"Dynamics, Structure and Functionality: A Case Study of Mergers and Acquisitions in Pharmaceutical Sectors of India"

Chandrika L

Lecturer, Mahatma Jyotiba Phule Rohilkhand University, Barely, UP

Abstract – M&A turned out to be significant form of corporate restructuring in post globalization period in Indian industries. The phenomenon is considered to be the most important strategy for gaining competitive advantage for firms. This study attempts to find out the determinants of M&A in Indian pharmaceutical industry.

We use the PROWESS database provided by the Center for Monitoring Indian Economy for the period of 2001-2010. The results of the Logit analysis suggests that large and multinational affiliated firms are investing more in M&A activities. Similarly, firms reporting excess capacity and high R&D investments are relying heavily on M&A to restructure and consolidate their position in the industry.

This paper examines the determinants of M&A in the pharmaceutical-biotechnology industry and the effects of mergers using propensity scores to control for endogeneity. Among large firms, we find that mergers are a response to excess capacity due to anticipated patent expirations and gaps in a company's product pipeline. For small firms, mergers are primarily an exit strategy for firms in financial trouble, as indicated by low Tobin's q, few marketed products, and low cash-sales ratios. Conversely, small firms with a relatively high Tobin's q, a large number of marketed products, and high cash/sales ratios are less likely to engage in any M&A activity.

We find that it is important to control for a firm's prior propensity to merge. Firms with relatively high propensity scores experienced slower growth of sales, employees and R&D regardless of whether they actually merged, which is consistent with mergers being a response to distress. Controlling for a firm's merger propensity, large firms that merged experienced similar changes in enterprise value, sales, employees, and R&D relative to similar firms that did not merge. Merged firms had slower growth in operating profit growth in the third year following a merger. Thus mergers may be a response to trouble, but they are not an effective solution for large firms. Neither mergers nor propensity scores have any effect on subsequent growth in enterprise value. This confirms that market valuations on average yield unbiased predictions of the effects of mergers. Small firms that merged experienced slower R&D growth relative to similar firms that did not merge, suggesting that post-merger integration may divert cash from R&D.

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INTRODUCTION

The rise of the competition, the financial liberalization allowing capital flows and the rapid technological changes are the basis of the globalization process extensively favoring the influence, presence and participation of foreign owned firms in national economies. This also triggers a lot of corporate restructuring activities of domestic firms. The process has caused a significant reshuffling and redeployment of firm's assets and thereby reshaping of many industrial sectors.

The present form of industrial ownership is witnessing strong mergers and acquisitions (M&A) activities around the globe. The phenomenon has tended to facilitate a reconfiguration of firm's organizational structure and its core competencies.

Most of the M&A deals are motivated, by the desire to obtain financial synergies, to gain market power, to obtain access to distribution channel or to gain entry into new geographical locality, thereby admitting that technological reasons do not motivate all M&A. However in the current globalized scenario there are certain high-tech industries

where innovation is a key to competitive edge. Such firms will consider the impact of M&A on technological performance even when the deal is not innovation driven; and choose the most appropriate innovation and financial strategy. Technological Knowhow is becoming a key to success in present market and factors such as firm size, history and equity become less and less critical requirement.

The shift in industrial policy in 1991 paved the way for first wave of M&A in India. Policy reforms facilitating M&A begins with the removal of restrictive provisions of Monopolies and Restrictive Trade Practices (MRTP) Act followed by reforms in Foreign Exchange Regulation Act FERA) in 1993 and Foreign Exchange Management Act (FEMA) in 2000. But at the same time in order to abolish forces which reduce competition, the Competition Policy Act 2002 decided to establish a Competition Commission of India (CCI). This commission aimed at checking the anti-competitive activities such as formation of cartels, collusive bidding, and consolidation via M&A which could cause market dominance abuses.

The economic reforms in India have significantly reduced firm level rigidities. Corporate restructuring in recent years is a response to the opportunity provided by policy in order to meet the emerging competitive challenges. The firms, in the process, are reportedly trying to retain competitiveness and increase their value. The rapid growth of Indian economy has encouraged domestic enterprises to undertake more aggressive investment activities which have resulted in a tremendous growth of M&A in the last decade. Domestic firms have taken steps to consolidate their position to face increasing competitive pressures and multinational enterprises (MNEs) from India have taken this opportunity to increase their presence and control in foreign markets.

There are two broad theories explaining why firms acquire other firms or merge with other firm. The monopoly theory postulates that the firms use the route MA to raise their market power, whereas, according to the efficiency theory, MA are planned and executed to reduce costs by achieving scale economies. Either way firms are expected to have better financial performance following MA. Many of the existing studies empirically support the proposition that MA lead to better financial performance of the firms. Contrary to this, there are also studies that report results at odds with the view that MA improve corporate performance. Further, Ikeda and Doi (1983), Cosh et al (1984), Kumar (1984), Geroski (1988), Odagiri (1992) also find either such negative results or little changes in operating performance following MA.

The pharmaceutical-biotechnology industry has become increasingly concentrated over the past 15 years; in 1987 the 10 largest firms accounted for about 12 percent of worldwide sales, whereas in 2002 the 10 largest firms accounted for almost one-half of sales. Much of this consolidation is the result of mergers. The value of M&A activity in this industry exceeded $514 billion during the 1988 to 2000 period. A commonly cited rationale for this consolidation by proponents of these mergers is the existence of economies of scale in research and development (R&D) and in sales and marketing. However, despite rising R&D spending the productivity of the pharmaceutical industry, as measured by the number of compounds approved by the FDA has deteriorated since 1996 and the number of new drugs entering clinical trials has declined since 1998, which calls into question the effectiveness of mergers and the economies of scale hypothesis more generally. Moreover, several of the largest pharmaceutical firms have been trading at significantly lower PE ratios than many of their smaller rivals.

In this paper, we first examine the determinants of merger and acquisition (M&A) activity in the pharmaceutical-biotechnology industry during 1988-2001, and then examine the impact of merger on several measures of firm performance, including growth in sales, operating profit and market value. We also examine the effects of merger on growth in employment and R&D investment, as inputs to any change in performance. In the first stage of our model, we test several reasons why firms would merge based on existing literature (Jensen, 1986; Holmstrom and Kaplan, 2001): economies of scale or scope; specific assets or capacities (for example, new technologies or foreign subsidiaries) that can be acquired more efficiently than through internal growth; self-serving expansion by managers with excess cash and imperfect agency controls; and the market for corporate control, in which acquisition is a mechanism to transfer assets to more efficient uses and/or management (Jensen, 1986; Holmstrom and Kaplan, 2001).

We also explore an alternative hypothesis to explain mergers that is be most relevant for relatively large pharmaceutical firms: the threat of excess capacity due to gaps in a firm's pipeline of drug compounds, which makes current levels of human and physical capital potentially excessive. Previous literature has suggested that excess capacity may be a rationale for merger to restructure asset bases in Patent expiration on a firm's main compounds can result in loss of 30 percent of sales or more within a few months, unless the firm can replace the patent-expired compounds with new compounds. Thus if a firm is faced with patent expirations and has failed to generate or in-license new compounds to replace them, its investment in specialized labor and capital in the sales and marketing

functions becomes unproductive. Since large firms finance their R&D almost exclusive from current earnings (Vernon, 2002), patent expirations can also disrupt the funding of R&D. industries that experience shocks due to technological change or deregulation. In the pharmaceutical industry, this capacity-adjustment motive for merging occurs because of the patent-driven nature of a research-based pharmaceutical firm's sales. Essentially, a fully-integrated pharmaceutical firm has two production activities. The first is R&D, which uses inputs of labor, capital, and various technologies to develop new drug compounds and perform the clinical trials that are required for regulatory approval.[1] R&D investment is substantial but by itself generates no revenue, and is characterized by a high degree of ex ante uncertainty regarding the ultimate safety, efficacy, and market potential of individual compounds. The second activity is production, marketing and sales, for which approved compounds are an essential input. These approved compounds enjoy patent protection, which on average lasts for roughly 12 years after market approval. Once the patent expires, generic competitors usually enter and take over the market.

MERGERS AND ACQUISITIONS IN INDIA

M&As have played an important role in the transformation of the industrial sector of India since the Second World War period. The economic and political conditions during the Second World War and post–war periods (including several years after independence) gave rise to a spate of M&As. The inflationary situation during the wartime enabled many Indian businessmen to amass income by way of high profits and dividends and black money (Kothari 1967). This led to "wholesale infiltration of businessmen in industry during war period giving rise to hectic activity in stock exchanges. There was a craze to acquire control over industrial units in spite of swollen prices of shares. The practice of cornering shares in the open market and trafficking of managing agency rights with a view to acquiring control over the management of established and reputed companies had come prominently to light. The net effect of these two practices, viz of acquiring control over ownership of companies and of acquiring control over managing agencies, was that large number of concerns passed into the hands of prominent industrial houses of the country (Kothari, 1967). As it became clear that India would be gaining independence, British managing agency houses gradually liquidated their holdings at fabulous prices offered by Indian Business community. Besides, the transfer of managing agencies, there were a large number of cases of transfer of interests in individual industrial units from British to Indian hands. Further at that time, it used to be the fashion to obtain control of insurance companies for the purpose of utilising their funds to acquire substantial holdings in other companies. The big industrialists also floated banks and investment companies for furtherance of the objective of acquiring control over established concerns. The post-war period is regarded as an era of M&As. Large number of M&As occurred in industries like jute, cotton textiles, sugar, insurance, banking, electricity and tea plantation. It has been found that, although there were a large number of M&As in the early post-independence period, the anti-big government policies and regulations of the 1960s and 1970s seriously deterred M&As. This does not, of course, mean that M&As were uncommon during the controlled regime. The deterrent was mostly to horizontal combinations which, result in concentration of economic power to the common detriment. However, there were many conglomerate combinations. In some cases, even the Government encouraged M&As; especially for sick units. Further, the formation of the Life Insurance Corporation and nationalization of the life insurance business in 1956 resulted in the takeover of 243 insurance companies. There was a similar development in the general insurance business. The national textiles corporation (NTC) took over a large number of sick textiles units (Kar 2004).

INDIAN PHARMA MARKET SECTORS

It is difficult to track and estimate the exact composition of India's domestic Pharma market; but industry experts believe that this market is largely dominated by branded generics. This segment contributes around 90% of total sales, and represents one of the key strengths of the market, encompassing the OTC segment as well. Only about 10% of the market constitutes commodity generics sold through institutional sales and innovator products.(5) The branded generics segment is expected to grow at a CAGR of 15% - 20% for the next decade.

In the global context, IMS Health, which began tracking and reporting on branded generics in 2002, defines the category as including "prescription products that are either novel dosage forms of off-patent products produced by a manufacturer that is not the originator of the molecule, or a molecule copy of an off-patent product with a trade name." This definition is used by both the United States of America's Food and Drug Administration (FDA) and the United Kingdom's National Health Service (NHS). It does not include authorized generics, which are drugs made by or under license from the innovator company and sold without a brand name.

In India, any non-patented molecule with a brand name other than the innovator's name is termed as a branded generic. Chemically, branded generics are identical, or bioequivalent to innovator drugs. It is the share of voice the brand commands by getting repeatedly prescribed by

the physicians, due to some degree of recall and preference over the other brands. In the global context, substitution – when an innovator product goes off-patent - is the key driver for generics. In India, it's about driving a difference using the core equity of a brand, over a competitor's product.

The last few years has seen aggressive new brand launches. However, not many of these have made it to the top 20 ranking, indicating that some of the older brands have created a strong equity, enabling them to maintain market share.

Older brands have been creating newer opportunities in the tier II to tier VI and rural markets, where demand is mainly for acute therapies. In addition, an increasing level of awareness is leading to a greater propensity to self-medicate, thus further increasing the uptake of these brands. Finally, many of the classic chronic brands are finding a wider prescription base from general physicians.

Brands have always been synonymous with quality. This often makes leading brands command a price remium over the next ranked brands in their categories. This premium can be negligible or as high as 300%.(5) For example, the number 1 ranked brand for the molecule Amoxicillin clavulanate, Augmentin, commands a premium as high as 260% over the next-in-line brand, Moxikind-CV, and 101% over the third ranked brand, Clavam A.K. But, in the case of the molecule Cefixime, the leading brand, Zifi, commands a price premium of just 2% over the second ranked, and 24% over the third-ranked brand.

Both multinational companies and domestic firms are taking steps towards maximising potential returns from branded generics. For example, Abbott acquired Piramal Healthcare for its strong sales force and branded generics portfolio (Refer pull out). Domestic firms are also looking to increase their share of the branded generics market, with some of the leading pharmaceutical companies adding to their sales forces by nearly 50% in 2010.

REVIEW OF LITERATURE

M&A are becoming an important strategy of corporate functioning. This phenomenon existed and was well studied since long in developed countries like the US and those of Europe. A significant amount of literature is dedicated for understanding the post-merger performance and consequences. But before finding the impact of M&A it is required to study the motives behind M&A and the factors which facilitate this corporate activity. M&A are driven by different and complex pattern of motives and no single approach can explain them completely.

The motives of M&A could depend upon shareholder's interest as well as on manager's interest and their deviation from shareholders' value maximization approach (Trautwein, 1990). The first motive behind M&A activity could be explained under efficiency theory which supports that M&A are undertaken in order to achieve synergies which includes financial synergies, operational synergies, and managerial synergies.5 Financial synergies are the one which lowers the cost of the capital for merged entities. They lower the systematic risk of a company's investment portfolio. Such synergies are generally achieved through unrelated M&A (Singh & Montgomery, 1987). M&A could lead to increase in the size of a firm giving it a better access to capital in comparison to small separate entities. Operational synergies develop by combining operation of two entities leading to economies of scale and scope. Economies of scale can be achieved by having a joint sales force or decrease in production cost or enable firm to offer unique products and services in the market by technology and knowledge transfers (Porter, 1987) but operational synergies are better achieved by the firm which functions in related market i.e. horizontal and vertical deals (Seth, 1990; Singh & Montgomery, 1987).

Another form of efficiency gains in M&A is managerial synergies which can be realized if acquirer's managers possess superior managerial capabilities to monitor and plan which improvise target's performance. But Jensen (1986) argued that managers undertake M&A activity to waste cash in order to avoid shareholders' value maximization. This allows them to increase their control on the firm in comparison to shareholders; therefore Jensen (1986) argues that all M&A do not occur with the motive of promoting efficiency. The empirical evidences in support of or against efficiency argument of M&A are provided by several studies.

Ravenscraft and Scherer (1987) emphasized that stock market values mergers as positive event but Seth (1990) analyzed that financial synergies do not create any value in related and unrelated M&A. She also supported the size effect in related acquisition as a source of value and synergy creation. Singh (1987) in his event study analysis distinguish whether related or unrelated acquisitions create value or synergies and confirmed that related acquisition of firms will provide higher returns and assessed that the market recognizes synergistic combinations and values them.

One more motive of M&A could be the strategy of a firm to achieve market power. Though largely, increase in market power is related to horizontal acquisitions but it could be achieved in conglomerate acquisitions as well. Firms can limit competition simultaneously in more than one market by tacit collusion with competitors or by reciprocal dealing

and combining business functions.

Literature also specifies the motives of M&A under the empire building theory. This motive specifies that managers try to maximize their utility instead of those of shareholder's. This theory has been widely explained by managerial theories of firm (Baumol, 1959; Marris 1964, Williamson, 1969). Black (1989) postulates that managers are highly optimistic about targets and they overpay for targets as their interest differ from that of stockholders. Ravenscraft and Scherer (1987) also supported the argument of manager's empire building as a motive for M&A. Roll (1986) also asserted the managerial over optimism in hubris hypothesis of M&A.

Above description helps to explain M&A motives which are justified by certain empirical evidences from time. After assessing in brief the motives of M&A this would be an interesting aspect to look for the factors that determine M&A activity in a particular industry or in the entire economy as a whole.

DYNAMICS AND STRUCTURE OF MERGER AND ACQUISITIONS IN THE PHARMACEUTICAL SECTOR

Mergers: Despite the data limitations2, we got 64 merger and 63 acquisitions occurred in this industry during the post liberalization period, which helped us to derive the following interesting observations regarding the nature and structure of this process. Ownershipwise classification of merger shows a clear domination of domestic firms over foreign firms. Out of the total 32 merging firms3, 20 belonged to the domestic sector and in the case of merged firms, it is 38 and 20 respectively. Even though the total number of mergers during the post liberalization period is 64, only 32 merging firms were involved in the process, which indicates that many merging firms engaged in multiple mergers. Further, domestic firms are merging with the domestic firms, which constitute 64 percent of the total number of mergers and many foreign subsidiaries merged with other foreign subsidiaries, which constitute 26 percent of the total number of mergers. Albeit, there are instances in which some foreign firms got merged with domestic firms such as, Roche Products with Nicholas Piramal India Ltd., Boehringer Mannheim India Ltd. with Nicholas Piramal India Ltd. American Remedies with Dr. Reddy's etc.

Most of the mergers in the pharmaceutical industry were horizontal8 type, which marked more than 85 percent (52 out of the 61 cases for which data available) of the total. Only few firms merged with firms having other type of business such as finance companies and chemical sector9 companies during this period. Mergers with these companies defined as conglomerate mergers. We have further classified the above horizontal merger cases into horizontal and vertical in order to find out the instances of vertical integration within the pharmaceutical industry as the sector consists of different therapeutic categories. We found that, seventeen mergers can be further classified as vertical mergers as some mergers are between bulk drugs and formulations producing firms with either formulation-producing firms or bulk drug producing firms is one instance. In this industry, very few cases are reported to have disputes in the settlement of the swap ratio10 in the initial stage of the mergers11 and the rest are friendly mergers. We again tried to find out the business relations and the tendency for getting into mergers and found that more than 70 percent of the cases are related12 in nature, which is a clear indication that firms are trying to consolidate themselves in order to overcome the new challenges of competition posed by the new market regime.

Acquisitions: Unlike in the case of mergers there is a high incidence of cross-border acquisitions, which makes around 28 per cent of the acquisitions. Relatively large number of acquisitions occurred among the foreign owned firms. Interestingly many of the foreign parent firms are trying to increase stake in their Indian subsidiaries, which was earlier constrained by various regulations. Our evidence suggest that some firms are doing this mainly to introduce new technology into their Indian counterparts sans the fear of "me-too production" by the domestic firms, which require them to have a higher controlling block. Further, a large portion of the acquisitions occurred between firms, which are already having some managerial tie-ups13.

For example, Solvay Healthcare acquired 44.52 per cent of equities in Solvay Pharmaceutical India, the promoters of Syncom Formulations India have acquired 5.22 per cent of equities, Abbott Laboratory, USA acquired 51 per cent of equity holdings in Abbott Laboratory India Ltd. etc. In many cases, firms have acquired a small portion of the assets and later on opted for merging with the same firms. Some of such cases are the mergers of Boehringer Mannheim with Nicholas Piramal India Ltd. (NPIL), Roche Products with NPIL, Sumitra Pharmaceuticals with NPIL, MJ Pharmaceuticals with Sun Pharmaceuticals, Vorin Laboratory with Ranbaxy Laboratory, Rhone Poulance with NPIL, Matrix Laboratory with Ranbaxy Laboratory etc.

METHODOLOGY

The above equation is estimated by applying panel data estimation techniques for a set of 52 listed drugs and pharmaceutical companies. Use of panel data not only helps in raising the sample size and hence the degrees of

freedom considerably, it also incorporates the dynamics of firms' behavior in the marketplace. This is very important in having a better understanding of complicated issue like the impact of MA on financial performance of firms. Necessary data on all the variables are collected from the PROWESS database of Centre for Monitoring Indian Economy (CMIE), Mumbai.

We estimate both the fixed effects model (FEM) and the random effects model (REM). While in the FEM the intercept is allowed to vary across the firms to incorporate special characteristics of the cross-sectional units, in REM it is assumed that the intercept of an individual is a random drawing from a large population with a constant mean value (Gujarati and Sangeetha, 2007). In other words, in REM the intercept of an individual unit is expressed as a deviation from the constant population mean. Therefore, the choice between the FEM and the REM is very important as it largely influences conclusion.

Two types of data were needed. Firstly, data on Indian M&As is needed for the post 1991 period for effectively carrying out trend analysis. Thus, the first task was to build a data base on M&A in India as there is no official data base available which gives a complete picture of M&As. Secondly, financial data was needed to examine the impact of M&As.

Data Collection: Before testing the sources, from which data bank on M&A was created, it is useful to understand the modus oprandi for M&As in India as this gave the hint about the sources from which data on M&A could be obtained1. On an average, it takes about a year from the board meeting approving the merger scheme to getting the approval of the high court.

CONCLUSION

The trend analysis has substantiated the fact that Indian companies have adopted M&As as a strategic choice for growth and expansion in general and particularly more prominently during the difficult period of 1996-97 and 1997-98. The analysis of M&As trends for the entire period gives two distinct phases of M&As for the different sectors of the Indian industry, that is the period from 1990-91 to 1995-96 and 1996-97 to 2000-01. During the first period, there have been 68 M&As where as in the second phase 1318 M&As have been found. That is why the second phase can safely be called as the first M&A wave in India. M&As have been found to be beneficial in the sense that Indian companies grew in size, and attain better market share which is substantiated by empirical analysis.

The present study analyzes M&A activity in pharmaceutical industry and its determinants in the context of a developing country, namely India. An extensive literature review suggests that in post liberalization period M&A has become a tool for corporate restructuring. The foremost motive of firms undertaking M&A activity is net addition to its physical and capital assets. M&A activity could be largely explained by factors that motivate firms to grow and expand and it is considered as faster and efficient way to expand firm's asset base and productive capacity. Further the study has examined the determinants of economic activity of strategic importance.

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