Effect of Mergers and Acquisitions on the Profitability of India Pharmaceutical Industry

Dr. Anirban Ghatak, Asst. Professor, Christ University Institute of Management, Bangalore
Email I.D: anirban.ghatak@christuniversity.in

Abstract

Pharmaceutical industry appears to be one of the most active sectors in the game of mergers and acquisition accounting for about 8.6 per cent of total mergers and 11.6 per cent of total acquisitions in the 1990s and majority of these mergers and acquisition were horizontal in nature. In the amendments made to the Indian Patent Act (1970) in 1999, 2002 and 2005 in particular, the present paper makes an attempt to examine the impact of mergers and acquisition on the financial performance of Indian pharmaceutical companies. The paper tries to answer how far the wave of mergers and acquisition in the post-reform era helped Indian firms in improving their financial performance. It is found from the study that that the profitability of firm depends directly on its size, selling efforts and exports and imports intensities but inversely on their market share and demand for the products. It is also found that mergers and acquisition do not have any significant impact on profitability of the firms in the long run possibly due to the resultant X-inefficiency and entry of new firms into the market.

Keywords: Patent Act, Mergers and Acquisition, X- Efficiency

Introduction:

Growth of the corporate sector is important in the deregulatory policy measures in general and competition policies in particular since 1991, have resulted, in a significant increase in the number of mergers and acquisitions in Indian corporate sector. Although mergers and acquisitions are different in their definitions and the statutory procedures, their effects from an economic perspective are the same as in both the cases the control of one company passes on to another. So, in the present paper, no distinction is made between the mergers and the acquisitions. While majority of these deals are horizontal in nature the number vary significantly across the industries.

The broad industry groups that experienced a large number of mergers and acquisition include, financial and other services, chemicals including drugs and pharmaceuticals electrical machinery, electronics and beverages including spirits and vinegars, etc. 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 mergers and acquisition to raise their market power whereas, according to the efficiency theory, mergers and acquisition are planned and executed to reduce costs by achieving scale economies (Porter, 1985;) These scale economies may arise at the plant level (Pratten, 1971) or as a result of operating several firms within one firm (Scherer et al., 1975). In either case, mergers and acquisitions bring together firms, which individually fall short of the minimum efficient scale. Either way firms are expected to have better financial performance following mergers and acquisition . Many of the existing studies empirically support the proposition that mergers and acquisition lead to better financial performance of the firms. Contrary to this, there are also studies that report results at odds with the view that mergers and acquisition 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 mergers and acquisitions.

The existing studies report mixed impact of mergers and acquisition on financial performance of the firms, with the findings ranging from slightly positive improvement to significantly negative or no
improvement. This raises an important question: has the wave of mergers and acquisition in the post-reform era helped Indian firms in improving their financial performance? While addressing this question is very important to understand the implications of the wave of mergers and acquisition, the research on financial performance following mergers and acquisition in India so far is very limited. Besides, although most of these existing studies (Pawaskar, 2001; Beena, 2004; Mantravadi and Reddy, 2008) find decline or very little increase in post-merger profitability, their empirical testing is based on either small sample of deals (Pawaskar, 2001) or shorter time-frame (Beena, 2004).

The wave of mergers and acquisition in Indian pharmaceutical industry did not help the firms much in raising their market share. Also the market remain highly competitive despite the wave of mergers and acquisition, infer that mergers and acquisition have very little impact on performance of Indian pharmaceutical industry, rather performance of industry is determined mainly by the extent of market concentration, import competition, marketing expenses and technology strategies by the firms. Finally, the Pharmaceutical Policy (2002) is expected to ensure availability of abundant good quality and essential drugs, strengthening indigenous capabilities and quality control system, creating a framework to encourage new investment and new technologies, increasing exports by reducing barriers to international trade, and encouraging R&D compatible with the country’s needs particularly in the context of the commitment regarding TRIPS Agreement.

Considering the above background the researcher wants to find the effect of mergers and acquisitions on the profitability of Indian Pharmaceutical Industry.

Reviews of Literature:

Sudarsanam (2004), in the paper titled “Discussion of Increasing Market Share as a Rationale for Corporate Acquisitions.”, discussed the increasing market share as a rationale for corporate acquisitions. The study empirically tests the hypothesis that increasing market share is a source of enhanced efficiency, profitability and hence value creation for acquiring firms. Increasing market share may also lead to greater concentration in the markets in which the merging firms sell their output and enhanced market power allows the merged firm to profit from this market-power. Sources of value creation in mergers may be broadly categorised into revenue enhancement while maintaining the existing cost base, cost efficiency while maintaining the existing revenue level, and generating new resources and capabilities sometime in the future, which lead to revenue growth or cost reduction. Increase in market share may be an incidental motivation for acquisition while the primary motivation may be growth in revenue. Whether market share increase leads to increased market power again depends on the type of merger, with such a positive relation less likely in a conglomerate merger than in a horizontal merger. In any empirical work the distinctions among these different merger types need careful articulation in the form of appropriate proxies and they need to be carefully modeled.

José Manuel and Ignacio (2006), in the paper titled “M&As performance in the European financial industry,” looked at the performance record of M&As that took place in the European Union financial industry in the period 1998-2002. First, the paper reports evidence on shareholder returns from mergers. Merger announcements brought positive excess returns to the shareholders of the target company around the date of the announcement, with a slight positive excess return in the 3-month period prior to announcement. Returns to shareholders of the acquiring firms were essentially zero around announcement. One year after the announcement, excess returns were not significantly different from zero for either targets or acquirers. The paper also provides evidence on changes in operating performance for the subsample of mergers involving banks. M&As usually involved targets with lower-than-average operating performance for their sector. The transactions resulted in significant improvements in the target banks’ performance, beginning on average two years after the transaction
was completed. Return on equity of the target companies increased by an average of 7%, and the same firms also experienced efficiency improvements.

**Pramod Mantravadi and Vidyadhar Reddy (2007)** in their research paper titled “Mergers and operating performance: Indian experience”, attempted to study the impact of mergers on the operating performance of acquiring corporate in different periods in India, after the announcement of industrial reforms, by examining some pre- and post-merger financial ratios, with chosen sample firms, and all mergers involving public limited and traded companies of nation between 1991 and 2003. The study results suggested that there are minor variations in terms of impact on operating performance following mergers in different intervals of time in India. It also indicated that for mergers between the same groups of companies in India, there has been deterioration in performance and returns on investment.

**Objectives of the study**

The present study has been undertaken with the following objectives:

- To understand the concept of fixed effects model (FEM) and the random effects model (REM).
- To study the effect of fixed effects model (FEM) and the random effects model (REM) on the M&A’s profitability.
- To analyze the impact of M&A on the profitability of the pharmaceutical companies in the Indian context.

**Variables of the study**

**Dependent variable**

The dependent variable in the study is Current Profitability (PROFt).

**Independent variable**

Independent variables used in the study are Current Size (FSZt), Current Market Size (MSZt), Current Market Share (SHAREt), Lagged Mergers and Acquisitions (MAT-1), Lagged Selling Intensity (SELLt-1), Lagged R&D Intensity (RDt-1), Lagged Foreign Technology Purchase Intensity (FTECHt-1), Current Export Intensity (EXPt), and Current Import Intensity (IMPt).

**Hypotheses**

FEM and REM do not differ significantly with each other.

**Sampling procedure**

Set of 52 listed drugs and pharmaceutical companies that merged over the period from 2005 to 2010 are taken as the sample for this study. 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 M&A on financial performance of firms. Necessary data on all the variables are collected from the PROWESS database.

**Data Analysis:**

Table 1 gives summary statistics of the variables used in the estimated model. Table 2 and Table 3 represent the regression results of the two estimated models by using PBIT and PAT respectively as the dependent variable. It is observed that the F-statistic in FEM and the Wald chi2 in REM are statistically significant. Further, the R2 value is reasonably high in FEM and it is very high in REM. This indicates that both the estimated models are statistically significant with high explanatory power. The test statistic as presented in Table 2 and Table 3 are not statistically significant. This means that the estimates of REM are appropriate as compared to that of FEM in the present context. We, therefore,
use the regression results of the REM for testing the statistical significance of the individual coefficients as well as for their interpretation.

White’s heteroscedasticity consistent standard errors are used to compute z statistics of the individual coefficients. This makes the regression results robust, as these standard errors control for heteroscedasticity. It is observed that the coefficients of FSZ, SHARE, MSZ, SELL, EXP and IMP are statistically significant.

Further, while the coefficients of SHARE and MSZ are negative that of FSZ, SELL, EXP and IMP are positive. This implies that the firms with larger demand for their products or larger share in the market have lower profitability. On the other hand, the firms that are larger in size or that make greater selling efforts or have higher exports and imports intensities experience higher profitability.

It is interesting to note that the coefficients of MA, RD and FTP are not statistically significant. This means that mergers and acquisitions in Indian pharmaceutical firms do not have any statistically significant impact on their financial performance. Similarly, in-house R&D efforts or purchase of foreign technology also do not influence firms’ financial performance in a significant way.

FE Model states that the mean is allowed to vary randomly whereas the RE Model states that the mean is not allowed to vary and states that it should be maintained constant. So, if the Descriptive output is observed then the variation and randomness of mean is clearly noticed stating that the FE model is accepted and RE Model is rejected.

Since the majority of the calculated values are beyond the critical values of chi square table, null hypothesis is rejected...i.e, FEM and REM do not differ significantly with each other.

**Findings of the Study**

Thus the empirical results presented above from the fixed effects model suggest that profitability of a firm depends inversely on its market share. Firms with larger market share experience lower profitability in the long run. This may contradict to the general perception that larger market share results in higher profitability, but is not surprising. A firm may experience lower profitability despite having greater market share due to the entry of new firms into the industry and X-inefficiency of the incumbents.

The firms with larger share in the market may enjoy higher profitability in the short run, which may encourage new firms to enter into the industry. In the long run, absence of legal entry barriers and failure of the incumbents to create strategic entry barriers make entry of new firms possible and thereby reduce profitability of the incumbents. Similarly, when firms raise market demand for their products by reducing the prices, they may not necessarily experience greater profitability. In other words, a firm with greater demand for products in the market may experience lower profitability.

The larger firms are found to record higher profitability possibly due to scale economies and other efficiencies associated with large-firm size. This is quite consistent with Hall and Weiss (1967), Scherer (1973) and Majumdar (1997). Thus, in a competitive market like Indian pharmaceutical industry with availability of large number of alternatives and controlling of prices of many of the drugs, efficiency gains from larger size is very important for a firm to raise its profitability. The firms with greater selling efforts experience larger profitability through information dissemination, product differentiation, and easy movement of the products and better reach to the consumers.

This is consistent with Robinson (1933), Kaldor (1950), Bain (1956) and Comanor and Wilson (1974), though contradicts with Greuner et al. (2000) and Delorme et al. (2002). Similarly, firms with greater
intensity towards exports and imports of final products are found to record higher profitability. Such a positive association of profitability with exports and imports intensity is consistent with Majumdar (1997).

Technology strategies of the firms in the form of either in-house R&D or purchase of foreign technology do not influence their profitability in a significant way. This may largely be due to the low R&D as well as foreign technology purchase intensity of most of the pharmaceutical companies operating in India. Further, purchase of obsolete technologies and failure in innovating new products or processes also restrict the firms from raising their profitability. Interestingly, MA does not have any statistically significant influence on profitability of Indian pharmaceutical companies.

In other words, firms do not necessarily benefit from MA in terms of profitability in the long-run, which is largely in the line of observations made by Ikeda and Doi (1983), Cosh et al (1984), Kumar (1984), Geroski (1988) and Odagiri (1992) that either confirm negative results or find little changes in operating performance following MA. However, the observation of no statistically significant influence of MA on profitability contradicts with the findings of Healy et al. (1992), Grabowski et al. (1995), Switzer (1996), Smart and Waldfogel (1994) and Vander (1996) that MA improve corporate performance.

The contradiction may largely be due to multi-directional structure-conduct-performance-policy relationships used in the present paper. As pointed out by Scheerer and Ross (1990), MA as business strategies influence firms’ financial performance either by enhancing operational efficiency or raising market power. But, strategic reactions of other firms or policy intervention of the government may limit the benefits through MA. Further, many of the firms use the route of MA to consolidate their business/operation or to increase scale of operation for enhancing their competitiveness in the market. When it is so, MA may not necessarily have significant influence on firms’ profitability.

Conclusion:

In the context of introduction of large-scale deregulatory policy measures in the 1990s in general and three important amendments made to the Indian Patent Act (1970) in 1999, 2002 and 2005 in particular, the present paper makes an attempt to examine the impact of MA on financial performance of Indian pharmaceutical companies. It is found that the profitability of a firm depends directly on its size, selling efforts and exports and imports intensities but inversely on their market share and demand for the products. In other words, firms larger in size or having greater selling efforts or higher presence in the international market or larger proportion of imported goods in the selling basket experience greater profitability. On the other hand, the firms with greater demand for products or larger dominance in the domestic market record lower profitability in the long-run.

However, MA do not have any significant impact on profitability of the firms in the long run possibly due to the resultant X-inefficiency and entry of new firms into the market. In addition, in-house R&D and foreign technology purchase also do not have any significant impact on profitability of the firms. Thus, Indian pharmaceutical firms fail to reap the benefits of MA in terms of profitability. In other words MA in Indian pharmaceutical industry are not necessarily counterproductive and detrimental to the interests of the consumers. Rather, MA may benefit the firms in enhancing their competitiveness and thereby facing acute competition from the MNCs. This in turn ensures consumer welfare performance following mergers in different industries in India. In particular, while mergers seem to have had a slightly positive impact on profitability of firms in the banking and finance industry, the pharmaceuticals, textiles and electrical equipment sectors saw a marginal negative impact on profitability and returns on investment. For the chemicals and agri-products sectors, mergers had caused a significant decline, both in terms of profitability and returns on investment and assets. Improvement in efficiency and competitiveness is reflected in large number of acquisition of foreign firms abroad by Indian pharmaceutical companies. The findings of the present paper, therefore, raise an important
question, is there any necessity to regulate MA in Indian pharmaceutical industry? In other words, should there be uniform thresholds of assets and turnover in regulating MA across industries, especially when the combinations are not detrimental rather beneficial to consumers’ interests? More importantly, should there be any flexibility in the competition law for objective-specific assessment of MA? Addressing these questions in future research is very important, particularly for Indian pharmaceutical industry, as the new product patent regime may encourage innovation and restrict competition in the marketplace. Finally, in-house R&D fails to provide any distinct advantage to the firms in terms of their profitability. This may largely be because of their low R&D intensity vis-à-vis the pharmaceutical companies of the industrially developed countries operating in India. Therefore, the very basic question is, can introduction of product patent law be enough to encourage the firms towards in-house R&D? If not, what should be the policy measures to encourage in-house R&D in a greater way in Indian pharmaceutical industry? This is very important, as there are serious doubts on the positive impact of patents on R&D and alternatives are being talked about. A comprehensive pharmaceutical policy should address these issues adequately and, therefore, requires further research in this line.

References:
14. (Bocconi University and University of Bergano).


59. Robinson, J. (1933) The Economics of Imperfect Competition (London: Macmillan)