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RESEARCH ARTICLE

Pharmaceutical Mergers and Acquisitions

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Worldwide generic market,
Behavioral patterns,
FTC enforcements,
Pre & post merger

Abstract

The onset of the New Year has refurbished the buzz of mergers and acquisitions in the pharmaceutical and healthcare sectors both in the Indian and the global market. Merger is a component of corporate strategy and finance that includes the formulation of single new company by the collaboration of two different firms of same size. This action allows the mutual ownership and operation of the two firms rather than an independent functioning. The issue of a new company stock is prevalent. Acquisition is the process of taking over of one company by another company and establishing itself as a rightful new owner of the company. A particular increase in the trend in observed in the pharma companies primarily in the time period of 2008-2012 as a responsive measure by the large firms to excess capacities attributed to patent expiration and drawbacks in the company's pipeline. For the small pharmaceutical companies, mergers act as strategic decision taken to escape financial troubles, enhance the marketing of products and to avoid low cash sales ratio. Speculation on the inbound and outbound deals is therefore gaining momentum and is acting as route for the growth an establishment of the firm in the global market.

Increasing global interests in the pharmaceutical & biotechnology sector and ultimately cheap availability of land, labor and capital in the emerging/developing countries has given a tremendous boost to mergers and acquisitions. M&A propagates the global trend towards consolidation

This paper explores the impact of merger and acquisition on the different pharmaceutical companies which are segmented into three parts. The first segment deals with statistical evaluation of data by application of t-test. This test was used to evaluate the difference in the profitability of pharmaceutical companies observed before and post merger and acquisition by applying t-test to the EPS (Earnings per share) values of the company. The profitability of the companies viz EPS was observed to have no impact post the merger and acquisition. The second segment involves application of ANOVA test. Two- way classification model of ANOVA was applied to test significant association between the PAT (profit after tax) and the pharmaceutical companies subjected to merger and acquisition. Therefore, a relationship was observed between the increase in PAT and M&A. The last segment consists of the analysis of the benefits and the controversies associated with the mergers and acquisitions of pharmaceutical companies globally and in India via case studies. Example Merck- Schering Plough in 2009, Watson –Actavis in 2012, Mylan Inc. - Matrix laboratories in 2006 ,etc.

Introduction

In the pharmaceutical industry nothing is more exhilarating than the discovery of a new wonder molecule in the form of a novel gene especially when that molecule holds the miraculous power of solving the current health problems faced by the human race today. In the past few decades, the pharma companies' have not only developed and launched several proprietary drugs bringing respite to the sick and the needy but has also provided desirable financial returns for the company's shareholders.

The pharmaceutical sector is increasing at a very expeditious pace all over the world in the developed and the developing countries alike. Due to the advancement in the superiority of the biotech drugs in terms of their synthesis, manufacturing procedures, high quality, efficient use of technology and proper strategic planning by designing various business models, the pharmaceutical sector is experiencing a structural trend globally.

The healthcare sector has experienced a significant shift in terms of it's expansion due to emerging/developing markets (like India, China, Brazil etc.), increasing competition to get regulatory approval of the drugs and globalization. Companies in different segments of the world are reaching out to their complementary manufacturing companies to share and gain benefit by utilizing each other's core competencies in drug designing , multiple clinical trials, patent sustenance on a drug, marketing , increasing the drug pipeline and research & development (R&D).

Significance of study

To understand the core competencies being sought after in the market of generic drugs,

To highlight the benefits and the controversies associated with the mega mergers in the pharmaceutical industry, and

To understand the FTC enforcement laws applicable to the market of generic drugs.

Need for Mergers and Acquisitions

In the past few years many big pharma mergers and acquisitions have taken place. For example, Pfizer's acquisition of Wyeth, Merck's purchase of Schering-Plough and Genentech's deal with Roche are current events in the segment of mergers and acquisitions. The reasons for these are as follows:

- Protection of market by weakening or eliminating competitive rivals.
- Transactions received by these companies are likely to fill the gap in the R&D pipelines and also provide more time for new drug development. Pharmaceutical companies like Pfizer and GlaxoSmithKline are on the verge of losing millions of dollars in revenues due to the patent expiration on blockbuster drugs (cholesterol drug Lipitor and asthma medication Advair). This situation of "patent cliff" can be resolved by manufacturing generic alternatives instead of off patent drugs that have the potential of becoming best seller drugs.
- To increase the market share.
- Convincing the regulators that the newly developed drug is worth paying for is as challenging as creating a new drug. Moreover, the emerging markets like India, China and Brazil are rapidly being occupied by the competitors that set themselves apart in terms of innovation.
- Acquiring new product and technologies.
- Medical and healthcare cost containments.
- Rapid global expansion of the company most definitely occurs in the deal which is determined by five quintessential factors viz.
    - Speed of entering the market. Market place pressures are compelling the companies to design new methodologies of bringing promising compounds to the global market as early as possible.
    - Expansion of greatest competence helps in strengthening the core business.
    - Seeking regulatory approval in many places at once by tremendously increasing the frequency of the clinical trials. This is done to ensure acquiescence with different regulatory

requirements as emerging markets offer low cost of clinical development and large number of patients to test the efficacy of the drug. The time to complete global access is significantly reduced.

- Global growth primarily depends on selling the medicine not only within the country but also in the emerging economies with the same pace. The distribution channels and right cost structures of different markets globally are analyzed.

- The bigger companies manage the regulatory approvals in multiple markets more efficiently. Drug assessment involves extensive analysis in terms of its positive effect in improving the human health. This assessment often requires additional planning when it comes to marketing and selling of the drug as it involves changing the stereotype possessed by the health authorities, doctors and patients who prefer existing therapies.

The three core competencies being sought after in the market of generic drugs are:

- Sales, distribution, and marketing management
- ANDA (Abbreviated New Drug Application) approval which involve the chemistry, manufacturing, controls, labeling, testing and bioequivalence. Unlike the NDA (New Drug Application), it does not involve animal studies, clinical studies and bioavailability.

- Identification of the API (Active Pharmaceutical Ingredient) and the formulation (drug substance, drug product and impurity) which affects the pharmacodynamics and the pharmacokinetics.

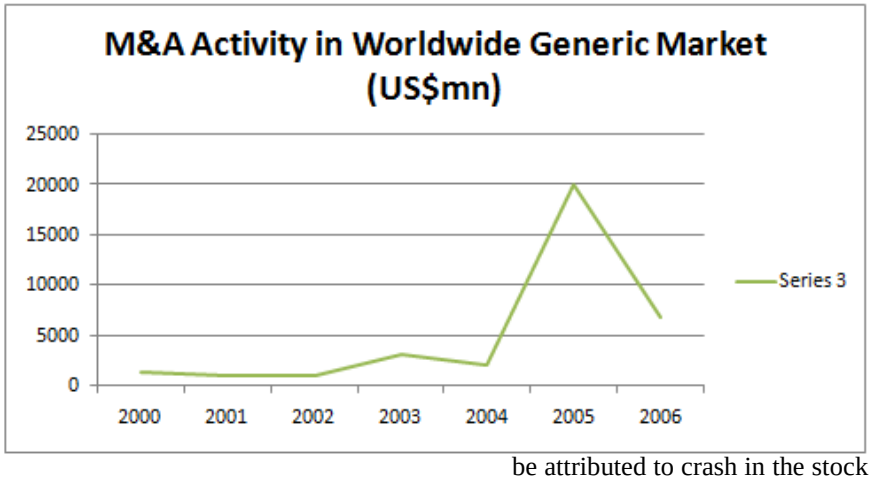
Review of literature

Mergers and acquisitions involve huge investment of time and money. The Indian companies are aiming at building a sales and distribution set up form scratch which would consume a substantial amount of time whereas the US and European market of generic drugs are looking for M&A in the developing countries to get an extra cost advantage. This shift is because of the weak drug pipeline of the US/European market and, therefore, for rapid growth they aim solely at geographic expansion in developing market.

Mergers and acquisitions (M&A) in the Indian pharmaceutical industry

During the time period of 2000-2006, the global generic industry experienced an increase in trends in the research based and the generic pharmaceutical industry which amounted to approximately $3500 million.

Figure :I Source: Report of the Taskforce, 2008, of BCIL, Govt. of India.



Recent acquisitions

In the recent past there has been a tremendous increase in the public offer from MNC's in terms of the acquisitions with the Indian pharmaceutical industry. The main reasons for such a behavior can be attributed to crash in the stock market over the last one year, need of the company to increase their equity stakes (Pfizer Inc., Novartis, and Abbott India), the current economic crises and finally the consolidation opportunities.

Target company	Acquirer	Country of origin	Year	Amount(USD)
Dabur pharma	Fresenius Kabi	Singapore	April 20, 2008	$219 million
Ranbaxy laboratories limited	Daiichi Sankyo	Japan	June 11 ,2008	$4.6 billion
Shantha biotech	Sanofi Aventis	France	July27,2008	$783 million
Piramal healthcare (domestic formulation)	Abbott laboratories	US	21st May 2010	$3.72 billion

Source: compiled from various news reports

Recent mergers

Foreign MNC		Indian Pharmaceutical Company
Boehringer Mannheim	with	Nicholas Piramal India Ltd. (NPIL),
Roche Products		NPIL
MJ Pharmaceuticals		Sun Pharmaceuticals
Vorin Laboratory		Ranbaxy
Sumitra Pharmaceuticals		NPIL
Matrix Laboratory		Ranbaxy Laboratory

Type of firms	Total	Domestic	Foreign
Merged	58	38	20
Merging	32	20	12

Figure-II

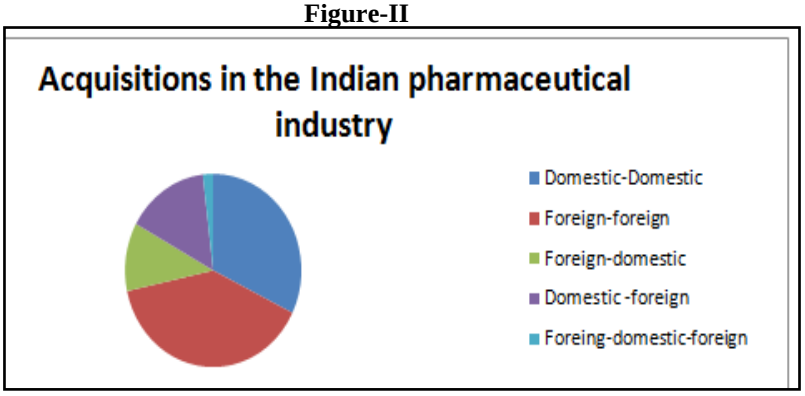
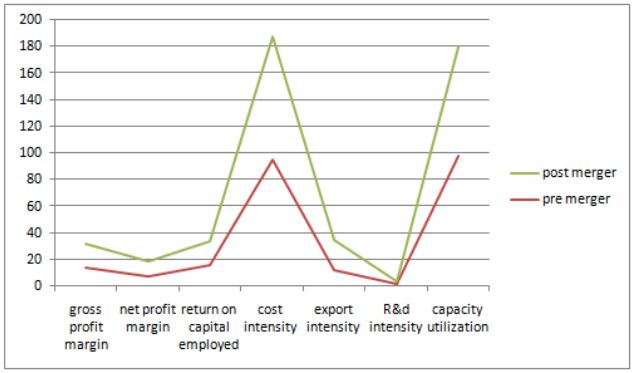


Figure-III



Types of mergers in the Indian Pharmaceutical industry

Type	Number	Percent
Horizontal	52	82.25
Vertical	9	14.75
Total available	61	100

Source: Beena, 2006

Agreement between GlaxoSmithKline and Dr. Reddy's laboratory

- Developing and marketing selected products across various emerging markets (excluding Indian). As per the terms of the agreement, GSK will get full access to Dr. Reddy's future pipeline of branded and off patented pharmaceuticals. The pipeline includes therapeutic segments like oncology, gastroenterology and other anti-inflammatory and anti analgesic drugs
- The revenue earned will be shared between GSK and Dr. Reddy's whereas the products will be manufactured by Dr. Reddy's and licensed and supplied by GSK in various developing countries.
- Dr. Reddy's has redesigned its prolific old R&D model and devised a new model which involves appropriate use of human resource, investor confidence and increased savings.

Behavioral patterns during pre merger and post merger period

In 2005, there were 64 mergers and 63 acquisitions in which the domestic mergers where more in number as compared to the foreign subsidiary mergers. The mergers can take place between two domestic firms or two foreign firms or one domestic and one foreign firm. Out of a total of 58 merged firms, 38 were domestic and 20 were foreign whereas out of 32 merging firms, 20 were domestic and 12 were foreign. Almost all merged firms belonged to the medium sized category. Medium sized firms were merged with large sized firms due to the following reasons:

- Ownership of well known and established brands in the therapeutic market
- Greatly flourished marketing networks well established market share.

The current trend involves a rapid increase in the willingness of the foreign firms to augment their stakes in the Indian subsidiary. The main reasons for such a shifting trend lies in the favorable investment policy offered by the government and also an advantageous patent law regime for marketing new products.

There has been a tremendous increase in the gross profit margin, net profit margin, return on capital employed, cost intensity, export intensity and R&D intensity. Only capacity utilization indicator shows a negative trend. Therefore, the profitability of the firms in the post merger period has increased in comparison to the pre merger agreement.

FTC (Federal Trade Commission) enforcements on generic drug mergers

FTC provides a brief insight on the impact of mergers on the generic drug transactions and also few quintessential guidelines that helps the companies and the clients associated with the mergers.

- Divestment: it is defined as the process in which a company grows financially by selling one of their business units. This allows the company to grow financially by channelizing its resources on the market which it considers to be more profitable. Sometimes such an action can be a spin off (corporate action in which the company divides itself into sections for separate business) for the U.S market.

  FTC has led to the formulation of consent agreement between various pharmaceutical companies which have undergone either mergers or acquisitions. This decision has lead to the replacement of the lost competition in the relevant markets and will also prevent the consumers from paying higher generic drug prices.

- Enforcement actions taken by FTC are likely to reduce the generic drug competition, allow proper assessment of the effect of transactions on generic drugs, creating effective strategies and identifying the risks associated with the competitive company.
- Due to the presence of multiple generic versions of drug either in the market or in development the branded drug had no significant impact in constraining the prices of generic versions. Therefore, there was no overlap between a branded and a generic version of the product.
- The delivery method of the drug i.e. either inject able or oral is the most crucial determinant in defining a relevant market. This is due to the fact that in cases where immediate remediation is required for the patient, inject able drug acts faster than the ingested drug. FTC enforcement activity states that a merger that combines one company's oral drug with another company's inject able

drug is that contain the same active ingredient is not likely to generate any competition among the two companies.

- FTC enforcement activity strongly states the reduction in the number of competitors for a generic drug from five to four and also suggests proper evaluation of the competitive significance of each competitor that could be used to the best possible advantage in the market.

Thus, in compliance with the FTC guidelines and attainment of proper regulatory approvals the M&A is acting as great boom for the pharmaceutical industry in the development of low cost and easily available live saving drugs for all.

MATERIALS AND METHODS

Aim and objectives of the study

- **PART –I**
  - To evaluate the difference in revenue pre and post merger and acquisition by the application of t-test to the EPS(Earnings per share) values of different pharmaceutical companies.
- **PART –II**
  - To calculate significant association between the PAT (profit after tax) of different companies since 2009- 2012 that have undergone merger and acquisition (in the same period) by application of ANOVA test.
- **PART –III**

  Analysis of the benefits and the controversies associated with the mergers and acquisitions of pharmaceutical companies globally and in India via case studies. Example Merck- Schering Plough in 2009, Watson –Actavis in 2012,Mylan Inc.- Matrix laboratories in 2006 ,etc.

Methodology part I t-test application

A t-test is a statistical hypothesis test which can be used to determine whether the two sets of data are significantly different from each other by assuming a null hypothesis.

The t- test is used when the sample size is 30 or less than 30. The samples taken could be assumed to be independent i.e. values of observations of one sample do not depend on the other. However, there are many situations in which the conditions does not hold true i.e. we have dependent or paired samples. Two samples are said to be dependent when the element on one sample are related to those in the other in a significant and a meaningful manner. When samples are dependant, they consist of same number of elementary units. The major significance of testing difference between the means of two dependent samples is that it allows one to perform more precise analysis.

This test was used to evaluate the difference in the profitability of pharmaceutical companies observed before and post merger and acquisition by applying t-test to the EPS (Earnings per share) values of the company. EPS values were obtained from different sources. The companies considered were Merck-Schering Pough, Watson-Actavis, Pfizer-King pharmaceuticals, Abbott laboratories- Piramal Heathcare, Allergan-Skin Medica.

EPS can be defined as the portion of company's profit that is allocated to each outstanding share of the common stock. This serves as an indicator of the company's profitability.

The hypothesis assumed was: there is no difference in the EPS value of the companies before and post merger and acquisition.

After the application of the formula (based on n-1 degrees of freedom) the calculated value was obtained. This value was compared to the standard t-table at 5% level of significance which is the probability integral of the t-distribution. Hypothesis was accepted or rejected as per the comparison with the t-table. (Discussed later in the observations and results)

Methodology part II -ANOVA- Analysis of variation test application

The analysis of variation is an amalgamation of different statistical models and their associated procedures which is used to provide a statistical test of whether or not the means of several groups are all equal. In other words, it generalizes t-test to more than two groups.

Multiple two sample t-tests may result in increased chances of committing error. Therefore, ANOVA is useful in comparing three or more means. It is used in the analysis of comparative experiments in which only the difference in the outcome is of interest. The statistical significance is determined by the ratio of two variances. The original measurement values are coded to simplify calculations by subtracting a constant. This will avoid the need for any subsequent adjustments in the results.

When it is believed that two independent factors might have an effect on the response variable of interest, then two- way classification model of ANOVA is used. With this test, two set of hypothesis can be tested with the same data at the same time.

Two- way classification model of ANOVA was applied to test significant association between the PAT (profit after tax) and the effect of merger and acquisition that the pharmaceutical company had been subjected to from the time period of 2009-2012. The pharmaceutical companies that were considered were Merck-Schering Pough,Watson-Actavis, Pfizer-King pharmaceuticals, Abbott laboratories- Piramal Heathcare, Allergan-Skin Medica

PAT is defined as the net profit earned by the company after deduction of all expenses like interest, depreciation and tax.

The hypothesis assumed was: a significant association is observed between PAT (profit after tax) and merger and acquisition of different pharmaceutical companies.

After the application of the formula, calculated F values are compared with the tabulated values at 5% level of significance. Hypothesis was accepted or rejected as per the comparison with the F-table. (Discussed later in the observations and results)

Observations and results for t-test

T-test was used to evaluate the difference in the profitability of pharmaceutical companies observed before and post merger and acquisition by applying t-test to the EPS (Earnings per share) values of the company.

EPS values were obtained from different sources. The companies considered were Merck-Schering Pough,Watson-Actavis, Pfizer-King pharmaceuticals, Abbott laboratories- Piramal Heathcare, Allergan-Skin Medica.

The hypothesis assumed was: there is no difference in the EPS value of the companies before and post merger and acquisition.

After the calculations, the calculated value was compared to the tabulated value by referring to the values of t at 5% level of significance and at a degree of freedom 4.

The calculate value obtained was 0.54 whereas the tabulated value observed at 5% level of significance was 2.13.

Since t calculated < t tabulated, therefore the hypothesis was accepted.

Conclusion: there is no significant difference in the EPS (Earning per share) values of the companies before and post merger and acquisition. Therefore not effect was observed on the profitability of the pharmaceutical companies via EPS before and post merger acquisition. However, significant association was observed between the profit after tax and merger and acquisition explained later in the paper

Observations and results for ANOVA test

Two- way classification model of ANOVA was applied to test significant association between the PAT (profit after tax) and the effect of merger and acquistion that the pharmaceutical company had been subjected to from the time period of 2009-2012. The pharmaceutical companies that were considered were Merck-Schering Pough,Watson-Actavis, Pfizer-King pharmaceuticals, Abbott laboratories- Piramal Heathcare, Allergan-Skin Medica

The hypothesis assumed was: a significant association is observed between PAT (profit after tax) and merger and acquisition of different pharmaceutical companies.

After the calculations, the yearly PAT (profit after tax) variance estimate was compared with the residual variance estimate at degree of freedom 12 for residual variance and degree of freedom 3 for yearly PAT variance of different companies

The calculated value obtained was 0.215 which was compared to the tabulated value from the 5% points of Fisher's F- distribution at 5% level of significance. The tabulated value was 8.74.

Similarly, variance observed between the companies over the past four years (as most of the mergers and acquisitions took place within 2009-2012 time period) was compared with the residual variance estimate at a degree of freedom 12 for residual variance and degree of freedom 4 for variance between the companies.

The calculated value obtained was 0.003 which was compared to the tabulated value from the 5 %points of Fisher's F-distribution at 5 % level of significance. The tabulated value was 5.91.

Since the tabulated value >calculated value, therefore the hypothesis was accepted

Conclusion: A significant association is observed between PAT (profit after tax) and merger and acquisition undergone by different pharmaceutical companies. A relative increase in PAT was observed over the period of years post the merger and acquisition.

Table for analysis of variance

Sources of variation	Sum of squares	Degree of freedom(v)	Mean squares
Between columns (PAT from 2009-2012)	2180245.6	3	726748.5
Between rows (yearly PAT of companies)	204,688,650	4	51172162.5
Residual	1881342.7	12	156778.5
Total	208750238.3	19	

Comparing the yearly PAT variance estimate with residual variance estimate

F=156778.5/726748.5

=0.215

V1=12 V2=3 at 5%level of significance the tabulated value = 8.74

Comparing the variance between the PAT value of companies from 2009-2012 with the residual variance

F=156778.5/51172162.5

= 0.00304

V1=12, V2=4 at 5%level of significance the tabulated value =5.91

Conclusion: since the tabulated value is greater than the calculated value, therefore, significant association is observed between PAT (profit after tax) and merger and acquisition undergone by the different pharmaceutical companies. A relative increase in PAT was observed over the period of years post the merger and acquisition

Part III- Case study analysis

Mega mergers and acquisitions in the global market

Mercks $41.1 billion purchase of Schering plough

Benefits

- The mega merger between Merck and Schering has lead to the conversion of Merck's former blockbuster bone drug Fosamax to become generic. It is anticipated that in the coming years, the best selling allergy and asthma drug Singulair will also be included in the generic category of drugs.
- The merger has allowed an advantageous access for Merck in terms of acquiring the brand name of Schering products that comparatively have longer patents and also the opportunity to capitalize Schering's investment in creating promising pharmaceutical drugs.
- Merck's global market expansion would take place due to the strong international presence of Schering in emerging economies of the world(70% of Schering revenue comes from outside United States)
- Merck would also be associated with popular Schering consumer brands like Coppertone.
- Schering has acted as a consistent maker of drugs derived from living cells (replica of small-molecule chemical compounds process) on which big pharmaceutical companies have traditionally based their business for example the fertility drug Organon. This process is otherwise very difficult for potential generic makers.
- The merger is likely to generate $3.5 billion in annual cost savings by consolidating research, manufacturing, administration and marketing,

Controversies

- The sales of cholesterol drugs Zetia and Vytorin which were already jointly marketed by the companies has been plunging due to questions being raised on Vytorin's efficacy and safety. Although, long term drug study is believed to prove the efficacy of the drug by lowering bad cholesterol.

- Reverse merger agreement: to avoid challenge from Johnson and Johnson with regard to the selling of the drug Remicade, Merck has decided to technically become a subsidiary of Schering (even though Merck is investing the money to buy Schering). This is due to the fact that Schering is in agreement to sell the drug outside United States along with Johnson & Johnson.

Watson pharmaceutical's $5.9 billion acquisition of Actavis – an effort to build a global brand in generic drugs

Benefits

- Diversification of Watson's sales and increase in profits that will help the company to deal with the falloff in the branded drug patent expiration in the U.S. generic drug market in the coming year. This has also broadened the horizons for selling the cheaper-price versions of big-selling blockbusters.
- The increase in revenue fueled by the new drug launches has turned Watson into the fourth largest maker of generic drugs after Teva Pharmaceutical Industries, Mylan(MYL) and the Sandoz unit of Novartis(NVS).

- New drug launches as planned by Watson(generic version of Shire's, Adderall-an attention deficit hyperactivity disorder drug and generic version of Endo pharmaceutical's pain medication Lidodermm in 2014) and Actavis which makes a generic version of sleeping pills Ambien and ADHD drug Ritalin is estimated to have 300 products in the pipeline. This merger is therefore, likely to increase the total revenue by $8 billion.
- Expansion of foreign sales. Actavis is likely to add financial and strategic benefits for Watson by radically increasing the overseas sales by 12%

Case studies: M&A in the Indian pharmaceutical industry

What are MNC's looking for in the Indian pharma industry?

- An ability to provide effective services of pharmaceutical drugs to the developed countries abroad, a rapidly growing resilient domestic market and a majestic pipeline of generic drugs has made the Indian pharmaceutical companies most sought after with respect to M&A all across the world.

- MNC's are looking for companies with robust drug manufacturing and sales process which are ranked amongst the top in their respective pharmaceutical segments. The presence of a high margin of therapeutic category of generic category like oncology, anti diabetes and provision of infrastructure that cater to the needs and demands of the regulated markets are amongst the other features the MNC's are looking for. Presence if niche segment in the Indian pharma industry like biotech, vaccine, OTC drugs is likely to increase the growth of Indian pharma industry substantially.

Mylan's $736 m purchase of Matrix laboratories

Mylan laboratories are US based generic drug manufacturer that agreed to purchase a Hyderabad based Matrix laboratories in the year 2006.

Benefits

- This deal acted as a trend setter in the Indian pharmaceutical industry by showcasing the significant value an Indian company can add to the global player. Moreover, it also means that pharmaceutical companies that have reached a maturity level become good acquisition targets.
- Both companies have greatly benefited in some way or the other. Matrix grew tremendously in the financial per se after this deal and also found a good strategic fit to move on to the growth path. Whereas, for Mylan, Matrix had created a global pathway to serve in the high value, underserved markets like Africa and Asia.
- Mylan has also agreed to acquire all Matrix shares i.e. Temasek controlled by Newbridge and Capital and Spandana Foundation. Moreover the shareholders are equally benefited by the deal as Mylan has offered the shareholders the same price in cash for additional acquisition of 20%.
- This deal has also provided Mylan a distribution network through Matrix's Docpharma subsidiary.
- Combination of the active pharmaceutical ingredients produced by Matrix and use of

expertise knowledge in the drug development, the transaction has allowed Mylan to increase its value chain by capturing the incremental aspects of it.

Abbott's $3.7 billion purchase of Piramal Healthcare

Abbot laboratories is US based drug manufacturer has acquired a domestic pharmaceutical company Piramal Healthcare so as emerge as leaders in the generic drug market in India.

Benefits

- Post acquisition both companies have benefitted in tems of huge returns and increased sales of the pharmaceutical products in the global and the domestic market alike.this has been primarily due to the amalgamation of the drug manufacturing potential of Piramal and the ability of Abbott to effectively market the products internationally.
- Due the drastic increase in the profit margin of Piramal Heathcare, the shareholders of the company are enjoying the distribution of the dividends by the company. As per the agreement, Piramal healthcare will retain its selling authority of OTC drugs, contract manufacturing units and other important segments which are likely to generate increased revenues.

Conclusion and suggestions

The pharmaceutical mergers and acquisitions add value to the companies by increasing the cooperate control in the market, adding new value in terms of profit enhancement of the company, acquisition of new investigational drugs and drug pipeline of the new company and above all improvisation of the R&D process as per the technology up gradation. Mergers between the two companies occur after a consensus which aims at realization of the value in the longer term by increasing the shareholder's wealth and improves cash flow performance. Being a research intensive industry, the average R&D sales ratio is 18% as compared to the manufacturing industry of 4% in US (pharmaceutical researchers and manufactures of America 2003). Therefore, more emphasis is being laid on multicentre clinical trials to get the US FDA regulatory approval at a faster pace. Moreover, this act helps in avoiding the loss to the companies due to the early patent expiration of the blockbuster drug(s). Alternative methods are devised for the creation of generic drugs that are sold in large numbers so that they have similar impact like the blockbuster drug(s) in terms of profit generation.

The positive effects of merger and acquisition hence, was proved by the relative increase in the PAT (Profit after tax) of the prominent pharmaceutical companies after the merger and acquisition took place

References

Books

- Angell, Marcia, "The Truth About Drug Companies: How They Deceive US and What to Do About it", Random House, New York(2005). Chaudhuri S. "The WTO and India's Pharmaceutical Industry", OUP, New Delhi, 2005
- Petryna A. et al. "Global Pharmaceuticals: Ethics, Markets and Practices", Duke University Press, 2006 Zaveri N.B (1998), Patents for Medicine, Indian Drug Manufacturers' Association, Mumbai

Articles and Journals

- Bloomberg News (January 2, 2012), "Teva Names a New Chief Executive", *The New York Times*, Business Day (nytimes.com), retrieved January 3, 2012 Jeremy Levin will replace Shlomo Yanai as Chief Executive Officer upon Mr. Yanai's retirement in May 2012.
- Hollis, Liz Jones (August 10, 2010). "Teva – Top 10 Generic Drug Companies 2010".*FiercePharma*. Washington, DC, United States: FierceMarkets. Archived from the original on May 8, 2011. Retrieved November 3, 2010
- 34th Report on the Functioning of the three Vaccine Producing PSUs, namely CRI (Kasauli), PII (Coonoor) and the BCGVL (Chennai), Department Related Parliamentary Standing Committee Report, February 2012

- CCI Survey Report, ―A Brief Report Pharmaceutical Industry in India‖, January 2012
- CUTS International, ―Unholy alliances in healthcare sector‖, June 2012
- André Gagnon, Marc (2002)Trips And Pharmaceuticals; Inquiry into The Foundations of the International Political Economy http://biology.plosjournals.org/archive/15457885/6/10/pdf/10.1371_journal.pbio.0060262-L.pdf
- Baker, Jonathan B. (2007), Market Definition: An Analytical Overview, 74 ANTITRUST L.J. 129, 132 (2007)
- Beena ,S (2006), " Mergers and Acquisitions in the Indian Pharmaceutical Industry: Nature, Structure and Performance",available at http://mpra.ub.uni-muenchen.de/8144/
- Bennette, Sara et.al (1997), Public- Private Roles in the Pharmaceutical Sector: Implications of Equitable Access and Rational
- Drug Use, World Health Organization, Geneva.
- Bhangale, Vijay (2008), International Marketing Conference on Marketing and Society, April 2007, IIM Kolkata (2008) 7MLJ1119
- Bhat A. D (1993), Drug promotion and doctor: a relationship under change? Journal of Post Grad Med 1993; 39(3): 120
- Bodenheimer, S. Thomas (1984), "The Transnational Pharmaceutical Industry and the Health of the Worlds People" in McKinlay, B. John(ed), Issues in the Political Economy of Health Care, Tavistock Publications, New York.
- Trade and Development Centre(1998), "India Case Study - Drug patents – Views" Intellectual property — interviews, available at http://www.itd.org/issues/india5a.htm , Trade and Development Centre.
- Thawani, Vijay (2002), Drug Promotion: Can Self Regulation Work? Indian Journal of Pharmacology 2002; 34: 227-228
- Stratis G Camatsos and Albert Foer, Cartel Investigations in the USA, American Antitrust Institute, Jan 13, 2007
- Shiva, Mira (2000), Medicines, Medical Care and Drug Policy, VHAI, New Delhi
- Rane, Vishvas (1996), "Analysis of Drug Prices: 1980 to1995," EPW, Vol.XXXI, No.34, Aug 24th, 1996, p.2331.
- Rangarao, B.V (1975), "Indian Drug Industry: Status and Perspective," Mainstream, March 1,.
- Ramachandran and Rangarao,B.V(1972), "The Pharmaceutical Industry in India," Economic and Political Weekly, Vol. VII,No.9.
- Ramachandran, P.K and Rangarao,B.V (1972)," The Pharmaceutical Industry in India", Economic and Political Weekly, Vol.VII, No.9,
- Pradhan, Jaya Prakash (2006), 'Global competitiveness of Indian Pharmaceutical Industry: Trends and Strategies', ISID Working Paper 2006/05, ISID, New Delhi

Web links:

- http://www.frontlineonnet.com/fl2824/stories/20111202282411900.htm., web access., 29-02-2012.
- www.indianpharma.in/., web access., 08-03-2012.
- Mergers & Acquisitions.ppt., foba.lakeheadu.ca., web access., 16-03-2012.
- www.daiichisankyo.com/., web access., 08-03-2012.
- http://www.financialexpress.com/news/daiichisankyo-ranbaxy-say-deal-is-final/336806/., web access., 09-03-2012.
- http://articles.economictimes.indiatimes.com
- 10-09-09/news/27618452_1_piramal-shealthcare-solutions-abbott-piramalhealthcare., web access., 16-03-2012.
- http://www.expresspharmaonline.com/20110815/management01.shtml
- http://www.cuts-ccier.org/PressReleaseSep06_2.htm
- http://www.livemint.com/2011/10/10233455/Pharma-deals-set-to-face-close.html

- http://www.oecd.org/document/24/0,3746,en_2649_34753_1916760_1_1_1_1,00.html
- http://www.unctad.org/en/docs/tdrbpconf5d7rev1_en.pdf
- http://articles.timesofindia.indiatimes.com/2011-10-12/india/30270484_1_price-controlessential-medicines-national-pharmaceutical-pricing-authority
- http://spicyipindia.blogspot.in/2010/08/dipp-discussion-paper-on-compulsory.html
- http://www.haiweb.org/medicineprices/05062011/Competition%20final%20May%202011.pdf.