JOURNAL OF
GENERAL MANAGEMENT RESEARCH

Synergistic Gains from Mergers and Acquisitions

Logistic Panel Approach

Dr Anjala Kalsie[1] and
Dr Shikha Mittal Shrivastav[2]

[1] Assistant Professor, Faculty of Management Studies, University of Delhi, Delhi

[2] Assistant Professor, IILM Graduate School of Management, Greater Noida, Uttar Pradesh

E-mail: kalsieanjala@gmail.com;
shikhamit20@gmail.com

ISSN 2348-2869 Print

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Journal of General Management Research, Vol. 6, Issue 1, January 2019, pp. 32–40

Abstract

The objective of the paper is to study the operating and profitability performance achieved as synergy gains after merger and acquisitions (M&As). To examine the synergy gains in pre and post merger, this paper uses a sample of 15 Domestic Inbound M&A deals carried out between 2008 and 2016. For measuring Operating Performance four 'Management Efficiency Ratios were used, viz., the Fixed Asset Turnover Ratio, Inventory Turnover Ratio, Debtors Turnover Ratio and Interest Cover Ratio'. For measuring Profitability, seven profitability ratios were used namely 'Profit Before Interest Depreciation and Tax Margin (%), Profit Before Interest and Tax Margin (%), Profit Before Depreciation and Tax Margin (%), Cash Profit Margin (%), After Tax Profit Margin (%), Return on Capital Employed (%) and Return on Net Worth (%)' were considered. The data for the same is collected from Venture Intelligence and Capital Line (C-MOTS Infotech). The said objective is achieved via Logit Panel Data. The results of Panel Logit Model indicate that Operating Performance Ratios – 'Fixed Asset turnover ratio and Debtors turnover ratio' are statistically significant with the merger and acquisition activity. Profitability Ratios –

'PBIDTM (%), PBITM (%), PBDTM (%), CPM (%), RONW (%) and APATM ratios' are statistically significant with the merger and acquisition activity.

Keywords: *Operating Synergies, Profitability Synergies, Logit Panel, Inbound M&A*

INTRODUCTION

India is on a growth path, companies are extensively using Merger and Acquisitions as a growth tool. Post Liberalization and impact of globalization, firms in India have become fairly active in M&A space. Largely, M&A has been a massive triumph, which has led to incremental enhancement in company's performance.

As a growth tool, both global and domestic firms are highly occupied in the M&A activity. Important factors leading and influencing M&A are go to Market for foreign entity, performance augmentation, knowledge proficiency, investor value etc. Macro factors also play an important role in affecting M&A decisions like economic, polity, social conditions. Firm performance metric like past financial accomplishment, market cap, market share etc. also play an important role. Though in 1980, firms were carrying out M&A, they have significantly transformed and defined the M&A landscape. In order to overcome and achieve the global competitiveness and explore foreign markets, firms are opting for corporate restructuring strategies like mergers and acquisitions, joint ventures, leveraged buyouts, and other strategic alliances.

M&A are important strategy used by companies to meet the incremental demands of various stakeholders (Krishnamurti and Vishwanath, 2010). M&A experts believe that the gains are attributable to synergy reimbursement, better control, augmentation in managerial performance, superior control over debt, and abolition of cross subsidies. Factors promoting M&A are Targeted Government Policies, Healthy Domestic M&A market, Technology driven Start ups, and Large FDI. Besides, large debt-ridden companies' also promote opportunity for investors to undertake M&A activity. India recorded 553 deals worth $17.5 billion in 2016. M&A activity is likely to continue to meet pace with the continued efforts of the government in abolishing authoritarian obstacles and simplifying laws in order to attract foreign investment.

The M&A activities in India in the year 2017 appeared a little slow, however there were 66 deals of private equity buyouts worth a total of USD 7.4 which was the market record till September 2017. In terms of domestic listing, sectors like pharmaceuticals and healthcare, financial sectors, industrial sectors are the busiest among all other sectors.

LITERATURE REVIEW

Kumar (2009) examined the operating performance (ROCE) of acquiring firms in India after their involvement in merger activities during the period 1999-2002. With the view of identifying the synergies, pre and post merger analysis of 30 private sector firms was performed. It was found that there is no improvement in the post merger profitability as compared to pre merger profitability. The results concluded that the objective of merger decisions is not profit maximisation and wealth maximization but the merger decisions are based on the motive of the firms owing to empire building, bigger size and market consolidation.

Levine and Aaronovitch (1981) found that there is no difference between the earning related variables and their augmentation between the target firms and the acquiring firms. The profitability was higher in the post-merger period on parameters such as profits, growth, and research and development (Ikeda and Doi 1983). Scherer (1988) could not found any significant development in the long term profitability of most of the firms after M & As. Merged firms registered enhancement in the post-merger operating performance in contrast to that of their industry peers, these increases from improvements in asset productivity (Healy et al. 1992).

Meador et al. (1996) found that the long-term debt/total assets, asset growth, sales growth, market value/book value and long-term debt/market value in the cases of Horizontal Acquisitions are significant in the post merger period. The performance of the acquiring firms three years after the M & As was significantly negative as compared to the tender offers which earned a small but statistically positive return in India during the period 1991-2003 (Rau and Vermaelen 1998). Pawaskar (2001) found that the target firms performed better than the acquiring firms in terms of tax, liquidity of the industry, growth and the overall profitability.

The profitability of the European companies improved after the completion of takeover transactions of 155 European M&As accomplished during 1997–2001. On the other hand, Martynova et al (2006) found that the profitability of the combined firm decreased significantly post takeover. Mantravadi and Reddy (2007) found that the Financial ratios of acquiring firms varied based on the relative size of the firm which was measured using market value of equity, in the pre and post merger periods.

The financial synergy in merger between UltraTech Cement and Samruddhi Cement deal were estimated to be INR 4315 crores whereas the realized synergy was found to be INR -1063 crores, thereby realizing negative synergies (Kalsie and Nagpal, 2017a). Enhanced firms' age, large size, high intensity in R&D and in advertising increases the probability of being acquired. As against this, increase in productivity and leverage lowers the probability of being acquired (Irfan et al., 2016)

Moreira and Janda (2017) build up a valuation model for prediction of the value of synergy in M&A deals. They proposed a substitute to the most used earning per share metric to augment the certainty and precision of valuation worldwide.

The financial performance of the Merger of Abbott India – Piramal Health Care deal was analyzed through Relative PE's, EPS accretion/dilution and Ownership Dilution. After considering the premium on the market price that Piramal Healthcare has demanded it turns out to be an expensive deal (Kalsie and Shrivastav, 2017).

Mooney and Shim (2015) examined the financial synergies using two sources viz. coinsurance effects and asset liquidity in the conglomerate mergers. The sample included the mergers announced and completed between the public acquirers and public targets during the period 1978-2007. The results concluded that cash flow volatility of the acquiring firms reduces after the merger activity which in turn enhances the shareholder's value. Also, the study found that the source of financial synergies in the acquiring firm is higher asset liquidity and the constant coinsurance effect.

Wang and Xie (2008) conducted a study based

on the sample of 396 completed domestic acquisitions by US firms from 1990-2004. The study results revealed that the improvement in the corporate governance by changes in control, addressing the agency problem and eliminating managerial inefficiencies is one of the possible sources of synergistic gains from M&As. The results also concluded that higher total gains can be generated if the firm with poor corporate governance is acquired by the firm with good corporate governance.

OBJECTIVE AND METHODOLOGY

The objective of the paper is to study what synergy gains are experienced in the operating performance and profitability performance after merger and acquisitions (M&As).

Table 1: M&A Deals Carried Out between 2008 and 2016 in India

S. No.	*Acquiring*	*Target*	*Date*
1	Reliance Infra	PipavavDefence	2015
2	Reliance Industries	Network 18 Media And Investments	2014
3	Asian Paints	EssEss Bathroom	2014
4	Sun Pharma	Ranbaxy	2014
5	TCS	CMC	2014
6	Thomas Cook	Sterling Resorts	2014
7	Adani Power	Korba Power	2014
8	JSW Energy	Himachal Baspa Power Company	2013
9	JSW Steel	Ispat Industries	2012
10	Mindtree	Aztecsoft	2012
11	RB	Paras Pharma	2011
12	GTL	Aircel Tower	2010
13	Abbot India	Solvay Pharma	2010
14	Ultratech	Samruddhi Cement	2010
15	Sail	Maharashtra Elektrosmelt	2010

To examine the synergy gains in pre and post merger, the paper uses a sample of 15 Domestic Inbound M&A deals carried out between 2008 and 2016 (Table 1).

To achieve the above mentioned objectives the following hypotheses are developed:

H_{01} There is no significant impact of M&A on operating performance as witnessed in management efficiency ratios.

H_{02} There is no significant impact of M&A on profitability witnessed in profitability ratios.

For measuring Operating Performance four Management Efficiency Ratios were used viz. the 'Fixed Asset Turnover Ratio, Inventory Turnover Ratio, Debtors Turnover Ratio and Interest Cover Ratio. For measuring Profitability, seven profitability ratios were used namely Profit Before Interest Depreciation and Tax Margin (%), Profit Before Interest and Tax Margin (%), Profit Before Depreciation and Tax Margin (%), Cash Profit Margin (%), After Tax Profit Margin (%), Return on Capital Employed (%) and Return on Net Worth (%)' were considered.

The data is collected from Venture Intelligence and Capital Line (C-MOTS Infotech).The sample consists of the announcements of 'mergers and acquisitions' by the Indian companies listed on the Bombay Stock Exchange and National Stock Exchange. The study period covers mergers and acquisitions during the period 2008-2016.

Variable Definition

Management Efficiency Ratios (Measuring Operating Performance)

1. '**Fixed Asset Turnover Ratio:** Fixed-asset turnover is the ratio of sales (on the profit

and loss account) to the value of fixed assets (on the balance sheet). It indicates how well the business is using its fixed assets to generate sales. A declining ratio may indicate that the business is over-invested in plant, equipment, or other fixed assets.

2. **Inventory Turnover Ratio:** Inventory turnover is a ratio showing how many times a company's inventory is sold and replaced over a period of time. The days in the period can then be divided by the inventory turnover formula to calculate the days it takes to sell the inventory on hand. It is calculated as sales divided by average inventory.
3. **Debtors Turnover Ratio:** The receivables turnover ratio is an activity ratio measuring how efficiently a firm uses its assets. Receivables turnover ratio can be calculated by dividing the net value of credit sales during a given period by the average accounts receivable during the same period
4. **Interest Cover Ratio:** The interest coverage ratio is used to determine how easily a company can pay their interest expenses on outstanding debt. The ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) by the company's interest expenses for the same period.'

Profitability Ratios (Measuring Profitability)

1. **Profit before Interest Depreciation and Tax Margin PBIDTM (%):** It is the measure of Company's "Profit before interest, taxes, depreciation and amortization as a percentage of its total revenue/sales.
2. **Profit before Interest and Tax Margin PBITM (%):** Profit before interest and taxes margin is a measure of a firm's profit that includes all incomes and expenses (operating and non-operating) except interest expenses and income tax expenses as a percentage of its total revenue/sales.
3. **Profit before Depreciation and Tax Margin PBDTM (%):** Profit before depreciation and taxes margin is a measure of a firm's profit that includes all incomes and expenses (operating and non-operating) except depreciation expenses and income tax expenses as a percentage of its total revenue/sales.
4. **Cash Profit Margin CPM (%):** Cash flow margin is a cash flow ratio which measures cash from operating activities as a percentage of sales revenue in a given period. It is a trusted metric of a company's profitability and efficiency, and its earnings quality.
5. **After Tax Profit Margin APATM (%):** After tax profit margin is a financial performance ratio calculated by dividing net income by net sales. A company's after-tax profit margin is significant because it shows how well a company controls its costs
6. **Return on Capital Employed ROCE (%):** Return on capital employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed. ROCE is calculated as Earnings before Interest and Tax (EBIT) as a percentage of Average Capital Employed.
7. **Return on Net worth RONW (%):** RONW is a measure of Net Profit of the firm as a percentage of its Net worth. This ratio gives you an idea of the returns generated by investing in the company.

Management Efficiency ratios and Profitability

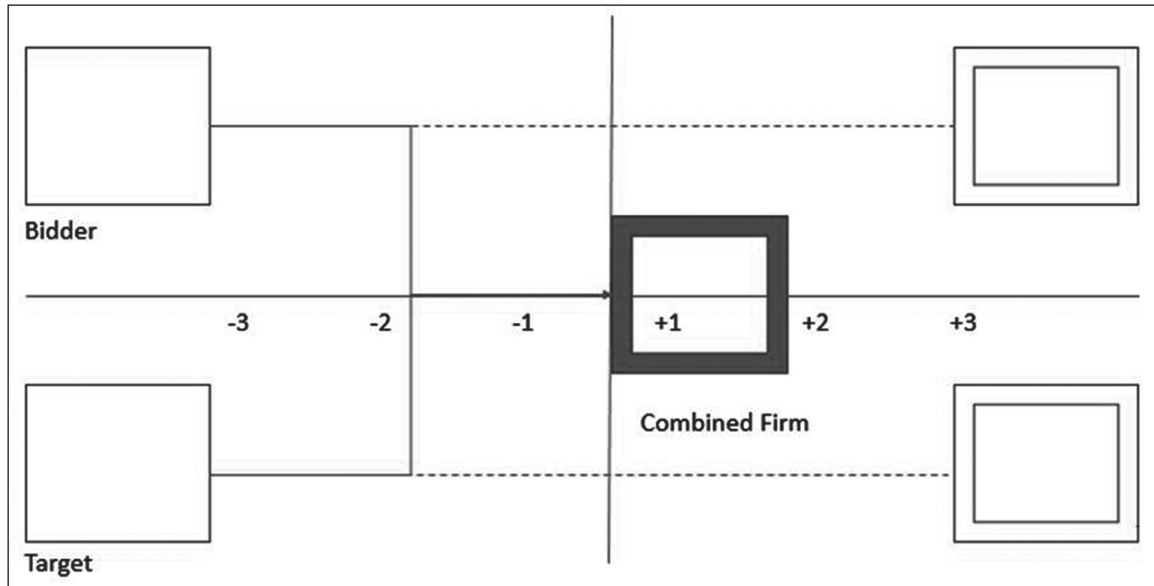

Figure 1: The Takeover Process over the Study Period

ratios like asset/inventory/receivable/interest turnover ratios for 15 selected companies are taken for 3 years in the Pre-Merger period and similarly for 3 years in the Post-Merger period. Here, we have a binary case of either pre or post-merger, which shall be our output variable (dependent variable) and we will try to study the influence of it by these ratios in the pre and post-merger period using 'logitic Regression'. (Table 2)

Table 2: Variable Symbol

Name of the Variable	*Symbol*
Fixed Assets Turnover Ratio	v1
Inventory Turnover Ratio	v2
Debtors Turnover Ratio	v3
Interest Cover Ratio	v4
PBIDTM (%)	v5
PBITM (%)	v6
PBDTM (%)	v7
CPM (%)	v8
APATM (%)	v9
ROCE (%)	v10
RONW (%)	v11
Dummy Variables for Acquiring Firms	D1-D14

'Regression Model: Logistic'

The methodology adopted to measure the above mentioned synergies gain for the 15 selected companies is logistic panel data. The Panel data consist of both cross sectional data point (like Company, Year, State, i.e. Pre or Post Merger) and time series data point comprising Management efficiency ratios and Profitability ratios.

Logistic regression measures the affiliation between the 'categorical dependent variable' and one or more independent variables by 'estimating probabilities' using a 'logistic function'. It uses a 'black box function' to understand the relation between the 'categorical dependent variable' and the 'independent variables'.

$$\sigma(z)_j = \frac{e^{zj}}{\sum_{k=1}^{k} e^{zk}} \quad \text{for } j = 1, 2, \ldots, \text{k} \qquad \ldots(1)$$

Logistic provides a substitute and preferred way to fit 'maximum-likelihood logit models', the other choice being logit.

ANALYSIS AND INTERPRETATION

The objective of the present paper is to study the synergy gains experienced especially in the Operating performance and profitability measure after merger and acquisitions (M&As) of 15 selected acquiring firms in India.

Based on the result of logit regression, it was found that impact of M&A (Mergers and Acquisitions) is significant on Fixed Asset Turnover Ratio, Debtors Turnover Ratio, PBIDTM (%), PBITM (%), PBDTM (%), CPM (%), APATM (%) and RONW (%).

Thus the results implied that Operating

Table 3: 'Logistic Regression'

Logistic regression				Number of obs		90
				LR χ^2 (25)		98.9
				Prob > χ^2		0
Log likelihood = –12.933883				Pseudo R^2		0.7927
State (Pre or Post Merger)	*Coef.*	*Std. Err.*	*z*	*P > z*	*[95% Conf.*	*Interval]*
v1	10.5295**	5.218168	2.02	0.044	0.302083	20.75692
v2	–0.01357	0.018668	–0.73	0.467	–0.05015	0.023023
v3	0.249314*	0.144948	1.72	0.085	–0.03478	0.533406
v4	0.000836	0.000717	1.17	0.243	–0.00057	0.002241
v5	623.9438**	291.9791	2.14	0.033	51.67531	1196.212
v6	–619.209**	290.5024	–2.13	0.033	–1188.58	–49.8343
v7	–2.95573**	1.249089	–2.37	0.018	–5.4039	–0.50756
v8	–624.125**	291.786	–2.14	0.032	–1196.02	–52.2352
v9	622.7903**	291.4447	2.14	0.033	51.56918	1194.011
v10	1.071344	0.778599	1.38	0.169	–0.45468	2.597369
v11	–2.86298**	1.43553	–1.99	0.046	–5.67656	–0.04939
D1	94.91033	60.15046	1.58	0.115	–22.9824	212.8031
D2	32.94498	31.57208	1.04	0.297	–28.9352	94.82512
D3	–23.6974	32.0076	–0.74	0.459	–86.4311	39.03639
D4	54.70144	36.61878	1.49	0.135	–17.07	126.4729
D5	297.3094	3044.438	0.1	0.922	–5669.68	6264.298
D6	56.61369	38.09232	1.49	0.137	–18.0459	131.2733
D7	48.22408	35.84015	1.35	0.178	–22.0213	118.4695
D8	47.14385	34.56522	1.36	0.173	–20.6027	114.8904
D9	161.7672	164.0243	0.99	0.324	–159.715	483.2488
D10	19.19822	33.81953	0.57	0.57	–47.0869	85.48328
D11	–8.51683	35.39556	–0.24	0.81	–77.8909	60.85719
D12	65.39402*	39.16276	1.67	0.095	–11.3636	142.1516
D13	82.12116*	45.88749	1.79	0.074	–7.81668	172.059
D14	66.66453*	39.6685	1.68	0.093	–11.0843	144.4134
_cons	–64.8908	40.3644	–1.61	0.108	–144.004	14.222

*** p<0.01, ** p<0.05, * p<0.1

Performance Ratios- Fixed Asset turnover ratio and Debtors turnover ratio are statistically significant with the merger and acquisition activity. There by indicating that operating performance of the acquiring firms have improved on account of these two parameters for the 15 deals under consideration. Other operating performance measures are found to have insignificant impact. However, the Profitability Ratios – PBIDTM (%), PBITM (%), PBDTM (%), CPM (%), and RONW (%) ratios are statistically negatively significant with the merger and acquisition activity. Indicating there by that profitability has declined on account of above mentioned parameters for the 15 deals under considerations. On the other hand, the impact of Mergers and Acquisitions on After tax Profit Margin APATM (%) is positively and significant. The impact on ROCE is insignificant. These ratios are statistically significant in the pre and post-merger period.

CONCLUSION

The paper finds that there is significant positive impact on Operating Performance measures – Fixed Assets Turnover and Profitability ratio APATM (%) of the acquiring manufacturing firms in India after M&As over the study period. The study is limited to assessing the short-run performance only. Future studies could use larger samples and focus on the long-run performance of acquiring companies. The possible limitations in the study are the firms in the sample, may not be of similar characteristics – industry, size, etc. Also, impact of M&A gains for large sized firms would be very different for the gains for mid-sized firm. The other limitation may be the sample size and the period of study i.e. 2008-2016. This period has seen a bubble burst. This may also affect the analysis in the study.

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