scale efficiency rather than pure technical efficiency.

(Aswini Kumar Mishra, Jigar, N., Gadhia, Bibhu Prasad Kar, BiswabasPatra and ShiviAnand, 2013) tested the soundness and the second is to measure the efficiency of 12 public and private sector banks based on market cap. As far as the first objective is concerned, CAMEL approach has been used over a period of twelve years (2000-2011), and it is established that private sector banks are at the top of the list, with their performances in terms of soundness being the best. Public sector banks like Union Bank and SBI have taken a backseat and display low economic soundness in comparison. On the other hand, the present study makes an attempt to measure the efficiency change of these selected banks operating in India during 2010-2012. By using frontier based non-parametric technique, Data Envelopment Analysis, provides significant insights on the efficiency of different banks and places the private sector ones at an advantageous position and thereby hints at the possibility of further improvisation of most of the public sector banks. DEA results exhibit that among the public sector banks, the performance of Bank of India, Canara Bank and Punjab National Bank got dampened in the last two years under study, whereas among the private sector banks, except the case of Axis Bank, which was not found to be satisfactory at all, the remaining private sector banks show marked consistency in their efficiency level during the

period under study.

Research Methodology:

Data Collection: For this study, the required data of all the Pharmaceutical Industries have been taken from the website Economic Times for the financial years 2009–2013.

Selection of Inputs and Outputs: Reviewing the literature on the application of data envelopment analysis (DEA), different studies have used different combination of inputs and outputs. In this study, the researcher considered four input variables and two output variables in order to have an elaborate study.

The variables under the study are listed below:

Variables which relate to Pharmaceutical Industries are considered

Sl. No.	Input Variables	Output Variables
1	Manufacturing Expenses	Total Income
2	Material Consumed	Operating Profit
3	Personal Expenses	
4	Administrative Expenses	

CCR and BCC Model: The original CCR model was pertinent only to that expertise which is categorized by constant returns to scale. The major advancement was extended by Charnes, and Cooper (BCC) model to facilitate expertise that reveals variable returns to scale. This study has used input-oriented DEA model, which emphasizes on the minimization of inputs and the maximization of outputs held at their current levels. Also the BCC model with variable return to scale is considered.

General form of CCR Model: The general form Output Maximization DEA [CCR] model can be represented in the form of Fractional Programming Model as follows:

Here the general model is constructed to maximize the efficiency of the q[th] output variable:

v_{jq} - j^{th} output value of the q^{th} DMU

y_{jq} - j^{th} output variable of the q^{th} DMU

u_{iq} - i^{th} input value of the q^{th} DMU

x_{iq} - i^{th} input variable of the q^{th} DMU

E_q - Efficiency of the q^{th} DMU$\text{Max}\, E_q = \frac{\sum_{j=1}^{m} v_{jq} y_{jq}}{\sum_{i=1}^{s} u_{iq} x_{iq}}$

Subject to the constraint

$$\frac{\sum_{j=1}^{m} v_{jq} y_{jq}}{\sum_{i=1}^{s} u_{iq}\, x_{iq}} \leq 1; \quad q = 1,2, \dots, n$$

$$v_{jq}, y_{jq}, u_{iq}, x_{iq} \geq 0 \; for\; all\; i = 1,2,..s; j = 1,2,..m, q = 1,2,...n$$

Solving this fractional programming problem directly is so tedious; hence the fractional programming model is converted into regular linear programming model as described below:

$$Max\ E_q = \sum_{j=1}^{m} v_{jq} y_{jq}$$

Subject to the constraints

$$\sum_{i=1}^{s} u_{iq} x_{iq} = 1$$

$$\sum_{j=1}^{m} v_{jq} y_{jq} - \sum_{j=1}^{m} u_{iq} x_{iq} \leq 0; \quad q = 1,2,...n$$

$$v_{jq}, y_{jq}, u_{iq}, x_{iq} \geq 0 \; for\; all\; i = 1,2,..s;\; j =$$

$1,2,..m,\ \ q = 1,2,...n$

The general form of input minimization DEA [CCR] linear programming model can be represented as follows:

$$Min\ E_q = \sum_{i=1}^{s} u_{iq}x_{iq}$$

Subject to the constraints

$$\sum_{j=1}^{m} v_{iq}y_{iq} = 1;$$

$$\sum_{j=1}^{m} v_{jq}y_{jq} - \sum_{i=1}^{s} u_{iq}x_{iq} \leq 0; \quad q = 1,2,...n$$

$$v_{jq}, y_{jq}, u_{iq}, x_{iq} \geq 0\ for\ all\ i = 1,2,..s; j = 1,2,..m, q = 1,2,...n$$

General form of BCC Model:

The DEA envelopment program for considering variables return to scale is as follows:

$Min\ \theta_m$

Subject to the Constraints

$Y\lambda \ \geq \ Y_m;\ X\lambda \ \leq \ \theta X_m$

$$\sum_{n=1}^{N} \lambda_n = \ 1$$

$\lambda \geq \ 0\ ;\theta_m\ free\ variable$

Empirical Results:

Input-Oriented Technical Efficiency (Constant Return to Scale): Table 1 communicates that the DEA efficiency score based input oriented technical efficiency [Constant return to scale] under the CCR Model. The Analysis report strongly communicates four Pharmaceutical Industries attained maximum efficiency score 1 for efficient based on the input oriented technical efficiency [CRS] for the year 2009 – 2013.

It is observed that there is a varying trend in their mean of technical efficiency of Pharmaceutical Industries of India from 2009 to 2013, the score lies in the interval [0.7754, 1.0000]. The average efficiency of all the Pharmaceutical Industries for the entire period is less than 1.

Input-Oriented Pure Technical Efficiency (Variable Return to Scale): Table 2 communicates that the DEA efficiency score based input oriented technical efficiency [Variable Return to Scale] under the BCC Model. In BCC Model there is an increase in number of Pharmaceutical Industries, which shows the consistency in their performance. The Analysis report strongly communicates that eight Pharmaceutical Industries attained maximum efficiency score 1 for the year 2009–2013.

It is observed that there is a varying trend in their mean of technical efficiency of Pharmaceutical Industries of India from 2009 to 2013, the score lies in the interval [0.8694, 1.0000]. The average efficiency of all the Pharmaceutical Industries for the entire period is less than 1.

Input-Oriented Scale Efficiency (Variable Return to Scale): Table 3 shows the mean efficiency each year by decomposing technical efficiency into pure technical efficiency and scale efficiency. Decomposing technical efficiency into pure technical efficiency and scale efficiency allows us to gain insight into the main sources of inefficiencies. The average index of technical efficiency during the study period varies in between 77.54% to 100%, pure technical efficiency varying at 86.94% to 100%, and of scale efficiency varying at 85.16% to 100%.

Overall Mean Efficiency: Among all the sixteen Pharmaceutical Industries considered for this study, there are only four Pharmaceutical Industries (Glenmark Pharmaceuticals Ltd, Divi's Laboratories Ltd, Ind-Swift Laboratories Ltd and Sun Pharmaceuticals Industries Ltd) which are highly consistent with the efficiency score of 1 and stands first. The rank of all the sixteen Pharmaceutical Industries is given in the Table 4.

Summary and concluding remarks: This research analysis is based on the application of Data Envelopment Analysis to compute the relative efficiency of Sixteen Pharmaceutical

industries functioning in India. The outcome of this research study reveals certain constructive managerial insights into evaluating and advancing Pharmaceutical industry operations. The resulting analysis shows that Glenmark Pharmaceuticals Ltd, Divi's Laboratories Ltd, Ind-Swift Laboratories Ltd and Sun Pharmaceuticals Industries Ltd are relatively efficient with the maximum efficiency score 1 throughout the study period. That is the remaining twelve Pharmaceutical industries are less efficient and the same can successfully endorse their resource utilization efficiency by improved, efficient handling of all the input and output variables.

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Table 1 Input-Oriented Technical Efficiency (Constant Return to Scale)							
Sl. No.	**Name of the Company**	**2009**	**2010**	**2011**	**2012**	**2013**	**Mean efficiency of the individual Company**
1	**Alembic Ltd**	0.6900	0.6510	0.7240	0.8120	1	**0.7754**
2	**AurobindoPharma Ltd**	0.8520	0.9620	0.9020	0.7800	0.9080	**0.8808**
3	**Biocon Ltd**	0.9000	0.8850	1	0.8770	0.8310	**0.8986**
4	**Cadila Healthcare Ltd**	0.9620	0.8680	0.9730	0.8900	0.8900	**0.9166**
5	**Cipla Ltd**	1	1	0.8180	0.7020	1	**0.9040**
6	**Divi's Laboratories Ltd**	1	1	1	1	1	**1**
7	**Dr.Reddy's Laboratories Ltd**	0.9510	0.8540	0.9390	0.9200	0.9670	**0.9262**
8	**Glenmark Pharmaceuticals Ltd**	1	1	1	1	1	**1**
9	**Ind-Swift Laboratories Ltd**	1	1	1	1	1	**1**
10	**Ipca Laboratories Ltd**	0.8600	0.7850	0.8830	0.8620	0.8460	**0.8472**
11	**Jubilant Life Sciences Ltd**	0.8890	0.9190	0.8950	0.8230	0.8940	**0.8840**
12	**Lupin Ltd**	0.7980	0.8130	0.7200	0.6710	0.9940	**0.7992**
13	**Piramal Enterprises Ltd**	0.8740	0.8680	0.8410	0.6150	0.9780	**0.8352**
14	**Sun Pharmaceuticals Industries Ltd**	1	1	1	1	1	**1**
15	**Surya Pharmaceuticals Ltd**	1	1	1	1	0.2700	**0.8540**
16	**Torrent Pharmaceuticals Ltd**	0.8800	0.8590	0.8960	0.8660	1	**0.9002**
	Mean Efficiency of overall Company	0.9160	0.9040	0.9119	0.8636	0.9111	

Table 2 Input-Oriented Technical Efficiency (Variable Return to Scale)							
Sl. No.	**Name of the Company**	**2009**	**2010**	**2011**	**2012**	**2013**	**Mean efficiency of the individual Company**
1	**Alembic Ltd**	0.6910	0.6560	1	1	1	**0.8694**
2	**AurobindoPharma Ltd**	1	1	1	1	1	**1**
3	**Biocon Ltd**	0.9410	0.8890	1	0.8900	0.8420	**0.9124**
4	**Cadila Healthcare Ltd**	0.9930	0.9760	0.9890	0.9400	0.9130	**0.9622**
5	**Cipla Ltd**	1	1	1	1	1	**1**
6	**Divi's Laboratories Ltd**	1	1	1	1	1	**1**
7	**Dr.Reddy's Laboratories Ltd**	1	1	1	1	1	**1**
8	**Glenmark Pharmaceuticals Ltd**	1	1	1	1	1	**1**
9	**Ind-Swift Laboratories Ltd**	1	1	1	1	1	**1**
10	**Ipca Laboratories Ltd**	0.8960	0.8380	0.9070	0.8920	0.8600	**0.8786**
11	**Jubilant Life Sciences Ltd**	1	0.9870	0.9560	0.9190	1	**0.9724**
12	**Lupin Ltd**	1	1	0.8590	0.8240	1	**0.9366**
13	**Piramal Enterprises Ltd**	1	1	0.8420	0.6730	1	**0.9030**
14	**Sun Pharmaceuticals Industries Ltd**	1	1	1	1	1	**1**
15	**Surya Pharmaceuticals Ltd**	1	1	1	1	1	**1**
16	**Torrent Pharmaceuticals Ltd**	0.8840	0.9370	0.8980	0.8760	1	**0.9190**
	Mean Efficiency of overall Company	**0.9628**	**0.9552**	**0.9657**	**0.9384**	**0.9759**	

Table 3 Input-Oriented Scale Efficiency (Variable Return to Scale)							
Sl. No.	**Name of the Company**	**2009**	**2010**	**2011**	**2012**	**2013**	**Mean efficiency of the individual Company**
1	**Alembic Ltd**	0.9980	0.9930	0.7240	0.8120	1	**0.9054**
2	**AurobindoPharma Ltd**	0.8520	0.9620	0.9020	0.7800	0.9080	**0.8808**
3	**Biocon Ltd**	0.9570	0.9960	1	0.9860	0.9870	**0.9852**
4	**Cadila Healthcare Ltd**	0.9690	0.8890	0.9830	0.9470	0.9740	**0.9524**
5	**Cipla Ltd**	1	1	0.8180	0.7020	1	**0.9040**
6	**Divi's Laboratories Ltd**	1	1	1	1	1	**1**
7	**Dr.Reddy's Laboratories Ltd**	0.9510	0.8540	0.9390	0.9200	0.9670	**0.9262**
8	**Glenmark Pharmaceuticals Ltd**	1	1	1	1	1	**1**
9	**Ind-Swift Laboratories Ltd**	1	1	1	1	1	**1**
10	**Ipca Laboratories Ltd**	0.9600	0.9370	0.9730	0.9660	0.9830	**0.9638**
11	**Jubilant Life Sciences Ltd**	0.8890	0.9310	0.9370	0.8960	0.8940	**0.9094**
12	**Lupin Ltd**	0.7980	0.8130	0.8390	0.8140	0.9940	**0.8516**
13	**Piramal Enterprises Ltd**	0.8740	0.8680	0.9990	0.9140	0.9780	**0.9266**
14	**Sun Pharmaceuticals Industries Ltd**	1	1	1	1	1	**1**
15	**Surya Pharmaceuticals Ltd**	1	1	1	1	0.2700	**0.8540**
16	**Torrent Pharmaceuticals Ltd**	0.9960	0.9170	0.9980	0.9890	1	**0.9800**
	Mean Efficiency of overall Company	**0.9528**	**0.9475**	**0.9445**	**0.9204**	**0.9347**	

Table 4 Overall Mean Efficiency of all the measures put together

Sl. No.	Name of the Company	Mean efficiency of the individual companies [input-CRS]	Mean efficiency of the individual companies [input-VRS]	Mean of mean efficiency	Rank based mean on efficiency
1	**Alembic Ltd**	0.7754	0.8694	0.8224	**13**
2	**AurobindoPharma Ltd**	0.8808	1	0.9404	**4**
3	**Biocon Ltd**	0.8986	0.9124	0.9055	**9**
4	**Cadila Healthcare Ltd**	0.9166	0.9622	0.9394	**5**
5	**Cipla Ltd**	0.9040	1	0.9520	**3**
6	**Divi's Laboratories Ltd**	1	1	1	**1**
7	**Dr.Reddy's Laboratories Ltd**	0.9262	1	0.9631	**2**
8	**Glenmark Pharmaceuticals Ltd**	1	1	1	**1**
9	**Ind-Swift Laboratories Ltd**	1	1	1	**1**
10	**Ipca Laboratories Ltd**	0.8472	0.8786	0.8629	**12**
11	**Jubilant Life Sciences Ltd**	0.8840	0.9724	0.9282	**6**
12	**Lupin Ltd**	0.7992	0.9366	0.8679	**11**
13	**Piramal Enterprises Ltd**	0.8352	0.9030	0.8691	**10**
14	**Sun Pharmaceuticals Industries Ltd**	1	1	1	**1**
15	**Surya Pharmaceuticals Ltd**	0.8540	1	0.9270	**7**
16	**Torrent Pharmaceuticals Ltd**	0.9002	0.9190	0.9096	**8**

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