

Effect of news on stock price behavior of Pharmaceutical companies: A study

Sagar B Patil, Asst Prof, KLETU, Hubli, India. sagarpatil@kletech.ac.in

Dr. Virupaxi Bagodi, Professor, GEC, Talkal, India. virupaxibagodi@yahoo.com,

Dr. Prakash B, Professor, Department of MBA, AIT, Bangalore, India. prakashby@acharya.ac.in

Abstract - The study aims at analyzing the price movements of pharma company's shares whenever there is a disclosure. It is observed that whenever there is an increase in the return the risk has increased and with the decrease in the return, risk has also decreased after the announcement. The announcements have an effect on stock prices. The stock prices usually discount the news and incorporate in its price thus resulting into changes in price. Also, there will be change in risk and return of the company's shares along financial and non-financial announcements. It has been observed that for positive news the return is positive along with the decrease in the risk factors. And on the other hand, for un-favorable news the return declines with either increase in the Standard Deviation or Beta of the scrip.

Keywords: Disclosure, News, Share prices.

I. INTRODUCTION

The Pharmaceutical industry in India is the world's third-largest in terms of volume with the total turnover of US\$21.04 billion, while the domestic market was worth US\$12.26 billion in 2009 with a growth of over 17% during 2009-10. The industry holds a market share of \$14 billion in the United States. Bio-pharma was the biggest contributor generating 60 percent of the industry's growth at 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 study basically consists of evaluating top 4 companies based on their weightage composition on BSE Health Care. To evaluate their performance the past 5Yrs news and price movements have been considered. During the study disclosure information along with the price movements have been identified and the same has been interpreted along with risk and return computation for that particular period of study. To prevent our results from being contaminated by inter-industry factors, the study is focused only on Indian pharma sector.

1.1 BACKGROUND OF THE STUDY

This industry is never ending industry along with few more. The returns of these sectors are negative very rarely as it acts as a back bone and survive all the time during the sickness. As rightly said "Food can be postponed but drug cannot be", makes this industry very attractive and more of defensive. This industry takes lot of time and effort to take investment back as it involves lot of time to succeed a drug and launch the same in market and yield. And sometimes the drug may yield negative even after considerable amount of investment. This makes industry to carry low profile with financial disclosure, so the company uses other means to communicate its growth and returns to the investors what we call as non financial disclosures. In this study an attempt has been made to discuss non financial

disclosures and how these convey firm's prospect in the market.

In this study voluntary and non-voluntary news has been gathered from various data sources and same has been put up in file. The news announcements exact date and price movements of 7days prior and later has been ascertained. The tools like return, standard deviation and r-value has been employed in order to ascertain market reactions.

Table 1: growth rate of pharma sector.

Market	Domestic		Exports		Total	
	Value	Growth	Value	Growth	Value	Growth
2016-17	130000	21%	158000	16%	288000	18%
2019-20	233000	5%	248000	17%	481000	19%

1.2 OBJECTIVES OF THE STUDY

- 1) To collect news related to pharma companies.
- 2) To ascertain the risk and return of share prices.
- 3) To assess the relation between risk and return.

1.3 EVOLUTION PHARMA INDUSTRY AND BSE HEALTH CARE

The Indian Pharmaceutical industry has been witnessing phenomenal growth in recent years, driven by rising consumption levels in the country and strong demand from export markets. The pharmaceutical industry in India is estimated to be worth about US\$ 10 bn, growing at an annual rate of 9%.

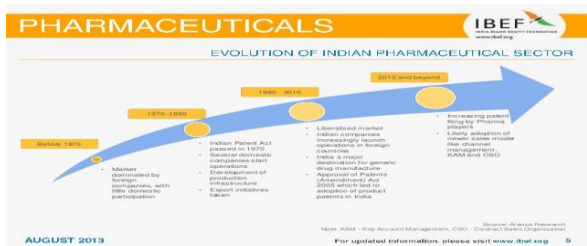


Figure 1: Depicting evolution of Indian pharma sector.

The industry has seen tremendous progress in terms of infrastructure development, technology base and the wide range of products manufactured. Demand from the exports market has been growing rapidly due to the capability of Indian players to produce cost-effective drugs with world class manufacturing facilities. Bulk drugs of all major therapeutic groups, requiring complicated manufacturing processes are now being produced in India. The revenue of the industry is ever increasing, which has been shown below:

Figure 2: revenue of Indian pharma sector for 2008-2016.



Source: www.slideshare.net

In addition to having Good Manufacturing Practices (GMP), WHO, several Indian companies have also been getting plant approvals from international regulatory agencies like US FDA, MCA (UK), TGA (Australia), MCC (South Africa). India possesses the highest number of US FDA approved manufacturing facilities outside the USA and currently tops in filing the Drug Master Files (DMF) with the US FDA. This has also facilitated the domestic industry to attract contract manufacturing opportunities in the rapidly growing generics market. The India's contribution to international market in terms of exports and imports is as below:

Figure 3: trade data of Indian companies.



Source: www.slideshare.net

A paradigm shift occurred in the Indian pharmaceutical industry with India becoming a signatory to the WTO order, ushering in the Product Patent Regime. Earlier, with

the enactment of The Patent Act, 1970, only process patent was applicable for pharmaceuticals. In future it will be a growth period of the Indian Pharmaceutical Industry. The growth is expected to emerge from three major areas:

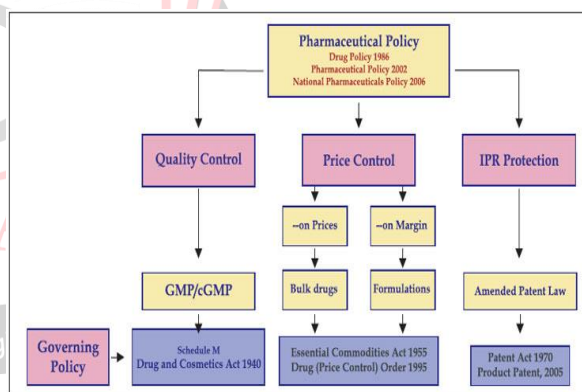
1. Contract research and development services.
2. Export led business of generics and bulk drugs and
3. Growth in specialty therapeutic areas in the domestic market.

The industry will continue to be in consolidation mode and mood. The last few years have seen a spate of mergers and acquisitions of brands as well as companies. Indian companies continue to be aggressive in pursuing merger and acquisition strategies to gain access to international markets and to reinforce their position. Strategic alliances too will be on the rise particularly in the areas of contract research, contract manufacturing and product licensing.

1.4 THE REGULATORY CONTROL OF THE PHARMACEUTICAL INDUSTRY

Strong regulatory policies are in practice by Indian companies in order to make the drug pass through the various stages of the quality checks at national and international market. As Indian drug manufacturing companies are very much export oriented to US and UK nations, the companies follow the following policy to meet the required quality criteria. The policy as follows:

Figure 4: Depicting pharmaceutical policy.



Source: www.dnb.co.in

II. RESEARCH METHODOLOGY

2.1 TYPE OF RESEARCH: Descriptive research.

2.2 SECONDARY DATA

The data required for risk and return analysis, R value computation & interpretation are collected from journals, company's prospectus, company's annual reports, BSE site and internet.

2.3 SAMPLE

The risk and return analysis of the scrips towards the announcements is an area under exploration. The authors have made an attempt to understand the relation of risk and return towards the financial and non-financial announcements. For study companies are selected which are listed on BSE Health Care INDEX, in this index there are sixteen companies out of which top 4 companies have been considered based on their weightage composition on

the index. The period for evaluating performance through risk (Beta), return, coefficient of correlation have been used for a period of in this study ranges from 2009 to 2014, i.e. for 5 years. Before selecting of sample companies, it was discussed with the subject experts in academic and industry to have construct validity. After a proper analysis one sector out of 10 listed on to BSE is selected. In order to get a detail analysis, 5 years data is collected. The selection of companies is carried out on logical method i.e., market capitalization of individual companies as on study date which is discussed in table 2.

Table 2: market capitalization and scrip wise weightage of companies on BSE Health care

Source: bseindia.com

Sl No.	Company	Market Capitalization	Weightage
1	Sun Pharma Inds.	127,293.73	30.97
2	Dr Reddy's Labs	41,022.60	11.15
3	Lupin	43,067.61	10.51
4	Cipla	31,113.20	7.48
5	Glaxosmit Pharma	21,175.33	4.86
6	Cadila Health.	18,753.94	4.84
7	Ranbaxy Labs.	19,153.90	4.76
8	Divi's Lab.	17,189.09	4.34
9	Aurobindo Pharma	18,143.20	4.15
10	Glenmark Pharma.	14,565.05	3.85
11	Apollo Hospitals	7,170.20	3.08
12	Ipca Labs.	9,938.18	2.52
13	Piramal Enterp.	10,232.99	2.44
14	Biocon	8,590.00	2.31
15	Wockhardt	8,391.09	2.02
16	Strides Arcolab	2,948.50	0.72

III. LITERATURE REVIEW

This is a study of the impact of voluntary product development disclosures in an industry where accounting numbers are relatively uninformative due to high levels of R&D expenditure. It has been argued that, "The theory of voluntary disclosure is a special case of game theory with the following central premise: any entity contemplating making a disclosure will disclose information that is favorable to the entity, and will not disclose information unfavorable to the entity [1]."

Reference [2] reported earnings of high-R&D expenditure firms are therefore likely to convey less value relevant information to investors than those of less research-intensive firms. Using a sample of firms from the high-R&D UK biotechnology/ pharmaceutical sector, we find that earnings announcements have a much lower price

impact than drug development announcements. They also mentioned that there are significantly more 'good news' voluntary announcements than 'bad news' announcements.

Reference [3] – [5] opined that, in relation to discretionary disclosures, the impression management school of thought, would predict that discretionary information would occur as a means to manage impressions of the organization or the management.

Reference [6] results suggest that the extent of voluntary disclosure is influenced by a firm's corporate governance attributes, ownership structure and company characteristics. The presence of an audit committee is a significant factor associated with the level of voluntary disclosure, and the proportion of non-executive directors on the board is found to be significantly negatively associated with the extent of voluntary disclosure. The study also finds that the levels of institutional and foreign ownership have a significantly positive impact on voluntary disclosure. Large companies and companies with high debt voluntarily disclose more information. In contrast, board leadership structure, liquidity, profitability and type of external audit firm do not have a significant influence on the level of voluntary disclosure by companies.

3.1 BSE HEALTH CARE

In view of the emergence of health care industry stocks as a major segment in the equity markets, BSE considered it desirable to design an index exclusively for bank stocks named as S&P BSE Health Care (BSEHC). It was initiated on 1st of Feb 1999, with 1000 base point and launched on full market capitalization method and effective August 23, 2004, calculation method shifted to free-float market capitalization. The value of Health care index has increased to 10083 points as on 31st March 2014.

3.0 HYPOTHESIS TESTING

Depending on discussion made in the initial stages of discussion regarding the impact of financial and non-financial news on the scrip price movements can be ascertained through formulation of testable hypotheses.

Ho : $\mu \leq 0.49$ – There is no impact of news on share prices.

H1 : $\mu \geq 0.49$ – There is an impact of news on share prices.

IV. ANALYSIS

Table 3: return, standard deviation and beta of the scrip Lupin Pvt Ltd.,

FINANCIAL News Number	R pre	R post	SD pre	SD post	B pre	B post	NON FINANCIAL News	R pre	R post	SD pre	SD post	B pre	B post
1	1.85	-0.26	1.7	0.8	2.3	1.04	1	-0.44	4.29	1.11	0.9	1.5	1.6
2	0.22	0.9	0.96	1.8	1.16	2.35	2	0.17	-2.81	0.81	0.55	0.78	0.34
3	6.53	7.09	1.07	1.89	0.44	1.45	3	0.61	-0.61	1.54	0.87	1.68	1.34
4	4.55	3.02	1.39	1.6	2.68	0.91	4	3.74	-4.02	0.65	0.75	0.76	-0.56
5	6.45	4.01	1.3	0.75	2.03	0.3	5	1.86	6.53	0.99	1.67	0.69	0.44
6	1.06	-5.54	0.92	0.84	0.98	0.81	6	3.17	0.21	0.63	0.85	0.97	0.84

7	-0.16	3.56	1.43	1.5	-1.66	0.7	7	2.76	-0.76	0.87	1.07	0.77	1.36
							8	-4.98	-3.23	1.5	2.04	1.16	2.81
							9	3.78	-1.37	1.19	1.3	1.53	1.17
							10	3.52	4.81	0.93	1.07	0.87	1.37

Discussion:

As rightly said and assumed, "market discounts everything", the news related to financial and non financial leave an impact on share prices of Lupin Pharma Inc. From the above computed values it can be interpreted that, scrip values are subject to change and the news are discounted. The impact of these discounts can be seen on scrip prices. For favourable financial news makes scrip prices to move in positive directions resulting into positive returns and vice versa is true. On the other hand, non-financial news also reflects on the scrip price movements resulting into positive returns if the news is positive and vice versa.

Table 4: return, standard deviation and Beta of the scrip Dr.Reddy's Pharma Ltd.,

FINANCIAL News Number	R pre	R post	SD pre	SD post	B pre	B post	NON FINANCIAL News	R pre	R post	SD pre	SD post	B pre	B post
1	-0.55	-1.78	1.22	1.35	1.71	0.91	1	1.88	4.52	0.89	0.86	2.31	0.69
2	5.43	-1.46	2.01	0.72	1.37	-0.65	2	-6.94	2.27	1.07	1.08	1.43	1.61
3	1.61	1.52	1.61	1.66	0.85	1.19	3	3.99	4.19	1.6	0.66	0.37	0.42
4	4.6	0.23	1.22	1.51	0.13	1.51	4	-3.94	7.56	2.17	1.37	1.08	0.46
5	-1.05	-3.41	1.24	1.19	1.32	1.37	5	2.31	3.4	0.99	1.31	0.19	0.88
6	4.33	0.96	0.65	0.75	-0.73	0.6	6	7	0.58	1.29	0.86	-0.11	0.61
7	1.29	4.12	1.25	0.68	1.7	0.69	7	0.26	-1.62	1.14	0.9	0.26	1.12
8	4.66	3.74	0.95	1.97	1.09	3.06	8	4.65	-0.38	1.26	0.74	0.72	0.46
9	0.95	-3.85	1.3	1.28	1.07	0.95	9	-3.41	-1.14	1.59	1.6	2.76	0.15
							10	2.06	-1.21	1.49	0.59	1.22	0.8
							11	2.11	-4.41	1.03	0.88	1.26	1.08

Discussion:

From the above table it can be interpreted that, the scrip values have reflected to financial and non-financial news of the company. The same has been observed in terms of changes in the return, standard deviation and Beta of the company's scrip. Dr.Reddy's has observed negative changes to adverse financial information and positive changes to the non financial positive news.

Table 5: return, standard deviation and Beta of the scrip Cipla Pharmaceuticals Ltd.,

FINANCIAL News Number	R pre	R post	SD pre	SD post	B pre	B post	NON FINANCIAL News	R pre	R post	SD pre	SD post	B pre	B post
1	1.51	-2.99	1.23	1.12	1.38	2.42	1	-4.6	8.46	1.12	0.96	1.17	0.67
2	-3.3	-2.68	1.75	1.35	1.09	0.42	2	-3.18	6.23	1.24	1.43	3.26	1.72
3	0.84	0.03	0.85	0.97	0.97	0.5	3	3.02	0.65	1.29	1.02	1.67	2.31
4	1.62	-2.95	0.89	1.27	1.08	1.08	4	-0.92	-2.41	0.89	0.98	2.52	1.13
5	4.49	1.61	2.12	1.18	0.58	0.58	5	-1.6	0.03	0.83	1.52	0.51	0.22
6	0.15	-0.4	0.83	1.27	2.21	0.85	6	-3.1	-1.6	1.19	1.51	0.3	0.76
7	4.81	0.81	1.32	0.97	1.46	1.73							
8	0.41	-4.66	0.65	1.16	0.68	0.72							

Discussion:

From the above all observations it can be interpreted that, to financial news, the scrip has reacted by discounting the same. For all good news there is an increase in returns but with higher expectation of returns complete discounting was not seen. And for all the bad news market has reacted with decrease in the prices resulting into decrease in return and increase in the risk.

Table 6: return, standard deviation and Beta of the scrip Sunpharma Ltd.,

Financial News	R pre	R post	SD pre	SD post	B pre	B post	Non Financial News	R pre	R post	SD pre	SD post	B pre	B post
1	-10.52	-10.73	2.60	2.01	1.43	3.13	1	1.49	6.31	1.03	2.53	2.38	-0.56
2	4.24	5.87	1.41	.97	.78	1.19	2	1.49	6.30	1.03	2.53	2.38	-0.56
3	0.78	-3.34	0.76	0.75	0.98	0.39	3	-2.93	1.87	2.23	0.80	2.62	2.06
4	1.64	-0.34	.75	0.50	0.60	4.58	4	0.06	3.11	1.02	1.65	1.47	0.33
5	2.35	-2.07	0.58	0.76	1.31	2.33	5	5.92	4.17	0.91	1.91	2.20	1.30
6	4.05	-0.88	0.64	0.76	3.80	1.13	6	0.26	-3.71	2.62	1.17	1.51	2.12
7	-3.85	-4.05	1.78	1.24	3.84	2.10	7	1.23	12.04	0.84	1.36	1.09	0.71
							8	-0.39	3.74	1.42	0.88	1.14	1.20
							9	1.39	-4.36	0.59	0.68	0.55	-1.8
							10	-2.69	-2.1	1.82	1.09	2.22	2.25

Discussion:

From the above all values of financial and non-financial, it can be interpreted as there is an effect of news on share prices as the prices have reacted positive or negative for the respective news's. The returns are favourable for good news and adverse for bad news, similarly the risk is high for bad news and low risk for good news can be observed.

V. TESTING OF HYPOTHESIS

The hypothesis of regarding the impact of financial and non-financial news on the scrip price movements can be computed as below:

$$z = \frac{\bar{X} - \mu}{\sigma / \sqrt{n}}$$

$$= \frac{0.76-0.49}{1.205/\sqrt{68}} = 1.84$$

Calculated value = 1.84

Level of significance = 5%

Table value = 1.96

Since Z calculated value is less than Critical value Z(α), the null hypothesis(H0) is rejected and H1 accepted. So, it can be said the there is an impact of news on stock price movements. It is also assumed that, the there is a direct relationship between risk and return, the same has been analyzed through the computation of average return and standard deviation of the company's which as below.

Table 7: average return and standard deviation of financial and non-financial news

Company	Financial News						Non-Financial news					
	Average Return		Average SD		Increase/Decrease		Average return		Average SD		Increase/Decrease	
	Pre	Post	Pre	Post	R	SD	Pre	Post	Pre	Post	R	SD
Lupin	1.56	1.82	1.25	1.31	I	I	1.11	-0.09	1.14	1.21	D	I
Sunpharma	-0.18	-2.21	1.21	0.99	D	D	0.72	2.29	1.35	1.39	I	I
Cipla	1.31	-1.40	1.20	1.16	D	D	-1.73	1.89	1.09	1.23	I	I
Dr.Reddy's	2.54	0.49	1.26	1.22	D	D	0.98	0.87	1.34	1.00	D	D

(I=Increase, D=Decrease)

From the above table it can be observed that, whenever there is an increase in the return the risk has also increased and whenever there is a decrease in the return risk has also decreased. The above table it can be interpreted that out of 8 times this condition holds good for 7 times that is the success ratio is 7/8 i.e., 87.5%.

VI. FINDINGS AND CONCLUSION

As the EMH theory suggests that markets discounts everything, the financial and non-financial announcements are discounted indicating changes in the price of the scrip's of every company. It has been observed that for positive news the return is positive along with the decrease in the risk factors. And on the other hand, for un-favorable news the return declines with either increase in the standard deviation or beta of the scrip. Consistent with this finding it's also observed during the study and evidenced from table number 7, that whenever there is an increase in the return of the scrip the risk also increases and whenever there is a decrease in the risk, return also decreases. Hence it can be concluded that, the announcements has an effect on stock prices and leads to increased return with the risk.

VII. References

[1] D. Ronald, "An Evaluation of 'Essays on Disclosure' and the Disclosure Literature in Accounting", *Journal*

of Accounting and Economics, Vol. 32, 2001, pp. 181–235.

[2] J. Bitzer, and A. Stephan, "A Schumpeter-inspired approach to the construction of R&D capital stocks". *Applied Economics*, Vol. 39, 2007, pp. 179–189.

[3] Abrahamson, E. and Park, C. "Concealment of negative organisational outcomes: An agency theory perspective", *Academy of Management Journal*, volume 37, issue 5, 1994, pp. 1302–1334.

[4] R. Hooghiemstra, "Corporate communication and impression management – new perspectives why companies engage in corporate social reporting", *Journal of Business Ethics*, Vol. 27, 2000, pp. 55–68.

[5] W.Aerts, 'Picking up the pieces: impression management in the retrospective attributional framing of accounting outcomes', *Accounting, Organizations and Society*, Vol. 30, No.6, 2005, pp. 493–517.

[6] D. Barako, Hancock, Phil and Y. Izan, H. 'Factors Influencing Voluntary Corporate Disclosure by Kenyan Companies', *Corporate Governance: An International Review*, 2006.

[7] "Pharma to topple IT as big paymaster". *The Economic Times*. 8 June 2010. Retrieved 8 June 2010.

[8] <http://pharmaceuticals.gov.in/AnnualReport2012.pdf>

[9] <http://www.ibef.org/industry/pharmaceutical-india.aspx>

[10] http://www.capitalmarket.com/Cmedit/MoreStory1.asp?RelStories=&StRec=11&SNo=360380&CO_Code=815 (Dr.Redddy's news)

[11] http://www.capitalmarket.com/Cmedit/MoreStory1.asp?RelStories=&StRec=11&SNo=289721&CO_Code=4325 (sun pharma news)

[12] http://www.capitalmarket.com/Cmedit/MoreStory1.asp?RelStories=&StRec=11&SNo=313266&CO_Code=3026 (lupin news)

[13] http://www.capitalmarket.com/cmedit/MoreStory1.asp?RelStories=&StRec=11&SNo=323465&CO_Code=114 (cipla news)

[14] SSRN: <http://ssrn.com/abstract=1887789> or <http://dx.doi.org/10.2139/ssrn.1887789>

[15] www.slideshare.net , <http://www.slideshare.net/IBEFIndia/pharmaceuticals-august-2013> retrieved on 1-4-2014

[16] www.bseindia.com. retrieved on 12-3-2014, <https://www.bseindia.com/corporates>